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Table of Contents

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Abstract

A checklist of the approximately 4300 species of Copepoda Harpacticoida is presented. It is prepared according to the opinions of the latest revisers and adopts the phylogenetic system of Seifried (2003). The opportunity is taken to formally propose replacement names for preoccupied taxa (p. 14). Comments are provided on other taxonomic issues. A dichotomous key to families is followed by tabular keys to species within each family.

Key words: Copepoda, Harpacticoida, checklist, identification keys

PART 1
CHECKLIST OF SPECIES OF COPEPODA HARPACTICOIDA

Introduction

After sixty years of almost undisputed authority the systematics of Harpacticoida as enunciated by Lang (1944, 1948) is in the process of an overhaul. Since Lang's time, the number of species has increased about five-fold and several new families have been erected, but the greatest stimulus for a revision of his system has been the rise of phylogenetic systematics as analytical tool. Beginning in the 1990's a number of seminal papers have fundamentally reworked parts of Lang's system, resulting in modifications at family, superfamily and infraordinal levels (Huys 1990b; Martínez Arbizu & Moura 1994, 1998; Huys & Lee 1999, 2000; Willen 2000; Seifried 2003; Seifried & Schminke 2003; Moura & Martínez Arbizu 2003; Dahms 2004).

The most dramatic change is that signalled by Dahms (2004) who removed the suborder Polyarthra from Harpacticoida to a position as "an underived taxon at the base of the Copepoda, close to the stem line of the podoplean Cyclopoida". He substantiates this radical proposal with seemingly incontrovertible evidence from nauplius larvae. While I acknowledge the likely veracity of this hypothesis I have elected to continue to use the concept of Harpacticoida *sensu lato* (and thus to include the families Longipediidae and Canuellidae) in this work as a mark of practical convenience for those who will use it for identification of field samples of benthic and phytal copepods.

The review process is not yet complete but this body of research—particularly that of Willen (2000) and Seifried (2003)—has produced outline diagnoses of several higher taxa that are plausibly monophyletic, if not yet proven so. Thus the major part of the review of Lang's system may have been done and the future pattern of harpacticoid systematics firmly outlined.

Seifried (2003: 9–10) presents an hierarchical classification of the Harpacticoida based on a phylogenetic analysis. Unfortunately, her system is incomplete. Two main issues remain outstanding.

1. Seifried concludes that there is a high probability of there being seven new taxa of a higher rank than family but refrains from naming them as their monophyly has not yet been unequivocally established. She simply calls them *nomen nominanda.*

2. She does not attempt to integrate her *nomen nominanda* into the traditional formal hierarchy of zoological classification. In particular, she does not indicate which level might be considered as a superfamily, and thus be subject to the provisions of the International Code of Zoological Nomenclature (ICZN).

If Seifreid's (2003) system proves to be a robust phylogeny the classificatory hierarchy in Harpacticoida will have to reflect the sister taxon concept of phylogenetic systematics. For example, Seifried's analysis shows that the *Family* Ectinosomatidae is the sister taxon of the *Infraorder* Exanechentera, which includes within it a number of superfamilies.

Format of the Checklist

This Checklist is laid out according to Seifried's (2003) hierarchy, with minor modifications that take account of some of the alternative proposals put forward by Boxshall & Halsey (2004).

The Checklist is not a complete bibliography of the Order Harpacticoida in that information on synonymies, revisions of taxa, etc., is provided only where it is not available in Lang's (1948) monograph, Bodin's (1997) catalogue of new marine species or Dussart & Defaye's (1990) catalogue of freshwater species.

However, as its primary purpose is to assist users of the keys, and because I stress many times in the keys that identifications must be confirmed by reference to descriptions in the literature, the source of the original description of all taxa not included by Lang (1948) is cited in the references. For the further convenience of users I have also included in the 'Notes to the Checklist' a reference to (a) the first description of the male or female where this is not included in the original description of the species and (b) important redescriptions of taxa. Additional useful information of this kind is given by Bodin (1997) and Dussart & Defaye (1990).

The Checklist is not a taxonomically critical document. With certain exceptions that are detailed in the Checklist Notes, the taxa are listed in the form provided by the last reviser; only where there is room for serious doubt are their recommendations not followed.

According to the above criteria the order at this time (October 2006) contains about 4,300 species in 589 genera and 56 families.

Taxonomic changes

Compiling the Checklist revealed a number of instances where taxonomic action was required, principally the formal proposal of replacement names for preoccupied taxa. These revisions are indicated in the Checklist and are formally proposed in the relevant Checklist Notes.

Index to families and subfamilies

Index to genera and subgenera

For subgenera, the genus name follows subgenus in square brackets.

Checklist of species

The following nomenclatorial changes are proposed in this Checklist.

1. Protolatiremidae fam. nov., whose diagnosis is identical with that of its sole species, *Protolatiremus sakaguchii* Itô, 1974.

2. New names for preoccupied taxa.
   Family Harpacticidae
   Harpacticus pallaresae nom. nov. for *Harpacticus depressus* Pallares, 1973.

   Family Canthocamptidae
   Pilocamptus nom. nov. for *Echinocamptus* Chappuis, 1928.
   Attheyella (*Chappuisiella*) *lewisae* nom. nov. for *Attheyella* (*Chappuisiella*) *fluviatilis* Lewis, 1972.
   Bryocamptus (*Limocamptus*) *lacustris* nom. nov. for *Echinocamptus* (*Limocamptus*) *baikalensis* Borutzky, 1930.
   Elaphoidella damianae nom. nov. for *Elaphoidella dubia* Damian, 1959.
   Elaphoidella slovenica nom. nov. for *Elaphoidella kieferi* Petkovski & Brancelj, 1985.
   Elaphoidella apostoli nom. nov. for *Stygoelaphoidella subterranea* Apostolov, 1991.
   Elaphoidella elegantula nom. nov. for *Stygoelaphoidella elegans* Apostolov, 1991.
   Elaphoidella parapostolovi nom. nov. for *Neoelaphoidella intermedia* Apostolov, 1999.

Order Harpacticoida Sars, 1903
Suborder Polyarthra Lang, 1944[1]

Family Longipediidae Boeck, 1865[1a]

Longipedia Claus, 1863
coronata Claus, 1863
minor T. & A. Scott, 1893
scotti Sars, 1903
weberi A. Scott, 1909[2]
brevispinosa Gurney, 1927[3]
helgolandica Klie, 1949
santacruzensis Mielke, 1979[4]
kikuchii Itô, 1980a
nichollsi Wells, 1980
andamanica Wells, 1980
a. andamanica Wells, 1980
a. nipponica Itô, 1985
americana Wells, 1980
spinulosa Itô, 1981
corteziensis Gómez, 2001a

species incertae sedis
Longipedia pontica Kričagin, 1877
L. ferox Kričagin, 1877
L. mourei Jakobi, 1954a
L. pirgos Apostolov, 1972

species inquirenda
Longipedia sp. Fiers, 1984a

nomen dubium
Longipedia rosea Sars, 1903

Family Canuellidae Lang, 1944[5]

Sunaristes Hesse, 1867
paguri Hesse, 1867
inaequalis Humes & Ho, 1969a
tranteri Hamond, 1973a
japonicus Ho, 1986

Canuella T. & A. Scott, 1893
perplexa T. & A. Scott, 1893
furcigera Sars, 1903
pontica Apostolov, 1971a

species incertae sedis
Canuella indica Krishnaswamy, 1957a

species inquirenda
Canuella sp. Huys *et al*., 1996

Brianola Monard, 1926
stebleri (Monard, 1926)[6]
exigua Por, 1967
curvirostris Bŏzić,1968a
sydneyensis Hamond, 1973
elegans Hamond, 1973
vangoethemi Fiers, 1982
hamondi Wells & Rao, 1987

species inquirenda
Brianola sp. Huys *et al*., 1996

nomen nudum
Brianola minima Por, 1969

Canuellina Gurney, 1927
insignis Gurney, 1927[7]
femur Por, 1967
onchophora Por, 1967
canalis Por, 1969a
tuba Por, 1983a

species incertae sedis
Canuellina nicobaris Wells & Rao, 1987[8]

Canuellopsis Lang, 1936
typica Lang, 1936
swedmarki Por, 1964b
mediterranea Soyer, 1966

Ellucana Sewell, 1940
longicauda (Sewell, 1940)[9]
secunda Coull, 1971

nomen nudum
Ellucana steinitzi Por & Marcus, 1972

Ifanella Vervoort, 1964
chacei Vervoort, 1964

Scottolana Por, 1967[10]
bulbosa (Por, 1964a)
longipes (Thompson & A. Scott, 1903)[11]
inopinata (Thompson & A. Scott, 1903)
scotti (Sewell, 1940)
brevifurca (Wells, 1967)
bulbifera (Chislenko, 1971)[10]
glabra Fiers, 1982
dissimilis Fiers, 1982
uxoris Por, 1983a

antillensis Fiers, 1984a
oleosa Wells & Rao, 1987
tumidiseta Wells & Rao, 1987
rostrata Wells & Rao, 1987
geei Mu & Huys, 2004

Intercanuella Becker & Schriever, 1979
lima Becker & Schriever, 1979

Galapacanuella Mielke, 1979
beckeri Mielke, 1979

Parasunaristes Fiers, 1982
cucullaris Fiers, 1982
chelicerata (Por & Marcus, 1972)

Elanella Por, 1984
elanitica (Por, 1967)
paenelanitica (Fiers, 1982)

Coullana Por, 1984
canadensis (Willey, 1923)[12]
pori (Hamond, 1973)[13]

Nathaniella Por, 1984
reichi (Por, 1964a)

Microcanuella Mielke, 1994a
bisetosa Mielke, 1994a

Echinosunaristes Huys, 1995a
bathyalis Huys, 1995

Intersunaristes Huys, 1995a
curticaudata (Thompson & A. Scott, 1903)
dardani (Humes & Ho, 1969a)

Suborder Oligoarthra Lang, 1944[1, 14]

Superfamily Aegisthoidea Giesbrecht, 1892[14]
Family Aegisthidae Giesbrecht, 1892
(syn. Cerviniidae Sars, 1903)[14]
Subfamily Aegisthinae Giesbrecht, 1892
Aegisthus Giesbrecht, 1891
mucronatus Giesbrecht, 1891[15]
aculeatus Giesbrecht, 1891[16]

Andromastax Conroy-Dalton & Huys, 1999
muricatus Conroy-Dalton & Huys, 1999
cephaloceratus Lee & Huys, 2000

Nudivorax Lee & Huys, 2000
todai Lee & Huys, 2000

Scabrantenna Lee & Huys, 2000
yooi Lee & Huys, 2000

Jamstecia Lee & Huys, 2000
terazakii Lee & Huys, 2000

Subfamily Aegisthinae
species incertae sedis
Aegisthus spinulosus Farran, 1905

Subfamily Cerviniinae Sars, 1903[17]
Cervinia Brady, 1878[18]
(syn. *Neocervinia* Huys, Møbjerg & Kristensen, 1997
Pseudocervinia Brotskaya, 1963)[19]
bradyi Norman in Brady, 1878
synarthra Sars, 1903
magna Smirnov, 1946[20]
pilosa Lang, 1948
tenuicauda Brotskaya, 1963
langi Montagna, 1979
unisetosa Montagna, 1981
plumosa Itô, 1983
philippinensis Huys, Møbjerg & Kristensen, 1997
itoi (Lee & Yoo, 1998)
mediocauda Burgess, 1998

species inquirendae
Cervinia brevipes Brotskaya, 1963
C. bradyi Brady *sensu* Por, 1964a
C. synarthra Sars *sensu* Lang, 1936 (part)
C. synarthra Sars *sensu* Por, 1967
C. synarthra Sars *sensu* Soyer, 1970
Cervinia sp. aff *langi* Montagna *sensu* Itô, 1983
Cervinia sp. aff *tenuiseta* Brotskaya *sensu* Itô, 1983
Cervinia sp. Huys, Møbjerg & Kristensen, 1997

Eucanuella T. Scott, 1901
spinifera T. Scott, 1901
langi Por, 1964
reticulata Soyer, 1969
longirostrata Itô, 1983

species inquirenda
Eucanuella reticulata Soyer *sensu* Coull, 1973

Cerviniella Smirnov, 1946
mirabilipes Smirnov, 1946
talpa (Por, 1964a)
lagarderei Bodin, 1968
langi Bodin, 1968
brodskayae Por, 1969b
hamata Coull, 1973b
bodini Coull, 1973b
peruana Becker, 1974

Paracerviniella Brotskaya, 1963
denticulata Brotskaya, 1963

Expansicervinia Montagna, 1981
(syn. *Brotskayaia* Huys, Møbjerg & Kristensen, 1997)[21]
glacieria Montagna, 1981
tenuiseta (Brotskaya, 1963)

species inquirenda
Cervinia tenuiseta Brotskaya *sensu* Por, 1969b

Subfamily Cerviniopsinae Brotskaya, 1963
Cerviniopsis Sars, 1903
clavicornis Sars, 1903
longicaudata Sars, 1903
intermedia Lang, 1936
stylicaudata Lang, 1936
gorbunovi Smirnov, 1946
inermis Smirnov, 1946
acutirostris Brotskaya, 1963
curviseta Brotskaya, 1963
obtusirostris Brotskaya, 1963
smirnovi Por, 1969b
langi Soyer, 1969
muranoi Itô, 1983
minutiseta Itô, 1983

species inquirenda
Cerviniopsis curviseta Brotskaya *sensu* Itô, 1982

Pontostratiotes Brady, 1883
abyssicola Brady, 1883
scotti Brotskaya, 1959
horrida Brotskaya, 1963
glaber Por, 1969b
pubescens Por, 1969b
alatus Por, 1969b
inermis Por, 1969b
microserrulatus Por, 1969b
sixtorum Por, 1969b[22]
s. sixtorum Por, 1969b
s. mindinaoensis Itô, 1982
acanthoferens Yamanaka, 1973
pori Dinet, 1978
vasconensis Dinet, 1978
cecilae Dinet, 1978
denticulatus Dinet, 1978
vivierae Dinet, 1978
vitelloi Dinet, 1978
lubricus Dinet, 1978
barnetti Dinet, 1978
gladius Dinet, 1978
uxoris Dinet, 1978
peruanus Becker & Schriever, 1979
fontani Dinet, 1981
minor Dinet, 1981
pacificus Itô, 1982
unisetosa Itô, 1982
robustus Itô, 1982

species inquirenda
Pontostratiotes sp. Por, 1969b

Hemicervinia Lang, 1935
stylifera (Thompson, 1893)

Herdmaniopsis Brotskaya, 1963[23]
abyssicola Brotskaya, 1963

Ameliotes Por, 1969b[23]
malagassicus Por, 1969b

Stratiopontotes Soyer, 1969[23]
mediterraneus Soyer, 1969

Tonpostratiotes Itô, 1982
tenuipedalis Itô, 1982

Family Aegisthidae
species inquirenda
Aegisthus spinulosus Farran, 1905[24]

Family Rometidae Seifried & Schminke, 2003
Romete Seifried & Schminke, 2003
bulbiseta Seifried & Schminke, 2003

(Taxon unranked) Syngnatharthra Seifried & Schminke, 2003[14]
Superfamily Neobradyoidea Olofsson, 1917[25]
Family Neobradyidae Olofsson, 1917
Neobradya T. Scott, 1892
pectinifera T. Scott, 1892[26]

Tachidiopsis Sars, 1911[27]
cyclopoides Sars, 1911

Marsteinia Drzycimski, 1968b[27]
typica Drzycimski, 1968b
similis Drzycimski, 1968b
bozici (Bodin, 1968)
sarsi (Bodin, 1968)
laubieri (Dinet, 1974)
parasimilis (Dinet, 1974)
ibericus (Becker, 1974)

Antarcticobradya Huys, 1987c
tenuis (Brady, 1910)[28]

Taxon nomen nominandum 1 Seifried, 2003[29]
Infraorder Podogennonta Lang, 1944[30]
Superfamily (as yet unnamed)
Family Phyllognathopodidae Gurney, 1932
Phyllognathopus Mrázek, 1893[31]
viguieri (Maupas, 1892)
(syn. *Phyllognathopus paludosus* Mrázek, 1894
P. volcanicus Barclay, 1969)[32]
chappuisi (Delachaux, 1924)
insularis Chappuis, 1940
camptoides Bŏzić, 1965a[33]
paracamptoides Bŏzić, 1968b
bassoti Rouch, 1972[34]

species inquirenda
Phyllognathopus sp. Dussart, 1984b[35]

Allophyllognathopus Kiefer, 1967
brasiliensis Kiefer, 1967

Parbatocamptus Dumont & Maas, 1988
jochenmartensi Dumont & Maas, 1988

species incertae sedis
Viguierella sp. Menzel, 1926[32]

Family Darcythompsoniidae Lang, 1936
Darcythompsonia T. Scott, 1906
fairliensis (T. Scott, 1899)
parva Wilson, 1932
inopinata Smirnov, 1934
neglecta Redeke, 1953

species inquirenda
Darcythompsonia sp. Griga, 1961

Leptocaris T. Scott, 1899[36]
minutus T. Scott, 1899
brevicornis (Douwe, 1904)
trisetosus (Kunz, 1935)
t. trisetosus (Kunz, 1935)
t. breviseta Kunz, 1994a
gurneyi (Nicholls, 1944)
sibiricus (Borutzky, 1952)
ignavus (Noodt, 1953)[37]
minimus (Jakobi, 1954a)[38]
biscayensis (Noodt, 1955d)
vermiculatus (de Oliveira, 1957)
insularis (Noodt, 1958a)
marinus (Por, 1964a)
canariensis Lang, 1965a
doughertyi Lang, 1965a
pori Lang, 1965a
armatus Lang, 1965a
kunzi Fleeger & Clark, 1980[39]
igneus Cottarelli & Baldari, 1982
mangalis Por, 1983b
glaber Fiers, 1986c
echinatus Fiers, 1986c
e. echinatus Fiers, 1986c
e. nudus Kunz, 1994a
mucronatus Fiers, 1986c
stromatolicolus Zamudio Valdéz & Reid, 1990
noodti Kunz, 1994a
itoi Kunz, 1994a

Kristensenia Por, 1983
pallida Por, 1983
secunda Gómez in Gómez & Rocha, 2005

Pabellonia Gómez, 2000c
olganoguerae Gómez, 2000c

Family Darcythompsoniidae
genus nomen nudum
Falcocaris Fiers (in Kunz, 1994)

Superfamily (as yet unnamed)
Family Thompsonulidae Lang, 1944
Thompsonula T. Scott, 1905
 hyaenae (Thompson, 1889)
 curticauda (Wilson, 1932)[40]

Caribbula Huys & Gee, 1990
 elongata (Gee, 1988b)[41]
 fleegeri Huys & Gee, 1990

Superfamily (as yet unnamed)
Family Harpacticidae Dana, 1846[42]
(syn. Ismardiidae Leigh-Sharpe, 1936)[43]
Harpacticus Milne-Edwards, 1840
(syn. *Ismardis* Leigh-Sharpe, 1936)[43]
 chelifer (O.F. Müller, 1776)
 uniremis Krøyer, 1842
  u. uniremis Krøyer, 1842
  u. japonicus Chislenko, 1971
 nicaeensis Claus, 1866[44]
 (syn. *Harpacticus aegialobates* Monard, 1926)
 flexus Brady & Robertson, 1873
 obscurus T. Scott, 1895
 poppei Richard, 1897
 glaber Brady, 1899
 furcifer Giesbrecht, 1902[45]
 clausi A. Scott, 1909
 pulvinatus Brady, 1910
 littoralis Sars, 1910
 falklandi T. Scott, 1914
 tenellus Sars, 1920
 superflexus Willey, 1920
 compsonyx Monard, 1926[46]
 giesbrechti Klie, 1927[44]
 meridionalis Sars, 1927
 gurneyi Jakubisiak, 1933
 furcatus Lang, 1936
  f. furcatus Lang, 1936
  f. patagonicus Pallares, 1973
 spartacus (Leigh-Sharpe, 1936)[43]
 islandicus Klie, 1939
 septentrionalis Klie, 1939
  s. septentrionalis Klie, 1939
  s. yamadai Itô, 1976
 trisetosus Lang, 1948
 dubitabilis Herbst, 1960
 pulex Humes, 1964
 pacificus Lang, 1965a
 spinulosus Lang, 1965a
 ponticus Marcus, 1967
 compressus Frost, 1967
 parachelifer Chislenko, 1976
 nipponicus Itô, 1976
 alevtinae Chislenko, 1977
 purpureus Itô, 1979
 dezhnevi Chislenko, 1980
 longiantennata Apostolov & Petkovski, 1980
 flexulosus Ceccherelli, 1988
 pallaresae nom. nov.[47]
 (syn. *Harpacticus depressus* Pallares, 1973)

 species incertae sedis
 Harpacticus virescens Dana, 1848
 H. concinnus Dana, 1848
 H. sacer Dana, 1848
 H. macrodactylus Fischer, 1860
 H. depressus Boeck, 1865
 H. robustus Brady, 1910
 H. boehleri Pesta, 1916
 H. koenigi Pesta, 1928
 H. confusus Vervoort, 1964

 species inquirendae
 Harpacticus gracilis Claus, 1863[44]
 H. elongatus Boeck, 1865[44]
 H. nicaeensis Claus, 1866 *sensu* Candeias, 1959
 H. dentatus Kričagin, 1873[44]
 H. chelifer var. T. Scott, 1893
 H. fucicolus T. Scott, 1912[44]
 H. fucicolus T. Scott, 1912 *sensu* Sewell, 1940[48]
 H. furcifer Giesbrecht
  sensu Dahms & Schminke, 1992

Zaus Goodsir, 1845
 spinatus Goodsir, 1845
  s. spinatus Goodsir, 1845[49]
  s. hopkinsi Lang, 1965a
 goodsiri Brady, 1880
 aurelii Poppe, 1884[50]
 abbreviatus Sars, 1904
 caeruleus Campbell, 1929
 intermedius Nicholls, 1939a[49]
 serratus Monk, 1941
 sarsi Nicholls, 1942a
 biunguiferus Lang, 1965a
 robustus Itô, 1974
 unisetosus Itô, 1974
 hiranoi Itô, 1980b

species incertae sedis
Zaus contractus Thomson, 1882
Z. latiremis Monk, 1941
Z. schaeferi Klie, 1949
Z. ainuensis Chislenko, 1980[51]

species inquirenda
Zaus aurelii Poppe *sensu* T. Scott, 1901

Tigriopus Norman, 1868
brevicornis (O.F. Müller, 1776)
fulvus (Fischer, 1860)
californicus (Baker, 1912)
angulatus Lang, 1933
japonicus Mori, 1938
brachydactylus Candeias, 1959
minutus Bŏzić, 1960
raki Bradford, 1967
igai Itô, 1977
kerguelenensis Soyer, Thiriot-Quievreux & Colomines, 1987
crozettensis Soyer, Thiriot-Quievreux & Colomines, 1987

subspecies incertae sedis
Tigriopus lilljeborgi northumbriensis Mistakidis, 1949

Harpacticella Sars, 1908
inopinata Sars, 1908
paradoxa (Brehm, 1924)[52]
lacustris Sewell, 1924
amurensis Borutzky, 1952
oceanica Itô, 1977
itoi Chang & Kim, 1991

Perissocope Brady, 1910
typicus Brady, 1910
cristatus (A. Scott, 1909)
xenus (Monard, 1926)
litoralis Lang, 1934
bayeri Vervoort, 1964
adiastaltus Wells, 1968
exiguus Pallares, 1975d
biarticulatus Watkins, 1987

species inquirenda
Perissocope sp. Huys *et al*., 1996

Zausodes Wilson, 1932
arenicolus Wilson, 1932[53]
septimus Lang, 1965a

Zausopsis Lang, 1934
mirabilis Lang, 1934
kerguelensis Lang, 1948
luederitzi (Kunz, 1963a)

Discoharpacticus Noodt, 1954d
mirabilis Noodt, 1954d

Paratigriopus Itô, 1969
hoshidei Itô, 1969

Neozausodes Bouck, Thistle & Huys, 1999
areolatus (Geddes, 1968b)[53]
sextus (Lang, 1965a)
shulenbergeri Bouck, Thistle & Huys, 1999

species inquirendae
Zausodes stammeri Jakobi, 1954a
Z. limigenus Jakobi, 1954a
Z. paranaguaensis Jakobi, 1954a

Mucropedia Bouck, Thistle & Huys, 1999
cookorum Bouck, Thistle & Huys, 1999
kirstenae Bouck, Thistle & Huys, 1999

Archizausodes Bouck, Thistle & Huys, 1999
biarticulatus (Itô, 1979)

Family Harpacticidae
species incertae sedis
Zausodes cinctus Krishnaswamy, 1954[54]

Family Latiremidae Bŏzić 1969a[42]
Delamarella Chappuis, 1954c
(syn. *Latiremus* Bŏzić, 1969a)[55]
arenicola Chappuis, 1954b
karamani Petkovski, 1957
eximia (Bŏzić, 1969)
galateae Cottarelli, 1971a
obscura Huys, Karaytuğ & Cottarelli, 2005

Arbutifera Huys & Kunz, 1988
phyllosetosa (Kunz, 1984c)[56]

Superfamily (as yet unnamed)
Family Pseudotachidiidae Lang, 1936[57]
Subfamily Pseudotachidiinae Lang, 1936
Pseudotachidius T. Scott, 1898
coronatus T. Scott, 1898
similis T. Scott, 1902
vikingus Drzycimski, 1968b
abyssalis Becker, 1974
peruanus Becker, 1974
ibericus Becker & Schriever, 1979
brevisetosus Montagna, 1980
bipartitus Montagna, 1980
b. bipartitus Montagna, 1980
b. pacificus Itô, 1983
horikoshii Itô, 1983
minutus Itô, 1983
jubanyensis Veit-Köhler & Willen, 2002

species incertae sedis
Pseudotachidius (?) *minimus* Brady, 1910

Idomene Philippi, 1843
forficata Philippi, 1843
novaezealandiae (Thomson, 1882)
coronata (T. Scott, 1894)
pectinata (T. & A. Scott, 1898)[58]
antarctica (Giesbrecht, 1902)[59]
laticaudata (Thompson & A. Scott, 1903)[60]
purpurocincta (Norman & T. Scott, 1905)[61]
pusilla Brady, 1910
simulans (Brady, 1910)[58]
borealis Sars, 1911
ferrieri (T. Scott, 1912)
intermedia Lang, 1934
scotti Lang, 1948
maldivae Sewell, 1940
parasimulans Médioni & Soyer, 1967
cookensis Pallares, 1975b[62]

species incertae sedis
Dactylophusia aemula Thompson & A. Scott, 1903
Idomene kabylica Monard, 1936

species inquirendae
Idomene australis Brady, 1910[63]
I. antarctica (Giesbrecht) *sensu* Dahms & Schminke, 1992[59]

Dactylopodella Sars, 1905
flava (Claus, 1866)
rostrata (T. Scott, 1893)
clypeata Sars, 1911[64]
vervoorti Moore, 1976a
janetae Hicks, 1989

Domnuia Willen, 2004
larsi Willen 2004

Subfamily Paranannopinae Por, 1986a[65]
Paranannopus Lang, 1936[66]
abyssi (Sars, 1920)
sarsi Lang, 1936
minutus Smirnov, 1946
echinipes Smirnov, 1946
philistinus Por, 1964a
bahusiense Por, 1964b
caheti Soyer, 1964c
triarticulatus Wells, 1965a
atlanticus Coull, 1973a
wellsi Soyer, 1975b
longithorax Becker, 1979
reductus Becker, 1979
truncatus Becker, 1979
plumosus Schriever, 1983
trisetosus Schriever, 1985a
singulosetosus Schriever, 1985a
denticulatus Schriever, 1985a
uniarticulatus Schriever, 1985a
variabilis Schriever, 1985a
kunzi Schriever, 1985a
hicksi Schriever, 1985a
arndwilleni Willen, 2005

species incertae sedis
Paranannopus langi Wells, 1965a[67]

Danielssenia Boeck, 1873
typica Boeck, 1873
quadriseta Gee, 1988a
reducta Gee, 1988a

species incertae sedis
Danielssenia spitsbergensis Gee & Huys, 1994

species inquirendae
Danielssenia similis Chislenko, 1978
D. fusiformis (Brady) *sensu* many authors[68]

Jonesiella Brady, 1880
fusiformis Brady, 1880[69]
eastwardae (Coull, 1971a)[69]

Psammis Sars, 1910
longisetosa Sars, 1910
longipes Becker, 1974

Paradanielssenia Soyer, 1970a
kunzi Soyer,1970a
biclavata Gee, 1988b[70]
christineae Gee & Huys, 1994
kathleenae Gee & Huys, 1994

Cylindronannopus Coull, 1973a
primus Coull, 1973a
elongatus (Becker, 1979)
bispinosus Schriever, 1985a

Leptotachidia Becker, 1974
iberica Becker, 1974[70]

Micropsammis Mielke, 1975
noodti Mielke, 1975[70]
galapagoensis Mielke, 1997b

Carolinicola Huys & Thistle, 1989
trisetosa (Coull, 1973a)
galapagoensis Mielke, 1997b

Fladenia Gee & Huys, 1990
robusta (Sars, 1921)

Telopsammis Gee & Huys, 1991[71]
secunda (Mielke, 1975)

Archisenia Huys & Gee, 1993
sibirica (Sars, 1898)[72]

Bathypsammis Huys & Gee, 1993
longifurca (Bodin, 1968)

Mucrosenia Gee & Huys, 1994
kendalli Gee & Huys, 1994

species incertae sedis
Psammis kliei Smirnov, 1946

Sentiropsis Huys & Gee, 1996a
minuta (Coull, 1969a)[73]

Peltisenia Huys & Gee, 1996a
aberrans (Por, 1964a)[73]

Afrosenia Huys & Gee, 1996a
spinipes (Wells, 1967)

Prionos Huys & Gee, 1996b
ornata Huys & Gee, 1996b

Anapophysia Huys & Gee, 1996b
borealis (Klie, 1939)
segonzaci Huys & Gee, 1996b

Subfamily Pseudomesochrinae Willen, 1996
Pseudomesochra T. Scott, 1902
brucei (T. & A. Scott, 1901)
longifurcata T. Scott, 1902
divaricata (Sars, 1906)
crispata (Brady, 1910)
latifurca (Sars, 1911)
media (Sars, 1911)
similis Lang, 1935
tamara Smirnov, 1946
tatianae Drzycimski, 1968c
aberrans Bodin, 1968
minor Becker, 1974
beckeri Becker & Schriever, 1979
abyssalis Becker & Schriever, 1979
scheibeli Schriever, 1982b
meridianensis Willen, 1996a
gertwilleni Willen, 1996a
laptevensis Willen, 1996a

species incertae sedis
Pseudomesochra perplexa Bodin, 1968
P. gemina Coull, 1973c

Subfamily Donsiellinae Lang, 1944
Donsiella Stephensen, 1936
limnoriae Stephensen, 1936[74]
anglica Hicks, 1988a
victoriae Hicks, 1988a
bisetosa Hicks, 1988a
phycolimnoriae Hicks, 1990

Pseudonsiella Hicks, 1988a
aotearoa Hicks, 1988a
longicaudata S.H. & W. Kim, 1997

Apodonsiella Hicks, 1988a
indica Hicks, 1988a

Xylora Hicks, 1988a
bathyalis Hicks, 1988a
neritica Hicks, 1988a
longiantennulata S.H. & W. Kim, 1997

Oligoxylora Hicks, 1988a
cooksoni Hicks, 1988a

Superfamily (as yet unnamed)
Family Protolatiremidae nov.[75]
Protolatiremus Itô, 1974[71]
sakaguchii Itô, 1974

Superfamily (as yet unnamed)[76]
Family Parastenheliidae Lang, 1936[77, 77a]
Parastenhelia Thompson & A. Scott, 1903
spinosa (Fischer, 1860)
hornelli Thompson & A. Scott, 1903[78]
anglica Norman & T. Scott, 1905[79]
gracilis Brady, 1910[80]
ornatissima (Monard, 1935)
reducta Apostolov, 1975
megarostrum Wells, Hicks & Coull, 1982
costata Pallares, 1982
minuta Pallares, 1982
oligochaeta Wells & Rao, 1987
pyriformis Song, Kim & Chang, 2003

Karllangia Noodt, 1964[81]
arenicola Noodt, 1964
psammophila Wells, 1967
bengalensis Wells & Rao, 1987
tertia Kunz, 1975
pulchra Mielke, 1994b
obscura Mielke, 1994b

Family Dactylopusiidae Lang, 1936[82]
Dactylopusia Norman, 1903
tisboides (Claus, 1863)
neglecta Sars, 1905
vulgaris Sars, 1905
v. vulgaris Sars, 1905
v. dissimilis Brian, 1921
v. inornata Lang, 1965a
micronyx Sars, 1905
glacialis Sars, 1905
g. glacialis Sars, 1905
g. lazurica (Chislenko, 1971)
spinipes Brady, 1910
frigida T. Scott, 1912
signata Willey, 1920
euryhalina Monard, 1935
falcifera Willey, 1935[83]
f. falcifera Willey, 1935
f. pallida Sewell, 1940
f. violacea Sewell, 1940
crassipes (Lang, 1965a)
paratisboides (Lang, 1965a)
brozkiae (Chislenko, 1967)
pontica (Apostolov, 1968a)
longyearbyenensi (Mielke, 1974)
pectenis (Pallares, 1975d)
decostata (Pallares, 1975d)
wrangeli (Chislenko, 1983)
pauciarticulata Chang & Song, 1997

species incertae sedis
*Dactylopus porrectu*s Claus, 1863
D. nicaeensis Claus, 1863
Dactylopusia crassicornis Brady, 1910
Dactylopodia incerta Serban, 1959

species inquirendae
Dactylopusia tisboides (Claus) *sensu* Lang, 1936
Dactylopodia falcifera (Willey) *sensu* Candeias, 1959
Dactylopodia sp. Bodin, 1964

nomina nuda
Dactylopus nanus Brady & Robertson, 1875
Dactylopusia distans Willey, 1931

Diarthrodes Thomson, 1882
nobilis (Baird, 1845)
minutus (Claus, 1863)
ponticus (Kričagin, 1873)
p. ponticus Kričagin, 1873
p. orientalis Apostolov, 1975
novaezealandiae Thomson, 1882
imbricatus (Brady, 1883)
andrewi (T. Scott, 1894)
major (T. & A. Scott, 1895)
pygmaeus (T. & A. Scott, 1895)
assimilis (Sars, 1906)
sarsi (A. Scott, 1909)

pusillus (Brady, 1910)
tumidus (Brady, 1910)
intermedius (T. Scott, 1912)
nanus (T. Scott, 1914)
purpureus (Gurney, 1927)
aegideus (Brian, 1928)
roscoffensis (Monard, 1935)
gurneyi Lang, 1948
campbelliensis Lang, 1948
feldmanni Bocquet, 1953
cystoecus Fahrenbach, 1954
falcipes Marinoni, 1964
dissimilis Lang, 1965a
unisetosus Lang, 1965a
glaber Wells, 1967
hirami Por, 1967
fahrenbachi Bodin, 1968
gravellicola Soyer, 1974c
drachi Bodiou, 1974
tetrastachyus Yeatman, 1976
parvulus Pallares, 1977
lilacinus Pallares, 1977
latisetosus Chislenko, 1978
zavodniki Apostolov & Petkovski, 1980
brevipes Wells & Rao, 1987

species incertae sedis
Nauplius ciliatus Philippi, 1840

Dactylopodopsis Sars, 1911
dilatata Sars, 1911[84]

Dactylopusioides Brian, 1928
macrolabris (Claus, 1866)
fodiens Shimono, Iwasaki & Kawai, 2004

Marionobiotus Chappuis, 1940[85]
jeanneli Chappuis, 1940

Paradactylopodia Lang, 1944
latipes (Boeck, 1865)
brevicornis (Claus, 1866)[86]
simillima (Brady, 1910)
oculata (Gurney, 1927)
bathybates (Monard, 1936)
incerta (Vervoort, 1964)[87]
serrata Lang, 1965a
hexarticulata Kunz, 1975
striata Kunz, 1983
trioculata Hicks, 1988b
koreana Chang & Song, 1997

species incertae sedis
Dactylopusia fragilis Monard, 1928[88]
D. brevicornis (Claus) f. *insolita* Willey, 1935[88]

species inquirenda
Paradactylopodia oculata (Gurney) *sensu* Yeatman, 1962

Sewellia Lang, 1965a
tropica (Sewell, 1940)[89]

Family Dactylopusiidae
species incertae sedis
Rhynchothalestris agigensis Serban, 1959

Family Rhynchothalestridae Lang, 1948[82]
Rhynchothalestris Sars, 1905
helgolandica (Claus, 1863)
campbelliensis Lang, 1934
tenuis Chislenko, 1971

species incertae sedis
Amenophia tenuicornis Brady, 1910

Peltthestris Monard, 1924
tripartita Monard, 1924

Family Hamondiidae Huys, 1990a[90]
(syn. Ambunguipedidae Huys, 1990a)
Hamondia Huys, 1990a
superba Huys, 1990a

Ambunguipes Huys, 1990a
rufocincta (Brady, 1880)[91]
similis (A. Scott, 1909)

species inquirendae
Rhynchothalestris vanhoeffeni Brady, 1910
R. vanhoeffeni Brady *sensu* Nicholls, 1944

Lucayostratiotes Huys, 1990a
cornuta (Geddes, 1969)

Superfamily Thalestroidea Sars, 1905[76]
Family Miraciidae Dana, 1846[92, 135]
(syn. Diosaccidae Sars, 1906)
Subfamily Miraciinae Dana, 1846
Miracia Dana, 1846
efferata Dana, 1849[93]

Oculosetella Dahl, 1895
gracilis (Dana, 1849)[93]

Macrosetella A. Scott, 1909
gracilis (Dana, 1847)

Distioculus Huys & Böttger-Schnack, 1994
minor (T. Scott, 1893)

Subfamily Diosaccinae Sars, 1906[92]
Diosaccus Boeck, 1873
tenuicornis (Claus, 1863)
dentatus (Thompson & A. Scott, 1903)
hamiltoni (Thompson & A. Scott, 1903)[94]
robustus (Thompson & A. Scott, 1903)
varicolor (Farran, 1913)
v. varicolor (Farran, 1913)
v. biarticulatus (Monard, 1924)
v. pentasetosus (Noodt, 1955c)
truncatus Gurney, 1927[95]
valens (Gurney, 1927)
spinatus Campbell, 1929
monardi Sewell, 1940[96]
rebus (Sewell, 1940)
borborocoetus Jakobi, 1954a
ezoensis Itô, 1974

species incertae sedis
Diosaccus sordidus Brady, 1910

species inquirendae
Diosaccus valens (Gurney) *sensu* Por, 1964
D. dentatus (Thompson & A. Scott)
sensu Itô, 1982

nomen nudum
Diosaccus ruber Brian, 1923

Robertsonia Brady, 1880
tenuis Brady, 1880[97]
t. tenuis Brady, 1880
t. kielensis Becker, 1970
propinqua (T. Scott, 1894)
irrasa (A. Scott, 1902)
knoxi (Thompson & A. Scott, 1903)
diademata Monard, 1926
salsa Gurney, 1927
hamata Willey, 1930
flavidula Willey, 1930
angolensis (Monard, 1934)
celtica (Monard, 1935)
monardi (Klie, 1937)
adduensis (Sewell, 1940)
mourei Nogueira, 1961
barnesi Hamond, 1973d
curtisii Greenwood & Tucker, 1982
robusta Wells & Rao, 1987
glomerata Fiers, 1996a

species incertae sedis
Robertsonia knoxi brasiliensis Jakobi, 1954a

species inquirendae
Robertsonia propinqua (T. Scott)
sensu Candeias, 1959
R. knoxi (Thompson & A. Scott)
sensu Yeatman, 1976

Amphiascus Sars, 1905
minutus-group Lang, 1944
minutus (Claus, 1863)
tenuiremis (Brady, 1880)[97, 98]
(syn. *Amphiascus graciloides* Klie, 1950)
brevis Sars, 1909
congener Sars, 1909
caudaespinosus Brian, 1927
hirtus Gurney, 1927
ultimus Monard, 1928
gracilis Lang, 1936[80]
demersus Nicholls, 1939
graciloides Klie, 1950
paracaudaespinosus Roe, 1958
longarticulatus Marcus, 1974b[99]
discrepans Mielke, 1989c

species inquirenda
Amphiascus caudaespinosus Brian
sensu Pesce, 1985

varians-group Lang, 1944
varians (Norman & T. Scott, 1905)
propinqvus Sars, 1906
tenellus Sars, 1906

polaris Sars, 1909[100]
angustipes Gurney, 1927
gauthieri Monard, 1936
dentiformis Coull, 1971b
lobatus Hicks, 1971
elongatus Itô, 1972
profundus Becker & Schriever, 1979
tainui Hicks, 1989

species incertae sedis
Stenhelia perplexa Thompson & A. Scott, 1903
Mesamphiascus ampullifer Humes, 1953

species inquirendae
Amphiascus tenellus Sars *sensu* Noodt, 1964
Zavodnik, 1965
A. angustipes Gurney *sensu* Bodin, 1964

pacificus-group Lang, 1944
pacificus Sars, 1905
parvus Sars, 1906
sinuatus Sars, 1906
undosus Lang, 1965a
kawamurai Ueda & Nagai, 2005

species inquirendae
Amphiascus humphriesi Roe, 1960
A. parvus Sars *sensu* Rouch, 1962
Noodt, 1964

amblyops-group Lang, 1944
amblyops Sars, 1911

Amphiascus species incertae sedis
Robertgurneya intermedia Bŏzić, 1955

Amphiascus species inquirendae
Amphiascus monodi Monard, 1952
Amphiascus sp. Pesta, 1959
Amphiascus spp. I & II Griga, 1961

Schizopera Sars, 1905
(syn. *Schizoperopsis* Apostolov, 1982)[101]
jugurtha (Blanchard & Richard, 1891)
j. jugurtha (Blanchard & Richard, 1891)
j. stephanidesi Pesta, 1937
longirostris (Daday, 1901)
paradoxa (Daday, 1903)
longicauda Sars, 1905
inopinata Sars, 1909
validior Sars, 1909
consimilis Sars, 1909
ungulata Sars, 1909
minuticornis Sars, 1909
spinulosa Sars, 1909
fimbriata Sars, 1909
scalaris Sars, 1909
compacta Lint, 1922
clandestina (Klie, 1924)
c. clandestina (Klie, 1924)
c. brevicauda Kiefer, 1965
rotundipes Gurney, 1928
tobae Chappuis, 1931
t. tobae Chappuis, 1931
t. woltereckii Brehm & Chappuis, 1935
t. cubana Petkovski, 1973
haitiana Kiefer, 1934
triacantha Kiefer, 1934
neglecta Akatova, 1935
subterranea Lang, 1938
akatovae Borutzky, 1953
arenicola Chappuis & Serban, 1953
pontica Chappuis & Serban, 1953
ornata Noodt & Purasjoki, 1953
crassipinata Chappuis, 1954c
brusinae Petkovski, 1954
chaetosa Petkovski, 1954[102]
langi Petkovski, 1954[103]
meridionalis Petkovski, 1954
m. meridionalis Petkovski, 1954
m. listensis Mielke, 1975
longifurcata Chappuis, 1955
minuta Noodt, 1955d
nana Noodt, 1955d
parvula Noodt, 1955d
monardi Petkovski, 1955a
gligici Petkovski, 1957[104]
pratensis Noodt, 1958b
gauldi Chappuis & Rouch, 1960a
marlieri Rouch & Chappuis, 1960
vicina Herbst, 1960
noodti Rouch, 1962
variseta Bŏzić, 1964
bozici Lang, 1965a[105]
californica Lang, 1965a
knabeni Lang, 1965a
baltica Lang, 1965a
kunzi Apostolov, 1967
borutzkyi Montschenko, 1967a[106]
varnensis Apostolov, 1967[103]

taricheana Por, 1968a
indica Rao & Ganapati, 1969a
petkovskii Apostolov, 1971a
aralensis Borutzky, 1971
reducta Borutzky, 1971
carolinensis Coull, 1971a
anomala Coull, 1971a
pseudojugurtha Borutzky, 1972a
lacusamari Por & Marcus, 1972
bradyi Soyer, 1974d
nichollsi Soyer, 1974d
elatensis Kahan & Bar-El, 1982
arconae Arlt, 1983
lindae Apostolov & Pesce, 1987
spinifer Wells & Rao, 1987
lagrecai Pesce, 1988
cicolanii Galassi & Pesce, 1988a
pori Jiminez Alvarez, 1988
giselae Jiminez Alvarez, 1988
dimentmani Por, 1993
osana Mielke, 1995a
hawaiiensis Kunz, 1995b
costaricana Karanovic, 2004
(syn. *Schizopera* sp. A Mielke, 1995a)
depotspringsi Karanovic, 2004
austindownsi Karanovic, 2004
oldcuei Karanovic, 2004
uramurdahi Karanovic, 2004
jundeei Karanovic, 2004
samchunensis Karaytuð & Sak, 2005a
roberiverensis Karanovic, 2006
weelumurra Karanovic, 2006

species incertae sedis
Schizopera issykkulica Mauyilova, 1966

nomina nuda
Schizopera major Sars, 1927
S. propinqua Sars, 1927
S. pusilla Sars, 1927

Pseudodiosaccus T. Scott, 1906
propinquus (T. & A. Scott, 1893)

Tydemanella A. Scott, 1909
typica A. Scott, 1909

Diosaccopsis Brian, 1925
rubeus Brian, 1925

Ialysus Brian, 1927
rufus Brian, 1927

Amphiascopsis Gurney, 1927
cinctus (Claus, 1866)[107]
thalestroides (Sars, 1911)
angrapequensis (Pesta, 1916)
southgeorgiensis (Lang, 1936)
coralicola (Sewell, 1940)
australis Nicholls, 1941a

species inquirendae
Amphiascopsis cinctus (Claus) *sensu* Noodt, 1964
A. angrapequensis (Pesta) *sensu* Noodt, 1964

Goffinella Wilson, 1932[108]
stylifer Wilson, 1932

Amphiascoides Nicholls, 1941c
brevifurca (Czerniavski, 1868)
debilis (Giesbrecht, 1881)[109]
dispar (T. & A. Scott, 1894)
littoralis (T. Scott, 1903)
neglectus (Norman & T. Scott, 1905)[101]
nanus (Sars, 1906)
nanoides (Sars, 1911)
proximus (T. Scott, 1914)
sterilis (Monard, 1926)
subdebilis (Willey, 1935)
nichollsi Lang, 1965a
lancisetiger Lang, 1965a
petkovski Lang, 1965a
dimorphus Lang, 1965a
bulbiseta Pallares, 1975c[111]
golikovi Chislenko, 1977
koltuni Chislenko, 1977
paradebilis Chislenko, 1978
breviarticulatus Kunz, 1983
atopus Lotufo & Fleeger, 1995
walteri Suárez Morales & Avilés Torres, 2003

species incertae sedis
Stenhelia limicola Brady, 1900[109]

species inquirenda
Amphiascoides sp. Becker & Schriever, 1979

Parialysus Nicholls, 1941c
robustus (Nicholls, 1941a)
investigatoris (Sewell, 1940)

proximus (Sewell, 1940)

Psammotopa Pennak, 1942[112]
vulgaris Pennak, 1942[113]
phyllosetosa (Noodt, 1952b)
polyphylla Noodt, 1955d
chappuisi Noodt, 1955d
biarticulata Mielke, 1990a
trisetosa Mielke, 1995b

Antiboreodiosaccus Lang, 1944
crassus (Giesbrecht, 1902)

Pseudodiosaccopsis Lang, 1944
rufescens (Brian, 1925)
brunneus (Willey, 1935)
mesogeae Por, 1964a

Dactylopodamphiascopsis Lang, 1944[114]
latifolius (Sars, 1909)

Amonardia Lang, 1944
similis (Claus, 1866)[115]
normani (Brady, 1872)
arctica (T. Scott, 1898)
phyllopus (Sars, 1906)
subnasuta (Willey, 1935)
pentasetosa Noodt, 1954d
pelophila Por, 1964a
tristanensis Wiborg, 1964
perturbata Lang, 1965a
magna Chislenko, 1978

Pseudamphiascopsis Lang, 1944
herdmani (A. Scott, 1896)
attenuatus (Sars, 1906)

Metamphiascopsis Lang, 1944
hirsutus (Thompson & A. Scott, 1903)
h. hirsutus (Thompson & A. Scott, 1903)
h. bermudae Willey, 1930
banyulensis (Monard, 1928)
monardi (Lang, 1934)
nicobaricus (Sewell, 1940)

Paramphiascopsis Lang, 1944
longirostris (Claus, 1863)
giesbrechti (Sars, 1906)
pallidus (Sars, 1906)
soyeri Lang, 1965a
ekmani Lang, 1965a
paromolae Soyer, 1973a
triarticulatus Moore, 1976b
waihonu Hicks, 1986b

Pararobertsonia Lang, 1944
abyssi (Boeck, 1873)
chesapeakensis (Wilson, 1932)

Bulbamphiascus Lang, 1944
imus (Brady, 1872)[116]
denticulatus (Thompson, 1893)
inermis (Sewell, 1940)[116]
angustifolius Klie, 1950[116]
chappuisi Rouch, 1962
minutus Dinet, 1971
cibimae Pallares, 1982
plumosus Mu & Gee, 2000
spinulosus Mu & Gee, 2000
incus Gee, 2005
scilloniensis Gee, 2005

species inquirenda
Bulbamphiascus sp. Becker & Schriever, 1979

Robertgurneya Lang, 1944
similis-group Lang, 1944
similis (A. Scott, 1896)
s. similis A. Scott, 1896
s. bulbamphiascoides Noodt, 1955c
simulans (Norman & T. Scott, 1905)
dactylifer (Wilson, 1932)
falklandiensis (Lang, 1936)
remanei Klie, 1950
oligochaeta Noodt, 1955c
hopkinsi Lang, 1965a
diversa Lang, 1965a
smithi Hamond, 1973

species incertae sedis
Robertgurneya brevipes Wells & Rao, 1987

spinulosa-group Lang, 1944
spinulosa (Sars, 1911)
dictydiophora (Monard, 1924)
rostrata (Gurney, 1927)
ilievecensis (Monard, 1935)[117]
ecaudata (Monard, 1936)
soyeri Apostolov, 1974

species incertae sedis
Amphiascoides (?) *arabicus* Noodt, 1964

Robertgurneya species inquirendae
Robertgurneya sp. Apostolov, 1973
Robertgurneya sp. Marinov & Apostolov, 1985

Typhlamphiascus Lang, 1944
blanchardi (T. & A. Scott, 1895)
confusus (T. Scott, 1902)
brevicornis (Thompson & A. Scott, 1903)
gracilicaudatus (Thompson & A. Scott, 1903)[118]
dentipes (Thompson & A. Scott, 1903)
typhlops (Sars, 1906)
lamellifer (Sars, 1911)
l. lamellifer (Sars, 1911)[119]
l. capensis Kunz, 1975
gracilis Por, 1963
unisetosus Lang, 1965a
pectinifer Lang, 1965a
latifurca Por, 1968b
bouligandi Soyer, 1971b
ovale Wells & Rao, 1987

species incertae sedis
Stenhelia hirsuta Thompson, 1893
S. accraensis T. Scott, 1894
Amphiascus typhloides Sars, 1911
Typhlamphiascus longifurcatus Rouch, 1962
T. lutincola Soyer, 1963a
T. drachi Soyer, 1963b

species inquirendae
Typhlamphiascus typhlops (Sars) *sensu* Por, 1963
T. confusus (T. Scott) *sensu* Moore, 1976 Marinov & Apostolov, 1985
Typhlamphiascus sp. Vilela, 1965
Typhlamphiascus sp. 2 Bodin, 1964
Typhlamphiascus sp. I (?*confusus*) Marinov, 1977
Typhlamphiascus sp. II Marinov, 1977

Rhyncholagena Lang, 1944
lagenirostris (Sars, 1911)
spinifer (Farran, 1913)
pestai (Monard, 1935)
p. pestai (Monard, 1935)
p. americana Rouch, 1962
levantina Por, 1964a
josaphatis Por, 1967
littoralis Por, 1967
profondorum Por, 1967
bermudensis Malt, 1990

species inquirenda
Rhyncholagena pestai (Monard) *sensu* Por, 1964a
Rhyncholagena sp. Bodin, 1964

Paramphiascella Lang, 1944
hispida (Brady, 1880)
intermedia (T. Scott, 1896)
brucei (T. & A. Scott, 1901)
robinsoni (A. Scott, 1902)
hyperborea (T. Scott, 1903)
vararensis (T. Scott, 1903)
commensalis (SeIwell, 1928)
langi (Monard, 1936)
calcarifer (Sewell, 1940)
mediterranea Lang, 1948
pacifica Vervoort, 1962
xiphophora Lang, 1965a
bulbifer Guille & Soyer, 1966
delamarei Guille & Soyer, 1966
curtiseta Chislenko, 1971
sirbonica Por, 1973
coulli Marcotte, 1974
bodini Marcotte, 1974
fulvofasciata Rosenfield & Coull, 1974
austroatlantica Pallares, 1982
aquaedulcis Dussart, 1984c

species incertae sedis
Amphiascus invaginatus Monard, 1926
A. roberti Monard, 1935
Paramphiascella faurei Bodin, 1968

species inquirenda
Amphiascus sp. Monard, 1935

Haloschizopera Lang, 1944
pygmaea (Norman & T. Scott, 1905)[120]
exigua (Sars, 1906)[120]
bulbifer (Sars, 1911)[120]
mathoi (Monard, 1935)[120]
marmarae Noodt, 1955c[121]
pauciseta Por, 1959a
tenuipes Noodt, 1964
aegyptica Noodt, 1964
phyllura Noodt, 1964
conspicua Por, 1964b

minima Por, 1964b
ruthorum Por, 1967
noodti Bodin, 1968
latisetifera Marinov, 1973a
abyssi Becker, 1974
lima Becker, 1974
bathyalis Schriever, 1984a
apprisea Gee & Fleeger, 1990
clotensis Moore & O'Reilly, 1993
nuditerga Moore & O'Reilly, 1993
lionensis Moore & O'Reilly, 1993

species incertae sedis
Amphiascus exiguus var. Monard, 1935

species inquirenda
Haloschizopera junodi (Monard) *sensu* Arlt, 1983, Por, 1964

Pholenota Vervoort, 1964
spatulifera Vervoort, 1964[122]

Paramphiascoides Wells, 1967
mixtus Wells, 1967

Actopsyllus Wells, 1967
longipes Wells, 1967
matthewi Bouck & Thistle, 2004

Protopsammotopa Geddes, 1968d
norvegica Geddes, 1968d
wilsoni Wells, 1977
tipperi Bouck & Thistle, 2004

Schizoperoides Por, 1968b
expeditionis Por, 1968b

Balucopsylla Rao, 1972
similis Rao, 1972
triarticulata Wells & Rao, 1987

Eoschizopera Wells & Rao, 1976[101]
syltensis (Mielke, 1973)
reducta Wells & Rao, 1976
chiloensis (Mielke, 1992a)
nicoyana (Mielke, 1995a)

Helmutkunzia Wells & Rao, 1976
hartmannorum (Kunz, 1971a)
variabilis Wells & Rao, 1987

Miscegenus Wells, Hicks & Coull, 1982
heretaunga Wells, Hicks & Coull, 1982

Sinamphiascus Mu & Gee, 2000
dominatus Mu & Gee, 2000

Neomiscegenus Karanovic & Ranga Reddy, 2004b
indicus Karanovic & Ranga Reddy, 2004b

Subfamily Diosaccinae
genus incertae sedis
Teissierella Monard, 1935
salammboi Monard, 1935
massiliensis Bodin, 1964
pontica Apostolov, 1968a

Subfamily Stenheliinae Brady, 1880[123]
Stenhelia Boeck, 1865[124]
gibba Boeck, 1865
proxima Sars, 1906
curviseta Lang, 1936
divergens Nicholls, 1939a
peniculata Lang, 1965a
pubescens Chislenko, 1978
sheni Mu & Huys, 2002
taiae Mu & Huys, 2002

Delavalia Brady, 1880[124]
palustris Brady, 1868
p. palustris Brady, 1868
p. bispinosa Bodin, 1970
longicaudata (Boeck, 1873)
reflexa Brady, 1880[97]
giesbrechti (T. & A. Scott, 1896)
arctica T. Scott, 1898
inopinata A. Scott, 1902[125]
minuta A. Scott, 1902[126]
normani T. Scott, 1905
magnacaudata (Monard, 1928)
polluta (Monard, 1928)[127]
tethysensis (Monard, 1928)[128]
arenicola (Wilson, 1932)
longifurca (Sewell, 1934)[129]
acutirostris (Willey, 1935)
cornuta (Lang, 1936)
latisetosa (Sewell, 1940)
truncatipes (Sewell, 1940)
hanstroemi (Lang, 1948)
confluens (Lang, 1948)[130]

elisbethae (Por, 1959b)
incerta (Por, 1964a)
latipes (Lang, 1965a)
longipilosa (Lang, 1965a)
oblonga (Lang, 1965a)
ornamentalia (Shen & Tai, 1965)
mastigochaeta (Wells, 1965a)
nuwukensis (Wilson, 1965)
unisetosa (Wells, 1967)
bermudensis (Coull, 1969a)
coineauae (Soyer, 1971b)
bocqueti (Soyer, 1971b)
madrasensis (Wells, 1971)[125]
bifidia (Coull, 1976a)
golikovi (Chislenko, 1978)
lima (Becker & Schriever, 1979)
diegensis (Thistle & Coull, 1979)[124]
latioperculata (Itô, 1981)
adriatica (Marinov & Apostolov, 1981)
intermedia (Marinov & Apostolov, 1981)
noodti (Schriever, 1982b)
islandica (Schriever, 1982b)
stephensoni (Greenwood & Tucker, 1984)
saharae (Marinov & Apostolov, 1985)
breviseta (Wells & Rao, 1987)
mixta (Wells & Rao, 1987)
hirtipes (Wells & Rao, 1987)
clavus (Wells & Rao, 1987)
paraclavus (Wells & Rao, 1987)
valens (Wells & Rao, 1987)
fustiger (Wells & Rao, 1987)
andamanica (Rao, 1993)
schminkei (Willen, 2002)
gundulae (Willen, 2003)

species incertae sedis
Delavalia pygmaea Brady, 1905
Stenhelia glacialis Brady, 1910

species inquirendae
Stenhelia reflexa (Brady) *sensu* Bodin, 1964
S. minuta (A. Scott) *sensu* Por, 1964
S. normani (T. Scott) *sensu* Gurney, 1927

Beatricella T. Scott, 1905[124]
aemula (T. Scott, 1893)

species incertae sedis
Stenhelia aemula (T. Scott) *sensu* Marinov, 1977

Cladorostrata Shen & Tai, 1963
brevipoda Shen & Tai, 1963
longipoda Shen & Tai, 1963

Melima Por, 1964a[131]
indica (Krishnaswamy, 1957a)
caulerpae Por, 1964a
bisetosa Coull, 1971a
ovalis (Wells & Rao, 1987)
papuaensis Willen, 2002

Pseudostenhelia Wells, 1967
prima Wells, 1967
secunda Wells, 1971[132]
wellsi Coull & Fleeger, 1977[133]

Onychostenhelia Itô, 1979
falcifera Itô, 1979

Anisostenhelia Mu & Huys, 2002[124]
asetosa (Thistle & Coull, 1979)[134]

Hicksia Mu & Huys, 2002[124]
xylophila (Hicks, 1988b)

Family Miraciidae
Taxon incertae sedis
Diosaccidae gen. et sp. Bodin, 1968

Family Balaenophilidae Sars, 1910[135]
Balaenophilus Aurivillius, 1879
(syn. *Harpactichechus* Ortiz, Rogelio Lalana & Torres Fundora, 1992)[136]
unisetus Aurivillius, 1879
umigamecolus Ogawa, Matsuzaki & Misaki, 1997

species incertae sedis
Harpactichechus manatorum Ortiz, Rogelio Lalana & Torres Fundora, 1992[136]

Family Thalestridae Sars, 1905[82]
Subfamily Thalestrinae Sars, 1903[137]
Thalestris Claus, 1863
gibba (Krøyer, 1842)
longimana Claus, 1863
rufoviolascens Claus, 1866
rhodymeniae (Brady, 1894)
frigida T. Scott, 1898
normani T. Scott, 1903
brunnea Sars, 1905

purpurea Sars, 1905
gigas Chislenko, 1980

species incertae sedis
Thalestris microphylla Claus, 1863
T. longipes Boeck, 1865
T. curticornis Boeck, 1865
T. filifera Kričagin, 1877
T. australis Brady, 1899
T. ciliata Brady, 1899
T. northumbrica Brady, 1900
T. denti Brady, 1905
T. sordida Brady, 1910

Amenophia Boeck, 1865
peltata Boeck, 1865
pulchella Sars, 1906
ovalis Brady, 1910
orientalis Ho & Hong, 1988

Parathalestris Brady & Robertson, 1873
croni (Krøyer, 1842)
harpactoides (Claus, 1863)
clausi (Norman, 1868)
hibernica (Brady & Robertson, 1873)
jacksoni (T. Scott, 1898)
coatsi T. Scott, 1912
affinis T. Scott, 1912
intermedia Gurney, 1930
(syn. *Parathalestris plumiseta* Moore, 1976a)[138]
paraharpactoides Lang, 1936
incerta Lang, 1936
similis Lang, 1936
ganio Brehm, 1938
irelandica Roe, 1958
cambriensis Wells, 1964
bulbiseta Lang, 1965a
californica Lang, 1965a
dovi Marcus, 1966
verrucosa Itô, 1970
pacificus Chislenko, 1971
areolata Itô, 1972
patagonica Pallares, 1975d
vinosa Pallares, 1975d
aurantiaca Pallares, 1975d
mourei Masunari, 1988
infestus Ho & Hong, 1988
parviseta Chang & Song, 1997

species incertae sedis
Parathalestris perplexa T. Scott, 1912

species inquirendae
Parathalestris dovi Marcus *sensu* Apostolov, 1977
Parathalestris sp. Bodin, 1964

Phyllothalestris Sars, 1905
mysis (Claus, 1863)
harringtoni Willey, 1935
sarsi Sewell, 1940[79]

species inquirenda
Eudactylopus latipes (T. Scott) *sensu* Por, 1964

Paramenophia Lang, 1954
platysoma (Thompson & A. Scott, 1903)[139]
chilensis Lang, 1954
c. chilensis Lang, 1954
c. tristanensis Wiborg, 1964

Subfamily Eudactylopusinae Willen, 2000
Eudactylopus A. Scott, 1909
robustus (Claus, 1863)
spectabilis (Brian, 1923)
andrewi Sewell, 1940
australis Nicholls, 1941a[140]
atlanticus Vervoort, 1964
lucayosi Geddes, 1969

species incertae sedis
Eudactylopus striatus Sewell, 1940
E. fasciatus Sewell, 1940
E. opima Brian *sensu* Sewell, 1940
E. krusadensis Krishnaswamy, 1952

species inquirendae
Eudactylopus robustus (Claus) *sensu* Geddes, 1969
Eudactylopus sp. Griga, 1961

Neodactylopus Nicholls, 1945a
cyclopoides Nicholls, 1945a[141]
anomala (Sewell, 1940)[141]
trichodes Wells & Rao, 1987

Superfamily Thalestroidea
genera inquirendae[142]
Flavia Brady, 1899
crassicornis Brady, 1899

Dactylopina Brady, 1910
villosa Brady, 1910

Mawsonella Brady, 1918
typica Brady, 1918

Tisemus Monard, 1928
pulchellus Monard, 1928

Superfamily Metoidea Boeck, 1873[142a]
Family Metidae Boeck, 1873[142a]
Metis Philippi, 1843
ignea Philippi, 1843
i. ignea Philippi, 1843
i. halmyricola Marcus & Por, 1961
holothuriae (Edwards, 1891)
natans (Williams, 1907)
pallida Gurney, 1927
galapagoensis Mielke, 1989b
reducta Fiers, 1992a

Laubieria Soyer, 1966
corallicola Soyer, 1966
secunda Wells, 1967
tercera Fiers, 1992a

Superfamily Ameiroidea Boeck, 1865[143]
Family Ameiridae Boeck, 1865[143]
Subfamily Ameirinae Boeck, 1865[143]
Ameira Boeck, 1865
longipes Boeck, 1865
minuta Boeck, 1865
parvula (Claus,1866)[144]
tenuicornis T. Scott, 1902[145]
pusilla T. Scott, 1903[146]
scotti Sars, 1911
s. scotti Sars, 1911
s. brevicornis Monard, 1926
speciosa Monard, 1935
divagans Nicholls, 1939a
d. divagans Nicholls, 1939a
d. africana Kunz, 1963a
d. pontica Marinov, 1973b
usitata Klie, 1950
reducta Petkovski, 1954
atlantica Noodt, 1958a
a. atlantica Noodt, 1958a
a. mediterranea Kunz, 1975
parvuloides Lang, 1965a
lusitanica Galhano, 1970
listensis Mielke, 1973[147]
parascotti Chislenko, 1977
bathyalis Becker & Schriever, 1979
faroerensis Schriever, 1982b
confluens Ranga Reddy, 1984a

species incertae sedis
A. minor Thompson & A. Scott, 1903
A. sibogae A. Scott, 1909
A. spinipes Nicholls, 1939a
A. scotti brasiliensis Jakobi, 1954a
Nitocra marina Yashnov, 1935

species inquirenda
Ameira minuta Boeck *sensu* Wiborg, 1964

Nitocra Boeck, 1865[148]
typica Boeck, 1865
spinipes Boeck, 1865
lacustris (Schmankevitsch, 1895)
l. lacustris (Schmankevitsch, 1895)
l. sinoi Marcus & Por, 1961
l. azorica Kunz, 1983
l. pacifica Yeatman, 1983
l. colombianus Reid, 1988a
hibernica (Brady, 1880)
h. hibernica (Brady, 1880)
h. bulgarica Apostolov, 1976[149]
incerta (Richard, 1893)[149]
elegans (T. Scott, 1904)
fragilis Sars, 1905
platypus Daday, 1906
p. platypus Daday, 1906
p. bakeri Chappuis, 1930
p. pietschmanni Chappuis, 1934
pusilla Sars, 1911
bdellurae (Lidell, 1912)
divaricata Chappuis, 1923
d. divaricata Chappuis, 1923
d. caspicus Behning, 1936
sewelli Gurney, 1927
s. sewelli Gurney, 1927
s. husmanni Kunz, 1976

affinis Gurney, 1927
a. affinis Gurney, 1927
a. rijekana Petkovski, 1954
a. californica Lang, 1965a
a. stygia Por, 1968b
dubia Sars, 1927
mediterranea (Brian, 1928)
m. mediterranea (Brian, 1928)
m. pontica Apostolov, 1980
malaica Kiefer, 1929
minor Willey, 1930
m. minor Willey, 1930
m. mozambica Wells, 1967
reducta (Schäfer, 1936)
r. reducta (Schäfer, 1936)
r. fluviatilis Galhano, 1968
fallaciosa Klie, 1937
f. fallaciosa Klie, 1937
f. baltica Lang, 1965b
pontica Jakubisiak, 1938
cari Petkovski, 1954
uenoi Miura, 1962a
phreatica Bŏzić, 1964
balnearia Por, 1964d
reunionensis Bŏzić, 1969b
elongata Marcus, 1969
hamata Bodin, 1970
balli Rouch, 1972
arctolongus Shen & Tai, 1973
australis Soyer, 1974d
delaruei Soyer, 1974d
blochi Soyer, 1974d
stygia (Apostolov, 1976)
baltica Arlt, 1983
pseudospinipes Yeatman, 1983
intermedia Pesce, 1983a
laingensis Fiers, 1986d
quadriseta Wells & Rao, 1987
sphaeromata Bowman, 1988
bisetosa Mielke, 1993
galapagoensis Mielke, 1997a
humphreysi Karanovic & Pesce, 2002
evergladensis Bruno & Reid in Bruno, Reid & Perry, 2002

species incertae sedis
Dactylopus inuber Schmankevitsch, 1875
Nitocra gracilimana Giesbrecht, 1902
N. woltereckі Brehm, 1909
N. chelifer Wilson, 1932
N. hyperidis Jakobi, 1956

Psyllocamptus T. Scott, 1899
subgenus *Psyllocamptus* T. Scott, 1899
propinquus (T. Scott, 1895)
minutus Sars, 1911
m. minutus Sars, 1911
m. gelatinosus Kunz, 1951
bermudae Willey, 1930
monachus Chappuis, 1938
carolinensis Lindgren, 1975
fuegiensis Pallares, 1982
eridani Ceccherelli, 1988
sinaloensis Gómez, 2002
totoramensis Gómez, 2002
tahuesensis Gómez, 2002

subgenus *Langpsyllocamptus* Kunz, 1975
triarticulatus Lang, 1965a
quinquespinosus Coull, 1970a
longisetosus Kunz, 1975
quadrispinosus Kunz, 1975

Ameiropsis Sars, 1907
brevicornis Sars, 1907[150]
longicornis Sars, 1907[150]
mixta Sars, 1907[151]
nobilis Sars, 1911
angulifera Sars, 1911
minor (Sars, 1920)[152]
reducta Apostolov, 1973b
australis Kunz, 1975

species incertae sedis
Ameiropsis robinsoni Gurney, 1927

Pseudameira Sars, 1911
reflexa (T. Scott, 1894)
crassicornis Sars, 1911[153]
furcata Sars, 1911
gracilis Sars, 1920
mixta Sars, 1920
m. mixta Sars, 1920
m. adriatica Apostolov & Petkovski, 1980
minutissima Monard, 1928
birulai Smirnov, 1946
reducta Klie, 1950
breviseta Klie, 1950
limicola Soyer, 1974e
perplexa Soyer, 1974e

antennulata Schriever, 1984a
trisetosa Schriever, 1984a
signyensis Gee & Fleeger, 1986

species incertae sedis
Pseudameira brevifurca Shen & Bai, 1956

Leptomesochra Sars, 1911
macintoshi (T. & A. Scott, 1895)
confluens Sars, 1911
infima Monard, 1928
attenuata (Nicholls, 1939a)
nasuta Sewell, 1940
hirsuta Wiborg, 1964
theodoridis Soyer, 1966

species inquirenda
Leptomesochra infima Monard *sensu* Bodin, 1964

nomen nudum
Leptomesochra diazi Kunz & Kunz, 1973

Nitocrella Chappuis, 1923
hirta Chappuis, 1923[154]
chappuisi Kiefer, 1926
neutra Kiefer, 1932
omega Hertzog, 1936
vasconica Chappuis, 1937
stammeri Chappuis, 1938[155]
hofmilleri Brehm, 1953
psammophila Chappuis, 1954d
kosswigi Noodt, 1954
(syn. *Nitocrella calcaripes* Damian & Botosaneanu, 1955)[156]
africana Chappuius, 1955a
gracilis Chappuis, 1955b[157]
dussarti Chappuis & Rouch, 1959b
mara Löffler, 1959
slovenica Petkovski, 1959a
japonica Miura, 1962b
yokotai Miura, 1962b
tirolensis Kiefer, 1963[154]
tonsa Michailova-Neikova, 1967
asiatica (Štěrba, 1968a)[158]
reducta (Štěrba, 1968a)[159]
(syn. *N. sterbai* Borutzky, 1969a)
delayi Rouch, 1970b
jankowskajae Borutzky, 1972a
monchenkoi Borutzky, 1972a
kirgizica Borutzky, 1972a
kyzylkumica Borutzky, 1972a
negreai Petkovski, 1973
unispinosa Shen & Tai, 1973
hypogaea Shen & Tai, 1973
stetinai Štěrba, 1973b
afghanica Štěrba, 1973b
nana Štěrba, 1973b
juturna Cottarelli, 1975a
caraioni Petkovski, 1976a
motasi Petkovski, 1976a
cubanorum Petkovski, 1976a
aktereki Borutzky, 1978
tschatcalica Borutzky, 1978
petkovskii Pesce, 1980
paceae Pesce, 1980
somalica Dumont, 1981a
achaiae Pesce, 1981
skyrensis Pesce, 1981
rhodiensis Pesce, 1983b
magii Pesce, 1983c
morettii Pesce, 1984a
fedelitae Pesce, 1985c
stochi Pesce & Galassi, 1986a
spinulosa Apostolov, 1991b
beatricis Cottarelli & Bruno, 1993
pescei Galassi & De Laurentiis, 1997a
kunzi Galassi & De Laurentiis, 1997a
longa Karanovic, 2000a
obesa Karanovic, 2004
trajani Karanovic, 2004
absentia Karanovic, 2004

Sarsameira Wilson, 1924
parva (Boeck, 1873)
longiremis (T. Scott, 1894)[130]
exilis (T. & A. Scott, 1894)
propinqua (T. Scott, 1902)[130]
tenuipes (Thompson & A. Scott, 1903)
major (Sars, 1907)[160]
elongata (Sars, 1909)
giraulti Monard, 1935[161]
boecki (Lang, 1936)
difficilis (Smirnov, 1946)
sarsi Lang, 1948
minor Wells, 1967
peresi Bodin, 1970
longifurcata Becker, 1974
elegantula Kunz, 1975
knorri Reidenauer & Thistle, 1983

species incertae sedis
Parameira pendula Shen & Bai, 1956

species inquirenda
Sarsameira longiremis (T. Scott)
sensu Bodin, 1970

Proameira Lang, 1944
simplex (Norman & T. Scott, 1905)[162]
dubia (Sars, 1920)
arenicola (Lang, 1935)
phaedra (Monard, 1935)
hiddensoensis (Schäfer, 1936)
psammophila Wells, 1963a[163]
signata Por, 1964b
echinipes Soyer, 1974e
thetiensis Pallares, 1982

species incertae sedis
Ameira grandis Nicholls 1939a[164]

Sicameira Klie, 1950
gracilis (A. Scott, 1896)
leptoderma Klie, 1950
langi Rao, 1972
intermedia Marinov, 1973b

Psammameira Noodt, 1952a[164]
hyalina Noodt, 1952a
parasimulans (Lang, 1965a)

species incertae sedis
Ameira simulans T. Scott, 1912

Haifameira Por, 1964a[165]
archibenthoica Por, 1964a
pori Karanovic, 2004

Pseudoleptomesochra Lang, 1965a
typica Lang, 1965a

Praeleptomesochra Lang, 1965a
africana (Kunz, 1951)
pygmaea (Vervoort, 1964)
similis Lang, 1965a
phreatica Pesce, 1981c

Interleptomesochra Lang, 1965a
attenuata (A. Scott, 1896)
tenuicornis (Sars, 1911)[166]
eulitoralis (Noodt, 1952a)
elongata (Bŏzić, 1955)
reducta Lang, 1965a
noodti Galhano, 1968
boguensis Lindgren, 1975

Pseudoleptomesochrella Lang, 1965a
halophila (Noodt, 1952a)
incerta (Chappuis & Delamare Deboutteville, 1956)
marina (Chappuis & Rouch, 1960)
bisetosa Lindgren, 1975
venezolana Mielke, 1995b

Parapseudoleptomesochra Lang, 1965a
subterranea (Chappuis, 1928)
s. subterranea (Chappuis, 1928)
s. deminuta (Chappuis, 1928)
incerta (Chappuis, 1933)
polychaeta (Noodt, 1952a)
iranica (Löffler, 1959)
minoricae (Chappuis & Rouch, 1961)
morimotoi (Miura, 1962a)
pristina Wells, 1967
tridens (Bŏzić, 1969b)
waltairensis Rao & Ganapati, 1969b[167]
iranica (Löffler, 1959)
botosaneanui (Petkovski, 1973)
herirudensis (Štěrba, 1973b)
dubia Kunz, 1975
italica Pesce & Petkovski, 1980
hellenica Pesce, 1981a
attirei Dumont, 1984
syriaca Cottarelli, Puccetti & Saporito, 1985
ommeyyadensis Rouch, 1986
almoravidensis Rouch, 1986
almohadensis Rouch, 1986
fernandezi Rouch, 1986
guadalhorcensis Rouch, 1986
balnearia Rouch, 1986
baeticola Rouch, 1986
karamani Karanovic, 2004
rouchi Karanovic, 2004
mielkei Karanovic, 2004
(syn. *Parapseudoleptomesochra trisetosa* (Krishnasway, 1957b) *sensu* Mielke, 1995b[167]
tureei Karanovic, 2006

species inquirendae
Ameira trisetosa Krishnaswamy, 1957b[167]

Parapseudoleptomesochra sp. Pesce, Tetè & de Simone, 1981
Parapseudoleptomesochra sp. Rouch, 1987

Parevansula Guille & Soyer, 1966
mediterranea Guille & Soyer, 1966
reductiforma (Wells, 1967)
secunda (Wells, 1967)
wellsi (Marinov, 1973b)
elegans (Marinov, 1974a)
vermiformis Moore, 1976a
elongatus Wells & Rao, 1987

Paraleptomesochra Wells, 1967
minima Wells, 1967
wellsi Rao, 1972

Parameiropsis Becker, 1974
peruanus Becker, 1974
rapiens Becker, 1974
magnus Itô, 1983

Limameira Soyer, 1974e
mediterranea Soyer, 1974e

Ameiropsyllus Bodin, 1979a
arianus (Monard, 1928)
monardi Bodin, 1979a

species incertae sedis
Ameira arianus alexandrinus Steuer, 1943

Pseudoameiropsis Pallares, 1982
argentinus Pallares, 1982

Psammonitocrella Rouch, 1992a[168]
boultoni Rouch, 1992a
longifurcata Rouch, 1992a

Psammoleptomesochra Mielke, 1994c
australis Mielke, 1994c

Filexilia Conroy-Dalton & Huys, 1996
trisetosa Conroy-Dalton & Huys, 1996
(syn. *Ameira longicaudata* Nicholls, 1939a)[169]
attenuata (Thompson, 1893)
(syn. *Ameira tenella* Sars, 1907
A. brevipes Kunz *sensu* Wells, 1970)[169]
brevipes (Kunz, 1954)[170]
pestae (Petkovski, 1955c)
longifurca (Bodin, 1964)[169]
gravellicola (Guille & Soyer, 1966)
intermedia (Galhano, 1970)
azorica Conroy-Dalton & Huys, 1996
marinovi Conroy-Dalton & Huys, 1996

species inquirenda
Ameira brevipes pestae Petkovski *sensu* Apostolov, 1977

Glabrameira Conroy-Dalton & Huys, 1996
bengalensis (Rao & Ganapati, 1969a)

Nitocrellopsis Galassi, De Laurentiis & Dole-Olivier, 1999
(syn. *Nitocrellopsis* Petkovski, 1976a)[171]
intermedia (Chappuis, 1937)
elegans (Chappuis & Rouch, 1959a)[157]
ioneli (Dumont & Decraemer, 1974)[172]
petkovskii Rouch, 1987
hellenica Cottarelli & Forniz, 1993
hippocratis Cottarelli & Forniz, 1993
rouchi Galassi, De Laurentiis & Dole-Olivier, 1999
texana Fiers & Iliffe, 2000
ahaggarensis Fiers & Iliffe, 2000

Inermipes Lee & Huys, 2002
humphreysi Lee & Huys, 2002

Neonitocrella Lee & Huys, 2002
insularis (Miura, 1962a)

Stygonitocrella Reid, Hunt & Stanley, 2003
(syn. *Stygonitocrella* Petkovski, 1976a)[171]
subgenus *Stygonitocrella* Reid, Hunt & Stanley, 2003[173]
(syn. subgenus *Eustygonitocrella* Suárez-Morales & Iliffe, 2005)[173]
dubia (Chappuis, 1937)
karamani (Petkovski, 1959a)
ljovuschkini (Borutzky, 1967)
colchica (Borutzky & Michailova-Neikova, 1970)
petkovskii (Pesce, 1985d)
sequoyahi Reid, Hunt & Stanley, 2003

subgenus *Fiersiella* Suárez-Morales & Iliffe, 2005[173]
montana (Noodt, 1965)
tianschanica (Borutzky, 1972a)
pseudotianschanica (Štěrba, 1973b)

orghidani (Petkovski, 1973)
guadalfensis (Rouch, 1985)
mexicana Suárez-Morales & Iliffe, 2005
trispinosa Karanovic, 2006
unispinosa Karanovic, 2006
bispinosa Karanovic, 2006

species inquirenda
Stygonitocrella djirgalanica Borutzky, 1978

Hirtaleptomesochra Karanovic, 2004
bispinosa Karanovic, 2004

Novanitocrella Karanovic, 2004
aboriginesi Karanovic, 2004
aestuarina (Coull & Bell, 1979)[167]

Raoleptomesochra Karanovic, 2004
reducta (Rao, 1972)

Biameiropsis Karanovic, 2006
abbreviata (Sars, 1911)
barrowi Karanovic, 2006

Archinitocrella Karanovic, 2006
newmanensis Karanovic, 2006

Abnitocrella Karanovic, 2006
halsei Karanovic, 2006
eberhardi Karanovic, 2006

Subfamily Stenocopiinae Lang, 1944
Stenocopia Sars, 1907
longicaudata (T. Scott, 1892)
l. longicaudata T. Scott, 1892
l. pontica Griga, 1962
spinosa (T. Scott, 1892)[174]
setosa Sars, 1907
antarctica Brady, 1910
limicola Willey, 1935
longiseta Bǒzić, 1964[175]
reducta Cottarelli, Saporito & Puccetti, 1986a
sarsi Mielke, 1997a

species inquirenda
Stenocopia sp. Pesta, 1959

Malacopsyllus Sars, 1911
fragilis Sars, 1911
hades Becker, 1974
hirsutus Itô, 1983

Anoplosoma Sars, 1911
sordidum Sars, 1911
stryx Por, 1964

Family Ameiridae
species incertae sedis
Ameira exigua T. Scott, 1894[164]
A. grandis Nicholls, 1939a (male only)[164]
Psammameira reducta Wells, 1967[164]

Family Cancrincolidae Fiers, 1990
Cancrincola Wilson, 1913
jamaicaensis Wilson, 1913
plumipes Humes, 1941
abbreviata Humes, 1957a
longiseta Humes, 1957a

Antillesia Humes, 1958
cardisomae Humes, 1958

Neocancrincola Mañé-Garzón & Sobota, 1974
platensis Mañé-Garzón & Sobota, 1974

Abscondicola Fiers, 1990a
humesi Fiers, 1990a

Family Argestidae Por, 1986a[176]
Argestes Sars, 1910[177]
mollis Sars, 1910

Fultonia T. Scott, 1902
hirsuta T. Scott, 1902
bougisi Soyer, 1964b
gascognensis Bodin, 1968

species incertae sedis
Argestes sarsi Smirnov, 1946

Mesocletodes Sars, 1909
monensis (Thompson, 1893)
irrasus (T. & A. Scott, 1894)
abyssicola (T. & A. Scott, 1901)
inermis Sars, 1920
brevifurca Lang, 1936
makarovi Smirnov, 1946
langi Smirnov, 1946
dolichurus Smirnov, 1946
arenicola Noodt, 1952a

bathybia Por, 1964a
glaber Por, 1964b
katharinae Soyer, 1964d
guillei Soyer, 1964d
robustus Por, 1965
fladensis Wells, 1965a
farauni Por, 1967
soyeri Bodin, 1968
commixtus Coull, 1973d
carpinei Soyer, 1975a
bodini Soyer, 1975a
ameliae Soyer, 1975a
parirrasus Becker, 1979
sarsi Becker, 1979
trisetosa Schriever, 1983
parabodini Schriever, 1983
variabilis Schriever, 1983
duosetosus Schriever, 1985b
thieli Schriever, 1985b
faroerensis Schriever, 1985b
kunzi Schriever, 1985b
quadrispinosa Schriever, 1985b
opoteras Por, 1986b

nomen nudum
Mesocletodes gigas Por, 1965

Eurycletodes Sars, 1909
subgenus *Eurycletodes* Sars, 1909
laticaudata (Boeck, 1873)
serratus Sars, 1920
rectangulatus Lang, 1936
gorbunovi Smirnov, 1946

subgenus *Oligocletodes* Lang, 1944
latus (T. Scott, 1892)
similis (T. Scott, 1895)
major Sars, 1909
oblongus Sars, 1920
aculeatus Sars, 1920
minutus Sars, 1920
verisimilis Willey, 1935
arcticus Lang, 1936
abyssi Lang, 1936
echinatus Lang, 1936
hoplurus Smirnov, 1946
monardi Smirnov, 1946[178]
uniarticulatus Smirnov, 1946
parasimilis Por, 1959a
irelandica Roe, 1960
petiti Soyer, 1964a
denticulatus Por, 1967
pori Drzycimski, 1969
(syn. *Eurycletodes echinatus* Lang *sensu* Por, 1965)
peruanus Becker, 1979
quadrispinosa Schriever, 1986a

species not assignable to either subgenus
ephippiger Por, 1964a[179]
profundus Becker, 1979

Eurycletodes nomen nudum
Eurycletodes sarsorum Por, 1965

Leptocletodes Sars, 1920
debilis Sars, 1920
chaetophorus Smirnov, 1946

species inquirenda
Leptocletodes sp. Soyer, 1964d

Argestigens Willey, 1935
uniremis Willey, 1935
glacialis Lang, 1936
abyssalis Becker, 1979

Hemicletodes Lang, 1936
typicus Lang, 1936

Parargestes Lang, 1948
tenuis (Sars, 1921)
t. tenuis (Sars, 1921)
t. arcticus Lang, 1936

Odiliacletodes Soyer, 1964d
gracilis Soyer, 1964d

Corallicletodes Soyer, 1966
boutierei Soyer, 1966

Neoargestes Drzycimski, 1967
variabilis Drzycimski, 1967
incertus Becker, 1979

Hypalocletodes Por, 1967
salomonis Por, 1967
aberrans (Marinov, 1973c)

Dizahavia Por, 1979
halophila Por, 1979

Austrocletodes Pallares, 1979
tricomatosum Pallares, 1979

Abyssameira Itô, 1983[177]
reductus Itô, 1983

Megistocletodes Por, 1986b
translucens Por, 1986b

Argestoides Huys & Conroy-Dalton, 1997
prehensilis Huys & Conroy-Dalton, 1997

Family Argestidae
genus incertae sedis
Bodinia George, 2004
meteorensis George, 2004
peterrummi George, 2004

Family Tetragonicipitidae Lang, 1944
Tetragoniceps Brady, 1880
malleolatus Brady, 1880
brevicauda T. Scott, 1899
dubius Thompson & A. Scott, 1903
scotti Sars, 1911
truncata Nicholls, 1939
longicaudata Nicholls, 1939
arenicolus Krishnaswamy, 1957a
bergensis Por, 1965
brownei Wells, 1967
bookhouti Coull, 1971a
prima (Coull, 1971a)
unguis Wells & Rao, 1987
galapagoensis Mielke, 1989a
santacruzensis Mielke, 1997b
pacificus Burgess, 1998

nomen nudum
Tetragoniceps profondus Por, 1965

Phyllopodopsyllus T. Scott, 1906
bradyi (T. Scott, 1892)
minor (Thompsonn & A. Scott, 1903)
furciger Sars, 1907
longicaudatus Sars, 1909[180]
mossmani T. Scott, 1912
(syn. *Phyllopodopsyllus paramossmani* Lang, 1934)[181]
m. mossmani T. Scott, 1912
m. chiloensis Mielke, 1992a
berrieri Monard, 1936[182]
aegypticus Nicholls, 1944
minutus Lang, 1948
bermudae Lang, 1948
xenus (Kunz, 1951)
longipalpatus (Chappuis, 1954a)
l. longipalpatus (Chappuis, 1954a)
l. madagascarensis Kunz, 1984a[183]
l. hawaiiensis Kunz, 1984b
briani Petkovski, 1955
thiebaudi Petkovski, 1955
t. thiebaudi Petkovski, 1955
t. santacruzensis Mielke, 1989a
hibernicus (Roe, 1955)
hardingi (Roe, 1955)
pauli Crisafi, 1960[184]
danielae Bodin, 1964
medius Por, 1964a
laticauda Por, 1964a
borutzkyi Lang, 1965a
parabradyi Lang, 1965a
biarticulatus Wells, 1967
bahamensis Geddes, 1968a
opisthoceratus Geddes, 1968a
parafurciger Geddes, 1968a
p. parafurciger Geddes, 1968a
p. carolinensis Coull, 1971a
hermani Coull, 1969b
paraxenus Coull, 1970b
chavei Coull, 1970b
laspalmensis Marinov, 1973c
langi Kunz, 1975
paraborutzkyi Kunz, 1975
curtus Marcus, 1976a
simplex Kitazima, 1981
punctatus Kitazima, 1981
setouchiensis Kitazima,1981[185]
angolensis Kunz, 1984a
petkovskii Kunz, 1984b
geddesi Kunz, 1984b
gertrudi Kunz, 1984b
g. gertrudi Kunz, 1984b
g. costaricensis Mielke, 1992b
mielkei Kunz, 1984b[185]
m. mielkei Kunz, 1984b
m. californicus Kunz, 1984b

alatus Fiers, 1986d
crenulatus Wells & Rao, 1987
stigmosus Wells & Rao, 1987
tenuis Wells & Rao, 1987
gracilipes Wells & Rao, 1987
galapagoensis Mielke, 1989a
kunzi Mielke, 1989a
ancylus Mielke, 1992b
carinatus Mielke, 1992b
pallaresae Kunz, 1995a
hartmannorum Kunz, 1995a
yucatanensis Fiers, 1995
wellsi Karanovic, Pesce & Humpreys, 2001

species incertae sedis
Paraphyllopodopsyllus tristanensis Wiborg, 1964

species inquirenda
Phyllopodopsyllus thiebaudi Petkovski *sensu* Wells & McKenzie, 1973

nomen nudum
Phyllopodopsyllus dissimilis Brian, 1923

Pteropsyllus T. Scott, 1906
consimilis (T. Scott, 1894)
plebeius Monard, 1935
p. plebeius Monard, 1935
p. furcatus Kunz, 1938
trisetosus Mielke, 1989a

Diagoniceps Willey, 1930
laevis Willey, 1930[186]
mexicana Fiers, 1995

Oniscopsis Chappuis, 1954b
pauliani Chappuis, 1954b
robinsoni Chappuis & Delamare Deboutteville, 1956
inabai Kitazima, 1983
dimorphus Wells & Rao, 1987

Protogoniceps Por, 1964a
hebraeus Por, 1964a

Paraschizopera Wells, 1981
beckeri Wells, 1981
menaiensis (Geddes, 1968e)[187]
trifida (Yeatman, 1980)

Aigondiceps Fiers, 1995
bocki (Lang, 1948)[186]
kunzi (Marinov, 1974b)
brevicauda (Huys, 1995b)

Odaginiceps Fiers, 1995
clarkae Fiers, 1995
elegantissima Fiers, 1995
xamaneki Fiers, 1995
immanis Fiers & de Troch, 2000

Godianiceps Fiers, 1995
maya Fiers, 1995

Mwania Fiers & de Troch, 2000
phytocola Fiers & de Troch, 2000

Neogoniceps Fiers & de Troch, 2000
martinezi Fiers & de Troch, 2000

Family Tetragonicipitidae
genus incertae sedis
Laophontella Thompson & A. Scott, 1903
typica Thompson & A. Scott, 1903
horrida (Por, 1964a)
h. horrida (Por, 1964a)
h. dentata Mielke, 1992b
h. namibiensis Kunz, 1994b

species inquirenda
Diagoniceps monodi Chappuis & Kunz, 1955

Family Canthocamptidae Brady, 1880[188, 189]
Subfamily Canthocamptinae Brady, 1880[189]
Canthocamptus Westwood, 1836[190]
staphylinus (Jurine, 1820)[191]
glacialis Lilljeborg, 1902
microstaphylinus Wolf, 1905[191]
m. microstaphylinus Wolf, 1905
m. monardi Roy, 1927
staphylinoides Pearse, 1905[192]
s. staphylinoides Pearse, 1905
s. sinuus Coker, 1934
iaponicus Brehm, 1927[193]
baikalensis Borutzky, 1930
verestschagini (Borutzky, 1931)
assimilis Kiefer, 1931[192]
vagus Coker & Morgan, 1940[192]
longifurcatus Borutzky, 1947
bulbifer Borutzky, 1947

latus Borutzky, 1947
oregonensis Wilson, 1956a
robertcokeri Wilson, 1958a
mirabilis Štěrba, 1968a[194]
kunzi Apostolov, 1969a
morimotoi Miura, 1969a[195]
carinatus Shen & Sung, 1973
gibba Okuneva, 1983
prominulus Kikuchi in Kikuchi & Ishida, 1994
semicirculus Kikuchi in Kikuchi & Ishida, 1994
resupinatus Ishida in Kikuchi & Ishida, 1994
tomikoae Ishida in Kikuchi & Ishida, 1994
kitaurensis Kikuchi in Ishida & Kikuchi, 1999
macrosetifer Ishida in Ishida & Kikuchi, 1999
takkobuensis Ishida in Ishida & Kikuchi, 1999
odaeensis Chang & Ishida, 2001
incurvisetosus Chang & Ishida, 2001
coreensis Chang, 2002

species incertae sedis
Canthocamptus elegantulus Fischer, 1860
C. mareoticus Fischer, 1860
C. ornatus Daday, 1884
C. minnesotensis Herrick, 1884
C. mobiliensis Herrick, 1887
C. cavernarum Packard, 1888
C. balatonicus Daday, 1894
C. tatricus Daday, 1897
C. tentaculatus Daday, 1897
C. sculptus Delachaux, 1917
C. truncatus Delachaux, 1918
C. menzeli Delachaux, 1923
C. acanthophorus Delachaux, 1923
C. howardorum Hamond, 1987[183]
C. sublaevis Hamond, 1987[183]
C. mirabilis Štěrba *sensu* Itô & Takashio, 1980

species inquirendae
Canthocamptus minnesotensis Herrick, 1884[192]
C. mirabilis Štěrba *sensu* Ishida and others[194]
C. cf. *microstaphylinus* (Jurine) Dussart, 1984
Attheyella amurensis Borutzky *sensu* Shen & Sung, 1973[196]

Mesochra Boeck, 1865
lilljeborgi Boeck, 1865
pygmaea (Claus, 1863)
rapiens (Schmeil, 1894)
inconspicua (T. Scott, 1899)[150]
meridionalis Sars, 1905
nana Brady, 1910
aestuarii Gurney, 1921
timsae Gurney, 1927
rostrata Gurney, 1927[197]
wolskii Jakubisiak, 1933[198]
flava Lang, 1933[199]
heldti Monard, 1935[200]
armoricana Monard, 1935[201]
xenopoda Monard, 1935
arenicola Nicholls, 1939a
parva Thomson, 1946[202]
pestai Lang, 1948
sewelli Lang, 1948
anomala Klie, 1950
suifunensis Borutzky, 1952
paranaensis Jakobi, 1954a
stellfeldi Jakobi, 1954a
dulcicula Jakobi, 1956
alaskana Wilson, 1958a
lindbergi Petkovski, 1964a
quadrispinosa Shen & Tai, 1965
pontica Marcus, 1965
mexicana Wilson, 1971[203]
baylyi Hamond, 1971
hinumaensis Kikuchi, 1972
schmidti Mielke, 1974
bodini Kunz, 1975
pallaresae Soyer, 1977[204]
pacifica Gómez Noguera & Fiers, 1997
pseudoparva Gómez Noguera & Fiers, 1997

species incertae sedis
Mesochra lybica Blanchard & Richard, 1891

species inquirendae
Mesochra prowazeki Douwe, 1907
M. reducta Klie, 1950
M. pygmaea (Claus) *sensu* Nicholls, 1941
M. rapiens (Schmeil) *sensu* Por, 1960
M. heldti Monard *sensu* Margalef, 1953, Bodin, 1972a
Mesochra sp. Sewell, 1940
Mesochra sp. Hamond, 1971

nomina nuda
Mesochra kroeyeri Boeck, 1865
M. minuta Boeck, 1873
M. adriatica Car, 1884
M. salina Labbé, 1924

Attheyella Brady, 1880[205]
subgenus *Attheyella* Brady, 1880
crassa (Sars, 1862)
wierzejskii (Mrázek, 1893)
idahoensis (Marsh, 1903)
obatogamensis (Willey, 1925)
nakaii (Brehm, 1927)
(syn. *Attheyella morimotoi* Miura, 1962b)[206]
orientalis Chappuis, 1929
o. orientalis Chappuis, 1929
o. afghanica Petkovski, 1960
o. mesasiatica Borutzky, 1969b
o. heterospina Shen & Tai, 1964a[207]
gladkovi Borutzky, 1938
g. gladkovi Borutzky, 1938
g. sibirica Borutzky, 1969b
coiffaiti Chappuis, 1958[208]
heterospina Shen & Tai, 1964a
nepalensis Löffler, 1968
coreana Miura, 1969a[209]
paucisetosa Chang & Kim, 1992[210]
yesoensis Ishida, 1993
namkungi Kim, Soh & Lee, 2005

species incertae sedis
Attheyella alaskaensis Wilson, 1958a
A. jureiae Por & Hadel, 1986[211]
(syn. *Attheyella santaremensis* Ebert, 1976
Mesochra sancarlensis Rocha & Matsumura-Tundisi, 1976)
A. coreana Miura *sensu* Ishida & Itô, 1991, Chang, 1993, Chang & Lee 2003[209]

subgenus *Chappuisiella* Brehm, 1926
crenulata (Mrázek, 1901)[212]
(syn. *Attheyella ekmani* Kiefer, 1933
A. quillehuensis Löffler, 1961a)
australica Sars, 1908[213]
fuhrmanni (Thiébaud, 1914)[214]
(syn. *Canthocamptus derelicta* Brian, 1927)
godeti (Delachaux, 1917)
huaronensis (Delachaux, 1917)
guyanensis (Delachaux, 1923)
oculta (Kiefer, 1926)
subdola (Brian, 1927)
maorica (Brehm, 1928)[215]
ruttneri Chappuis, 1931
minuta Chappuis, 1931
m. minuta Chappuis, 1931
m. incerta Chappuis, 1931
inopinata Chappuis, 1931
palustris Chappuis, 1939
hirsuta Chappuis, 1950b[213]
levigata Löffler, 1961a
pichilafquensis Löffler, 1961a
rotoruensis Lewis, 1972a
bullata Ebert & Noodt, 1975
camposi Ebert & Noodt, 1975
chilensis Ebert & Noodt, 1975
laciniata Ebert & Noodt, 1975
vivianii Ebert & Noodt, 1975
orinocoensis Dussart, 1984c
ablatifurcata (Hamond, 1987)
ilami Dumont & Maas, 1988
lewisae nom. nov.[216]
(syn. *Attheyella fluviatilis* Lewis, 1972a)

nomen nudum
Attheyella puyehuensis Löffler, 1961a

subgenus *Delachauxiella* Brehm, 1926
lanata (Mrázek, 1901)[217]
trigonura (Ekman, 1905)
aculeata (Thiébaud, 1914)
insignis (Delachaux, 1917)
maxima (Delachaux, 1917)
ferox (Delachaux, 1918)
longiseta (Henry, 1922)[218]
horvathi (Chappuis, 1924)
dadayi (Chappuis, 1924)
hannae (Kiefer, 1926)
bennetti Brehm, 1927[213]
brehmi Kiefer, 1928[213]
incae (Brehm, 1936)
tasmaniae Chappuis, 1950b
fimbriata (Brehm, 1951a)
salvatoris (Brehm, 1951a)
incerta (Brehm, 1951a)
clavigera Harding, 1955
inconstans Harding, 1955
i. inconstans Harding, 1955
i. egena Harding, 1955
schindleri Kiefer, 1957a
pauliani Chappuis, 1958d
reducta Chappuis, 1958d
serrata Löffler, 1961a[217]
biarticulata Löffler, 1961a
wieseri Löffler, 1961a
ornata Löffler, 1961a
ciliata Löffler, 1961a

nuda Löffler, 1961a
freyi Löffler, 1963
stillicidarum Lewis, 1972a
humidarum Lewis, 1972a
broiensis (Rocha & Matsumara-Tundisi, 1976)[219]
henryae (Hamond, 1987)
lacinulata (Hamond, 1987)
echinopyge (Hamond, 1987)
longifurca (Hamond, 1987)
globulisetosa (Hamond, 1987)
mortoni (Hamond, 1987)
timmsi (Hamond, 1987)
dedeckkeri (Hamond, 1987)
clavifurcata (Hamond, 1987)
caecosetosa (Hamond, 1987)
longipes (Hamond, 1987)
dumonti (Hamond, 1987)[220]
mammillifurca (Hamond, 1987)[220]
yemanjae Reid, 1994a

species inquirendae
Canthocamptus ensifer Delachaux, 1917
C. lanceolatus Delachaux, 1918[221]
C. misogynus Brehm, 1928[222]

subgenus *Ryloviella* Borutzky, 1930[223]
pilosa Chappuis, 1928[224]
carolinensis Chappuis, 1932
baikalensis Borutzky, 1930
amurensis Borutzky, 1937[225]

subgenus *Canthosella* Chappuis, 1931
kalima (Delachaux, 1923)[226]
muscicola (Chappuis, 1928)
lacustris Chappuis, 1931
fluviatilis Chappuis, 1931
aliena Noodt, 1956
vietnamica Borutzky, 1967
siolii (Kiefer, 1967)
silvicola Löffler, 1973
antillica (Petkovski, 1973)
vera Por & Hadel, 1986
striblingi (Reid, 1990)[227]
mervini Janetzky, Martínez Arbizu & Reid, 1996
pilagaensis Janetzky, Martínez Arbizu & Reid, 1996[226]

subgenus *Mrazekiella* Brehm, 1949[228]
dentata (Poggenpol, 1874)
d. dentata (Poggenpol, 1874)
d. trisaetosa Chappuis, 1929
d. otmanli Apostolov, 1969a
illinoisensis (Forbes, 1876)[229]
i. illinoisensis (Forbes, 1876)
i. hyperborea (Willey, 1925)
i. volgensis Borutzky, 1952
trispinosa (Brady, 1880)
americana (Herrick, 1884)[230]
nordenskioldi (Lilljeborg, 1902)[229]
wulmeri (Kerhervé, 1914)[231]
(syn. *Attheyella wulmeri osmana* Kiefer, 1955
A. naphtalica Por, 1983c
A. paranaphtalica Pesce & Galassi, 1988a)
northumbricoides (Brehm, 1923)
dogieli (Rylov, 1923)
borutzkyi Smirnov, 1930
stachanovi Borutzky, 1931
ussuriensis Rylov, 1933
quinquespinosa Shen & Tai, 1964a
alta Shen & Sung, 1965a
mongoliana Shen & Chang, 1966
yunnanensis Shen & Tai, 1979
meridionalis Dussart, 1982
spinipes Reid, 1987
byblis Chang & Kim, 1992[210]
tetraspinosa Chang, 1993

species incertae sedis
Attheyella vulmeroides Borutzky, 1930
Canthocamptus northumbricus var. coronatus Daday, 1913
C. weigoldi Brehm, 1923

Attheyella species incertae sedis
Attheyella cingalensis Brady, 1886
A. africana Brady, 1907
A. warreni Brady, 1913
A. capensis Rühe, 1914
Canthocamptus richardi Lowndes, 1934
C. billwilliamsi Hamond, 1987[232]

Maraenobiotus Mrázek, 1893[205]
vejdovskyi Mrázek, 1893
v. vejdovskyi Mrázek, 1893
v. zschokkei Kreis, 1920
v. tenuispina Roy, 1924
v. anglicus Gurney, 1932
v. truncatus Gurney, 1932
brucei (Richard, 1898)
b. brucei (Richard, 1898)[233]
b. carpathicus Chappuis, 1928
b. himalayensis Chappuis, 1928
b. malayicus Chappuis, 1931
b. caucasicus Borutzky, 1934
b. africanus Chappuis, 1935
insignipes (Lilljeborg, 1902)
i. insignipes (Lilljeborg, 1902)
i. alpinus Keilhack, 1909
i. indicus Chappuis, 1928
i. elgonensis Chappuis, 1935
i. altissimus Löffler, 1968
i. nepalensis Löffler, 1968
i. kyzylkumicus Borutzky, 1972a
affinis Daday, 1903
naticochensis Delachaux, 1917
aischghoi (Schiklejew, 1930)
fontinalis Harding, 1955
fontinaloides Löffler, 1960
kenyensis Löffler, 1965a
cuspidatus Štěrba, 1968a
mongolicus Štěrba, 1968a
kinabaluensis Löffler, 1973
subterraneus Flössner, 1988
husmanni Flössner, 1988
parainsignipes Apostolov, 1991c
canadensis Flössner, 1992
veris Ishida, 1995b
australis Apostolov, 2001a

species incertae sedis
Maraenobiotus danmarki Brehm, 1911

Epactophanes Mrázek, 1893[234]
richardi Mrázek, 1893
philippinus Bruno & Cottarelli, 1999

Moraria T. & A. Scott, 1893[235]
brevipes (Sars, 1862)
poppei (Mrázek, 1893)
p. poppei (Mrázek, 1893)
p. meridionalis Chappuis, 1929
duthiei (T. & A. Scott, 1896)
similis (Lilljeborg, 1902)
mrazeki T. Scott, 1903
m. mrazeki T. Scott, 1903
m. macedonica Petkovski, 1956
subterranea (Carl, 1904)
varica (Graeter, 1911)
mongolica (Daday, 1913)
arboricola Scourfield, 1915
stankovitchi Chappuis, 1923
laurentiaca Willey, 1927
affinis Chappuis, 1927
cristata Chappuis, 1928
pectinata Thiébaud & Pelosse, 1928[236]
baikalensis Borutzky, 1930
dentata Borutzky, 1930
laticauda Borutzky, 1930
intermedia Borutzky, 1930
tenuicauda Borutzky, 1930
sphagnicola Gurney, 1930
denticulata Chappuis, 1938
frondicola Klie, 1943
virginiana Carter, 1944
cornuta Borutzky, 1948a
operculata Borutzky, 1948a
coronata Borutzky, 1949
magna Borutzky, 1949
stylata Borutzky, 1949
werestschagini Borutzky, 1949
acuta Borutzky, 1952
brevicauda Borutzky, 1952
longicauda Borutzky, 1952
ovicauda Borutzky, 1952
phyllura Borutzky, 1952
sinuata Borutzky, 1952
catalana Chappuis & Kiefer, 1952
michielettoae Brian, 1955
colchica (Borutzky & Michailova-Neikova, 1970)
fontinalis Flössner, 1970
tomilovi Borutzky, 1972b
hostensis Borutzky, 1972c
litoralis Borutzky & Okuneva, 1972a
spinulosa Borutzky & Okuneva, 1972a
gracilipes Borutzky & Okuneva, 1972a
pseudobrevipes Borutzky & Okuneva, 1972a
valkanovi Michailova-Neikova, 1973a
bureschi Bassamakov & Apostolov, 1976
linevitchi Okuneva, 1981
arenosa Okuneva, 1983
mazepovi Okuneva, 1983

minor Okuneva, 1983
radovnae Brancelj, 1988[237]
ilami Dumont & Maas, 1988
arctica Flössner, 1988
terrula Kikuchi, 1991a
tsukubaensis Kikuchi, 1991b
jana Karanovic, 1997
alpina Stoch, 1998a
utulikensis Evstigneeva, 2001
hudsoni Reid & Lesko, 2003

species inquirendae
Moraria cristata Chappuis *sensu* Wilson, 1936[238]
Canthocamptus monticola Menzel, 1912[239]

Itunella Brady, 1896
tenuiremis (T. Scott, 1893)
muelleri (Gagern, 1922)
bacescoi Chappuis & Serban, 1953[240]
intermedia Apostolov, 1975

Ceuthonectes Chappuis, 1924
serbicus Chappuis, 1924
(syn. *Morariodes colchidiana* Borutzky, 1930)[241]
gallicus Chappuis, 1928
hungaricus Ponyi, 1958
mirabilis Miura, 1964
chappuisi Rouch, 1980
vievilleae Rouch, 1980
rouchi Petkovski, 1984
pescei Cottarelli & Saporito, 1985
petkovskii Karanovic, 1999b
haemusi Apostolov, 2000a
bulbiseta Apostolov, 2002
boui Apostolov, 2002

Bryocamptus Chappuis, 1928[242]
subgenus *Bryocamptus* Chappuis, 1928[243]
pygmaeus (Sars, 1862)
minutus (Claus, 1863)
m. minutus (Claus, 1863)
m. schizodon (Mrázek, 1893)
m. simplicidentata (Willey, 1934)
m. vejdovskyiformis Kiefer, 1934
vejdovskyi (Mrázek, 1893)
(syn. *Canthocamptus miniscules* Willey, 1925)[244]
v. vejdovskyi (Mrázek, 1893)
v. minutiformis Kiefer, 1934
typhlops (Mrázek, 1893)
(syn. *Bryocamptus unisaetosus* Kiefer, 1930)[245]
zschokkei (Schmeil, 1893)[246]
z. zschokkei (Schmeil, 1893)
z. tatrensis (Minkiewicz, 1916)
(syn. *Bryocamptus caucasicus* Borutzky, 1930)
z. frigidus Willey, 1925
z. alleganiensis Coker, 1934
z. yunnanensis Shen & Tai, 1964a
z. sinkiangensis Shen & Sung, 1965b
weberi (Kessler, 1914)
mrazeki (Minkiewicz, 1916)
pyrenaicus (Chappuis, 1923)
gauthieri (Roy, 1924)
hiatus (Willey, 1925)
(syn. *Bryocamptus australis* Coker, 1934)[247]
subarcticus (Willey, 1925)
newyorkensis (Chappuis, 1927)[248]
hutchinsoni Kiefer, 1929
bulbochaetus Borutzky, 1930
tauricus Borutzky, 1930
incertus Borutzky, 1930
longisetosus Borutzky, 1930
longifurcatus Borutzky, 1930
baikalensis Borutzky, 1930[253]
rylovi Borutzky, 1930
balcanicus Kiefer, 1932[249]
spinulosus Borutzky, 1934
s. spinulosus Borutzky, 1934
s. occidentalis Štěrba, 1961
s. triarticulatus Štěrba, 1968a
tarnogradskyi Borutzky, 1934
aquaeductus Borutzky, 1934[250]
dentatus Chappuis, 1937
birsteini Borutzky, 1940
bispinosus Borutzky, 1940
innominatus Borutzky, 1940
reductus Borutzky, 1948a
chappuisi Borutzky, 1948b
cokeri Borutzky, 1948b
tuberculatus Borutzky, 1948b
brevipes Borutzky, 1948c
umiatensis Wilson, 1958a
washingtonensis Wilson, 1958
borutzkyi Petkovski, 1960
madarensis Apostolov, 1969a
pirgos Apostolov, 1969a
kozhowi Borutzky & Okuneva, 1971
tenuis Borutzky & Okuneva, 1971
longicaudatus Borutzky & Okuneva, 1972b
abyssicola Borutzky & Okuneva, 1972b
sinuatus Borutzky & Okuneva, 1972b

elaphoides Borutzky & Okuneva, 1972b
cristatus Borutzky & Okuneva, 1972b
crassipes Borutzky & Okuneva, 1972b
denticulatus Borutzky & Okuneva, 1972b
saxicola Borutzky & Okuneva, 1972b
littoralis Borutzky & Okuneva, 1972b
intercalaris Shen & Tai, 1973
albidus Okuneva, 1983
pilosus Flössner, 1989
aberrans Apostolov & Pesce, 1991
campaneri (Reid, 1994a)[251]
mirus Petkovski & Karanovic, 1997
yohteiensis Ishida, 1997
borus Karanovic & Bobic, 1998
alosensis Apostolov, 1998a

subgenus *Arcticocamptus* Chappuis, 1928
alpestris (Vogt, 1845)
rhaeticus (Schmeil, 1893)
r. rhaeticus (Schmeil, 1893)
r. bavaricus (Gagern, 1942)
cuspidatus (Schmeil, 1893)[252]
c. cuspidatus (Schmeil, 1893)
c. ekmani (Kessler, 1913)
c. kessleri (Lang, 1931)
c. harzicus (Gagern, 1938)
c. intermedius Flössner, 1988
unisetiger (Graeter, 1899)
arcticus (Lilljeborg, 1902)
vandouwei (Kessler, 1914)
laccophilus (Kessler, 1914)
arndti (Kiefer, 1924)
a. arndti (Kiefer, 1924)
a. bogomilis (Petkovski, 1962)
bryobates (Monard, 1928)
abnobensis Kiefer, 1929
krochini (Borutzky, 1951)
tikchikensis Wilson, 1958c
macedonicus (Petkovski, 1962)
caucasicus (Štěrba, 1968a)
modernus (Štěrba, 1968a)
bryophillus (Michailova-Neikova, 1973b)

subgenus *Limocamptus* Chappuis, 1928
echinatus (Mrázek, 1893)
hiemalis (Pearse, 1905)
h. hiemalis (Pearse, 1905)
h. verestschagini (Borutzky, 1930)
h. yunnanensis (Borutzky, 1952)
h. elongatus (Shen & Tai, 1964a)
h. yetti Löffler, 1968
hoferi (Douwe, 1907)
praegeri (Scourfield, 1912)
dacicus (Chappuis, 1923)
douwei (Willey, 1925)
nivalis (Willey, 1925)
calvus (Brehm, 1927)
morrisoni (Chappuis, 1928)
m. morrisoni (Chappuis, 1928)
m. elegans (Chappuis, 1928)
horai (Chappuis, 1928)
smirnovi (Borutzky, 1930)
parvus (Borutzky, 1930)
viduus Kiefer, 1952
hostensis (Borutzky, 1972c)
pacificus Ishida, 1992a
lacustris nom. nov.
(syn. *Echinocamptus* (*Limocamptus*) *baikalensis* Borutzky, 1930)[253]

species incertae sedis
Bryocamptus stouti Harding, 1958

Elaphoidella Chappuis, 1928[255]
(syn. *Elaphoidellopsis* Apostolov, 1985
Neoelaphoidella Apostolov, 1985
Stygoelaphoidella Apostolov, 1985
Praeelaphoidella Apostolov, 1991a)
gracilis (Sars, 1862)
grandidieri (Guerne & Richard, 1893)
bidens (Schmeil, 1894)[256]
b. bidens (Schmeil, 1894)
b. decorata (Daday, 1901)
b. coronata (Sars, 1904)
b. subtropica Kiefer, 1929
b. paranaensis Nogueira, 1959
b. subterranea Nogueira, 1959
armata (Delachaux, 1917)
unidens (Menzel, 1917)
elaphoides (Chappuis, 1923)[257]
(syn. *Elaphoidella helenae* Chappuis, 1953)
E. varians Chappuis, 1955b
E. juxtaputealis Damian & Botosaneanu, 1955
E. minos Chappuis, 1956b
E. angelovi Michailova-Neikova, 1967
E. borutzkyi Michailova-Neikova, 1973b)
pectinata (Delachaux, 1923)[258]
surinamensis (Delachaux, 1923)

phreatica (Chappuis, 1925)[259]
(syn. *Canthocamptus pseudophreaticus* Chappuis, 1928)
Elaphoidella pseudojeanneli Ponyi, 1955
E. pseudojeanneli aggtelekiensis Ponyi, 1958
E. cavatica Chappuis, 1957
E. croatica Petkovski, 1959a
E. oglasae Cottarelli & Torrisi, 1976
E. italica Pesce, Galassi & Apostolov, 1987)
putealis (Chappuis, 1925)
jeanneli (Chappuis, 1928)
(syn. *Elaphoidella charon* Chappuis, 1936)[260]
winkleri (Chappuis, 1928)
bryophila (Chappuis, 1928)
sewelli (Chappuis, 1928)
s. sewelli (Chappuis, 1928)
s. indica (Chappuis, 1928)
s. eremita (Chappuis, 1928)
s. africana Chappuis, 1932
s. occidentalis Chappuis, 1932
s. minuta Chappuis, 1932
s. americana Chappuis, 1933
s. unisaetosa Chappuis, 1950a
bromeliaecola (Chappuis, 1928)
malayica (Chappuis, 1928)
javaensis (Chappuis, 1928)
denticulata Chappuis, 1929
(syn. *Elaphoidella pani* Por, 1983c)[261]
similis Chappuis, 1931
longipedis Chappuis, 1931
intermedia Chappuis, 1931
thienemanni Chappuis, 1931
t. thienemanni Chappuis, 1931
t. serrulata Chappuis, 1931
elegans Chappuis, 1931
cornuta Chappuis, 1931
dubia Kiefer, 1931
hyalina Chappuis, 1932
longiseta Chappuis, 1932
cliffordae Chappuis, 1932
necessaria Kiefer, 1932
derjugini (Rylov, 1932)
affinis Chappuis, 1933
trisaetosa Chappuis, 1933
dispersa Chappuis, 1934
proserpina Chappuis, 1934
subgracilis (Willey, 1934)
arambourgi Chappuis, 1935
elgonensis Chappuis, 1935
kenyensis Chappuis, 1935
k. kenyensis Chappuis, 1935
k. curticauda Chappuis, 1938
massai Chappuis, 1935
crassicauda Chappuis, 1935
brevifurcata Chappuis, 1936[258]
stammeri Chappuis, 1936
karamani Chappuis, 1936
(syn. *Elaphoidella eucharis* Chappuis, 1953c)[257]
k. karamani Chappuis, 1936[262]
k. latifurcata Apostolov, 1976
schubarti Chappuis, 1936
bulbifera Chappuis, 1937
fonticola Chappuis, 1937[263]
incerta Chappuis, 1937
tenera Chappuis, 1937[264]
brevipes Chappuis, 1937
leruthi Chappuis, 1937
l. leruthi Chappuis, 1937
l. meridionalis Chappuis, 1953d
plutonis Chappuis, 1938
p. plutonis Chappuis, 1938
(syn. *Elaphoidella rosellae* Pesce, Galassi & Apostolov, 1987)[265]
p. quadrispinosa Chappuis, 1938[266]
damasi Chappuis, 1938
limnobia Chappuis, 1938
lindbergi Chappuis, 1941
cuspidata Chappuis, 1941[267]
hirsuta Chappuis, 1941
simplex Chappuis, 1944
birsteini Borutzky, 1948a
apicata Chappuis, 1950a
elongata Chappuis, 1950a
laevis Chappuis, 1950a
vaga Chappuis, 1950a
spinosa Chappuis, 1952a
coiffaiti Chappuis & Kiefer, 1952
longifurcata Chappuis & Kiefer, 1952
anatolica Chappuis, 1953a
jasonis Chappuis, 1953a
ruffoi Chappuis, 1953e
aberrans Chappuis, 1954b
crassa Chappuis, 1954e
aioii Chappuis, 1955
taroi Chappuis, 1955b
miurai Chappuis, 1955c
mauro Chappuis, 1956c
insularis Chappuis, 1956d
nyongi Røen, 1956
uenoi Chappuis, 1958d
vandeli Chappuis & Rouch, 1958

calypsonis Chappuis & Rouch, 1959
jakobii Nogueira, 1959
hallensis Kiefer, 1963
humboldti Löffler, 1963
caeca Miura, 1964
bouilloni Rouch, 1964a
reducta Rouch, 1964b
superpedalis Shen & Tai, 1964b
cavicola Shen & Tai, 1965
vietnamica Borutzky, 1967
negroensis Kiefer, 1967
paraplesia Kiefer, 1967
cvetkovi Michailova-Neikova, 1967
angirmii Löffler, 1968
hellmichi Löffler, 1968
kieferi Löffler, 1968
rodrigensis Borutzky, 1969c
romanica Kulhavy, 1969
michailovae Bassamacov, 1970
infernalis Rouch, 1970a
vasconica Rouch, 1970a
pyrenaica Rouch, 1970a
czerkessica Borutzky, 1972c
silvestris Lewis, 1972a
labani Löffler, 1973
botosaneanui Petkovski, 1973
crenobia Petkovski, 1973
einslei Petkovski, 1973
karllangi Petkovski, 1973
neoarmata Petkovski, 1973
neotropica Petkovski, 1973
valkanovi Bassamacov, 1973a
(syn. *Elaphoidella petrovae* Apostolov, 1986)[268]
californica Wilson, 1975
kodiakensis Wilson, 1975
reedi Wilson, 1975
wilsonae Hunt, 1979
parvifurcata Petkovski, 1980
prohumboldti Petkovski, 1980
subcrenobia Petkovski, 1980
synjakobii Petkovski, 1980
turgisetosa Petkovski, 1980
garbetensis Rouch, 1980
moreae Pesce, 1981a
cabezasi Petkovski, 1982
jojoi Petkovski, 1982
quemadoi Petkovski, 1982
sabanillae Petkovski, 1982
tiberina Pesce & Galassi, 1983
cvetkae Petkovski, 1983[269]
franci Petkovski, 1983
bispina Dussart, 1984
silverii Pesce, 1985
bisetosa Apostolov, 1985
(syn. *Elaphoidella* sp. Bassamakov, 1973)
margaritae Pesce & Apostolov, 1985
pescei Apostolov, 1986
nuragica Pesce & Galassi, 1986b[270]
femurata Bassamakov, 1987
apratine Pesce, Galassi & Apostolov, 1987
paraelaphoides Pesce, Galassi & Apostolov, 1987
subplutonis Pesce, Galassi & Apostolov, 1987
suarezi Reid, 1987a
radkei Reid, 1987a
pintoae Reid & José, 1987
parajakobi Reid & José, 1987
algeriensis Rouch, 1987
jochenmartensi Dumont & Maas, 1988
pseudocornuta Dumont & Maas, 1988
federicae Pesce & Galassi, 1988b
serbica Petkovski & Brancelj, 1988
boui Rouch, 1988a
shawangunkensis Strayer, 1988
stygia (Apostolov, 1989)
bulgarica (Apostolov, 1991d)
mabelae Galassi & Pesce, 1991
cavernicola Apostolov, 1992
balkanica Apostolov, 1992
pandurskyi Apostolov, 1992
janas Cottarelli & Bruno, 1993
colombiana Gaviria, 1993
carterae Reid in Reid & Ishida, 1993
amabilis Ishida in Reid & Ishida, 1993
africana (Cottarelli & Bruno, 1994)
nepalensis Ishida, 1994b
plesai Pesce & Galassi, 1994
apostolovi (Pesce & De Laurentiis, 1994)
cottarellii Pesce & De Laurentiis, 1996
propedamasi Defaye & Heymer, 1996
iskrecensis Apostolov, 1997a
montenegrina Karanovic, 1997
madiracensis Apostolov, 1998a
bulbiseta (Apostolov, 1998b)
ganeshi Reid, 1998[257]
gordani Karanovic, 1998
marjoryae Bruno & Reid in Bruno, Reid & Perry, 2000
fluviusherbae Bruno & Reid in Bruno, Reid & Perry, 2000
brehieri Apostolov, 2001c

claudboui Apostolov, 2001d
uva Karanovic, 2001
brevicaudata Apostolov, 2002
humphreysi Karanovic, 2006
damianae nom. nov.[271]
(syn. *Elaphoidella dubia* Damian, 1959)
slovenica nom. nov.[272]
(syn. *Elaphoidella kieferi* Petkovski & Brancelj, 1985)
apostoli nom. nov.[273]
(syn. *Stygoelaphoidella subterranea* Apostolov, 1991a)
elegantula nom. nov.[274]
(syn. *Stygoelaphoidella elegans* Apostolov, 1991d)
parapostolovi nom. nov.[275]
(syn. *Neoelaphoidella intermedia* Apostolov, 1999)

species incertae sedis
Canthocamptus tenuicaudis Herrick, 1894
C. finni Bourne, 1893
C. laciniatus Douwe, 1911
Attheyella natalis Brady, 1904
Elaphoidella pseudophreatica *sensu* Chappuis, 1954, Dussart, 1967[259]
E. cf. *leruthi* Chappuis, 1937 *sensu* Apolstolov, 2002b

species inquirenda
Elaphoidella capiteradiata Brehm, 1951b[276]

Paracamptus Chappuis, 1929[205]
schmeili (Mrázek, 1893)[276a]
baikalensis Borutzky, 1930
reductus Wilson, 1956b
reggiae Wilson, 1958a
nakamurai Chappuis, 1958d
gasparoi Stoch, 1998b

Hypocamptus Chappuis, 1929
brehmi (Douwe, 1922)
paradoxus (Kreis, 1926)
carpaticus Damian-Georgescu, 1968
hrabei Štěrba, 1969
ruffoi Cottarelli, Berera & Maiolini, 2004

species incertae sedis
Hypocamptus paradoxus (Kreis) *sensu* Štěrba, 1969

Antarctobiotus Chappuis, 1930[277]
robustus (Richters, 1908)
koenigi (Pesta, 1928)
nichollsi Chappuis, 1950
neotropica (Löffler, 1961a)[278]
(syn. A. *rapoporti* Rouch, 1962)
longifurcatus Rouch, 1962
ringueleti Rouch, 1962
australis Lewis, 1972b
diversus Lewis, 1972b
elongatus Lewis, 1972b
exiguus Lewis, 1972b
ignobilis Lewis, 1972b
triplex Lewis, 1972b
bahamondei Ebert & Noodt, 1975
kummerworum (Ebert & Noodt, 1975)[279]
sphagnicola Cicchino & Ringuelet, 1977
adocetus Cicchino & Ringuelet, 1977
muscicolus Apostolov, 2000b

Morariopsis Borutzky, 1930
typica Borutzky, 1930
latifurcata Borutzky, 1930
scotenophila (Kiefer, 1930)
kieferi Petkovski, 1959c
baicalensis Borutzky & Okuneva, 1975
dumonti Brancelj, 2000a

Afrocamptus Chappuis, 1932
uncinatus Chappuis, 1932

Spelaeocamptus Chappuis, 1933[205]
spelaeus (Chappuis, 1925)
incertus Petkovski, 1956
neotropicus Noodt, 1963

Pholetiscus Humes, 1947[280]
wilsoni (Pearse, 1930)
orientalis Humes, 1947
rectiseta Humes, 1956

Antrocamptus Chappuis, 1956e[205]
coiffaiti Chappuis, 1956e
catherinae Chappuis & Rouch, 1960b
chappuisi Rouch, 1970a
longifurcatus Rouch, 1970a
stygius Rouch, 1980

Loefflerella Rouch, 1962[281]
dentata Rouch, 1962
chilensis Löffler, 1966
rouchi Löffler, 1966
trisaetosa Löffler, 1966

Epactophanoides Borutzky, 1966
udegeicus Borutzky, 1966

Ophirion Por, 1967
communis Por, 1967

Gulcamptus Miura, 1969a
(syn. *Neomaraenobiotus* Flössner, 1992)[282]
uenoi Miura, 1969a
laurentiacus (Flössner, 1992)
jesoanus Ishida & Kikuchi, 1994
yoichiensis Ishida, 1995
alaskaensis Ishida in Reid & Ishida, 1996
huronensis Reid, 1996[282]

Thermomesochra Itô & Burton, 1980
reducta Itô & Burton, 1980
Stygepactophanes Moeschler & Rouch, 1984
jurassicus Moeschler & Rouch, 1984

Fibulacamptus Hamond, 1987
victorianus Hamond, 1987
tasmanicus Hamond, 1987
gracilior Hamond, 1987
bisetosus Hamond, 1987

Amphibiperita Fiers & Rutledge, 1990
neotropica (Jakobi, 1956)[198]

Paramorariopsis Brancelj, 1991
anae Brancelj, 1991
irenae Brancelj, 2006

Pseudomoraria Brancelj, 1994
triglavensis Brancelj, 1994

Glaciella Kikuchi, 1994
yalensis Kikuchi, 1994

Lessinocamptus Stoch, 1997
caoduroi Stoch, 1997
insoletus (Chappuis, 1928)[283]
pivai Stoch, 1997

Ligulocamptus Guo, 1998
loffleri Guo, 1998

Pindamoraria Reid & Rocha, 2003
boraceiae Reid & Rocha, 2003

Australocamptus Karanovic, 2004
hamondi Karanovic, 2004
similis Karanovic, 2004
diversus Karanovic, 2004

Pilocamptus nom. nov.[254]
(syn. *Echinocamptus* Chappuis, 1928)
pilosus (Douwe, 1910)
schroederi (Douwe, 1914)
georgevitchi (Chappuis, 1923)
kamerunensis (Kiefer, 1928)
k. kamerunensis (Kiefer, 1928)
k. villosus Chappuis, 1932
africanus Chappuis, 1932
trichotus Chappuis, 1932
alluaudi Chappuis, 1932
vulgaris Chappuis, 1935
jeanneli Chappuis, 1935
verrucosus Chappuis, 1935
monticola Chappuis, 1935
pauliani Chappuis, 1956a
monodi Dussart, 1974
hyppophyllus Defaye & Heymer, 1996

Subfamily Hemimesochrinae Por, 1986[284]
Heteropsyllus T. Scott, 1894
curticaudatus T. Scott, 1894
exiguus (Sars, 1911)
major (Sars, 1920)
nanus (Sars, 1920)
rostratus (Sars, 1920)
r. rostratus (Sars, 1920)[285]
r. similis Smirnov, 1946
masculus Kunz, 1971b
meridionalis Soyer, 1974f
confluens Soyer, 1974f
nunni Coull, 1975
pseudonunni Coull & Palmer, 1980

Hemimesochra Sars, 1920
clavularis Sars, 1920

Nannomesochra Gurney, 1932
arupinensis (Brian, 1925)
zavodniki Petkovski & Apostolov, 1974

Mesopsyllus Por, 1959c
atargatis Por, 1959c
secundus (Wells, 1965a)

Poria Lang, 1965a
derketo (Por, 1964a)

species incertae sedis
Cletodidae sp. indet. Wells, 1965a[286]

Psammocamptus Mielke, 1975[287]
axi Mielke, 1975
galapagoensis Mielke, 1997b

Dahlakia Por, 1986a
xenuus (Por, 1968b)

Bathycamptus Huys & Thistle, 1989[287]
eckmani Huys & Thistle, 1989
minutus (Wells, 1965a)[288]

Boreolimella Huys & Thistle, 1989
nympha (Por, 1964b)
dubia (Wells, 1965a)

Perucamptus Huys & Thistle, 1989
rapiens (Becker, 1979)

Pusillargillus Huys & Thistle, 1989
nixe (Por, 1964b)

Isthmiocaris George & Schminke, 2003
longitelson George & Schminke, 2003

Family Canthocamptidae
genera incertae sedis[188]
Cletocamptus Schmankewitsch, 1875[289]
(syn. *Sinocamptus* Shen & Sung, 1963)[290]
retrogressus Schmankewitsch, 1875[291]
albuquerquensis (Herrick, 1894)
confluens (Schmeil, 1894)[292]
c. confluens (Schmeil, 1894)
c. meridionalis Kiefer, 1929
trichotus Kiefer, 1929
feei (Shen, 1956)[293]
affinis Kiefer, 1957b[294]
gravihiatus (Shen & Sung, 1963)
mongolicus Stìrba, 1968[288]
helobius Fleeger, 1980
merbokensis Gee, 1999a
schmidti Mielke, 2000
deborahdexterae Gómez, Fleeger, Rocha-Olivares & Foltz, 2004
stimpsoni Gómez, Fleeger, Rocha-Olivares & Foltz, 2004
sinaloensis Gómez, Fleeger, Rocha-Olivares & Foltz, 2004
fourchensis Gómez, Fleeger, Rocha-Olivares & Foltz, 2004
nudus Gómez, 2005
levis Gómez, 2005

species incertae sedis
Marshia brevicaudata Herrick, 1894[295]

species inquirendae[296]
Mesochra deitersi Richard, 1897
M. deitersi Richard *sensu* Daday, 1902
Cletocamptus deitersi (Richard) *sensu* many authors[297]
C. bermudae Willey, 1930
C. brehmi Kiefer, 1933
C. bicolor (Wilson) *sensu* Herbst, 1960
C. gabrieli Löffler, 1961a
C. ecudorianus Löffler, 1963[297]
C. axi Mielke, 2000[297]
Godetella kummleri Delachaux, 1917
G. dadayi Delachaux, 1917
Regis racovitzae Labbé, 1926
Wolterstorffia croisicensis Labbé, 1926
Attheyella bicolor Wilson, 1932

Leimia Willey, 1923
vaga Willey, 1923

Parepactophanes Kunz, 1935[298]
minuta Kunz, 1935

Taurocletodes Kunz, 1974a[298]
dubius (Noodt, 1958a)[299]
(syn. *Taurocletodes gallicus* Kunz, 1974a)
tumenae Karaytuð & Huys, 2004

Family Canthocamptidae
species incertae sedis
Heteropsyllus serratus Schriever, 1983[300]

Family Cylindropsyllidae Sars, 1909[301]
Cylindropsyllus Brady, 1880
laevis Brady, 1880[302]
remanei Kunz, 1949[302]
kunzi Huys, 1988a
ibericus Huys & Willems, 1993

govaerei Huys & Willems, 1993

species inquirenda
Cylindropsyllus sp. Monard, 1935

Evansula T. Scott, 1906[302a]
incerta (T. Scott, 1892)
pygmaea (T. Scott, 1903)
arenicola Nicholls, 1939a
cumbraensis Huys & Conroy-Dalton, 2006a
spinosa Huys & Conroy-Dalton, 2006a
polaris Huys & Conroy-Dalton, 2006a

Stenocaris Sars, 1909
minor (T. Scott, 1892)
gracilis Sars, 1909
arenicola Wilson, 1932
minuta Nicholls, 1935
kliei Kunz, 1936
pygmaea Noodt, 1955d
pontica Chappuis & Serban, 1953
intermedia Itô, 1972
baltica Arlt, 1983

Cylinula Coull, 1971a
proxima Coull, 1971a[303]
arganoi Cottarelli & Venanzetti, 1989[303]

Boreopontia Willems, 1981
heipi Willems, 1981[304]

Stenocaropsis Apostolov, 1982
pristina (Wells, 1968)
similis Cottarelli & Venanzetti, 1989

species inquirenda
Stenocaris valkanovi Marinov, 1974b

Willemsia Huys & Conroy-Dalton, 1993
calceola Huys & Conroy-Dalton, 1993

Navalonia Huys & Conroy-Dalton, 1993
kerguelenensis (Bodiou, 1977)

Selenopsyllus Moura & Pottek, 1998
dahmsi Moura & Pottek, 1998
abyssalis (Becker, 1979)
profundus (Becker, 1979)
antarcticus Moura & Pottek, 1998

species inquirenda
Selenopsyllus sp. Moura & Pottek, 1998

Boreovermis Huys & Conroy-Dalton, 2006b
bilobatus Huys & Conroy-Dalton, 2006b

Bolbotelos Huys & Conroy-Dalton, 2006b
longisetosus Huys & Conroy-Dalton, 2006b

Family Leptastacidae Lang, 1948
Leptastacus T. Scott, 1892
macronyx (T. Scott, 1892)
laticaudatus Nicholls, 1935
spatuliseta Mielke, 1982a
uncinatus Cottarelli & Venanzetti, 1989
kwintei Huys, 1992
coulli Huys, 1992
pygmaeus Huys, 1992
corsicaensis Huys, 1992
species inquirendae
Leptastacus minutus Chappuis, 1954c
L. wieseri Chappuis, 1958a
L. laticaudatus intermedius *sensu* Apostolov, 1973a

Paraleptastacus Wilson, 1932
spinicauda (T. & A. Scott, 1895)
kliei (Gagern, 1923)[305]
brevicaudatus Wilson, 1932
katamensis Wilson, 1932
espinulatus Nicholls, 1935
holsaticus Kunz, 1937
laurenticus Nicholls, 1939a
longicaudatus Nicholls, 1939a
triseta Noodt, 1954a
unisetosus Itô, 1972
supralitoralis Mielke, 1975
monensis Whybrew, 1986[305]
moorei Whybrew, 1986[305]
wilsoni Whybrew, 1986[305]

species inquirendae
Paraleptastacus spinicauda bisetosus Jakubisiak, 1938
P. ammodytensis Carvalho, 1952
P. caspicus Štěrba, 1973a
Paraleptastacus sp. Arlt, 1983

Psammastacus Nicholls, 1935
confluens Nicholls, 1935

species inquirendae
Psammastacus confluens Nicholls
sensu Chappuis, 1954, Apostolov, 1977

Arenocaris Nicholls, 1935
bifida Nicholls, 1935
reducta Huys, 1992

Arenotopa Chappuis & Rouch, 1960c
ghanai Chappuis & Rouch, 1960c
rossii Cottarelli, 1977a
erasmusi (McLachlan & Moore, 1978)
dyadacantha Wells & Rao, 1987

Minervella Cottarelli & Venanzetti, 1989
baccettii Cottarelli & Venanzetti, 1989
perplexa (Wells & Clark, 1965)[306]

Neopsammastacus Cottarelli & Venanzetti, 1989
spinicaudus (Wells, 1967)
spinicaudatus (Rao & Ganapati, 1969a)

Psamathea Cottarelli & Venanzetti, 1989
nautarum Cottarelli & Venanzetti, 1989[307]
brittanica Huys, Bodiou & Bodin, 1996

Afroleptastacus Huys, 1992
clandestinus Huys, 1992
remanei (Noodt, 1964)

Archileptastacus Huys, 1992
dichatoensis (Mielke, 1985a)
aberrans (Chappuis, 1954a)

Belemnopontia Huys, 1992
dispinosa (Mielke, 1982a)
panamensis (Mielke, 1983a)

species inquirendae
Leptastacus acuticaudatus
Krishnaswamy, 1957a
L. macronyx (T. Scott)
sensu Chappuis & Rouch, 1961

Cerconeotes Huys, 1992
mozambicus (Wells, 1967)[306]
constrictus (Lang, 1965a)
japonicus (Itô, 1968)
jenneri (Lindgren, 1975)

species inquirendae
Leptastacus nichollsi Krishnaswamy, 1951a
L. euryhalinus Krishnaswamy, 1957a
L.waltairensis Rao & Ganapati, 1969a

Membranastacus Huys, 1992
inopinatus Huys, 1992

Schizothrix Huys, 1992
ctenata (Mielke, 1982a)
rostrata (Nicholls, 1939a)
pontica (Griga, 1962)

Sextonis Huys, 1992
mehuinensis (Mielke, 1985a)
incurvatus (Lang, 1965a)
chilensis (Mielke, 1985a)[308]
laminaserratus (Mielke, 1985a)

species inquirendae
Leptastacus delamarei Rouch, 1962
L. naylori McLachlan & Moore, 1978[309]

Meloriastacus Huys & Todaro, 1997
ctenidis Huys & Todaro, 1997

Aquilastacus Huys & Conroy-Dalton, 2005
serratus Huys & Conroy-Dalton, 2005

Stereoxiphos Huys & Conroy-Dalton, 2005
operculatus (Masry, 1970)[310]

Family Leptastacidae
species incertae sedis
Leptastacus naylori McLachlan & Moore, 1978[309]
L. christellae Bodiou & Colomines, 1989
Psammastacus acuticaudatus
Krishnaswamy, 1957a

Family Leptopontiidae Lang, 1948[301]
Leptopontia T. Scott, 1902
curvicauda T. Scott, 1902[311]
dovpori Huys & Conroy-Dalton, 1996
punctata Huys & Conroy-Dalton, 1996
flandrica Huys & Conroy-Dalton, 1996
mediterranea Huys & Conroy-Dalton, 1996
breviarticulata Huys & Conroy-Dalton, 1996

americana Huys & Conroy-Dalton, 1996

species inquirendae
Leptopontia curvicauda T. Scott
sensu Klie, 1950, Marinov, 1971,
Apostolov, 1973

Notopontia Bodiou, 1977[301]
biarticulata (Wells, 1967)
stephanieae Bodiou, 1977

Syrticola Willems & Claeys, 1982[301]
flandricus Willems & Claeys, 1982
mediterraneus Willems, Claeys & Fiers, 1987
galapagoensis (Mielke, 1982a)
intermedius Huys & Ohtsuka, 1993

species inquirenda
Tetragoniceps trispinosus A. Scott, 1896

Family Arenopontiidae
Martínez Arbizu & Moura 1994[301]
Arenopontia Kunz, 1937
subterranea Kunz, 1937
arenarida (Pennak, 1942)[312]
spinicaudata (Nicholls, 1945b)
australis Chappuis, 1952b
acantha Chappuis, 1954a[313]
longiremis Chappuis, 1954b[313]
stygia Noodt, 1955d[312]
orientalis (Krishnaswamy, 1957a)
secunda (Krishnaswamy, 1957a)
africana Chappuis & Rouch, 1960a
a. africana Chappuis & Rouch, 1960a
a. angolensis Kunz, 1971a
intermedia Rouch, 1962
accraensis Lang, 1965a[313]
dillonbeachia Lang, 1965a[314]
indica Rao, 1967
ishikariana Itô, 1968
problematica Masry, 1970
gussoae Cottarelli, 1973
nesaie Cottarelli, 1975b
riedli Lindgren, 1976
peteraxi Mielke, 1982a
pacifica Mielke, 1985a
spicata Mielke, 1985a
clasingi Mielke, 1985a
chaufriassei Bodiou & Colomines, 1986
ornamenta Mielke, 1987a
reductaspina Mielke, 1987a
phreatica Cottarelli, Bruno & Venanzetti, 1994
speluncae Cottarelli, Bruno
& Venanzetti, 1994
huysi Karanovic, 2000b

species inquirendae
Arenopontia subterranea Kunz
sensu Serban & Eitel-Lang, 1957
A. nesiae Cottarelli *sensu*
Mitwally & Montagna, 2001[315]
A. gussoae Cottaerelli *sensu* Mielke, 1982a
A. ishikariana Itô *sensu* Mielke, 1987a

Pararenopontia Bodiou & Colomines, 1986[301]
breviarticulata Mielke, 1975
trisetosa Mielke, 1982a

Family Psammopsyllidae
Krishnaswamy, 1956[301]
Psammopsyllus Nicholls, 1945b
operculatus Nicholls, 1945b
cornifer (Chappuis, 1952b)
delamarei (Chappuis, 1954a)
limnicola Chappuis, 1954b
arenarius Enckell, 1965
imamurai Kikuchi, 1972
tridentatus Soyer, 1974d
stri Mielke, 1983b
falciseta Mielke, 1983b
maricae Cottarelli, Saporito & Puccetti, 1983a
arganoi Cottarelli, Puccetti & Saporito, 1984
longipes Cottarelli, Puccetti & Saporito, 1984
brevipes Cottarelli, Puccetti & Saporito, 1984
pori Kunz, 1993
ertunci Karaytuð & Sak, 2005b

Sewellina Krishnaswamy, 1956a
reducta Krishnaswamy, 1956a
subtilis Cottarelli, Saporito & Puccetti, 1986b

Ichnusella Cottarelli, 1971b
eione Cottarelli, 1971b
pasquinii (Cottarelli, 1969a)
tertia Cottarelli, Bruno & Berera, 1998
longifurca Cottarelli, Bruno & Berera, 1998
improvisa Berera, Cottarelli & Bruno, 2001
ionica Berera & Cottarelli, 2003

Parasewellina Cottarelli, Saporito & Puccetti, 1986b
prima Cottarelli, Saporito & Puccetti, 1986b

Prosewellina Mielke, 1987a
chilensis Mielke, 1987a

Family Louriniidae Monard, 1927
Lourinia Wilson, 1924
armata (Claus, 1866)

Family Parastenocarididae Chappuis, 1940b[316]
Parastenocaris Kessler, 1913[316, 317]
Parastenocaris sensu stricto Galassi & De Laurentiis, 2004[317]
brevipes Kessler, 1913[318]
(syn. *Parastenocaris starretti* Pennak, 1939
P. wilsoni Borutzky, 1952
P. biwae Miura, 1969b
Parastenocaris sp. 2 Strayer, 1988)
feuerborni Chappuis, 1931
longicaudis Chappuis, 1931
oshimaensis Miura, 1962a
irenae Enckell, 1970
noodti Enckell, 1970
brincki Enckell, 1970
singhalensis Enckell, 1970
lanceolata Enckell, 1970
hinumaensis Kikuchi, 1970
longipoda Shen & Tai, 1973
gayatri Ranga Reddy, 2001
savita Ranga Reddy, 2001
kimberleyensis Karanovic, 2005

Parastenocaris sensu lato Galassi & De Laurentiis, 2004[317]
fontinalis Schnitter & Chappuis, 1915[319]
f. fontinalis Schnitter & Chappuis, 1915
f. borea Kiefer, 1960a
f. meridionalis Rouch, 1990
staheli Menzel, 1916
chelifer Delachaux, 1923
leeuweni Menzel, 1923
jeanneli Chappuis, 1923
aquaeductus Chappuis, 1925[320]
nana Chappuis, 1925
clujensis Chappuis, 1925
minuta Chappuis, 1925
fonticola Borutzky, 1926
incerta Chappuis, 1931
mirabilis Kiefer, 1932
elegans Kiefer, 1932
dubia Kiefer, 1932
muscicola Chappuis, 1935
caffer Chappuis, 1935
vicesima Klie, 1935
v. vicesima Klie, 1935
v. dalmatina Petkovski, 1959b
entzii Török, 1935
similis Török, 1935
budapestensis Török, 1935
pannonica Török, 1935[321]
phreatica Chappuis, 1936
glareola Hertzog, 1936
germanica Kiefer, 1936[322]
minutissima Chappuis, 1936
karamani Chappuis, 1937
k. karamani Chappuis, 1937
k. brevicauda Damian, 1959
cantabrica Chappuis, 1937
stammeri Chappuis, 1937
s. stammeri Chappuis, 1937
s. gallicus Chappuis & Rouch, 1959a
orcina Chappuis, 1938
proserpina Chappuis, 1938
nolli Kiefer, 1938
n. nolli Kiefer, 1938
n. alpina Kiefer, 1960b
phyllura Kiefer, 1938
(syn. *Parastenocaris toeroekae* Ponyi, 1957)[323]
tenuis Borutzky, 1948a[325]
variolata Chappuis, 1952b
pauliani Chappuis, 1952b
forficulata Chappuis, 1952b
madagascarensis Chappuis, 1952b
macaco Chappuis, 1952b
husmanni Chappuis, 1953b
italica Chappuis, 1953e
(syn. *Parastenocaris phyllophora* Noodt, 1954a)[324]
kabyla Chappuis, 1954a
trisaetosa Chappuis, 1954b
arenicola Chappuis, 1954b
pusillus Chappuis, 1954b
gracilis Chappuis, 1954b
ruffoi Chappuis, 1954d
glacialis Noodt, 1954c
(syn. *Parastenocaris tenuis* Noodt, 1952a)[325]
marlieri Chappuis, 1955a
cornuta Chappuis, 1955a
crassicaudis Chappuis, 1a955

dianae Chappuis, 1955a
nipponensis Chappuis, 1955c
latisetosus Damian & Botosaneanu, 1955
uncinatus Damian & Botosaneanu, 1955
acherusia Noodt, 1955a
arenosus Fryer, 1956
fossoris Fryer, 1956
banaticus Damian, 1957
delamarei Chappuis in Chappuis & Delamare Deboutteville, 1958
lacustris Chappuis in Chappuis & Delamare Deboutteville, 1958
subterranea Damian, 1959
monodi Chappuis, 1959
nigerianus Chappuis, 1959
dentulatus Chappuis & Rouch, 1959a
micheli Chappuis & Rouch, 1959a
balcanica Petkovski, 1959b
narentina Petkovski, 1959b
rascana Petkovski, 1959b
chappuisi Serban, 1959
tumida Kiefer, 1961[326]
panamericana Noodt, 1961
salvadorensis Noodt, 1961
cuscatlanensis Noodt, 1961
psammica Songeur, 1961
brasilibathynellae Jakobi & de Loyola e Silva, 1962
sioli Noodt, 1963
jakobi Noodt, 1963
digitata Noodt, 1963
tapajosensis Noodt, 1963
santaremensis Noodt, 1963
andalusica Enckell, 1965
kabyloides Enckell, 1965
grassei Soyer, 1965
moravica Štěrba, 1965
sinoiaica Wells, 1965b
spinipes Wells, 1965b
spinosa Wells, 1965b
fluviatilis Wells, 1965b
spinicauda Wells, 1965b
matapoica Wells, 1965b
dactyloides Kiefer, 1967
gertrudae Kiefer, 1968a
bolbodes Kiefer, 1968b
bohemica Štěrba, 1968b
calliroe Cottarelli, 1969b
hera Cottarelli, 1969c
amyclaea Cottarelli, 1969c
mateusi Noodt & Galhano, 1969
xyrophora Noodt & Galhano, 1969
cruzi Noodt & Galhano, 1969
lusitanica Noodt & Galhano, 1969
conimbrigensis Noodt & Galhano, 1969
tyrrhenidis Cottarelli, 1970a[327]
amatheia Cottarelli, 1970b
curvispinus Enckell, 1970
inferna Schminke, 1971
ursulae Schminke, 1971
columbiensis Noodt, 1972a
kubitzkii Noodt, 1972a
roettgeri Noodt, 1972a[328]
pasquinii Cottarelli, 1972
novaki Štěrba, 1974
austriaca Kiefer, 1976
sardoa Cottarelli & Torrisi, 1977
ahaggarica Bǒzić, 1978b
admete Cottarelli, Fasano, Mura & Saporito, 1980
stellae Cottarelli, Saporito & Puccetti, 1981
christiani Dumont, 1981b
jeannineae Dumont, 1981b[329]
kimi Dumont, 1981b
nomiae Por, 1981
arganoi Cottarelli & Mura, 1982a
cataractae Cottarelli, 1982
digitiphora Dussart, 1984b
numidiensis Rouch, 1987
guyanensis Defaye & Dussart, 1988
trinacriae Pesce, Galassi & Cottarelli, 1988
kalypso Pesce, Galassi & Cottarelli, 1988
vandeli Rouch, 1988
ima Cottarelli, 1989
nertensis Rouch, 1990
gorganensis N.E. & A.A. Kovalchuk, 1990
carpathica A.A. & N.E. Kovalchuk, 1991
palmerae Reid, 1991
bulgarica Apostolov, 1992b
mangini Rouch, 1992b
triphyda Cottarelli & Bruno, 1993
lyncaea Cottarelli & Bruno, 1994a
rivi Cottarelli & Bruno, 1994b
aethiopica Cottarelli & Bruno, 1995
impervia Cottarelli & Bruno, 1995
quollensis Cottarelli & Bruno, 1995
lorenzae Pesce, Galassi & Cottarelli, 1995
oligoalina Cottarelli, Bruno & Venanzetti, 1995
etrusca Cottarelli, Bruno & Venanzetti, 1995
trichelata Reid, 1995
nicolasi Rouch, 1996

curvicauda Apostolov, 1997b
crenobia Galassi, 1997a
aesculapii Cottarelli & Bruno, 1997
aphroditis Cottarelli & Bruno, 1997
hispanica Martínez Arbizu, 1997
serbica Karanovic & Bobic, 1998
amalasuntae Bruno & Cottarelli, 1998
mangyans Bruno & Cottarelli, 1999
andreji Brancelj, 2000b
corsica Cottarelli, Bruno & Berera, 2000
silvana Cottarelli, Bruno & Berera, 2000
ranae Stoch, 2000
federici Stoch, 2000
sandhya Ranga Reddy, 2001
sibaritica Berera & Cottarelli, 2003
aberrans Apostolov, 2004a
solitaria Karanovic, 2004
boulouensis Apostolov, 2005
douellensis Apostolov, 2005
eberhardi Karanovic, 2005
jane Karanovic, 2006

Parastenocaris Kessler, 1913
species inquirendae
Parastenocaris surinamensis Menzel, 1916
P. dammermani Menzel, 1921
P. arctica Borutzky, 1952[325]
P. brevipes Kessler *sensu* Pennak, 1939[318]
P. phyllophora Noodt, 1954a[324]
sensu Noodt, 1954a, Petkovski, 1959b
P. texana Whitman, 1984[317]
P. starretti Pennak *sensu* Shiozawa, 1991[318]
Parastenocaris sp.
(*brevipes*-group) Rouch, 1992[318]
Parastenocaris sp. Fryer, 1956
Parastenocaris sp. Enckell, 1970
Parastenocaris sp. Kiefer, 1976
Parastenocaris sp. Cottarelli & Torrisi, 1977
Parastenocaris sp. Dussart, 1984b
Parastenocaris sp. Ranga Reddy, 2001
Parastenocaris spp. 1 & 3 Strayer, 1988

Forficatocaris Jakobi, 1969
forficata (Noodt, 1963)
f. forficata Noodt, 1963
f. crenensis Dussart, 1984c
amazonensis (Noodt, 1963)
guarani (Noodt, 1963)
tetracantha (Noodt, 1963)
noodti Jakobi, 1969
fittkaui Jakobi, 1972a
claudii Noodt, 1972a
evelinae Noodt, 1972a
jakobii Noodt, 1972a
lilianae Noodt, 1972a
schadeni Reid, 1982
affinis Dussart, 1983

Paraforficatocaris Jakobi, 1972a
paranaensis Jakobi, 1972a

Remaneicaris Jakobi, 1972b[316]
hexacantha (Kiefer, 1936)
itica (Noodt, 1961)
palaciosi (Noodt, 1961)
meyerabichi (Noodt, 1961)[330]
hurdi (Jakobi & de Loyola e Silva, 1962)
psammae (Rouch, 1962)
clandestina (Noodt, 1963)
icoaraci (Noodt, 1963)
paraensis (Noodt, 1963)
paraguayensis (Noodt, 1963)
remanei (Noodt, 1963)
jujuyensis (Noodt, 1965)
argentina (Noodt, 1965)
sierrae (Noodt, 1965)
cordobaensis (Noodt, 1965)
ciliata (Noodt, 1965)
rhizophora (Noodt, 1965)
hecate (Noodt, 1965)
persephone (Noodt, 1965)
pluto (Noodt, 1965)
oncophora (Noodt, 1965)
sanctiludovici (Noodt, 1965)
membranacea (Noodt, 1965)
drepanophora (Kiefer, 1967)
divae (Noodt, 1972a)
tageae (Noodt, 1972a)
ignotus (Dussart, 1983)
andaluizae Corgosinho
& Martínez Arbizu, 2005
euinieae Corgosinho & Martínez Arbizu, 2005

species inquirendae
Parastenocaris spp. Noodt, 1965 (5 species)

Potamocaris Dussart, 1979[331]
bidens (Noodt, 1955e)
bifida Dussart, 1979
(syn. *Parastenocaris dentata* Dussart, 1979)[331]

bidentata (Dussart, 1981a)
tridentata (Dussart, 1981a)
cuiabaensis Reid, 1991b
estevesi Reid, 1991b

Murunducaris Reid, 1994b
juneae Reid, 1994b

Simplicaris Galassi & De Laurentiis, 2004
lethaea Galassi & De Laurentiis, 2004
veneris (Cottarelli & Maiolini, 1980)

species incertae sedis
Parastenocaris hippuris Hertzog, 1938
P. aedes Hertzog, 1938

Superfamily Cletodoidea T. Scott, 1905
Family Cletodidae T. Scott, 1905[332]
Cletodes Brady, 1872
limicola Brady, 1872
longicaudatus (Boeck, 1873)
tenuipes T. Scott, 1897[333]
pusillus Sars, 1920
carthaginiensis Monard, 1935
dissimilis Willey, 1935
longifurca Lang, 1948
reyssi Soyer, 1964d
hartmannae Lang, 1965a
latirostris Drzycimski, 1967
yotabis Por, 1967
spinulipes Por, 1967
smirnovi Bodin, 1970
pseudodissimilis Coull, 1971a
millerorum Hamond, 1973e
reductus Moore, 1977
dorae Por, 1979
endopodita (Schriever, 1984a)[334]
setosus Marinov & Apostolov, 1985
dentatus Wells & Rao, 1987
macrura Fiers, 1991a
tuberculatus Fiers, 1991a
confusum Gómez, 2000b
pseudodissimilisoris Gómez, 2000b

species incertae sedis
Cletodes brucei T. & A. Scott, 1901

species inquirendae
Cletodes longicaudatus (Boeck)
sensu Arlt, 1983[335]
Enhydrosoma sp. Krishnaswamy, 1957

Enhydrosoma Boeck, 1873
curticauda Boeck, 1873
propinquum (Brady, 1880)
sarsi (T. Scott, 1904)
longifurcatum Sars, 1909
latipes (A. Scott, 1909)[60]
sordidum Monard, 1926
migoti Monard, 1926
micrurum Monard, 1928
garienis Gurney, 1930
lacunae Jakubisiak, 1933[336]
(syn. *Enhydrosoma woodini* Thistle, 1980)
pontica Jakubisiak, 1938
hopkinsi Lang, 1965a
caeni Raibaut, 1965
littorale Wells, 1967
wellsi Bodin, 1968
baruchi Coull, 1975
intermedia Chislenko, 1978
variabile Wells, Hicks & Coull, 1982
herrerai Bell & Kern, 1983
longicauda Marinov & Apostolov, 1983
pectinatum Wells & Rao, 1987
pericoense Mielke, 1990b
rosae Fiers, 1996
parapropinquum Gómez, 2003
casoae Gómez, 2003
solitarum Gómez, 2003
brevipodum Gómez, 2004

species inquirendae
Enhydrosoma tunisensis Monard, 1935
E. cananeiae Jakobi, 1955
E. guaratubae Jakobi, 1955
E. ivitteae Jakobi, 1955
E. minimum Jakobi, 1955
E. propinquum (Brady)
sensu Ivester & Coull, 1977
Enhydrosoma sp. Griga, 1961

Limnocletodes Borutzky, 1926[337]
behningi Borutzky, 1926
angustodes Shen & Tai, 1963
oblongatus Shen & Tai, 1963

mucronatus Gee, 1998
wellsi Gee, 1998

species inquirendae
Limnocletodes secundus Sewell, 1934[338]
L. behningi Borutzy *sensu* Shen & Tai, 1962

Enhydrosomella Monard, 1935
staufferi Monard, 1935
setiensis Raibaut, 1965
monardi Por, 1967
kuehnemanni Pallares, 1968b[339]
franklini (Thistle, 1980)

species inquirenda
Enhydrosomella staufferi Monard
sensu Monard (1937)[340]

Stylicletodes Lang, 1936
longicaudatus (Brady, 1880)[97, 341]
stylicaudatus (Willey, 1935)
verisimilis Lang, 1965a
reductus Wells, 1965a
oligichaeta Bodin, 1968
minutus Bodin, 1968

Monocletodes Lang, 1936
varians (T. Scott, 1903)[342]

Acrenhydrosoma Lang, 1948[343]
perplexa (T. Scott, 1899)

Intercletodes Fiers, 1987a
interita Fiers, 1987a

Kollerua Gee, 1994
uniarticulatum (Borutzky, 1928)
breviarticulatum (Shen & Tai, 1964b)[344]
birsteini (Borutzky, 1971)
radhakrishnai (Ranga Reddy, 1979)
longum (Shen & Tai, 1979)

Strongylacron Gee & Huys, 1996
buchholzi (Boeck, 1873)

Schizacron Gee & Huys, 1996
barnishi (Wells, 1967)[345]
bifurcarostratus (Shen & Tai, 1965)
vervoorti (Fiers, 1987b)[345]
intermedius Gee & Huys, 1996

Triathrix Gee & Burgess, 1997
montagni Gee & Burgess, 1997
mayae Fiers, 1997

species incertae sedis
Enhydrosoma nicobaricum Sewell, 1940

Sphingothrix Fiers, 1997
goldi Fiers, 1997
kalki (Gee & Burgess, 1997)

Dyacrenhydrosoma Gee, 1999b
breviseta Gee, 1999b

Paracrenhydrosoma Gee, 1999b
maccalli (Schizas & Shirley, 1994a)
karlingi (Lang, 1965a)
normani Gee, 1999b
oceaniae Kotwicki & Fiers, 2005

Neoacrenhydrosoma Gee & Mu, 2000
zhangi Gee & Mu, 2000

Spinapecruris Gee, 2001
curvirostris (T. Scott, 1894)

Family Cletodidae
genera incertae sedis[346]
Nannopodella Monard, 1935
denisi Monard, 1935

Pyrocletodes Coull, 1973d
desuramus Coull, 1973d
coulli Dinet, 1975

Australonannopus Hamond, 1974
aestuarinus Hamond, 1974

Barbaracletodes Becker, 1979
barbara Becker, 1979
carola Becker, 1979

Pontocletodes Apostolov, 1980
ponticus Apostolov, 1980

Actinocletodes Fiers, 1986d
woutersi Fiers, 1986d

Scintis Por, 1986b
variifurca Por, 1986b

Family Huntemanniidae Por, 1986a[332]
Huntemannia Poppe, 1884
jadensis Poppe, 1884
micropus Monard, 1935[163]
lacustris Wilson, 1958a
biarticulatus Shen & Tai, 1973

Nannopus Brady, 1880
palustris Brady, 1880
perplexus (Sars, 1909)
unisegmentatus Shen & Tai, 1964b

Pontopolites T. Scott, 1894
typicus T. Scott, 1894

Metahuntemannia Smirnov, 1946
spinosa (Klie, 1939)
gorbunovi Smirnov, 1946
crassa (Por, 1965)
dovpori Bodin, 1968
smirnovi Bodin, 1968
drzycimskii Soyer, 1970a
mediterranea Soyer, 1970a
magniceps Becker, 1979
iberica Becker, 1979
pseudomagniceps Schriever, 1983
atlantica Schriever, 1983
arctica Schriever, 1984b
triarticulata Schriever, 1984b
indica (Por, 1986)
texturata Dahms & Pottek, 1992
beckeri Dahms & Pottek, 1992
spinipes Dahms & Pottek, 1992

Rosacletodes Wells, 1985
kuehnemanni (Pallares, 1982)

Talpina Dahms & Pottek, 1992
curticauda (Becker, 1979)
talpa (Becker, 1979)
peruana (Becker, 1979)
pacifica (Becker, 1979)
micracantha (Gamô, 1981)
bifida (Schriever, 1984b)
noodti Dahms & Pottek, 1992
fodens Dahms & Pottek, 1992
furcispina Dahms & Pottek, 1992
bathyalis Dahms & Pottek, 1992
pectinata Dahms & Pottek, 1992

Family Huntemanniidae
genus incertae sedis
Pseudocletodes T. & A. Scott, 1893
vararensis T. & A. Scott, 1893

Family Rhizothrichidae Por, 1986a[332, 347]
Rhizothrix Brady & Robertson, 1875
curvata Brady, 1880[97]
minuta (T. Scott, 1903)[348]
gracilis (T. Scott, 1903)
tenella (Wilson, 1932)
scotti Lang, 1936
reducta Noodt, 1952b
r. reducta Noodt, 1952b[348]
r. noodti Galhano, 1970
pubescens Por, 1959a
quadriseta Wells, 1967
spinosa Coull, 1971a
wilsoni Bodin, 1979a
sejongi Nam & Lee, 2005

species inquirenda
Rhizothrix minuta (T. Scott) *sensu* Arlt, 1983

Tryphoema Monard, 1926
porca Monard, 1926
ramabula (Pennak, 1942)
bocqueti (Bŏzić, 1954)[349]
lusitanica (Wells & Clark, 1965)
scilloniensis (Wells, 1968)
riedli (Coull, 1971a)

Superfamily Laophontoidea T. Scott, 1905[350]
Family Laophontidae T. Scott, 1905
Subfamily Laophontinae T. Scott, 1905[351]
Laophonte Philippi, 1840[66]
cornuta Philippi, 1840
serrata (Claus, 1863)
setosa Boeck, 1865
longicaudata Boeck, 1865
l. longicaudata Boeck, 1865
l. reducta Lang, 1936
thoracica Boeck, 1865
elongata Boeck, 1873
e. elongata Boeck, 1873[352]
e. triarticulata Monard, 1928
e. barbata Lang, 1934
inopinata T. Scott, 1892[353]
denticornis T. Scott, 1894

depressa T. Scott, 1894
inornata A. Scott, 1902
nordgaardi Sars, 1908
parvula Sars, 1908
applanata Sars, 1909
brevifurca Sars, 1920
dinocerata Monard, 1926[354]
sporadiensis Brian, 1928[355]
sima Gurney, 1927[150]
baltica Klie, 1929
trilobata Willey, 1929
dominicalis Monard, 1935
parvuloides Monard, 1935
longistylata Willey, 1935
recticaudata Willey, 1935
adduensis Sewell, 1940[356]
foxi Harding, 1956
pseudoculata Krishnaswamy, 1956b
commensalis Raibaut, 1961
ifalukensis Vervoort, 1964
i. ifalukensis Vervoort, 1964
i. brevipes Vervoort, 1964
spinicauda (Vervoort, 1964)[357]
ciliata Noodt, 1964
acutirostris Lang, 1965a
drachi Médioni & Soyer, 1966
adamsiae Raibaut, 1966
danversae Hamond, 1969[358]
aldonae Chislenko, 1977
euxiniphila Soyer, 1977
hirsutus Pallares, 1979
galapagoensis Mielke, 1981a
confusa Decho & Fleeger, 1986
expansa Fiers, 1986b
plana Fiers, 1986b
lignosa Hicks, 1988b

species incertae sedis
Laophonte macani Sewell, 1940
L. farrani Roe, 1958

species inquirendae
Laophonte arenicola Nicholls, 1942a
Laophonte sp. Pesta, 1959
Laophonte spp. 1–3 Griga, 1961
Laophonte sp. Wells, 1963a
Laophonte sp. Vilela, 1965

Asellopsis Brady & Robertson, 1873
hispida Brady & Robertson, 1873
intermedia (T. Scott, 1895)
duboscqui Monard, 1926[359]
sarmatica Jakubisiak, 1938
littoralis Nicholls, 1939a
arenicola Chappuis, 1954b
chappuisius Krishnaswamy, 1957b
bacescui Por, 1959a
penicillata Por, 1964a

Platychelipus Brady, 1880
littoralis Brady, 1880
laophontoides Sars, 1908

Pseudolaophonte A. Scott, 1896
spinosa (Thompson, 1893)
proteus Klie, 1950
glemareci Bodin, 1977

Onychocamptus Daday, 1903[360]
mohammed (Blanchard & Richard, 1891)
(syn. *Laophonte talipes* Wilson, 1932)[361]
bengalensis (Sewell, 1934)
besnardi Jakobi, 1954b[360]
vitiospinulosa (Shen & Tai, 1963)[360]
anomalus (Ranga Reddy, 1984)[360]
taifensis Kikuchi, Dai & Ito, 1993
krusensterni Schizas & Shirley, 1994b
fratisaustralis Gómez, 2001b

Laophontina Norman & T. Scott, 1905
dubia Norman & T. Scott, 1905[363]
acantha Noodt, 1955c[353]
noodti Kunz, 1983
posidoniae Fiers, 1986e[364]
sensillata Wells & Rao, 1987

Harrietella T. Scott, 1906
simulans (T. Scott, 1894)

Hemilaophonte Jakubisiak, 1932
janinae Jakubisiak, 1932

Lobitella Monard, 1934
apoda Monard, 1934

Echinolaophonte Nicholls, 1941a
horrida (Norman, 1876)
brevispinosa (Sars, 1908)
armiger (Gurney, 1927)[364a]
mirabilis (Gurney, 1927)

hystrix (Brian, 1928)[364a]
gladiator (Vervoort, 1964)
oshoroensis Itô, 1969
tropica Ummerkutty, 1970
tetracheir Mielke, 1981a
minuta Cottarelli & Forniz, 1991
veniliae Cottarelli, Forniz & Bascherini, 1992

species inquirendae[364a]
Echinolaophonte armiger
sensu Nicholls, 1945a
E.armiger forma *briani* Lang, 1965
Onychocamptus armiger
sensu Pesta, 1959, Vervoort, 1964

Pseudonychocamptus Lang, 1944
koreni (Boeck, 1873)
proximus (Sars, 1908)
abbreviatus (Sars, 1920)[125]
spinifer Lang, 1965a
carthyi Hamond, 1968
marinovi Apostolov & Petkovski, 1980
colomboi Ceccherelli, 1988

species incertae sedis
Pseudonychocamptus paraproximus
Lang, 1965a

Heterolaophonte Lang, 1944[66]
stroemi (Baird, 1834)
s. stroemi (Baird, 1834)
s. brevicaudata (Monard, 1926)
s. paraminuta Noodt, 1955c
uncinata (Czerniavski, 1868)
minuta (Boeck, 1873)
littoralis (T. & A. Scott, 1893)
pygmaea (T. Scott, 1893)
rottenburgi (T. Scott, 1912)
australis (T. Scott, 1912)
exigua (T. Scott, 1912)
insignis (T. Scott, 1914)
oculata (Gurney, 1927)
curvata (Douwe, 1929)
c. curvata (Douwe, 1929)
c. micarthros Marcus & Por, 1960
discophora (Willey, 1929)
manifera (Wilson, 1932)
campbelliensis (Lang, 1934)
tenuispina (Lang, 1934)
phycobates (Monard, 1935)
pauciseta (Lang, 1936)
mendax (Klie, 1939)
longisetigera (Klie, 1950)
hamatus Jakobi, 1954b[365]
furcata Noodt, 1958a
brevipes Roe, 1958
denticulata Roe, 1958
variabilis Lang, 1965a
norvegica Drzycimski, 1968c
hamondi Hicks, 1975[366]
bisetosa Mielke, 1975[366]
tupitskyi Chislenko, 1976
serratula Mielke, 1981
murmanica Letova, 1982
letovae Huys, 1990b[367]
livingstoni Apostolov & Pandourski, 2001

species incertae sedis
Cleta setigera Kričagin, 1873
Laophonte laurentica Nicholls, 1939a[368]
Heterolaophonte manifera
sulamericana Jakobi, 1954b

species inquirendae
Heterolaophonte sp. Roe, 1960
Heterolaophonte sp. Wells, 1961[369]
Heterolaophonte sp. Yoo & Lee, 1995

Paronychocamptus Lang, 1944[370]
curticaudatus (Boeck, 1865)
nanus (Sars, 1908)
huntsmani (Willey, 1923)
wilsoni Coull, 1976b[371]

Paralaophonte Lang, 1944[66]
brevirostris (Claus, 1863)
b. brevirostris (Claus, 1863)
b. fissirostris (Willey, 1935)
longipes (T. Scott, 1893)
perplexa (T. Scott, 1898)
meinerti (Brady, 1899)
congenera (Sars, 1908)
c. congenera (Sars, 1908)
c. mediterranea Lang, 1948
macera (Sars, 1908)
hyperborea (Sars, 1909)
gracilipes (Brady, 1910)
karmensis (Sars, 1911)
quaterspinata (Brian, 1917)
tenera (Sars, 1920)

taurina (Monard, 1928)
zimmeri (Douwe, 1929)
lunata (Willey, 1930)
gurneyi (Lang, 1934)
octavia (Monard, 1935)
dieuzeidei (Monard, 1936)[151]
lacerdai Jakobi, 1953a
obscura Vervoort, 1962
pilosoma Vervoort, 1964
majae Petkovski, 1964
pacifica Lang, 1965a
p. pacifica Lang, 1965a
p. galapagoensis Mielke, 1981a
asellopsiformis Lang, 1965a
ormieresi Raibaut, 1968
sculpta Hamond, 1973f
spitzbergensis Mielke, 1974
innae Chislenko, 1977
septemarticulata Chislenko, 1978
problematica Mielke, 1981a
panamensis Mielke, 1982b
aenigmaticum Wells, Hicks & Coull, 1982
echinata Fiers, 1986b
livingstoni Apostolov, 2004

species incertae sedis
Laophonte lamellipes Nicholls, 1944[372]

species inquirenda
Paralaophonte congenera (Sars) *sensu* Yoo & Lee, 1995

Pilifera Noodt, 1952b
gracilis (T. Scott, 1903)

Loureirophonte Jakobi, 1953a
catharinensis-group Fiers, 1993
catharinensis Jakobi, 1953a
paranaensis Jakobi, 1953a
isabelensis Mielke, 1981a
furcata Fiers, 1993
laingensis Fiers, 1993
majahualensis Fiers, 1993

cesareae-group Fiers, 1993
cesareae (Por, 1964a)[373]
majacola Fiers, 1993
mediterranea Fiers, 1993

subterranea-group Fiers, 1993
subterranea (Lang, 1965a)
psammophila Mielke, 2001b

Mictyricola Nicholls, 1957
typica Nicholls, 1957
proxima Nicholls, 1957

Klieonychocamptus Noodt, 1958a
kliei (Monard, 1935)
k. kliei (Monard, 1935)[374]
k. adriaticus (Petkovski, 1954)
k. confluens Noodt, 1958a
k. marcusae Wells, 1979[375]
ponticus (Serban & Plesa, 1957)

Klieonychocamptoides Noodt, 1958a
arenicola (Chappuis & Delamare Deboutteville, 1956)
remanei Noodt, 1958a
arganoi Cottarelli & Mura, 1980
itoi Mielke, 1981a

Afrolaophonte Chappuis, 1960
brevipes (Chappuis, 1954b)
renaudi (Chappuis & Delamare Deboutteville, 1956)
monodi Chappuis, 1960
pori Masry, 1970
schmidti Mielke, 1981a
michaelae Cottarelli & Mura, 1982b
aequatorialis Cottarelli & Mura, 1982b
leonis Cottarelli & Mura, 1982b
chilensis Mielke, 1985
brignolii Cottarelli, 1985
michae Cottarelli, 1985
ensiger Wells & Rao, 1987
stocki Fiers, 1990b

Microlaophonte Vervoort, 1964
spongicola Vervoort, 1964
trisetosa Boxshall, 1976

Arenolaophonte Lang, 1965a
stygia Lang, 1965a

Stygolaophonte Lang, 1965a
arenophila Lang, 1965a

Psammolaophonte Wells, 1967
spinicauda Wells, 1967

Tapholeon Wells, 1967
ornatus Wells, 1967
uniarticulatus Wells, 1967

Platylaophonte Bodin, 1968
delamarei Bodin, 1968

Hoplolaophonte Hamond, 1973e
aculeata Hamond, 1973e

Coullia Hamond, 1973e
heteropus Hamond, 1973e
platychelipusoides (Noodt, 1958a)
clysmae (Por & Marcus, 1972)

Phycolaophonte Pallares, 1975a
insularis Pallares, 1975a

Mexicolaophonte Cottarelli, 1977b
arganoi Cottarelli, 1977b
osellai Cottarelli, 1985
creola Cottarelli & Forniz, 1990
mielkei Fiers, 1991b

Namakosiramia Ho & Perkins, 1977
californiensis Ho & Perkins, 1977[376]
koreensis Kim, 1991

Galapalaophonte Mielke, 1981a
triarticulata (Coull & Zo, 1980)[377]
variabilis (Coull & Zo, 1980)[377]
pacifica Mielke, 1981a[377]
antillensis Fiers, 1991b
biarticulata Fiers, 1991b
carolinensis Fiers, 1991b
chilensis Fiers, 1991b

Quinquelaophonte Wells, Hicks & Coull, 1982
quinquespinosa (Sewell, 1924)
(syn. *Heterolaophonte parasigmoides* Bŏzić, 1969b)[378]
capillata (Wilson, 1932)[371]
longifurcata (Lang, 1965a)
wellsi (Hamond, 1973c)
candelabrum Wells, Hicks & Coull, 1982
bunakensis Mielke, 1997c[379]
koreana Lee, 2003
prolixasetae Walker-Smith, 2004

species incertae sedis
Laophonte brevicornis T. Scott, 1894

species inquirenda
Quinquelaophonte sp. Yoo & Lee, 1995

Novolaophonte Cottarelli, Saporito & Puccetti, 1983b
viatorum Cottarelli, Saporito & Puccetti, 1983b

Chilaophonte Mielke, 1985a
maiquillahuensis Mielke, 1985a
concepcionensis Mielke, 1985a

Maquilaophonte Mielke, 1985a
uachi Mielke, 1985a

Indolaophonte Cottarelli, Saporito & Puccetti, 1985b
ramai Cottarelli, Saporito & Puccetti, 1985b
gemmarum Cottarelli & Puccetti, 1988

Lipomelum Fiers, 1986b
adriaticum (Petkovski, 1955c)
heteromelum Fiers, 1986b
(syn. *Apolaophonte hispida* Wells & Rao, 1987)[380]
variabile Fiers, 1986b

Langia Wells & Rao, 1987
maculata Wells & Rao, 1987

Raptolaophonte Cottarelli & Forniz, 1989
ardua Cottarelli & Forniz, 1989

Folioquinpes Fiers & Rutledge, 1990
mangalis Fiers & Rutledge, 1990
chathamensis (Sars, 1905)
(syn. *Onychocamptus* sp. Mielke, 1981)

Xanthilaophonte Fiers, 1991c
trispinosa (Sewell, 1940)[377]
carcinicola Fiers, 1991c

Amerolaophontina Fiers, 1991b
reducta (Coull & Zo, 1980)[377]

Wellsiphontina Fiers, 1991b
distincta (Wells, 1967)[377]
striata Fiers, 1991b

Robustunguis Fiers, 1992c
ungulatus Fiers, 1992c
minor Fiers, 1992c

Elapholaophonte Schizas & Shirley, 1994d
decaceros Schizas & Shirley, 1994d

Cornylaophonte Willen, 1996b
pleisteri Willen, 1996b

Weddellaophonte Willen, 1996b
anyae Willen, 1996b

Mielkiella George, 1997
spinulosa George, 1997

Bathylaophonte Lee & Huys, 1999c
azorica Lee & Huys, 1999c
faroensis (T. Scott, 1902)[381]
pacifica Lee & Huys, 1999c

Psammoplatypus Lee & Huys, 1999c
discipes (Noodt, 1958a)
proprius (Lang, 1965a)

Pontophonte Lee & Huys, 1999c
leuke (Por, 1959a)
grigae Lee & Huys, 1999c[382]

Heteronychocamptus Lee & Huys, 1999c
exiguus (Sars, 1904)
connexus (Pallares, 1979)

Peltidiphonte Gheeradyn & Fiers in Gheerardyn, Fiers, Vincx & De Troch, 2006
rostrata Gheeradyn & Fiers in Gheerardyn *et al.,* 2006
andamanica Gheeradyn & Fiers in Gheerardyn *et al.,* 2006
cristata Gheeradyn & Fiers in Gheerardyn *et al.,* 2006
furcata Gheeradyn & Fiers in Gheerardyn *et al.,* 2006
major Gheeradyn & Fiers in Gheerardyn *et al.,* 2006
morovoensis Gheeradyn & Fiers in Gheerardyn *et al.,* 2006
ovata Gheeradyn & Fiers in Gheerardyn *et al.,* 2006
paracristata Gheeradyn & Fiers in Gheerardyn *et al.,* 2006

Carraroenia McCormack, 2006
ruthae McCormack, 2006

Subfamily Esolinae Huys & Lee, 2000
Esola Edwards, 1891[383]
longicauda Edwards, 1891
bulbifera (Norman, 1911)[383]
galapagoensis Mielke, 1981a
canalis Huys & Lee, 2000
lobata Huys & Lee, 2000
profunda Huys & Lee, 2000
vervoorti Huys & Lee, 2000

species inquirendae
Esola longicauda Edwards *sensu* Noodt, 1955b, Vervoort, 1964, Wells & Rao, 1987
Esola sp. Mielke, 1997c

Mourephonte Jakobi, 1953a
longiseta (Nicholls, 1941a)[383]

Archilaophonte Willen, 1995
maxima Willen, 1995

Applanola Huys & Lee, 2000
hirsuta (Thompson & A. Scott, 1903)[384]

Archesola Huys & Lee, 2000
typhlops (Sars, 1908)
longiremis (T. Scott, 1905)
hamondi Huys & Lee, 2000

species inquirendae
Esola typhlops pontoica Por, 1959a
Esola sp. Chislenko, 1967

Corbulaseta Huys & Lee, 2000
bulligera (Farran, 1913)[384]

Bathyesola Huys & Lee, 2000
compacta Huys & Lee, 2000

Troglophonte Huys & Lee, 2000
spelaea (Chappuis, 1938)

Family Laophontidae
species incertae sedis
Laophonte nordlandica Boeck, 1873
L. austalasica Thomson, 1882
L. mississippiensis Herrick, 1887
L. varians Brady, 1910
L. glacialis Brady, 1910
L. wiltoni T. Scott, 1912
L. royi Jakubisiak, 1932
L. litophila Monard, 1934
L. borceai Jakubisiak, 1938
Cleta parvula Claus, 1866
C. similis Claus, 1866

species inquirendae
Laophontidae gen. et sp.
Bodin, 1964; Hamond, 1969

Family Normanellidae Lang, 1944[385]
Normanella Brady, 1880[386]
dubia Brady, 1880[97, 386]
minuta (Boeck, 1873)[386]
tenuifurca Sars, 1909[386]
mucronata Sars, 1909
incerta Lang, 1934
similis Lang, 1936
reducta Noodt, 1955b
porosa Noodt, 1964
bolini Lang, 1965a
confluens Lang, 1965a
bifida Lee & Huys, 1999b
pallaresae Lee & Huys, 1999b
paratenuifurca Lee & Huys, 1999b
obscura Lee & Huys, 1999b
sarsi Lee & Huys, 1999b
texana Lee, Montagna & Han, 2003
brevispina Lee, Montagna & Han, 2003
chanhoi Lee, Montagna & Han, 2003

species inquirendae
Normanella semitica Monard, 1935
N. quarta Monard, 1935
N. serrata Por, 1959
N. minuta (Boeck)
sensu Willey, 1930, Bodin, 1972a
N. mucronata (Sars)
var. *quinquesetata* Monard, 1928
N. mucronata (Sars) *sensu* Marinov, 1977

Sagamiella Lee & Huys, 1999
latirostrata Lee & Huys, 1999
aberrans (Bodin, 1968)

Family Laophontopsidae Huys & Willems, 1989
Laophontopsis Sars, 1908
lamellifera (Claus, 1863)
borealis Huys & Willems, 1989
monardi Huys & Willems, 1989

Aculeopsis Huys & Willems, 1989
longisetosa Huys & Willems, 1989

Telodocus Huys & Willems, 1989
secundus (Sewell, 1924)

Family Adenopleurellidae Huys, 1990c
Adenopleurella Huys, 1990c
brevipes Huys, 1990c

Sarsocletodes Wilson, 1924
typicus (Sars, 1920)[387]

Miroslavia Apostolov, 1980b
longicaudata Apostolov, 1980b

Proceropes Huys, 1990c
secunda (Smirnov, 1946)

Family Orthopsyllidae Huys, 1990b[388]
Orthopsyllus Brady & Robertson, 1873
linearis (Claus, 1866)
l. linearis (Claus, 1866)
l. major (Klie, 1939)
l. improportionatus (Jakobi, 1954b)
l. illgi (Chappuis, 1958a)
l. setosus Boer, 1971
l. curvaspina Mielke, 1993
wallini Lang, 1934
sarsi Klie, 1941a
spinicaudatus Krishnaswamy, 1957a
coralliophilus Fiers, 1987a

species inquirenda
Orthopsyllus sp. Apostolov, 1977

Family Orthopsyllidae
genera nomina nuda[388]
Dionyx Huys, 1990
Infrapedia Huys, 1990

Family Cristacoxidae Huys, 1990b[389]
Cristacoxa Huys, 1990b
petkovskii Huys, 1990b

Noodtorthopsyllus Lang, 1965a
psammophilus (Noodt, 1955b)

Cubanocleta Petkovski, 1977
noodti Petkovski, 1977

Laophontisochra George, 2002
maryamae George, 2002

species inquirenda
Laophontisochra sp. George, 2002

Superfamily Laophontoidea
genera incertae sedis
Pseudocleta Lang, 1944
corbula (Willey, 1935)

Apolethon Wells, 1967[390]
fumator Wells, 1967
trigonus Shen & Tai, 1973
bilobatus Shen & Tai, 1973
hippoperus Schizas & Shirley, 2006

Infraorder Podogennonta
Families incertae sedis[391]
Family Cletopsyllidae Huys & Lee, 1999[392]
Cletopsyllus Willey, 1935
papillifer Willey, 1935
bacescui Marcus, 1976b
rotundifera Fiers, 1986b

Bathycletopsyllus Huys & Lee, 1999
hexarthra Huys & Lee, 1999

Retrocalcar Huys & Lee, 1999
brattstroemi (Geddes, 1981b)
secundus (Nicholls, 1945a)
sagamiensis (Itô, 1971)

Isocletopsyllus Huys & Lee, 1999
tertius (Por, 1964a)
quartus (Soyer, 1966)

species inquirendae
Cletopsyllus tertius Por *sensu* Por, 1967
C. quartus Soyer *sensu* Marcus, 1976b

Family Cletopsyllidae
genus inquirenda
Pseudocletopsyllus Vervoort, 1964
spiniger Vervoort, 1964

Family Ancorabolidae Sars, 1909[393]
Subfamily Ancorabolinae Sars, 1909[393a]
Ancorabolus Norman, 1903
mirabilis Norman, 1903[394]
inermis Conroy-Dalton & Huys, 2000
confusus Conroy-Dalton & Huys, 2000
hendrickxi Gómez & Conroy-Dalton, 2002

species incertae sedis
Ancorabolus ilvae George, 2001[395]

Echinopsyllus Sars, 1909
normani Sars, 1909[396]

Ceratonotus Sars, 1909[397]
pectinatus Sars, 1909[397]
coineaui Soyer, 1964
thistlei Conroy-Dalton, 2003a
concavus Conroy-Dalton, 2003a

Arthropsyllus Sars, 1909[398]
serratus Sars, 1909

Echinocletodes Lang, 1936
armatus (T. Scott, 1902)
bodini Dinet, 1974
walvisi Dinet, 1974

Dorsiceratus Drzycimski, 1967
octocornis Drzycimski, 1967
triarticulatus Coull, 1973d

Polyascophorus George, 1998a
martínezi George, 1998a
gorbunovi (Smirnov, 1946)[399]

Breviconia Conroy-Dalton & Huys, 2000[398]
australis (George, 1998b)

species inquirenda
Laophontodes echinatus Brady, 1918

Juxtaramia Conroy-Dalton & Huys, 2000
polaris Conroy-Dalton& Huys, 2000

Uptionyx Conroy-Dalton& Huys, 2000
verenae Conroy-Dalton & Huys, 2000

Arthuricornua Conroy-Dalton, 2001
anendopodia Conroy-Dalton, 2001

Touphapleura Conroy-Dalton, 2001
schminkei (George, 1998b)

Dendropsyllus Conroy-Dalton, 2003a
magellanicus (George & Schminke, 1998)
antarcticus (George & Schminke, 1998)
thomasi Conroy-Dalton, 2003a

Subfamily Laophontodinae Lang, 1944
Laophontodes T. Scott, 1894
hamatus (Thomson, 1882)
typicus T. Scott, 1894
bicornis A. Scott, 1896
propinquus Brady, 1910
whitsoni T. Scott, 1912
gracilipes Lang, 1936
armatus Lang, 1936
ornatus Krishnaswamy, 1957a
hedgpethi Lang, 1965a
psammophilus Soyer, 1974d
macropodia Gee & Fleeger, 1986
macclintocki Schizas & Shirley, 1994c
spongiosus Schizas & Shirley, 1994c
mourois Arroyo, George, Benito & Maldonado, 2003

species incertae sedis
Laophontodes latissimus Brady, 1918
L. antarcticus Brady, 1918

Paralaophontodes Lang, 1965a
echinatus (Willey, 1930)
exopoditus Mielke, 1981a
elegans Baldari & Cottarelli, 1986

Patagoniaella Pallares, 1968c
vervoorti Pallares, 1968c

Tapholaophontodes Soyer, 1974d
rollandi Soyer, 1974d
remotus Cottarelli & Baldari, 1987b

Algensiella Cottarelli & Baldari, 1987b
boitanii Cottarelli & Baldari, 1987b[400]
laurenceae (Bodiou & Colomines, 1988)[400]

Probosciphontodes Fiers, 1988
stellata Fiers, 1988
ptenopostica Fiers, 1988

Lobopleura Conroy-Dalton, 2004
ambiducti Conroy-Dalton, 2004
expansa (Sars, 1908)

Taxon nomen nominandum 2 Seifried, 2003[401]
Superfamily (as yet unnamed)
Family Chappuisiidae Chappuis, 1940
Chappuisius Kiefer, 1938
inopinus Kiefer, 1938
singeri Chappuis, 1939

Taxon nomen nominandum 3 Seifried, 2003[402]
Superfamily Ectinosomatoidea Sars, 1903[403]
Family Ectinosomatidae Sars, 1903
Ectinosoma Boeck, 1865
melaniceps Boeck, 1865
normani T. & A. Scott, 1896
tenuipes T. & A. Scott, 1896
compressum Sars, 1920
obtusum Sars, 1920[404]
dentatum Steuer, 1940
reductum Bŏzić, 1955
litorale (Noodt, 1958a)
acutorostratum Vervoort, 1962
ghardaqense (Noodt, 1964)
breviarticulatum Lang, 1965a
californicum Lang, 1965a
paranormani Lang, 1965a
paradentatum Bŏzić, 1965b
porosum (Wells, 1967)[405]
virginensis Coull, 1971b
vervoorti Soyer, 1971a
pruvoti Soyer, 1971a
mediterraneum Kunz, 1974a
soyeri Apostolov, 1975
barbicauda Bŏzić, 1978a
pectinatum Mielke, 1979
nonpectinatum Mielke, 1979
andamanica Rao, 1993
papuarum Seifried, 1997

tegula Seifried, 1997
barbararum Seifried, 1997
carnivora Seifried & Dürbaum, 2000
mexicanum Gómez & Seifried, 2001

species incertae sedis
Ectinosoma henneguyi Labbé, 1926
E. tholomiges Jakobi, 1954a
E. tholophilos Jakobi, 1954a

species inquirendae
Ectinosoma compressum Sars *sensu* Klie, 1949
E. californicum Lang *sensu* Wells, 1967
Ectinosoma spp. I–V Mielke, 1979

nomina nuda
Ectinosoma porrectum Sars, 1927
E. ischnum Sars, 1927

Bradya Boeck, 1873
subgenus *Bradya* Boeck, 1873
typica Boeck, 1873[406]
proxima T. Scott, 1912
scotti Sars, 1920[406]
macrochaeta Sars, 1920
furcata Sars, 1920
congenera Sars, 1920
simulans Sars, 1920
cladiofera Lang, 1965a
minutiseta Soyer, 1973b
theodori Soyer, 1973b
pugiochaeta Arlt, 1983

subgenus *Parabradya* Lang, 1944
dilatata Sars, 1904
confluens Lang, 1936
atlantica Bodin, 1968
bodini Bŏzić, 1979

Microsetella Brady & Robertson, 1873
rosea (Dana, 1848)
norvegica (Boeck, 1865)

Sigmatidium Giesbrecht, 1881
difficile Giesbrecht, 1881
parvulum Mielke, 1974
rouchi Kunz, 1974a
noodti Kunz, 1974a
triarticulatum Mielke, 1979
kunzi Mielke, 1979

species inquirenda
Sigmatidium sp. Mielke, 1979

Pseudobradya Sars, 1904
minor (T. & A. Scott, 1896)[407]
barroisi (Richard, 1893)[408]
brevicornis (T. Scott, 1894)
similis (T. & A. Scott, 1896)[285]
hirsuta (T. & A. Scott, 1896)
fusca (T. & A. Scott, 1896)
elegans (T. & A. Scott, 1896)
acuta Sars, 1904
robusta Sars, 1910
major (Olofsson, 1917)[409]
arctica (Olofsson, 1917)[410]
digitata Sars, 1920
leptognatha Sars, 1920
scabriuscula Sars, 1920
attenuata Sars, 1920
tenella Sars, 1920
parvula Sars, 1920
pulchella Sars, 1920
exilis Sars, 1920
pygmaea Sars, 1920
ambigua Sars, 1920
maxima Lang, 1935
beduina Monard, 1935
b. beduina Monard, 1935[285]
b. faialensis Kunz, 1983
usitata Noodt, 1964
pectinifera Lang, 1965a
pulchera Lang, 1965a
crassipes Lang, 1965a
cornuta Lang, 1965a
kusnezovi Chislenko, 1967
oligochaeta Chislenko, 1967
distinctum Wells, 1968
brevicaudata Soyer, 1974a
spinulosa Soyer, 1974a
peresi Soyer, 1974a
banyulensis Soyer, 1974a
truncatiseta Soyer, 1974a
soyeri Bodiou, 1974b
psammophila Bodiou, 1974b
rhea Bodin, 1979a
lanceta Coull, 1986

species incertae sedis
Pseudobradya proxima Brady, 1910
P. quoddiensis Willey, 1930

P. pelobates Jakobi, 1954a
P. pelogonos Jakobi, 1954a
P. pelotropos Jakobi, 1954a

species inquirendae
Pseudobradya similis (T. & A. Scott) *sensu* Sewell, 1940
P. hirsuta (T. & A. Scott) *sensu* Por, 1964a
P. pulchella Sars *sensu* Wells, 1965
P. beduina Monard *sensu* Marinov & Apostolov, 1985

Tetanopsis Brady 1910
typicus Brady, 1910
mediterranea (Chappuis, 1954c)

species incertae sedis
Tetanopsis smithi Perkins, 1956b
T. medius Perkins, 1956b

Ectinosomella Sars, 1910
nitidula Sars, 1910

Halophytophilus Brian, 1917
fusiformis Brian, 1918
spinicornis Sars, 1920
similis Lang, 1948
simplex Wells & Rao, 1987

Bradyellopsis Brian, 1924
subniger Brian, 1924
tumidus Brian, 1924
arupinensis Steuer, 1941
briani Steuer, 1941
foliatus Watkins, 1987

Arenosetella Wilson, 1932
tenuissima (Klie, 1929)[407]
spinicauda Wilson, 1932
fissilis Wilson, 1932
germanica Kunz, 1937
g. germanica Kunz, 1937
g. galapagoensis Mielke, 1979
incerta Chappuis, 1954a
(syn. *Arenosetella pectinata* Chappuis, 1954a)[411]
indica Krishnaswamy, 1957a
kaiseri Lang, 1965a
rouchi Lang, 1965a
madagascariensis Lang, 1965a
balakrishnani Bŏzić, 1967
duriensis Galhano, 1970
bidenta Itô, 1972
fimbriaticauda McLachlan & Moore, 1978
littoralis Bodin, 1979a
panamensis Mielke, 1981b
macronychospina Mielke, 1981b
longiseta Kunz, 1983
vinadelmarensis Mielke, 1986
tricornis Wells & Rao, 1987
bassantae Mitwally & Montagna, 2001

species inquirendae
Arenosetella incerta Chappuis *sensu* Noodt, 1958a
Arenosetella sp. Mielke, 1981b

Pseudectinosoma Kunz, 1935
minor Kunz, 1935
vandeli (Rouch, 1969)
kunzi Galassi, 1997b
reductum Galassi & de Laurentiis, 1997b
janineae Galassi, Dole-Olivier & De Laurentiis, 1999
galassiae Karanovic, 2006

Hastigerella Nicholls, 1935
leptoderma (Klie, 1929)[412]
meridionalis (Chappuis, 1954c)
psammae (Noodt, 1955c)
abbotti Lang, 1965a
a. abbotti Lang, 1965a
a. santacruzensis Mielke, 1979
monniotae (Guille & Soyer, 1966)
setosa (Rao & Ganapati, 1969a)
noodti (Rao & Ganapati, 1969a)
clavata (Rao & Ganapati, 1969a)
bengalensis Rao, 1972
chappuisi Soyer, 1974b
bozici Soyer, 1974b
bodini Apostolov, 1974
scheibeli Mielke, 1975
soyeri Bodin, 1976
mehuinensis Mielke, 1986
antarctica Dahms & Schminke, 1992

species inquirendae
Hastigerella sp. Mielke, 1986
Arenosetella unisetosa Wells, 1965[413]

Halectinosoma Lang, 1944[414]
curticorne (Boeck, 1873)

erythrops (Brady, 1880)[97]
abrau (Kričagin, 1877)
gothiceps (Giesbrecht, 1881)
chrystalli (T. Scott, 1894)
propinquum (T. & A. Scott, 1896)[151]
herdmani (T. & A. Scott, 1896)[415]
(syn. *Halectinosoma herdelongata* Marcus, 1967)
armiferum (T. & A. Scott, 1896)[416]
gracile (T. & A. Scott, 1896)
tenuireme (T. & A. Scott, 1896)[417]
longicorne (T. & A. Scott, 1896)
neglectum (Sars, 1904)[415]
elongatum (Sars, 1904)[415]
(syn. *Ectinosoma intermedia* Nicholls, 1939a)
mixtum (Sars, 1904)
brevirostre (Sars, 1904)
brunneum (Brady, 1905)
proximum (Sars, 1919)[415]
angulifrons (Sars, 1919)
tenerum (Sars, 1920)
clavatum (Sars, 1920)
distinctum (Sars, 1920)[285]
concinnum (Akatova, 1935)
littorale (Nicholls, 1939a)
oblongum (Kunz, 1949)
spinicauda (Wells, 1961)
arenicola (Rouch, 1962)
diops (Por, 1964a)
canaliculatum (Por, 1964a)[418]
inopinatum (Por, 1964a)
similidistinctum Lang, 1965a[419]
ornatum Lang, 1965a
longisetosum Lang, 1965a
kunzi Lang, 1965a
unicum Lang, 1965a
inhacae Wells, 1967
fusiforme Wells, 1967
langi Wells, 1967
fusum Wells, 1967
abyssicola Bodin, 1968
gascognense Bodin, 1968
dimorphum Coull, 1970a
cooperatum Bodin, Bodiou & Soyer, 1971
paradistinctum Soyer, 1972a
travei Soyer, 1972a
valeriae Soyer, 1972a
monardi Soyer, 1972a
rouchi Soyer, 1972a
pterinum Moore, 1974
winonae Coull, 1975
paraspinicauda Bodin, 1979a
perforatum Itô, 1981
otakoua Wells, Hicks & Coull, 1982
hydrofuge Wells, Hicks & Coull, 1982
pseudosarsi Clément & Moore, 1995
chislenki Clément & Moore, 1995
argyllensis Clément & Moore, 1995
crenulatum Clément & Moore, 1995
denticulatum Clément & Moore, 1995
bodotriaensis Clément & Moore, 2000
pilosum Clément & Moore, 2000
britannicum Clément & Moore, 2000
itoi Clément & Moore, 2000
huysi Clément & Moore, 2000

species incertae sedis
Ectinosoma melaniceps var T. Scott, 1902
E. scotti Brady, 1910
E. gracilicorne Brady, 1910
E. veilli Labbé, 1926
E. wiesei Smirnov, 1932

species inquirendae
Halectinosoma herdmani (T. & A. Scott)
sensu Chislenko, 1967, Becker, 1970
Halectinosoma sp.2 Bodin, 1970
Ectinosoma finmarchicum T. Scott, 1903[415]
E. sarsi Boeck *sensu* Wells, 1965
E. japonica Miura, 1964[413]
Ectinosoma sp. Bodin, 1964

Ectinosomoides Nicholls, 1945b
longipes Nicholls, 1945b

Noodtiella Wells, 1965c
arenosetelloides (Noodt, 1958a)[420]
problematica (Rouch, 1962)
lusitanica Wells, 1965c
wellsi Apostolov, 1974
gracile Mielke, 1975
frequentior Mielke, 1979
hoodensis Mielke, 1979
tabogensis Mielke, 1981b
pacifica Mielke, 1987a
larinconadensis Mielke, 1987a
coquimbensis Mielke, 1987a
mielkei Wells & Rao, 1987
ornamentalis Wells & Rao, 1987
toukae Mitwally & Montagna, 2001

Lineosoma Wells, 1965c
iscensis Wells, 1965c
intermedia (Wells, 1967)
enertha (Lindgren, 1975)
chilensis Mielke, 1987b

Oikopus Wells, 1967
rostrilabrus Wells, 1967

Peltobradya Médioni & Soyer, 1967
bryozoophila Médioni & Soyer, 1967

Klieosoma Hicks & Schriever, 1985
triarticulatum (Klie, 1949)[421]
spinosum (Hicks & Schriever, 1983)
aberrans (Wells & Rao, 1987)

Rangabradya Karanovic & Pesce, 2001
indica Karanovic & Pesce, 2001

Family Ectinosomatidae
species incertae sedis
Ectinosoma sarsi Boeck, 1873[422]
E. spinipes Brady, 1880
Bradya limicola Herrick, 1884
Robertsonia normani Brady, 1910
Halectinosoma uniarticulatum Borutzky, 1972[413]
Arenosetella limnophila Štěrba, 1968a

nomen nudum
Prenoodtiella acutifrons Soyer, 1971

Infraorder Exanechentera Lang, 1944[423]
(Taxon unranked)
Idyanthidimorpha Seifried, 2003[424]
Family Idyanthidae Lang, 1944[425]
(syn. Styracothoracidae Huys, 1993)[426]
Idyanthe Sars, 1909
dilatata (Sars, 1905)
pusilla (Sars, 1905)
tenella (Brady, 1910)
australis Pallares, 1970

Idyella Sars, 1906
pallidula Sars, 1906
exigua Sars, 1906
tenuis (Brady, 1910)
australis (Brady, 1910)
major Sars, 1920
kunzi Bodin, 1968

species inquirenda
Idyella pallidula Sars *sensu* Arlt, 1983

Tachidiella Sars, 1909[427]
minuta Sars, 1909[427]
parva Lang, 1965a
kimi Lee & Huys, 1999a
reducta Lee & Huys, 1999a
patagonica Lee & Huys, 1999a

Idyellopsis Lang, 1948
typica Lang, 1948

Dactylopia Becker, 1974[428]
peruana Becker, 1974

Styracothorax Huys, 1993[426]
gladiator Huys, 1993

Aspinothorax Moura & Martínez Arbizu, 2003
insolentis Moura & Martínez Arbizu, 2003

Meteorina George, 2004
magnifica George, 2004

Nematovorax Bröhldick, 2005
gebkelinae Bröhldick, 2005

Family Zosimidae Seifried, 2003
Zosime Boeck, 1873
typica Boeck, 1873
incrassata Sars, 1910
i. incrassata Sars, 1910[429]
i. bathybia Bodin, 1968
major Sars, 1919
valida Sars, 1919
mediterranea Lang, 1948
gisleni Lang, 1948
bathyalis Por, 1967
erythraea Por, 1967
bergensis Drzycimski, 1968c
atlantica Bodin, 1968
paramajor Bodin, 1968
reyssi Dinet, 1974
paratypica Becker & Schriever, 1979
pacifica Fiers, 1991a

species incertae sedis
Zosime rubra Thompson, 1888

species inquirendae
Zosime incrassata Sars *sensu* Por, 1964a
Z. gisleni Lang *sensu* Arlt, 1983

Pseudozosime T. Scott, 1912
brownei T. Scott, 1912

Peresime Dinet, 1974
abyssalis Dinet, 1974
reducta (Becker & Schriever, 1979)

Taxon nomen nominandum 4 Seifried, 2003[430]
Superfamily (as yet unnamed)
Family Paramesochridae Lang, 1944
Subfamily Paramesochrinae Lang, 1944[431]
Paramesochra T. Scott, 1892
dubia T. Scott, 1892
acutata Klie, 1934
a. acutata Klie, 1934
a. hawaiiensis Kunz, 1981
pterocaudata Kunz, 1936
similis Kunz, 1936
helgolandica Kunz, 1937
h. helgolandica Kunz, 1937
h. galapagoensis Mielke, 1984a
longicaudata Nicholls, 1945c
ornata Krishnaswamy, 1957a
denticulata Rao & Ganapati, 1969a
brevifurca Galhano, 1970
b. brevifurca Galhano, 1970
b. mediterranea Huys, 1987a
borealis Geddes, 1981a
kunzi Mielke, 1984a
unaspina Mielke, 1984a
mielkei Huys, 1987a

species inquirenda
Paramesochra helgolandica Kunz *sensu* Mielke, 1975

Leptopsyllus T. Scott, 1894
subgenus *Leptopsyllus* T. Scott, 1894
typicus T. Scott, 1894
paratypicus Nicholls, 1939b
reductus Lang, 1948[174]
harveyi Wells, 1963b[46]
elongatus Drzycimski, 1967
dubatyi Soyer, 1974d
abyssalis Becker, 1979
punctatus Mielke, 1984a
platyspinosus Mielke, 1984a
celticus Bodin & Jackson, 1987

subgenus *Paraleptopsyllus* Lang, 1944
arcticus (Lang, 1936)

Remanea Klie, 1929
arenicola Klie, 1929
plumosa Pennak, 1942

Kliopsyllus Kunz, 1962
holsaticus (Klie, 1929)
h. holsaticus (Klie, 1929)
h. varians (Kunz, 1951)
h. longicaudatus Galhano, 1970
h. listensis Mielke, 1984a
coelebs (Monard, 1935)[432]
constrictus (Nicholls, 1935)
c. constrictus (Nicholls, 1935)
c. orotavae (Noodt, 1958a)[433]
c. pacificus Mielke, 1984b
c. egypticus Mitwally & Montagna, 2001
major (Nicholls, 1939b)
laurenticus (Nicholls, 1939b)
pygmaeus (Nicholls, 1939b)
longisetosus (Krishnaswamy, 1951)[434]
enalius (Krishnaswamy, 1957a)
pseudogracilis (Krishnaswamy, 1957a)
minutus (Krishnaswamy, 1957a)
capensis (Krishnaswamy, 1957a)
ponticus (Serban, 1959)
perharidiensis (Wells, 1963b)
psammophilus (Noodt, 1964)[435]
psammobionta (Noodt, 1964)[435]
idiotes Wells, 1967
furcavaricatus (Kunz, 1974b)
paraholsaticus Mielke, 1975
longifurcatus Scheibel, 1975
spiniger Wells, Kunz & Rao, 1975
s. spiniger Wells, Kunz & Rao, 1975
s. ornatus Kunz, 1981
masryi Bodin, 1979b
californicus Kunz, 1981
debilis Kunz, 1981
insularis Kunz, 1981
atlanticus Kunz, 1983
miguelensis Kunz, 1983

regulexstans Mielke, 1984a
similis Mielke, 1984a
unguiseta Mielke, 1984a
panamensis Mielke, 1984b
chilensis Mielke, 1985b
acutifurcatus Mielke, 1985b
andeep Veit-Köhler, 2004
diva Veit-Köhler, 2004

species incertae sedis
Emertonia gracilis Wilson, 1932
Paramesochra laurentica Nicholls, 1939b[200]
P. arenicola Krishnaswamy, 1957a
P. wilsoni Krishnaswamy, 1957a[433]

species inquirenda
Kliopsyllus sp. Apostolov, 1973e

Scottopsyllus Kunz, 1962
subgenus *Scottopsyllus* Kunz, 1962
minor (T. & A. Scott, 1895)
robertsoni (T. & A. Scott, 1895)
herdmani (Thompson & A. Scott, 1900)
pararobertsoni Lang, 1965a
langi Mielke, 1984a
l. langi Mielke, 1984a
l. continentalis Kunz, 1992
praecipuus Veit-Köhler, 2000

subgenus *Intermedopsyllus* Kunz, 1962
intermedius (T. & A. Scott, 1895)
minutus (Nicholls, 1939b)

species incertae sedis
Scottopsyllus smirnovi Kunz, 1992

subgenus *Wellsopsyllus* Kunz, 1981
gigas (Wells, 1965a)
runtzi (Soyer, 1974d)
abyssalis (Becker, 1979)

Scottopsyllus: species inquirenda
Scottopsyllus minor (T. & A. Scott) *sensu* Kunz, 1981

Apodopsyllus Kunz, 1962
spinipes (Nicholls, 1939b)
littoralis (Nicholls, 1939b)
madrasensis (Krishnaswamy, 1951a)
arenicolus (Chappuis, 1954a)[436]
adaptatus (Krishnaswamy, 1957a)
depressus (Krishnaswamy, 1957a)
africanus Kunz, 1962
a. africanus Kunz, 1962
a. listensis Mielke, 1975
perplexus (Wells, 1963b)[437]
schulzi (Noodt, 1964)
vermiculiformis Lang, 1965a
lynceorum Cottarelli, 1971c
camptus Wells, 1971
unguiformis Coull & Hogue, 1978
bermudensis Coull & Hogue, 1978
arcuatus Mielke, 1984a
panamensis Mielke, 1984b
aberrans Mielke, 1984b
biarticulatus Cottarelli & Altamura, 1985
chilensis Mielke, 1987a
cubensis Mielke, 1988
melitae Kunz, 1992
alejandrovillalobosi Gómez, 2002b
samubelgomezi Gómez, 2002b
pseudocubensis Gómez, 2002b

Kunzia Wells, 1967
epacra Wells, 1967
minutissima Wells, 1967
bispinosa Kunz, 1974b

Caligopsyllus Kunz, 1975
primus Kunz, 1975[438]

Meiopsyllus Cottarelli & Forniz, 1994
marinae Cottarelli & Forniz, 1994

Biuncus Huys, 1996a
ingens (Huys, 1995c)

Subfamily Diarthrodellinae Huys, 1987
Diarthrodella Klie, 1949
orbiculata Klie, 1949
secunda Kunz, 1954
s. secunda Kunz, 1954[147]
s. pacifica Kunz, 1981
psammophila (Bocquet & Bŏzić, 1955)
parorbiculata Wells, 1963a
p. parorbiculata Wells, 1963a
p. pacifica Mielke, 1984a
lancifera Kunz, 1983
convexa Kunz, 1983
neotropica Mielke, 1984a

galapagoensis Mielke, 1984a
chilensis Mielke, 1985a

Tisbisoma Bŏzić, 1964b
spinisetum Bŏzić, 1964b
triarticulatum Wells, 1967

Rossopsyllus Soyer, 1974d
kerguelensis Soyer, 1974d
k. kerguelensis Soyer, 1974d
k. quellonensis Mielke, 1985a
obscurus Cottarelli & Baldari, 1987c

Taxon nomen nominandum 5 Seifried, 2003[439]
Superfamily Tachidioidea Boeck, 1865[440, 440a]
Family Tachidiidae Boeck, 1865[440a]
(syn. Euterpinidae Brian, 1921)[441]
Tachidius Lilljeborg, 1853
discipes Giesbrecht, 1881
Euterpina Norman, 1903[441]
acutifrons (Dana, 1848)

Microarthridion Lang, 1944
littorale (Poppe, 1881)
berberum (Monard, 1935)[442]
reductum (Monard, 1935)
laurenticum (Nicholls, 1939a)
fallax Perkins, 1956a[443]
litospinatus Shen & Tai, 1973

Neotachidius Shen & Tai, 1963[444]
triangularis Shen & Tai, 1963
coreanus Huys, Ohtsuka, Conroy-Dalton & Kikuchi, 2005
parvus Huys, Ohtsuka, Conroy-Dalton & Kikuchi, 2005

Cithadius Bowman, 1972
cyathurae Bowman, 1972

Geeopsis Huys, 1996[445]
incisipes (Klie, 1913)

Sinotachidius Huys, Ohtsuka, Conroy-Dalton & Kikuchi, 2005
vicinospinalis (Shen & Tai, 1964b)

species inquirenda
Tachidius discipes Giesbrecht *sensu* Song & Chang, 1995[446]

(Taxon unranked) Palinarthra Seifried, 2003
(Taxon unranked) Novocriniidimorpha Seifried, 2003
Family Novocriniidae Huys & Iliffe, 1998
(syn. Atergopediidae Martínez Arbizu & Moura, 1998)[447]
Novocrinia Huys & Iliffe, 1998
trifida Huys & Iliffe, 1998

Atergopedia Martínez Arbizu & Moura, 1998
vetusta Martínez Arbizu & Moura, 1998

Taxon nomen nominandum 6 Seifried, 2003[448]
Family Superornatiremidae Huys, 1996b
Superornatiremis Huys, 1996b
mysticus Huys, 1996b
mendai Jaume, 1997

Neoechinophora Huys, 1996b
fosshageni Huys, 1996b
daltonae Huys, 1996b
jaumei Huys, 1996b
karaytugi Huys, 1996b
xoni Jaume, 1997

Intercrusia Huys, 1996b
problematica Huys, 1996b
garciai Jaume, 1997

Gideonia George & Martínez Arbizu, 2005
noncavernicola George & Martínez Arbizu, 2005

Family Rotundiclipeidae Huys, 1988b
Rotundiclipeus Huys, 1988b
canariensis Huys, 1988b

Superfamily Tisboidea Stebbing, 1910
Family Peltidiidae Claus, 1860[49a]
(syn. Clytemnestridae A. Scott, 1909)[449]
Subfamily Peltidiinae Claus, 1860[449, 449a]
Peltidium Philippi, 1839
purpureum Philippi, 1839
robustum (Claus, 1889)

gracile (Claus, 1889)
ovale Thompson & A. Scott, 1903[450]
angulatum Thompson & A. Scott, 1903
speciosum Thompson & A. Scott, 1903[451]
perplexum Thompson & A. Scott, 1903
falcatum A. Scott, 1909
intermedium A. Scott, 1909
exiguum A. Scott, 1909
cinereum Brady, 1915
sacesphorum Monard, 1928
hawaiiense Pesta, 1935
monardi Pesta, 1935
maldivianum Sewell, 1940
proximum Nicholls, 1941a
simplex Nicholls, 1941a
laudatum Tanaka & Hue, 1966
defreitasi Wells, 1967
nichollsi Geddes, 1968c
lerneri Geddes, 1968c
perturbatum Geddes, 1968c
fenestratum Geddes, 1968c
quinquesetosum Song & Yun, 1999

species incertae sedis
Peltidium graciloides Pesta, 1935
P. elegans Wolfenden, 1906
Oniscidium triarticulatum Haller, 1879
O. sculptum Haller, 1879
O. incertum Haller, 1879
O. leptophyllum Claus, 1889
Reticulina aurivilii Cleve, 1901

species inquirendae
Peltidium sp. *juvenis* Pesta, 1935
Peltidium sp. Monard, 1935
Peltidium spp. A & B Wells & Rao, 1987

nomina nuda
Oniscidium biarticulatum Haller, 1880
O. incrustacans Haller, 1880
O. flavum Claus, 1889

Alteutha Baird, 1845
depressa (Baird, 1837)
interrupta (Goodsir, 1845)
oblonga (Goodsir, 1845)
typica Czerniavski, 1868
novaezealandiae (Brady, 1899)
signata Brady, 1910
dubia T. Scott, 1912
sarsi Monard, 1924
trisetosa Lang, 1936
spinicauda Nicholls, 1941a
rara Jakobi, 1954b
roeae Hicks, 1982a
polarsternae Dahms, 1992

species incertae sedis
Alteutha aberrans Czerniavski, 1868
A. nana Brady, 1910
A. sewelli Krishnaswamy, 1953[452]
Sterope ovalis Goodsir, 1845
S. armatus Goodsir, 1845

Eupelte Claus, 1860
gracilis Claus, 1860
villosa (Brady, 1910)
setacauda Monk, 1941
simile (Monk, 1941)
tristanensis Wiborg, 1964
minuta (Ramirez, 1971)
regalis Hicks, 1971
acutispinis Zhang & Li, 1976
hexaseta Hicks, 1982a
beckleyae Hicks, 1982a
aurulenta Wells & Rao, 1987

species incertae sedis
Eupelte gracilis Claus *sensu* Pallares, 1968b
E. villosa (Brady) *sensu* Pallares, 1975b

Alteuthella A. Scott, 1909
pellucida A. Scott, 1909
spinicauda A. Scott, 1909
pygmaea A. Scott, 1909

Parapeltidium A. Scott, 1909
serratum (Thompson & A. Scott, 1903)
johnstoni A. Scott, 1909
cristatum Nicholls, 1941a
dubium Nicholls, 1941a
nichollsi Ummerkutty, 1970

Alteuthellopsis Lang, 1944
oblivia (A. Scott, 1909)
corallina Humes, 1981a

Neopeltopsis Hicks, 1976
pectinipes Hicks, 1976

hicksi Pallares, 1979
althorpensis Walker-Smith, 2005

Alteuthoides Hicks, 1986a
kootare Hicks, 1986a
affinis S.H. & W. Kim, 1998

Subfamily Clytemnestrinae A. Scott, 1909[449]
Clytemnestra Dana, 1847[453]
scutellata Dana, 1847[453]
gracilis (Claus, 1891)
farrani Huys & Conroy-Dalton, 2000
longipes Huys & Conroy-Dalton, 2000
asetosa Huys & Conroy-Dalton, 2000

species inquirenda
Clytemhestra hendorffi
var. *quinquesetosa* Poppe, 1891

Goniopsyllus Brady, 1883[453]
rostratus Brady, 1883[453]
clausi Huys & Conroy-Dalton, 2000
brasiliensis Huys & Conroy-Dalton, 2000

species inquirendae
Clytemnestra tenuis Lubbock, 1860
Sapphir rostratus Car, 1890

Family Peltidiidae
genus incertae sedis
Eupeltidium A. Scott, 1909
glabrum A. Scott, 1909

Family Tegastidae Sars, 1904
Tegastes Norman, 1903
satyrus (Claus, 1860)
neapolitanus (Claus, 1863)
longimanus (Claus, 1863)
falcatus (Norman, 1868)
andrewi (T. Scott, 1894)
flavidus Sars, 1904
grandimanus Sars, 1904
nanus Sars, 1904
clausi Sars, 1910
calcaratus Sars, 1910[177]
pulcher Pesta, 1932
edmondsoni Pesta, 1932
tenuis Pesta, 1932
areolatus Monard, 1935[177]
seurati Monard, 1936
minutus Sewell, 1940
brasiliensis Jakobi, 1953b
porosus Petkovski, 1955b
dalmatinus Petkovski, 1955b[454]
riedli Pesta, 1959
elenae Marcus, 1963
perforatus Lang, 1965a
knoepffleri Médioni & Soyer, 1967
georgei Marcus & Masry, 1970
singularisaetus Marcus, 1977
pygmaeus Marcus, 1977
fernandici Pallares, 1979
cnidicus Humes, 1981a
acroporanus Humes, 1981b
gemmeus Humes, 1984
paulipes Humes, 1984

species incertae sedis
Tegastes intermedius Herrick, 1887
T. coriaceus Brady, 1910
T. frigidus Brady, 1910

species inquirendae
T. falcatus (Norman) *sensu* Pesta, 1959
Tegastes sp. ?*neapolitanus* (Claus) Pesta, 1959
Tegastes sp. Noodt, 1958a[454]
Tegastes sp. Geddes, 1968c

nomen nudum
Tegastes inopinatus Sars, 1927

Parategastes Sars, 1904
sphaericus (Claus, 1863)
s. sphaericus (Claus, 1863)
s. similis Sewell, 1924
s. punicus Monard, 1935
chalmersi (Thompson & A. Scott, 1903)[455]
herteli Jakobi, 1953b
caprinus Wellershaus, 1970
coetzeei Kunz, 1980
conexus Humes, 1984

species incertae sedis
Parategastes haphe Leigh-Sharpe, 1936

Syngastes Monard, 1924
clausi (Thomson, 1882)
imthurni (Thompson & A. Scott, 1903)
donnani (Thompson & A. Scott, 1903)
twynami (Thompson & A. Scott, 1903)

cornalinus Monard, 1924
macrognathus Monard, 1924
pietschmanni Pesta, 1932
gregoryi Pesta, 1932
latus Pesta, 1932
indicus Sewell, 1940
serratus Lang, 1965a
glomeratus Geddes, 1968c
gibbus Geddes, 1968c
langi Geddes, 1968c
tanzaniae Marcus, 1977
kunzi Marcus, 1977
spinifer Fiers, 1983
craterifer Bartsch, 1993
foveatus Bartsch, 1994
parilis Bartsch, 1994
porellus Bartsch, 1994
dentipes Bartsch, 1995
gibbosus Bartsch, 1999
subgibbus Bartsch, 1999
australiensis Bartsch, 1999

species inquirendae
Syngastes pietschmanni Pesta
sensu Tanaka & Hue, 1966
Syngastes sp. Krishnaswamy, 1957a
Syngastes sp. Ummerkutty, 1966

Feregastes Fiers, 1986a
wellensi Fiers, 1986a

Arawella Cottarelli & Baldari, 1987a
alexandri Cottarelli & Baldari, 1987a

Smacigastes Ivanenko & Defaye, 2004
micheli Ivanenko & Defaye, 2004

Family Porcellidiidae Boeck, 1865[456]
Porcellidium Claus, 1860[457]
(syn. *Acutiramus* Harris & Robertson, 1994
Murramia Harris, 1994
Kioloaria Harris, 1994
Kensakia Harris & Iwasaki, 1997
Mucrorostrum Harris & Iwasaki, 1997)
viride (Philippi, 1840)[458]
tenuicauda Claus, 1860
fimbriatum Claus, 1863[458]
ovatum Haller, 1879
interruptum Thomson, 1882
lecanoides Claus, 1889[458]
acuticaudatum Thompson & A. Scott,1903[459]
brevicaudatum Thompson & A. Scott, 1903[460]
ravanae Thompson & A. Scott, 1903
charcoti Quidor, 1906[461]
scotti Pesta, 1935
sarsi Bocquet, 1948[458]
malleatum Vervoort, 1964
rubrum Pallares, 1966
trisetosum Geddes, 1968c
unicum Ummerkutty, 1970
erythrum Hicks, 1971
hartmannorum Tiemann, 1978
algoense Hicks, 1982a
tapui Hicks & Webber, 1983
paguri Ho, 1986
hormosirii Harris & Robertson, 1994
ocellum Harris & Robertson, 1994
pulchrum Harris & Robertson, 1994
erythrogastrum Harris & Robertson, 1994
naviculum Harris & Robertson, 1994
phyllosporum Harris & Robertson, 1994
rufolineatum (Harris & Robertson, 1994)
quinquelineatum (Harris & Robertson, 1994)
londonarum Harris, 1994[462]
magna (Harris, 1994)
bicincta (Harris, 1994)
sesquimaculatum (Harris, 1994)
ofunatense Harris & Iwasaki, 1996a
(syn. *Porcellidium* sp. Mizuno & Gamô, 1969)
kiiroum Harris & Iwasaki, 1996a
akashimum Harris & Iwasaki, 1996a
similis S.H. & W. Kim, 1996
wandoensis I.H. & H.S. Kim, 1997
acutum I.H. & H.S. Kim, 1997
*brevicavum*I.H. & H.S. Kim, 1997
aoifuchidorum Harris & Iwasaki, 1997
aiiroa (Harris & Iwasaki, 1997)
yoroium (Harris & Iwasaki, 1997)
poorei Walker-Smith, 2001

species incertae sedis
Porcellidium fulvum Thomson, 1882
P. tuberculatum Wolfenden, 1906

species inquirendae
Porcellidium ovatum Haller
sensu Hamond, 1973e, Geddes, 1968c[463]
Porcellidium sp. Pesta, 1935,
Porcellidium sp. Ummerkutty, 1966

Tectacingulum Harris, 1994
tumidum Harris, 1994
nigrum Harris, 1994

Brevifrons Harris, 1994
faviolatum Harris, 1994

Clavigofera Harris & Iwasaki, 1996b
pacifica Harris & Iwasaki, 1996b
clavigera (Pesta, 1935)
echinophila (Humes & Gelerman, 1962)
laurencia (Hicks, 1982a)
ulva (Hicks, 1982a)

species incertae sedis
Porcellidium australe Brady
sensu Nicholls, 1941a

Kushia Harris & Iwasaki, 1996b
zosteraphila Harris & Iwasaki, 1996b
gamoi Harris & Iwasaki, 1996b
(syn. *Porcellidium* sp. Gamô, 1969)
igaguria Harris & Iwasaki, 1996b

Dilatatiocauda Harris, 2002[457]
dilatata (Hicks, 1971)
tristanensis (Wiborg, 1964)[464]
plana (Tiemann, 1977)
bipartita (I.H. & H.S. Kim, 1997)
multidenticulata Harris, 2002
medialis Harris, 200
retroseta Harris, 2002

Family Tisbidae Stebbing, 1910[456]
Subfamily Tisbinae Stebbing, 1910[465]
Tisbe Lilljeborg, 1853[466]
furcata (Baird, 1837)[467]
f. furcata (Baird, 1837)
f. tuberculata Chislenko, 1971
ensifer Fischer, 1860
e. ensifer (Fischer, 1860)
e. indica (Sewell, 1924)
gracilis (T. Scott, 1895)
(syn. *Tisbe wilsoni* Sewell, 1928)[468]
longicornis (T. & A. Scott, 1895)
minor (T. & A. Scott, 1896)[162]
tenuimana (Giesbrecht, 1902)
tenera (Sars, 1905)[162]
elegantula (Sars, 1905)
angusta (Sars, 1905)
finmarchica (Sars, 1905)[469]
inflata (Sars, 1909)
tenella (Sars, 1910)[407]
austrina T. Scott, 1912
gracilipes T. Scott, 1912
varians T. Scott, 1914[80]
graciloides (Sars, 1920)
longisetosa Gurney, 1927
bermudensis Willey, 1930
gurneyi (Lang, 1934)
johnsoni Monk, 1941
robusta Monk, 1941
reticulata Bocquet, 1951
celata Humes, 1954[469]
holothuriae Humes, 1957b
cucumariae Humes, 1957b
histriana Marcus & Por, 1961[469]
monozota Bowman, 1962[470]
acanthifera Vervoort, 1962
wirkettisae Chislenko, 1967
clodiensis Battaglia & Fava, 1968
reluctans Volkmann-Rocco, 1968
pontina Volkmann-Rocco, 1969
persimilis Volkmann-Rocco & Fava, 1969
aragoi Battaglia & Volkmann-Rocco, 1969
dobzhanskii Volkmann-Rocco & Battaglia, 1972
carolinensis Volkmann-Rocco, 1972a
bocqueti Volkmann-Rocco, 1972a
lagunaris Volkmann-Rocco, 1972a
bulbisetosa Volkmann-Rocco, 1972a
battagliai Volkmann-Rocco, 1972b
pori Betouhim-El & Kahan, 1972
marmorata Volkmann-Rocco, 1973a
pentataenia Volkmann-Rocco, 1973a
biminiensis Volkmann-Rocco, 1973b
remanei Volkmann, 1975
prolata Waghorn, 1979a
variana Volkmann, 1979a
ianthina Volkmann, 1979a
coulli Volkmann, 1979a
longipes Volkmann, 1979a
trisetosa Volkmann, 1979c
elanitica Volkmann, 1979c
rampighera Volkmann, 1979c
perplexa Volkmann, 1979c
gigantea Volkmann, 1979c
denticulata Volkmann, 1979c
maraensis Volkmann, 1979c
inflatiseta Volkmann, 1979c
japonica Ho, 1982

spinulosa Bradford & Wells, 1983
caymanensis Yeatman, 1984
antennulodenticulata Gómez, Peullo-Cruz & González-Rodríguez, 2004
brigittevolkmannae Gómez,Peullo-Cruz & González-Rodríguez, 2004
puelloi Gómez, Puello-Cruz & González-Rodríguez, 2004

species incertae sedis
Tisbe similis Kričagin, 1873
T. armata Brady, 1910
Idya palaeocrystica Norman, 1878
I. elongata A. Scott, 1896
I. cluthae T. Scott, 1899[471]
Phroso gracilis Brady, 1899
Metaphroso gracilis Brady, 1910
Portierella didactylus Labbé, 1926
P. agilis Labbé, 1926

species inquirendae
Idyaea compacta Sars, 1920[472]
Tisbe longicornis (T. & A. Scott) *sensu* Margalef, 1953
T. longisetosa Gurney *sensu* Sewell, 1940
T. dilatata Klie, 1949[473]
T. varipes Marcus, 1974a[474]
Tisbe sp. Roe, 1960
Tisbe sp. Bŏzić, 1965b
Tisbe sp. Vilela, 1969

nomina nuda
Idyea caspica Sars, 1927
I. medica Sars, 1927
I. brevicornis Sars, 1927

Scutellidium Claus, 1866
longicauda (Philippi, 1840)
l. longicauda (Philippi, 1840)
l. paranaense Steudel, 1970
l. acheloides Itô, 1976
hippolytes (Krøyer, 1863)
h. hippolytes (Krøyer, 1863)
h. akaba Itô, 1976
idyoides (Brady, 1883)
arthuri Poppe, 1884
plumosum Brady, 1899
fucicolum (T. Scott, 1912)
australe (T. Scott, 1912)
major (T. Scott, 1912)
ligusticum (Brian, 1920)
antarcticum (Lang, 1936)
intermedium (Nicholls, 1941a)
lamellipes Monk, 1941
cockburni (Fairbridge, 1943)
strigosum Pallares, 1969
ringueleti Pallares, 1969
deseadensis Pallares, 1969
patellarum Branch, 1974
caeneus Itô, 1976
hirutai Itô, 1976
boreale Itô, 1976

species incertae sedis
Scutellidium loureiroi Jakobi, 1954b
Machairopus lenticularis Brady, 1910
M. digitatum Brady, 1910

species inquirendae[475]
Psamathe longicauda Philippi *sensu* Monard, 1928
Scutellidium longicauda (Philippi) *sensu* Pallares, 1968a
S. plumosum Brady *sensu* Sewell, 1940, Wiborg, 1964

nomen nudum
Machairopus turgidus Brady, 1918

Sacodiscus Wilson, 1924
fasciatus (Norman, 1868)
littoralis (Sars, 1904)
australis (T. Scott, 1914)
ovalis (Wilson, 1944)
humesi Stock, 1960

Bathyidia Farran, 1926
remota Farran, 1926[476]

Tisbella Gurney, 1927
timsae Gurney, 1927[477]
pulchella (Wilson, 1932)[478]
rosea Volkmann, 1979b
alba Volkmann, 1979b

Tisbintra Sewell, 1940
nankaurica Sewell, 1940
jonesi Ummerkutty, 1960

Paraidya Sewell, 1940
major Sewell, 1940
minor Sewell, 1940
occulta Humes & Ho, 1969b

Scutellopsis Wiborg, 1964[479]
armatus Wiborg, 1964
macrosetus (Branch, 1975)

species incertae sedis
Machairopus sarsi Brady, 1910

Volkmannia Boxshall, 1979
forficulata Boxshall, 1979
attenuata Boxshall, 1979

Neotisbella Boxshall, 1979
gigas Boxshall, 1979

Yunona Avdeev, 1983
marginata Avdeev, 1983

Octopinella Avdeev, 1986
tenacis Avdeev, 1986

Drescheriella Dahms & Dieckmann, 1987
glacialis Dahms & Dieckmann, 1987
racovitzai (Giesbrecht, 1902)[480]

Subfamily Cholidyinae Boxshall, 1979
Cholidya Farran, 1914
polypi Farran, 1914

Neoscutellidium Zwerner, 1967
yeatmani Zwerner, 1967

Cholidyella Avdeev, 1982
intermedia (Bresciani, 1970)
incisa Avdeev, 1982
breviseta Avdeev, 1986
nesisi Avdeev, 1986

Brescianiana Avdeev, 1982
rotundata Avdeev, 1982

Tripartisoma Avdeev, 1983
trapezoidalis Avdeev, 1983
ovalis Avdeev, 1983

Avdeevia Bresciani & Lützen, 1994
antarctica Bresciani & Lützen, 1994

Genesis López-González, Bresciani & Huys, 2000
vulcanoctopusi López-González, Bresciani & Huys 2000

Checklist Notes

1. See Introduction (page 5) and Dahms (2004) for a discussion of the relationship of the Polyarthra to the Harpacticoida. If Dahms' proposal is accepted the taxon Oligoarthra is redundant.

1a. Lang (1948) incorrectly attributes family Longipediidae to Sars, 1903. The name was initially coined as Afdeling Longipedina by Boeck (1865) as a primary division within Harpacticidae and raised to family rank by Sars (1903). In accordance with the Principle of Coordination (Article 36 of the ICZN, 4th Edition, 1999), the authorship must remain with Boeck.

2. The male is described by Itô (1980a).
3. Species redescribed by Wells (1980).
4. Described as a subspecies of *L. helgolandica* but raised to species rank by Gómez (2001a), who also places *L. helgolandica*, *L. americana*, *L. santacruzensis* and *L. corteziensis* in a *helgolandica* species-group nov.
5. Por (1984) redefines the genera of the family and introduces three new genera. He provides diagnoses of the new genera but does not designate type species and gives little formal justification for his entire proposal. A proper assessment of his scheme awaits a more detailed revision—which has been promised (Huys 1995a). Meantime, Por's scheme is adopted here in the form given by Bodin (1997).
6. The male is described by Por (1964a).
7. The male is described by Wells (1967) and Por (1969a).
8. Huys (1995a), without giving a reason, states that the "taxonomic status [of this species] is unresolved". He is probably correct. Wells & Rao (1987) admit that there are considerable differences in the genital field from other species of *Canuellina*. Huys notes that in his key it runs out to the genus *Ellucana*. Whether this is the correct destination remains to be determined and until then it is best to follow Bodin (1997) and include the species as *incertae sedis* in *Canuellina.*
9. Species redescribed by Fiers (1984b).
10. Mu & Huys (2004) review *Scottolana* and redescribe *S. bulbifera*.
11. Species redescribed by Por (1964a) and Wells & Rao (1987).
12. Species redescribed by Coull (1972).
13. Por (1984) suggested this species did not belong to *Brianola*. Huys (1995a) transfers it to *Coullana*.
14. Lang (1944) divided the Sektion [=Suborder] Oligoarthra into three Subsektion [=Infraorder]. Seifried & Schminke (2003) declare that the Infraorder Maxillipedasphalea Lang, 1944 (the most basal of the Infraorders of the suborder Oligoarthra) is invalid as it is not founded solely upon apomorphies. They propose instead that the primary division at the base of Oligoarthra is into a superfamily Aegisthoidea and a sister-group that includes all other Oligoarthra and which they name the Syngnatharthra taxon nov. They do not propose a rank for Syngnatharthra.

    The Aegisthoidea is a direct replacement for the superfamily Cervinioidea and accommodates the families Aegisthidae and Cerviniidae (synonymised by Seifried & Schminke 2003) and the new family Rometidae.
15. Species redescribed by Boxshall (1979).
16. The male is described by Boxshall (1979).
17. The subfamily Cerviniinae was established by Brotskaya (1963) but in accordance with the Principle of Coordination (Article 36 of the ICZN, 4th Edition, 1999), the authorship must remain with Sars.
18. *Cervinia* is revised by Huys, Møbjerg & Kristensen (1997); but see also Seifried (2003).
19. *Neocervinia* is transferred to *Cervinia* by Seifried (2003). *Pseudocervinia* (previously considered a synonym of *Cervinia*—see Bodin 1997) was resurrected by Huys, Møbjerg & Kristensen (1997) but is resynonymised with *Cervina* by Seifried (2003).
20. Species redescribed by Montagna—the female in 1979 and the male in 1981.
21. See Seifried (2003).
22. The male has been described by Itô (1982) for *P. s. mindinaoensis* but remains unknown for the nominate subspecies.
23. *Stratiopontotes* is considered a synonym of *Ameliotes* by Montagna (1981) but not by Itô (1982). *Ameliotes* is considered a synonym of *Herdmaniopsis* by Itô (1982) but not by Montagna (1981). Neither author was aware of the other's work.
24. See Conroy-Dalton (1999).
25. As conceived by Lang (1944), this taxon is polyphyletic (Seifried 2003). In Seifried's phylogenetic analysis the family Neobradyidae stands alone and thus, in her opinion, a superfamily is not required.

26. Species redescribed by Huys (1987c).
27. Seifried (2003) transfers *Tachidiopsis* to this family and places several of its species in *Marsteinia*.
28. Species redescribed by Huys (1987c). Further information is provided by Schminke & Dahms (1989).
29. With the exception of the family Neobradyidae, Seifried (2003: p. 9) places the entire Syngnatharthra in a single taxon that is "probably monophyletic" but which she declines to name, preferring to label it as "N.N. 1"—that is, *nomen nominandum* ['name to be given'] number 1.
30. Willen (2000) and Seifried (2003) agree that the Podogennonta is a monophyletic taxon. Seifried transfers to the Podogennonta the families Darcythompsoniidae and Phyllognathopodidae from the Neobradyoidea and Thompsonulidae from the infraorder Exanechentera.

    In this checklist the arrangement of suprafamilial taxa in the Podogennonta does not precisely follow Willen (2000). It includes three further 'name unspecified' superfamilies to accommodate Seifried's additions pending a full phylogenetic analysis of the Podogennonta.

    I retain here the rank given by Lang (1944) to Podogennonta pending a review of nomenclature of the higher taxa of Harpacticoida.
31. There is debate about how many species should be included in *Phyllognathopus.* The argument revolves around whether *P. viguieri* (the type species) is an extremely variable cosmopolitan species or a complex mosaic of sibling and pseudosibling species (in the terminology of Knowlton 1993). Modern taxonomic theory (to which the experiments of Glatzel & Königshoff (2005) lend strong support) tends towards the latter explanation but *P. viguieri* undoubtedly displays considerable intrapopulation variability and is known to have been distributed widely by human activity (Karanovic & Ranga Reddy 2004a). This list follows Karanovic & Ranga Reddy's revision.
32. See Karanovic & Ranga Reddy (2004a).
33. The male is described by Bŏzić (1966).
34. Redescribed by Bruno & Cottarelli (1999) and Karanovic & Ranga Reddy (2004a).
35. Karanovic & Ranga Reddy (2004a) believe that this may be *Phyllognathopus paracamptoides.*
36. *Leptocaris* T. Scott, 1899 has been accorded the status of a *nomen protectum* (Anon 2000) and thus has precedence over *Leptocaris* Aurivillius, 1898.
37. Considered by Huys, Gee, Moore & Hamond (1996) as a possible synonym of *L. minutus*, Dr Rony Huys (pers. comm.) now believes *L. ignavus* to be a valid species.
38. The male is described by Kunz (1978b).
39. Species redescribed by Kunz (1984a).
40. Species redescribed by Huys & Gee (1990).
41. Species redescribed and transferred to *Caribbula* by Huys & Gee (1990).
42. According to Willen (2000) the families Harpacticidae and Latiremidae occupy a basal position in the Podogennonta, probably far removed from the superfamily Thalestroidea, but she does not discuss the provision of a superfamily for these families.

    Bouck, Thistle & Huys (1999) abandon Lang's (1944, 1948) sub-familial classification of the Harpacticidae.
43. Synonymy by Huys & Song (2004), who redescribe *Ismardis spartacus.*
44. Huys & Song (2004) discuss the status of *Harpacticus gracilis* Claus, 1863 and conclude that the original description is so inadequate that identification of this species is impossible. The species is declared *species inquirenda* and all records of it are considered unable to be confirmed.

    In the course of this discussion Huys & Song remove *H. elongatus* Boeck, 1865, *H. dentatus* Kričagin, 1873 and *H. fucicolus* T. Scott, 1912 from the synonymy of *H. gracilis* to *species inquirenda* status in the genus and declare *H. aegialobates* Monard, 1926 to be a synonym of *H. nicaeensis* Claus, 1866. They restore *H. giesbrechti* Klie, 1927 to full species status.
45. Species redescribed by Dahms & Schminke (1992).
46. Species redescribed by Wells (1967).
47. *Harpacticus depressus* Pallares, 1973 is a junior primary homonym of *Harpacticus depressus* Boeck, 1865. I formally propose *Harpacticus pallaresae* nom. nov. as a replacement name.
48. Sewell (1940) redescribed *Harpacticus fucicolus* from a single female but Lang (1965a) maintained that Sewell's specimen is not the *fucicolus* of T. Scott and was inclined to believe it to be an aberrant individual of a species in the *H. flexus* group.
49. Species redescribed by Itô (1974).
50. Species redescribed by Itô (1980b).
51. *Zaus ainuensis* differs significantly from all other species of *Zaus*. Its relationships have yet to the reviewed in the

literature. It shows some affinities with *Zausodes*, but these probably are not sufficient to enable it to be transferred to that genus without a further analysis that is beyond the scope and purposes of this Checklist.

52. Species redescribed by Itô & Kikuchi (1977).
53. Species redescribed by Bouck, Thistle & Huys (1999).
54. See Bouck, Thistle & Huys (1999).
55. According to Huys, Karaytuğ & Cottarelli (2005) *Latiremus* is a junior subjective synonym of *Delamarella*.
56. Species redescribed by Huys & Kunz (1988).
57. As defined by Willen (2000) who upgrades a taxon originally described as a subfamily of Thalestridae (see Lang 1948). Boxshall & Halsey (2004: pp. 208 and 400) reject Willen's analysis.
58. The male is described by Kunz (1963a).
59. Dahms & Schminke (1992) provide a redescription of *Idomene antarctica* that differs somewhat from the original description and may represent a new species.
60. The male is described by Wells (1967).
61. The male is described by Lang (1965a).
62. Pallares (1975b) clearly intended this species be named from the type locality—Bahia Cook, Isla de los Estados, Tierra del Fuego—and I presume the original spelling of the name, *cookensi*, is a *lapsus calami* and amend it accordingly (ICZN, 4th Edition, 1999, Article 32.5.1).
63. As Lang (1948) pointed out, the description of *Idomene australis* is very inadequate and contains obvious errors.
64. The male is described by Moore (1976a).
65. Willen (2000) includes the family Paranannopidae Por, 1986 as a subfamily of Pseudotachidiidae.

    Huys, Gee, Moore & Hamond (1996: p. 236) list, with a diagnosis but without discussion, the genera included in Willen's subfamily Paranannopinae in the "Family Danielsseniidae Huys & Gee, 1996". I cannot find a fully developed discussion of this concept in the literature.

    According to Martin & Davis (2001: p. 27) Huys *et al.* "referred to this assemblage (the Paranannopidae) as the Danielsseniidae because Paranannopidae was based on an unavailable genus name". In fact, Huys *et al.* do not give an explanation for their action and presumably Martin & Davis's statement is based on a personal communication from Dr Rony Huys, who is listed by them as one of the "contributors" to their work.

    Paranannopus is unavailable because Lang (1936a) failed to explicitly designate a type species. Despite knowing this, Huys *et al.* (1996) do not take the opportunity of making the name available, presumably because of their opinion (p. 244) that *Paranannopus* "is badly in need of revision and is almost certainly an amalgam of a number of genera".

    I believe that there needs to be a full discussion of the concept of a family Danielsseniidae versus the subfamily Paranannopinae and its relationship to the family Pseudotachidiidae before obviating the revision by Willen.
66. The species-groups of Lang (1948) are no longer of relevance and are omitted from this list.
67. The female is described by Schriever (1983).
68. See Huys & Gee (1993).
69. These species are redescribed by Huys & Gee (1992) (as *Sentirenia* spp.).
70. Species redescribed by Gee & Huys (1991).
71. Mielke (1997b) argues for the removal of *Telopsammis secunda* from *Micropsammis*.
72. Species redescribed by Huys & Gee (1993).
73. Species redescribed by Huys & Gee (1996a).
74. Species redescribed by Hicks (1988).
75. Bodin (1997) lists *Protolatiremus* under the family Latiremidae but Itô (1974) clearly placed it in Thalestridae. Willen (2000) shows the genus probably is the sister-group of the superfamily Thalestroidea *sensu novo* (see Note 76) but does not discuss the provision of higher taxa to accommodate it. See also the discussion by Huys, Karaytuğ & Cottarelli (2005).

    Willen is quite definite that *Protolatiremus* stands apart from all other Podogennonta and thus confirms the view of Huys & Kunz (1988) that a new family to accommodate it might be necessary. I formally propose Protolatiremidae fam. nov., whose diagnosis is identical with that of its sole species, *Protolatiremus sakaguchii* Itô, 1974.
76. Willen (2000) revises the superfamily Thalestridimorpha Lang, 1944 (=Thalestroidea, after Bowman & Able (1982) and in accordance with Article 29.2 of the ICZN, 4th Edition, 1999). Her failure to conform to the provisions of the Code and accept the recommendations of Bowman & Able makes her proposals nomenclaturally confusing.

Willen's revised version of Thalestridimorpha places the families Diosaccidae *sensu novo*, Balaenophilidae and Thalestridae *sensu novo* in a taxon Thalestroidea (to which she does not give a rank, but which must be a superfamily) within a taxon Thalestridimorpha (which must, therefore, be a taxon superior to a superfamily) within a taxon Podogennonta (an infraorder according to Bowman & Able 1982).

The remaining families—Parastenheliidae, Dactylopusiidae and Rhynchothalestridae—are not placed within a taxon equivalent to Thalestroidea. This use of Thalestridimorpha and Thalestroidea (which are synonyms at superfamily level according to Bowman & Able's transliteration of Lang's system) to denote two different taxonomic ranks would seem to be a potent source of future confusion.

77. As defined by Willen (2000), who transfers *Karllangia* from the family Ameiridae.

77a. Lang (1944, 1948) raises the subfamily Parastenheliinae Lang, 1936 to family rank but, in accordance with the Principle of Coordination (Article 36 of the ICZN, 4th Edition, 1999), the authorship of both taxa must be attributed to Lang, 1936.

78. Species redescribed by Noodt (1955c).

79. The male is described by Wells (1961) and Kunz (1963a).

80. The male is described by Pallares (1968a).

81. See Mielke (1994b: p. 152) for a review of *Karllangia*. Mielke shows that *K. arenicola bengalensis* cannot be a subspecies of *K. arenicola* but "should be regarded as a subspecies of *K. psammophila* or should be given species rank". I choose to list it here as a species.

82. As defined by Willen (2000). Note that Boxshall & Halsey (2004) do not accept Willen's views on the splitting of the family Thalestridae. See also Notes 57 and 90.

83. Redescribed by Song, Kim & Chang (2001).

84. The male is described by Coull (1973c).

85. Note that Willen (2000) omits this genus, presumably in error, from her list of Thalestridimorpha genera.

86. *Paradactylopodia brevicornis* is discussed by Wells & Rao (1987) with respect to its morphological variability and to its relationship to *P. latipes.*

87. Willen (2000) transfers this species from *Dactylopodella.*

88. *Dactylopusia fragilis* and *D. brevicornis insolita*, both of which were placed in the synonymy of *Paradactylopodia brevicornis* by Lang (1948), differ from other forms of this species and from other species now placed in *Paradactylopodia* in some characteristics that may be of fundamental phylogenetic significance.

89. The male is described by Krishnaswamy (1957a) (as *Dactylopusia*).

90. Boxshall & Halsey (2004) support Willen's (2000) synonymy of Hamondiidae and Ambungipedidae but not her inclusion of them within the family Rhynchothalestridae (nor her separation of Rhynchothalestridae from the Thalestridae; see Notes 57 and 82). They site a prominent synapomorphy of the male P2 endopod in Hamondiidae and Ambungipedidae and its absence in Rhynchothalestridae as their reason. This argument is accepted in this checklist.

91. Species redescribed by Huys (1990a).

92. Willen (2000) relocated the family Miraciidae as a subfamily in the family Diosaccidae but in 2002 recognises the name Miraciidae has priority over Diosaccidae.

93. Species redescribed by Huys & Böttger-Schnack (1994).

94. Species redescribed by Sewell (1940).

95. The male is described by Krishnaswamy (1951b).

96. The male is described by Krishnaswamy (1957a) and Wells & Rao (1987).

97. Lang (1948) cited the authorship of this species as "Brady & Robertson, 1875", but this species name is not made available in this publication as it is proposed without a description or diagnosis. The first description is that by Brady (1880), who must be considered the author according to Article 12.1 of the ICZN, 4th Edition, 1999.

98. Scheibel (1973) redescribes *Amphiascus graciloides trisetatus* Klie (1950) and places it in the synonymy of *Amphiascus minutus* sp. 1 Lang, 1965a (which Mielke (1974) places in the synonymy of *A. tenuiremis*).

Lang (1965a) had declared this subspecies to have no standing as it is based on a developmental abnormality in the male P2 endopod. Scheibel (1973) reaffirms that this abnormality occurs in a large proportion of the males.

However, while this is most unusual—and probably shows the "abnormality" has a stronger genetic foundation than such features usually have—it has not yet been demonstrated that it represents a separate taxon from the nominate subspecies.

Thus it is *A. graciloides* as a whole that must sink into the synonymy of *A. tenuiremis*.

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99. Species redescribed by Bodin (1977).

100. Species partially redescribed by Hicks (1989).

101. Mielke (1992a) absorbs *Eoschizopera* Wells & Rao, 1976 and *Schizoperopsis* Apostolov, 1982 into *Schizopera* Sars on the grounds that both genera are founded on symplesiomorphic characters. Thus they have not been demonstrated to be monophyletic and must be rejected as valid taxa under the rules of phylogenetic taxonomy. But Karanovic (2004: p. 154) disagrees—"we have quite the opposite opinion about the generic status of *Schizoperopsis* and especially about *Eoschizopera*". He reassesses the characteristics of *Eoschizopera* and believes he can demonstrate the validity of this genus. His opinion is accepted in this checklist.

    Independently, Boxshall & Halsey (2004) also retain *Eoschizopera* as a valid genus, while noting Mielke's opinion. They do not mention Mielke's similar opinion on *Schizoperopsis.*

    Unfortunately, Karanovic (2004) does not build on the statement quoted above and make a full argument for reinstituting *Schizoperopsis* as a genus and thus I follow Mielke as the last reviser and leave this genus as a synonym of *Schizopera.*

    Note that Willen (2000) incorrectly attributes *Eoschizopera* to Apostolov, 1982, and lists it without comment.

102. The female is described by Apostolov (1971a).

103. The male is described by Apostolov (1973c).

104. The male is described by Michailova-Neikova (1966).

105. The male is described by Bǒzic (1969).

106. The male is described by Montschenko & Polishchuk (1969).

107. Species redescribed by Yeatman (1970).

108. See Geddes (1968d). Note that Willen (2000) omits this genus—presumably in error, since she includes *Psammotopa* and *Protopsammotopa*—from her list of Thalestridimorpha genera. Seifried (2003) lists it as Podogennonta *incertae sedis*.

109. *Stenhelia limicola* is considered a synonym of *Amphiascoides debilis* (Giesbrecht) by some authors (see Arlt 1983, Bodin 1997) but its description is so deficient that this cannot be established without a redescription of material from the type locality (Mielke 1975).

    The material currently assigned to *A. debilis* makes it appear a very variable species but the complex nature of the variability, with overlapping combinations of characters among sympatric individuals, requires an in depth analysis for resolution of the true status.

110. The male is described by Mielke (1974).

111. *Amphiascoides bulbiseta* is only distinguished from *A. debilis* by the setation of P4 Exp-3; all other characters fall within the known variability of *A. debilis* as that species is currently constituted. This situation is made more complex by records attributed to *A. debilis* by Klie (1950) and Becker (1970) that differ from all others in bearing seven setae and spines on P4 Exp-3. The original description (Pallares 1975b) compares *A. bulbiseta* with *A. subdebilis* only. See also comments in Note 109.

112. Geddes (1968d) places *Psammotopa* in Diosaccidae, but this is questioned by Mielke (1990a). Willen (2000) accepts it without comment.

113. Species redescribed by Lindgren (1975).

114. Redescribed by Song, Yun & Chang (1999).

115. The male is described by Noodt (1955b).

116. Species redescribed by Dinet (1971) and Mu & Gee (2000). Mu & Gee also discuss the history of synonyms of *B. imus*. As a result it is extremely unlikely that Wells & Rao (1967) are correct in placing *B. inermis* and *B. angustifolius* in this synonymy.

117. The female is redescribed by Hamond (1973b). The male is described by Wells (1963a) and Por (1964a).

118. The male is described by Por (1963).

119. The male is described by Klie (1941a).

120. Species redescribed by Moore & O'Reilly (1993).

121. The male is described by Por (1964a).

122. Species redescribed by Huys (1990d).

123. Subfamily re-established by Willen (2000). Further supporting evidence is provided by Dahms, Schizas & Shirley (2005).

124. *Stenhelia* is revised by Mu & Huys (2002). They upgrade the subgenus *Delavalia* to genus rank; remove *Stenhelia diegensis* to *Delavalia*; resurrect *Beatricella* and erect two new genera—*Anisostenhelia* and *Hicksia*.

125. Note that Wells & Rao (1987) consider the *Stenhelia inopinata* male described by Sewell (1924) to belong to *Sten-*

helia madrasensis Wells, 1971.

126. The male is described by Marinov & Apostolov (1981a).
127. The male is described by Wells & Rao (1987).
128. The male is described by Montschenko (1966b).
129. Species redescribed by Ranga Reddy & Radhakrishna (1980).
130. The male is described by Drzycimski (1969).
131. See Willen (2002) for a discussion of this genus.
132. The female is described by Ranga Reddy (1984b).
133. Redescribed by Gómez (2000a).
134. Species redescribed by Mu & Huys (2002).
135. Willen (2000) considers that the family Balaenophilidae may also be able to be included in the family Miraciidae.
136. The monospecific genus *Harpactichechus* was originally described in the family Harpacticidae. The description is inadequate and Boxshall & Halsey (2004) believe that without further information "its position in the Harpacticidae cannot be confirmed". In my opinion, while the structure of P1 clearly is not compatible with the Harpacticidae, there are significant similarities with *Balaenophilus* in P1 and other characteristics. A more detailed and accurate description—especially of the mouthparts and P5—is required to confirm this.
137. The subfamily Thalestrinae was established by Lang (1944) but in accordance with the Principle of Coordination (Article 36 of the ICZN, 4th Edition, 1999), the authorship must remain with Sars.
138. See Moore (1976a).
139. The male is described by Pallares (1975e).
140. The male is described by Nicholls (1942b).
141. Sewell (1940) described ?*Eudactylopus anomala* sp. nov. for a single male. This species was transferred to *Neodactylopus* by Nicholls (1945a) in an addendum to the paper in which he describes the female of the type species, *Neodactylopus cyclopoides*. Por (1967) considers them conspecific. Wells & Rao's (1987) description of both sexes of *N. trichodes* confirms that ?*E. anomala* is a species of *Neodactylopus* but they also conclude that the differences between Nicholls' and Por's females of *N. cyclopoides* preclude judgement on conspecificity of these females and *N. anomala* until all three can be redescribed more fully and comparably.
142. *Flavia*, *Dactylopina* and *Mawsonella* are so inadequately described that they cannot be assigned to a family. *Tisemus* shows characteristics that align it with several thalestrid and miraciid genera but the description lacks information on several critical features that might settle the matter. Lang (1948) places the genera as *incertae sedis* in Thalestridae but as the above comment implies I consider that they can only be *genera inquirendae* at the superfamily level.

142a. Lang (1944) established the superfamily Metoidea [as Metidimorpha] and later (Lang 1948) attributed family Metidae to Sars, 1903. But the name was initially coined as Metinae by Boeck (1873) and raised to family rank by Sars (1903). In accordance with the Principle of Coordination (Article 36 of the ICZN, 4th Edition, 1999), the authorship of both taxa must rest with Boeck.

143. The superfamily Ameirioidea [as Ameiridimorpha] and subfamily Ameirinae were established by Lang (1944) and Ameiridae as the name of the family was first used by Monard (1927) but, in accordance with the Principle of Coordination (Article 36 of the ICZN, 4th Edition, 1999), the authorship must remain with Boeck (1865) who established the equivalent of the family Ameiridae under the name Afdeling Ameirina.
144. Form *nana* of this species is redescribed by Dinet (1971).
145. The male is described by Wells (1961).
146. Species redescribed by Bodin (1979a).
147. The male is described by Mielke (1975).
148. Bowman (1988) recognised that the name of this common and speciose genus has been misspelt—as *Nitocra*—since 1881 and argued that the original spelling (*Nitokra*) should be resumed. Mielke (1993) disagreed, believing the name that had been in common use for so long should prevail. At that time Mielke's view would have required a ruling from the International Commission of Zoological Nomenclature but to the best of my knowledge a case was not submitted.

    However, the situation is now resolved—in favour of *Nitocra*—by the adoption in Article 33 of the 4th Edition of the ICZN, 1999, of a new section 33.3.1. which allows "an incorrect subsequent spelling" to stand when it is in "prevailing usage" and has always been properly attributed to the original author.
149. According to Por's (1964d) criteria, *Nitocra hibernica bulgarica* is a subspecies of *Nitocra incerta.*
150. The male is described by Klie (1950).

151. The male is described by Bodin (1964).
152. The male is described by Por (1964c).
153. The male is described by Moore (1976a) and Bodin (1979a).
154. See Karanovic (2000a) for a review of *Nitocrella hirta* in which he elevates *N. hirta tirolensis* to species rank. Note also that Petkovski (1976a), in his review of *Nitocrella*, omits the subspecies *N. h. bucarestensis* and *N. h. caucasica*. He does not include them in his key to the *hirta*-group and does not make a formal recommendation on their status. Karanovic (2000a) endorses Petkovski's action, but still makes no formal recommendation.
155. Male described by Cottarelli & Fasano (1978).
156. See Damian (1959).
157. The male is described by Rouch (1964a).
158. See Borutzky (1969a).
159. See Wells (1978).
160. The male is described by Chislenko (1977).
161. Species redescribed by Wells (1968).
162. The male is described by Chislenko (1967).
163. The male is described by Geddes (1968e).
164. See Conroy-Dalton & Huys (1998).
165. Bodin (1997) places *Haifameira* as *incertae sedis* in the family Ameiridae but Karanovic (2004), in describing a second species in the genus, and the first female, restores it to the subfamily Ameirinae.
166. The male is described by Vilela (1965).
167. See Karanovic (2004).
168. Martínez Arbizu & Moura (1994) regard *Psammonitocrella* as the sister-group of family Parastenocarididae. Together these form a possible sister-group of their concept of the family Leptopontiidae (see Note 301). They also consider {Leptopontiidae +[*Psammonitocrella*+Parastenocarididae]} as the sister-group of the family Ameiridae. However, they believe that because only two species are as yet known in *Psammonitocrella* it is premature to establish a new family for this genus.

    Meanwhile, Lee & Huys (2002) argue that *Psammonitocrella* has a paedomorphic origin and thus the characters that Martínez Arbizu & Moura use are actually autoapomorphies of *Psammonitocrella*. Lee & Huys return *Psammonitocrella* to Ameiridae.

    See Note 301 for a discussion of other aspects of Martínez Arbizu & Moura's hypothesis.
169. See Conroy-Dalton & Huys (1996), who also redescribe these species.
170. The male is described by Klie (1950) (as *A. tenella*) and Kunz (1954).
171. Petkovski's name is unavailable as he did not designate a type species. See Galassi, De Laurentiis & Dole-Olivier (1999) for *Nitocrellopsis* and Reid, Hunt & Stanley (2003) for *Stygonitocrella*.
172. Redescribed by Fiers & Iliffe (2000).
173. Suárez-Morales & Iliffe (2005) divide *Stygonitocrella* into two subgenera—*Eustygonitocrella* and *Fiersiella*. As the former contains the type species of the genus it must be the nominotypical subgenus and carry the name, author and date of the genus (Article 44.1 of the ICZN, 4th Edition, 1999).
174. The male is described by Por (1964b).
175. The female is described by Kunz (1954).
176. Huys & Conroy-Dalton (1997) provide further evidence for the close affinity of this family with family Ameiridae, thus reinforcing the opinions of Por (1986a); see Note 332.
177. Huys, Gee, Moore & Hamond. (1996: p. 112) make a statement, unsupported by argument, that *Abyssameira* "is herein transferred to the Argestidae". Bodin (1997: p. 116), also without a supporting argument, declares that it is "now considered as a synonym of *Argestes*".
178. The male is described by Schriever (1986a).
179. The male is described by Soyer (1964c) (as *E. knoepffleri*).
180. The female is described by Vervoort (1964).
181. Pallares (1982) redescribes *Phyllopodopsyllus mossmani* and places *P. paramossmani* in its synonymy.
182. The male is described by Pesta (1959).
183. The female is described by Kunz (1984a).
184. The male is described by Crisafi (1961).
185. Mielke (1992b) believes that *Phyllopodopsyllus setouchensis* and *P. mielkei* s. str. may be synonymous. He is less certain of the relationship with *P. mielkei californicus.*

186. Species redescribed by Fiers (1995).

187. Species redescribed by Fiers (1995) (as *Nidiagoniceps*).

188. There is no doubt that the present family Canthocamptidae is not a natural assemblage but is a composite taxon that eventually will be divided into several families (Huys, Gee, Moore & Hamond 1996; Boxshall & Halsey 2004; Huys & Conroy-Dalton 2006a).

The systematics adopted here for the family are those of Lang (1948) unless stated otherwise. The major modern alternative is that by Borutzky (summarised in Borutzky 1952). Neither in his 1948 monograph nor elsewhere did Lang support any of Borutzky's concepts at family or genus level and Borutzky apparently never responded to Lang's treatment of his work—he seems simply to have ignored it. Where appropriate, Borutzky's alternatives are given in notes to this present checklist.

Lang (1948) rejected all extant schemes for dividing the family into subfamilies, believing that a thorough review of the family was a necessary prerequisite to a rational phylogeny (a point endorsed by Boxshall & Halsey (2004) and made even more strongly by Hamond (1987)—see below). Borutzky (1952) divided the family into four subfamilies, but some more recently described genera are difficult to reconcile with his scheme.

Hamond (1987) comments adversely on the schemes of Lang and Borutzky, but lays most of the blame on the generally poor standard of the descriptions of canthocamptid species, arguing that it is the inadequacy of this primary database that prevents a rational taxonomy of the family being produced by analysis of published species descriptions alone. Consequently, he proposes that some 16 taxa of the genus group be absorbed into *Canthocamptus sensu lato* until a "world revision" based on a comparison of type material is available.

While Hamond's analysis may elicit great sympathy, his suggested solution is unlikely to find ready support. The task is massive, involving the collection and description of topotypes for most of the more than 400 species in the genera he selects, plus an analysis of variation in some of the most variable species of harpacticoids. Further, a modern taxonomy of this group of genera requires a cladistic analysis that would undoubtedly involve other equally poorly described genera.

No account is taken in this checklist or in the keys that accompany it of Hamond's proposal and I have redistributed the new species described in his 1987 paper to the appropriate Langian genera and subgenera.

Ebert (1976) reduces the number of genera in the family from the 23 generally recognised at that time to eight (*Canthocamptus*, *Attheyella*, *Epactophanes*, *Moraria*, *Ceuthonectes*, *Antarctobiotus*, *Loefflerella* and *Pseudocamptus*, a new genus). She absorbs *Bryocamptus*, *Elaphoidella*, *Antrocamptus*, *Spelaeocamptus*, *Paracamptus* and *Maraenobiotus* into *Attheyella*, in which she erects 16 subgenera.

Her work has never been recognised and its significance discussed in the general literature. It is seldom cited. Neither Hamond (1987), Dussart & Defaye (2001) nor Boxshall & Halsey (2004) mention it. Her suggested revisions are listed by Dussart & Defaye (1990), but only as an addendum and accompanied by a statement that as they appear only in a doctoral thesis they do not satisfy the ICZN's criteria of publication.

This is unfortunate as this point seems debatable. Huys (1992) accepts Whybrew's (1986) thesis as a valid publication (see Note 305). The International Commission on Zoological Nomenclature needs to make a ruling on this issue so that Ebert's controversial scheme can be subject to peer scrutiny. Until that happens it seems best to note it but not formally include it in this checklist and keys.

Por (1986a) removes some genera from the family Cletodidae, placing them in Canthocamptidae either in a new subfamily Hemimesochrinae or as *incertae sedis* in the family, pending a thorough review of the Canthocamptidae. Reaction to his view has been unfavourable (Huys & Conroy-Dalton 2006a) but there is as yet no formal proposal for an alternative. Meanwhile it seems to be generally accepted that these genera should be removed from the family Cletodidae. For this reason they are included in the Canthocamptidae in this checklist.

Martínez Arbizu & Moura (1994) remove the subfamily Cylindropsyllinae to the family Canthocamptidae from the family Cylindropsyllidae; see Note 301 for reasons why this revision is not adhered to in this checklist.

If the subfamily Hemimesochrinae is to be included in the family Canthocamptidae, then it is necessary to be consistent and to place all other genera within a resurrected subfamily Canthocamptinae, which is to be treated as a term of convenience as it is unlikely to be a natural assemblage.

189. The Family Canthocamptidae was established by Sars (1906) by upgrading the subfamily Canthocamptinae Brady, 1880. In accordance with the Principle of Coordination (Article 36 of the ICZN, 4th Edition, 1999) the authorship must remain with Brady.

190. Borutzky (1952) maintains the division into two subgenera—*Canthocamptus* s. str. and *Baikalocamptus* Borutzky.

191. Borutzky (1952) synonymizes *Canthocamptus microstaphylinus* Wolf, 1905 with *C. staphylinus* but retains sub-

species status for *C. m. monardi*.

192. See Wilson (1956a) for a discussion of *Canthocamptus staphylinoides.* She raised the subspecies *vagus* to species rank, stated that more evidence is required to establish the true rank of subspecies *sinuus* and resurrected *C. assimilis* from its synonymy with *C. staphylinoides.* She also declared that *Canthocamptus minnesotensis* Herrick does not belong to *Bryocamptus* (as a subspecies of *B. minutus*, according to Lang (1948)) but is not well enough described for it to be placed with certainty in any current genus.
193. Redescribed by Ishida & Kikuchi (1999).
194. *Canthocamptus mirabilis* Štěrba is redescribed from topotypes by Chang (2001). He argues that the *C. mirabilis* redescribed by Itô & Takashio (1980)—and thus all of the Japanese records assigned to *C. mirabilis*—is not this species, but is an as yet undescribed closely related species.
195. Redescribed by Chang (1998).
196. Chang (2002) argues that while the female of *Attheyella amurensis* Borutzky *sensu* Shen & Sung, 1973 (placed in *Canthocamptus mirabilis* by Itô & Takashio 1980) seems identical with his material of *C. mirabilis* (see Note 194), the male may not be. He places this material as *species inquirenda* pending a redescription of *A. amurensis* Borutzky.
197. The male is described by Por (1973).
198. Species redescribed by Fiers & Rutledge (1990).
199. Species redescribed by Soyer (1977).
200. The male is described by Wells (1963b).
201. The male is described by Marcus & Por (1961).
202. Species redescribed by Hamond (1971).
203. The male is described by Coull & Bell (1979).
204. As it is named in honour of a woman—Dr Rosa Pallares—the name of this species must be amended from *pallaresi* to *pallaresae* (ICZN, 4th Edition, 1999, Articles 31.1.2, 31.1.3, 32.4, 32.5).
205. See Note 188 for comments on the treatment of this genus by Ebert (1976).
206. See Ishida (1987).
207. Described as *Attheyella heterospina* n. sp. but transferred to *A. orientalis* by Shen & Sung (1965b).
208. Species redescribed by Ishida (1995).
209. Species redescribed by Ishida (1995). Kim, Soh & Lee (2005) argue that the species described by Ishida and Itô (1991), Chang (1993) and Chang & Lee (2003) are not *A. coreana* Miura, 1969.
210. The male is described by Chang (1993).
211. Synonymy by Reid (1990a), who redescribes the species.
212. Synonymy by Menu Marque & Bosnia (1986), who also redescribe *Attheyella crenulata*.
213. Species redescribed by Hamond (1987) (as *Canthocamptus*).
214. Synonymy by Dussart (1984a), who also redescribes *Attheyella fuhrmanni.*
215. Redescribed by Lewis (1972b).
216. *Attheyella* (*Chappuisiella*) *fluviatilis* Lewis, 1972 is a primary homonym of *Attheyella* (*Canthosella*) *fluviatilis* Chappuis, 1931. I formally propose *Attheyella* (*Chappuisiella*) *lewisae* nom. nov. as a replacement name.
217. The male is described by Rouch (1962).
218. Originally described in *Moraria*, but considered *incertae sedis* by Lang (1948) who believed it probably belonged in *Attheyella*, this species is redescribed by Hamond (1987) and placed in his comprehensive genus *Canthocamptus* (see Note 188). The species keys out in Lang's Monograph (Lang 1948) to *Attheyella* (*Delachauxiella*).
219. See Reid (1994a).
220. Placed by Hamond (1987) in his comprehensive genus *Canthocamptus* (see Note 188), this species keys out in Lang's Monograph (Lang 1948) to *Attheyella* (*Delachauxiella*).
221. Lang (1948) declares that the description of *Attheyella lanceolata* is so rudimentary that even the sex of the individual cannot be determined; it must be classified as *species inquirenda.*
222. See Lewis (1972b).
223. This subgenus was ignored by Lang (1948) on the irrelevant and unacceptable basis that the diagnosis was given in the Russian language. Its composition here is that given by Borutzky (1952), as amended by Alekseyev (1989).
224. Redescribed by Bowman *et al.* (1968).
225. Alekseyev (1989) describes a female he assigns to this species, which he transfers from the subgenus *Brehmiella* [= *Mrazekiella*]. See also Note 196.

226. Dussart & Frutos (1987) redescribe *Attheyella kalima* and place it in the subgenus *Chappuisiella*. Janetzky, Martínez Arbizu & Reid (1996) decree that the material described by Dussart & Frutos differs sufficiently from *Canthocamptus kalima* for it to represent a new species, which they name *pilagaensis* n. sp. They place this new species and *Canthocamptus kalima* Delachaux in the subgenus *Canthosella.*
227. See Janetzky, Martínez Arbizu & Reid (1996).
228. See Wilson (1958b) for justification for the priority of *Mrazekiella* over *Brehmiella.*
229. Lang (1948) placed *A. nordenskioldii* as a synonym of *Attheyella illinoisensis.* Borutzky (1952) maintained them as separate species. Wilson & Yeatman (1959 p. 845) treated the species separately but point to the existence of local races and stated "whether it [*nordenskioldii*] grades into *illinoisensis* is unknown". All modern (i.e. since Lang 1948) Russian, Japanese, Canadian and USA authors maintain the two as separate species.
230. Raised to species rank by Wilson (1958b).
231. Synonymy by Karanovic (1999a), who also redescribes *Attheyella wulmeri*.
232. See Note 188 for general reasons why *Canthocamptus billwilliamsi* is placed in *Attheyella*. However, it is more problematic to decide to which subgenus it should be assigned. According to Lang's (1948) system the female should be in *Chappuisiella* but the male lacks the modification of the outer terminal spine of the third segment of P4 exopod that is characteristic of this subgenus.
233. Redescribed by Petkovski (1988).
234. It seems to be agreed that *Epactophanes* occupies an isolated position within the family—for example, Borutzky (1952) acknowledges this by creating a subfamily for it.

Until recently it was also universally accepted that the extraordinary amount of variability that exists within the genus, and the complexity of its geographical distribution, could only be accounted for through the concept of a single cosmopolitan species (*Epactophanes richardi*) with extreme local variation that possibly is in a state of flux (Lang 1935, 1948; Borutzky 1952; Dussart & Defaye 1990). The only debate was whether patterns of variability should be recognised as forms or varieties (Borutzky 1952) or not given any such status (Lang 1948).

However, Lewis (1984) stated that she planned to resurrect *Antipodiella chappuisi* Brehm, 1928 from the synonymy of *E. richardi* and to describe two new species of this endemic New Zealand genus. It is not certain how she justifies this decision as this work has yet to be published but Bruno & Cottarelli (1999) present arguments for distinguishing material of *E. richardi* from the Philippine Islands as a distinct species.

It is most probable that *E. richardi* as currently constituted will prove to be a complex of groups of sibling and pseudosibling species (in the terminology of Knowlton 1993)—as has been shown to be the situation in *Cletocamptus deitersi*, another 'cosmopolitan' species (see Note 297).
235. Borutzky (1952) maintains the division of the genus into two subgenera—*Moraria* s. str. and *Baikalomoraria* Borutzky. Löffler (1961a) adds *Kuehneltiella* nov. The validity of these subgenera, which to some extent are geographical entities, needs to be assessed as part of a comprehensive revision of the genus.
236. Almost completely redescribed by Apostolov (2001c).
237. Described as a subspecies of *Moraria pectinata.* Raised to species rank and redescribed by Stoch (1998a). Male described by Stoch (1998a) and Brancelj (2001)
238. See Reid (1990c) and Suárez-Morales *et al.* (1996).
239. See Dussart (1967).
240. Considered a synonym of *Itunella muelleri* by Noodt (1954b) but not by Marinov (1971).
241. See Borutzky (1952).
242. Dussart & Defaye (1990) give a history of the internal classification of *Bryocamptus.* Recent opinions (Kiefer 1978; Dussart & Defaye 1990) that favour retention of Lang's (1948) concept with the addition of the subgenus *Rheocamptus* Borutzky, 1948 are followed here.

See Note 188 for comments on the treatment of this genus by Ebert (1976).
243. Lang (1948) divided this subgenus into three species-groups. With the subsequent description of new species it is doubtful that they can be sustained and they have been ignored in this list.
243. See Borutzky (1952).
245. See Petkovski (1972).
246. A large number of subspecies, varieties and forms have been described in *B. zschokkei*. Borutzky (1952) accepted only *zschokkei* s. str., *z. caucasicus* and *z. balcanicus* as truly valid, with the status of *z. frigida* and *z. alleganiensis* yet to be determined. Subsequently *B. z. balcanicus* has been raised to species rank (see Note 249).

Borutzky (1952) recognized *z. tatrensis* only as a form of *zschokkei* s. str. Several authors dispute Borutzky's view and consider *tatrensis* as a distinct subspecies and, moreover, include *z. caucasicus* as a synonym; see Apostolov (2001b) for a brief statement of this position.

247. Borutzky (1952): Actually, due to his mistaken view of the date of description of *B. hiatus* as 1934, not 1925, Borutzky states the reverse—that *B. hiatus* is a synonym of *B. australis*.

248. Redescribed by Bruno, Reid & Perry (2002).

249. Described as a subspecies of *B. zschokkei* and raised to species rank by Petkovski (1956); see also Brancelj (1986) and Note 246.

250. The male is described by Apostolov (1969).

251. Reid (1994a) follows Hamond's taxonomy (see Note 188) and places this species in *Canthocamptus* sensu Hamond.

252. Species redescribed by Galassi (1997a).

253. If Lang's (1948) concept of *Bryocamptus* is accepted (see Note 242 for reasons why I accept it for this Checklist) *Echinocamptus* (*Limocamptus*) *baikalensis* Borutzky, 1930 (p. 170) is a junior secondary homonym of *Bryocamptus* (*Bryocamptus*) *baikalensis* Borutzky, 1930 (p. 145) by reason of page priority. I formally propose *Bryocamptus lacustris* nom. nov. as a replacement name.

254. Chappuis (1928a) designated *Canthocamptus echinatus* Mrázek, 1893 as the type-species of *Echinocamptus*. Lang (1948) removed this species to *Bryocamptus* (*Limocamptus*). If Lang's revision is accepted (see Note 242 for reasons why I accept it for this checklist) *Echinocamptus* becomes a junior subjective synonym of *Bryocamptus.* I formally propose *Pilocamptus* n. gen. and designate *Canthocamptus pilosus* Douwe, 1910 as the type species.

255. Apostolov (1985) splits *Elaphoidella* into four genera—*Elaphoidella* s. str., *Elaphoidellopsis* nov., *Neoelaphoidella* nov. and *Stygoelaphoidella* nov.—but these genera are so poorly defined that assignment of species to them is very difficult.

Reid (1990b) criticises the basic concepts of Apostolov's scheme. Also, Apostolov fails to mention several species with which he should have been familiar.

Later, Apostolov (1991a) introduced a fifth genus into his scheme—*Praelaphoidella* nov. (for *Elaphoidella caeca* Miura, 1964).

The scheme requires clarification by its author before its value can be assessed. It is ignored here and the new genera are considered synonyms of *Elaphoidella*.

Lang (1948) divided the 53 species of *Elaphoidella* that he recognised into 10 species-groups, each designated by a roman numeral. Petkovski & Brancelj (1988) add an eleventh group and attach a species name to each of Lang's groups. They do not list the members of each group, despite the genus having grown to include about 135 species by 1986. There are now more than 180 species but the Langian system is still considered valid by some experts. Petkovski & Brancelj provide a key to the species-groups.

See Note 188 for comments on the treatment of this genus by Ebert (1976).

256. These subspecies have been described but Gurney (1932), Lang (1948), Dussart (1967) and Apostolov (1985) all regard *Elaphoidella bidens* as extremely variable with great ecophenotypic plasticity, and thus unable to sustain division into subspecies. In all probability populations usually are parthenogenetic; males are very rare. Apostolov (1985) proposes that only the subspecies *coronata*, *decorata* and *subtropica* should be retained but he does not consider in his argument the two subspecies described by Nogueira (1959). Reid (1998) formally proposes that *E. b. paranaensis* sink into the synonymy of *E. bidens* s. str. but maintains (without comment) the identity of *E. b. subterranea*.

257. Synonymy by Pesce (1981).

258. Reid (1998) raises *Elaphoidella pectinata brevifurcata* Chappuis, 1936 to species rank (though without giving a detailed argument). As a consequence *E. brevifurcata* Chappuis, 1954 becomes a junior primary homonym and Reid establishes *E. ganeshi* n. sp. for this.

259. Synonymies by Štěrba (1956), Petkovski (1972) and Karanovic (2001). Karanovic provides a redescription and places some records of *E. pseudophreatica* as *incertae sedis* in the genus.

260. See Brancelj (1986).

261. Synonymised by Karanovic (2001); he also redescribes *E. denticulata*.

262. The male is described by Michailova-Neikova (1973).

263. The male is described by Petkovski (1956).

264. Redescribed by Karanovic (1998).

265. See Galassi (1997a).

266. Pesce & Galassi (1983) synonymise this subspecies with the nominate subspecies but Galassi (1997a) suggests

this decision needs to be re-examined.

267. The male is described by Löffler (1973).
268. See Karanovic (2001).
269. The male is described by Petkovski & Brancelj (1985).
270. The female is described by Galassi & Pesce (1988b).
271. *Elaphoidella dubia* Damian, 1959 is a junior primary homonym of *Elaphoidella dubia* Kiefer, 1931. I formally propose *Elaphoidella damianae* nom. nov. as a replacement name.
272. *Elaphoidella kieferi* Petkovski & Brancelj, 1985 is a junior primary homonym of *Elaphoidella kieferi* Löffler, 1968. I formally propose *Elaphoidella slovenica* nom. nov. as a replacement name.
273. As Apostolov's revision of *Elaphoidella* is not accepted (see Note 255) *Stygoelaphoidella subterranea* Apostolov, 1991 is a junior secondary homonym of *Elaphoidella bidens subterranea* Noguiera, 1959. I formally propose *Elaphoidella apostoli* nom. nov. as a replacement name.
274. As Apostolov's revision of *Elaphoidella* is not accepted (see Note 255) *Stygoelaphoidella elegans* Apostolov, 1991 is a junior secondary homonym of *Elaphoidella elegans* Chappuis, 1931. I formally propose *Elaphoidella elegantula* nom. nov. as a replacement name.
275. As Apostolov's revision of *Elaphoidella* is not accepted (see Note 255) *Neoelaphoidella intermedia* Apostolov, 1999 is a junior secondary homonym of *Elaphoidella intermedia* Chappuis, 1931. According to Apostolov his new species is most closely similar to *Elaphoidella apostolovi* (Pesce & De Laurentiis, 1994) and thus I formally propose *Elaphoidella parapostolovi* nom. nov. as a replacement name.
276. The inadequate and partial description (Brehm 1951b) of this species displays so many anomalies that the genus to which it belongs cannot presently be determined.

276a. Stoch (1998b) considers it probable that *P. schmeili* represents a "complex of closely related species".

277. Ebert (1976) divides the genus into two subgenera and describes seven new species that are not considered here (see Note 188 for reason).
278. Löffler (1966) recognised that *Moraria neotropica* is the same species as *Antarctobiotus rapoporti* but mistakenly gave *rapoporti* priority. This error is resolved by Cicchino & Ringuelet (1977).
279. Transferred from *Moraria* by Reid & Rocha (2003).
280. Bodin (1997) perpetuates Lang's (1965a) error that *Pholetiscus* was placed in Ameiridae by its authors; Humes (1947 pp. 170, 177) clearly places the genus in Canthocamptidae.
281. As this genus is named in honour of Dr Heinz Löffler it should be spelt *Loefflerella* in accordance with Articles 27 and 32.5.2.1. of the ICZN, 4th Edition, 1999. The author confused the issue by heading the original description *Lofflerella* n. gen. (Rouch, 1962 p. 256) but using *Loefflerella* in his species list (pp. 238, 240) and *Löfflerella* in the legend to his illustrations (pp. 257, 259). Authorities since then have used all of these names—*Löfflerella* by Noodt (1961), Ebert & Noodt (1975) and Dussart & Defaye (1990); *Lofflerella* by Boxshall & Halsey (2004); *Loefflerella* by Reid & Rocha (2003). Dussart & Defaye (2001) do not mention this genus.
282. Reid & Ishida (1996).
283. The female is described by Stoch (1997).
284. Por (1986a) created this subfamily to accommodate most of the genera he transferred from the family Cletodidae—*Hemimesochra*, *Heteropsyllus*, *Mesopsyllus*, *Poria* and *Cletocamptus xenuus* (in a new genus *Dahlakia*)—together with *Nannomesochra* from the Canthocamptidae. Since then several new genera have been described (*Bathycamptus*, *Boreolimella*, *Perucamptus* and *Pusillargillus*) which, together with *Psammocamptus* (which may be the sister-group. of *Bathycamptus*), also will have to be placed in this subfamily while awaiting a thorough analysis.
285. The male is described by Bodin (1970).
286. Huys & Thistle (1989) suggest this species belongs to *Poria*, but Bodin (1997) considers it to be an unidentifiable juvenile specimen.
287. *Psammocamptus* is redescribed by Huys & Thistle (1989) who consider *Bathycamptus* to be the sister-group. Mielke (1997b) believes they may be synonymous. George & Schminke (2003) disagree with Mielke.
288. Species redescribed by Huys & Thistle (1989).
289. Gee (1999b) believes *Cletocamptus* may belong to a family that is the sister-group of family Cletodidae.
290. See Lang (1965a).
291. Redescribed by Mielke (2001a).
292. The status of subspecies in *Cletocamptus confluens* is discussed by Wells & McKenzie (1973).
293. The male is described by Shen, Chen & Sung (1963) (as *Sinocamptus*).

294. Described as a subspecies of *C. affinis* and raised to species rank by Gómez (2005).

295. Yeatman (1963) summarises the synonymy of *Cletocamptus deitersi* and the relationship of *Marshia brevicaudata* to this species.

296. See Lang (1948), Yeatman (1963), Fleeger (1980) and Gómez, Fleeger, Rocha-Olivares & Foltz (2004) for discussions of *Cletocamptus species inquirendae*.

297. Gómez, Fleeger, Rocha-Olivares & Foltz (2004) review *Cletocamptus deitersi* (formerly *Mesochra*) and conclude (p. 2726) that the "allegedly wide distribution of *C. deitersi* is best explained by the high intraspecific variability of *Cletocamptus* species, and by the fact that virtually all specimens attributed to this species around the globe are morphologically similar and cannot be differentiated on the basis of Richard's (1897) original description".

They recommend *C. deitersi* be designated *species inquirenda* pending redescription of topotypes and that this designation should apply to all records of the species (except those they describe as new species in their paper) and to all of the species currently synonymised with *C. deitersi*.

In addition they cast doubt on the validity of *C. axi* as a species distinct from *C. deitersi*; hence I place *C. axi* also as *species inquirenda.* They also elevate *C. deitersi ecudorianus* Löffler, 1963 to species rank but recommend that it be considered *species inquirenda* pending a redescription.

298. See Karaytuğ & Huys (2004).

299. The male is described by Kunz (1974a) (as *T. gallicus*).

300. Por (1986a) separates this species from the rest of the genus, which he places in subfamily Hemimesochrinae. He does not suggest a new genus for *H. serratus*.

301. Martínez Arbizu & Moura (1994) abolish the family Cylindropsyllidae, removing the subfamily Cylindropsyllinae to the family Canthocamptidae (where an agreed classification into subfamilies does not exist; see Note 188).

The subfamilies Leptopontiinae and Psammopsyllinae are placed in a new family Leptopontiidae, within which they also create the subfamily Arenopontiinae.

They also argue that the subgenera of *Arenopontia* (*Arenopontia* s. str. and *Neoleptastacus*) are not sustainable and that *Pararenopontia* should be synonymised with *Arenopontia*; this last amalgamation is disputed by Huys, Bodiou & Bodin (1996).

Huys & Conroy-Dalton (1996), without providing a detailed refutation, doubt the validity of the entire work, but especially Martínez Arbizu & Moura's concept of the Leptopontiinae, which conflicts severely with that of Huys & Ohtsuka (1993), who were not aware of Martínez Arbizu & Moura's paper.

Given the analysis provided by Huys & Ohtsuka it does seem improbable that Martínez Arbizu & Moura are correct in placing *Notopontia* and *Syrticola* in the Psammopsyllinae. Accordingly, I list them here in the Leptopontiinae, as do Huys, Gee, Moore & Hamond. (1996). But Huys *et al.* go further, raising Cylindropsyllinae and Arenopontiinae to family rank. Unfortunately, they do this without any discussion of their reasons.

However, now there is analytical support for their position. Huys & Conroy-Dalton (2006a) provide a cogent and persuasive rebuttal of Martinez & Moura's argument on the place of the relationship of Cylindropsyllinae with Canthocamptidae and restore the family Cylindrospyllidae for this subfamily only.

Further, the limited phylogenetic analysis provided by Cottarelli, Bruno & Berera (1998) suggests the Psammopsyllinae has a closer affinity with the family Parastenocarididae than either have with the Arenopontiinae. From this evidence they argue that future research will raise the Psammopsyllinae and Arenopontiinae to family rank. Unfortunately this analysis did not include species of the Leptopontiinae.

In my opinion this recent research throws sufficient doubt on the arguments of Martínez Arbizu & Moura for it to be a more reasonable hypothesis that each of the subfamilies included in the 'extended Langian' concept of the family Cylindropsyllidae—Cylindropsyllinae, Leptontiinae, Arenopontiinae and Psammopsyllinae—should be accorded family rank, and I list them as such in this checklist.

302. Species redescribed by Huys (1988a).

302a. *Evansula* is revised by Huys & Conroy-Dalton (2006a). They redescribe *E. incerta*, *E. pygmaea* and *E. arenicola* and conclude that almost all prior records of these species are unreliable.

303. Species redescribed by Huys & Willems (1993).

304. Species redescribed by Huys & Conroy-Dalton (1993).

305. *Paraleptastacus kliei* is resurrected from synonymy with *P. spinicauda* by Whybrew (1986). Whybrew also describes new species in what might be considered an unpublished doctoral thesis but Huys (1992) recognises these species as valid and argues (pers. comm.) that, because of the rules for their presentation, German doctoral theses are valid publications.

306. Species redescribed by Huys (1992).

307. Species redescribed by Huys, Bodiou & Bodin (1996).
308. The male is described by Mielke (1987a).
309. According to Huys (1992) the female and, possibly, the allotype male of *Leptastacus naylori* is best considered to be a *species inquirenda* in *Sextonis* but the paratype male is another species possibly allied to *Minervella* but best considered *incertae sedis* in the family.
310. Female redescribed by Huys & Conroy-Dalton (2005).
311. Species redescribed by Huys & Conroy-Dalton (1996).
312. Lindgren (1976) considers that *Arenopontia stygia* possibly is synonymous with *A. arenarida*.
313. Bodin (1997) follows the opinion of Kunz (1971a) in listing *A. longiremis* and *A. accraensis* as subspecies of *A. acantha* but the latest reviser is Itô (1978) who rejects Kunz's opinion.
314. The male is described by Itô (1969).
315. Mitwally & Montagna (2001) make statements about the setation of P1–P4 that, if true, mean that their material cannot belong to *Arenopontia.*
316. See Reid (1994b) for a discussion of the correct date of authorship of this family.

H.K. Schminke in a paper read to the 5th International Conference on Copepoda, Baltimore, 1993 (but not published in the Proceedings) divided the family into two subfamilies—Parastenocaridinae and Fontinalicaridinae — but this does not satisfy the criteria of Article 13.2 of the ICZN, 4th Edition, 1999, and thus the names are not available.

Jakobi's (1972b) revision has not been widely accepted; indeed its very basis has been questioned (Schminke 1986). Consequently I treat the following genera (all described by Jakobi 1972b) as synonyms of *Parastenocaris*.

Biwaecaris, *Brasilibathynellicaris*, *Brinckicaris*, *Cafferocaris*, *Clujensicaris*, *Enckellicaris*, *Entzicaris*, *Fontinalicaris*, *Italocaris*, *Kinnecaris*, *Lacusticaris*, *Macacocaris*, *Michelicaris*, *Minuticaris*, *Nanacaris*, *Nipponicaris*, *Oshimaensicaris*, *Panonicaris*, *Pararemaneicaris*, *Phreaticaris*, *Proserpinicaris*, *Siolicaris*, *Stammericaris*

Reid (1995), in the course of synonymising *Parastenocaris biwae* with *P. brevipes*, formally places *Biwaecaris* as a synonym of *Parastenocaris.*

On the other hand, Corgosinho & Martínez Arbizu (2005), while agreeing that Jakobi's revision cannot be accepted in its entireity, reinstate *Remaneicaris*, citing diagnostic apomorphies.

At various times components of *Parastenocaris* have been brought together into species-groups (Lang 1948; Noodt 1961, 1963, 1972b; Noodt & Galhano 1969; Berera & Cottarelli 2003). Two have since been raised to genus rank (as *Forficatocaris* and *Remaneicaris*).

Karanovic (2005) provides a discussion of the continuing relevance of at least some of Lang's (1948) species-groups and gives a brief survey of the genus in this context.
317. Galassi & De Laurentiis (2004) and Corgosinho & Martínez Arbizu (2005—see Note 316) have begun the urgently required phylogenetic analysis of *Parastenocaris.*

Galassi & De Laurentiis assign *P. veneris* to their new genus *Simplicaris* (along with two further species of *Parastenocaris* as *species incertae sedis*) and suggest that only the species of the *brevipes*-group be accorded full status in *Parastenocaris*, with all others considered in a genus they label as '*Parastenocaris sensu lato*' pending a full analysis of the genus.

Karanovic (2005) supports the concept of isolating the *brevipes*-group as the genus name-bearing taxon.

Despite Karanovic's (2005) objection that using the terms '*sensu stricto*' and '*sensu lato*' provides "no real advancement to our knowledge on this complex taxon" I use Galassi & De Laurentiis' scheme because it does represent the latest state of thought about the problem. The only departures are that I have placed all *Parastenocaris* species recognised as *incertae sedis* together and included *P. texana* among them as recommended by Karanovic.
318. Reid (1995) redescribes *Parastenocaris brevipes* and places *P. starretti*, *P. wilsoni*, *P. biwae* and *Parastenocaris* sp. 2 Strayer, 1988 in its synonymy, and discusses the status of other relevant records.
319. Partially redescribed by Chappuis (1940b) and Noodt (1952a).
320. Redescribed from type material by Zincenco (1971).
321. Redescribed by Damian (1959), but the male P4 appears to differ significantly from the original description.
322. The male is described by Chappuis (1940b).
323. See Kunz (1971b). Glatzel (1991) provides a redescription.

324. Chappuis (1958b) proposes this synonymy. Kiefer (1968) defends Chappuis' decision, despite the very wide range of variability that the species must accommodate. Cottarelli (1972) also provides evidence of wide variability.

However, Stoch (2000) declares that while the males of *P. phyllophora* described from Italy by Noodt (1955a) can be considered conspecific with *P. italica*, the females from Turkey (Noodt 1954a) and Macedonia (Petkovski 1959b) require corroboration by the description of males from these localities.

325. Noodt (1954c) provides *Parastenocaris glacialis* as a replacement name for *P. tenuis* Noodt, 1954, which is a junior primary homonym of *P. tenuis* Borutzky, 1948.

Enckell (1969) suggests *P. glacialis* is a synonym of *P. arctica* Borutzky, 1952, but this latter species is known only from an inadequate description of a single female and must rank as *species inquirenda* until a full description is available, including that of the male.

Reid (1995) believes *P. arctica* is more likely to be synonymous with *P. brevipes* than *P. glacialis*, but does not formally propose this.

326. The male is described by Schminke & Nottenboom (1990).
327. The male is described by Cottarelli & Torrisi (1977).
328. Originally described as *P. röttgeri,* the species name is hereby amended in accordance with Article 32.5.2.1 of the ICZN, 4th Edition, 1999.
329. As the name of this species is derived from a female name it was amended to *jeannineae* by Reid (1994b) (ICZN, 4th Edition, 1999, Articles 31.1.2, 31.1.3, 32.4, 32.5).
330. Originally described as *Parastenocaris meyer-abichi*; the species name is hereby amended in accordance with Article 32.5.2.1 of the ICZN, 4th Edition, 1999.
331. See Reid (1991b).
332. Por (1986a) suggests the family Cletodidae as defined by Lang (1948) is not a natural assemblage (an opinion with which there is now universal agreement) and that the genera should be apportioned between a number of families, including the return of some species to the Canthocamptidae (see Note 188).

He proposes four new families—Paranannopidae, Huntemanniidae, Rhizotrichidae and Argestidae—and provides a diagnosis for them and for Cletodidae *sensu stricto*, but he gives no formal justification for his proposal by which its validity can be tested. Until this is done Por's scheme must be treated with caution.

Por's suggestion for a separate family Paranannopidae has been widely accepted although it has now been overtaken by later revisions and the family Paranannopidae is included by Willen (2000) as a subfamily of family Pseudotachidiidae. See Note 65 for comments on the nomenclatorial confusion surrounding Paranannopidae.

Bodin (1997) and Boxshall & Halsey (2004) follow Por's scheme and undoubtedly the majority opinion is that it is preferable to use it than to continue with Cletodidae *sensu lato*.

333. The male is described by Por (1959a) and Drzycimski (1969).
334. The male is described by Schriever (1986b).
335. Arlt (1983) illustrates and comments only on the P5 but in his text he appears to confuse males and females and the P5 appears to be quite different in form and size from other descriptions of this species.
336. Synonymy by Fiers (1996), who also redescribes *E. lacunae*.
337. Revised by Gee (1998).
338. Species redescribed by Gee (1998).
339. The female is described by Pallares (1970).
340. The original description of this species described only the female. The male described by Marinov & Apostolov (1981b) and attributed to *E. staufferi* seems far more likely to be the true male of this species than that described by Monard (1937a).
341. See Gómez (2000b) for a discussion of this species and *Stylicletodes verisimilis.*
342. The male is described by Schriever (1984a) (as *Thieliella nordatlantica*).
343. Revised and redescribed by Gee (1999).
344. Species redescribed by Kikuchi, Dai & Itô (1993) (as *Enhydrosoma*).
345. Species redescribed by Gee & Huys (1996).
346. Huys, Gee, Moore & Hamond (1996: p. 32) drew attention to the then current state of flux at family level in the Harpacticoida. In their Key to Families they place *Nannopodella*, *Limnocletodes*, *Pontocletodes*, *Actinocletodes* and *Scintis* as Cletodidae *incertae sedis* but remove *Barbaracletodes* and *Pyrocletodes* to the Canthocamptidae. They give no formal justification for these actions.

Gee (1998) considers that *Australonannopus*, *Barbaracletodes* and *Scintis* do not belong in the Cletodidae *sensu* Por. He makes no recommendation.

Until formal proposals are made for the placement of all these genera I have placed them as *incertae sedis* in Cletodidae *sensu* Por.

347. The family name is amended by Boxshall & Halsey (2004) who cite Rhizothricidae as an "incorrect derivation".
348. The male is described by Noodt (1953).
349. The male is described by Wells (1963b) and Por (1964b).
350. As defined by Huys & Lee (1999).
351. See Huys & Lee (2000).
352. The male is described by Klie (1941b) and Noodt (1958a).
353. The male is described by Klie (1950) and Chislenko (1977).
354. The male of this species is redescribed by Vervoort (1964) and the female by Pallares (1975b).
355. Lang (1948) placed *L. sporadiensis* in the synonymy of *L. inornata*, along with *L. dinocerata*. Vervoort (1964) re-established *L. dinocerata* but was equivocal about *L. sporadiensis* even though *L. sporadiensis* displays similar — though perhaps not identical—morphological features to those that persuaded him to regard *L. dinocerata* as a species separate from *L. inornata.*
356. The male is described by Nicholls (1944, 1945a).
357. The male is described by Coull (1971b) (as *Laophonte*).
358. The male is described by Hicks (1982b).
359. Species redescribed by Dinet (1971).
360. Lee & Huys (1999c) review *Onychocamptus* and transfer *Paronychocamptus anomalus* to this genus. They consider Lang's (1965a) opinion that *O. besnardi* is a form of *O. mohammed* and *O. vitiospinulosa* a subspecies to be incorrect or premature.
361. Fiers (1998) argues that *Laophonte* (= *Onychocamptus*) *latipes* is a juvenile stage of *O. mohammed.*
362. Species redescribed by Geddes (1982) and Fiers (1991b).
363. The male is described by Wells & Clark (1965) and Wells (1967).
364. Species redescribed by Fiers (1991b).

364a. Lee, Soh & Montagna (2006) redescribe *Echinolaophonte armiger* and review the species. As a consequence they resurrect *Echinolaophonte hystrix* (Brian), to which they attribute *Echinolaophonte armiger* forma *typica* Lang, 1965a. They consider it probable that four new species are contained among the records of *E. armiger*. These are listed here as *species inquirendae.*

365. The male is described by Yeatman (1975).
366. Bodin (1997) suggests *H. bisetosa* is a synonym of *H. hamondi*, but provides no evidence or argument.
367. Bodin (1997) is incorrect in rejecting this species name. *Heterolaophonte wellsi* Letova is a junior primary homonym of *Heterolaophonte wellsi* Hamond and thus is permanently invalid (Articles 52.1, 60.1 of the ICZN, 4th Edition, 1999).
368. The original description consists of a brief diagnosis only. Nicholls (1942a) provides a full description.
369. Letova (1982) believed this male to be that of her new species, *H. wellsi* (= *H. letovae*, see Note 367) but Mielke (1975) believed it to be the male of either *H. hamondi* or *H. bisetosa*. Letova does not discuss Mielke's proposal.
370. Lee & Huys (1999c) revise *Paronychocamptus.*
371. Bodin (1997) is not correct in placing *Paronychocamptus wilsoni* in the synonymy of *Quinquelaophonte capillata* (see Coull 1976b, who also redescribes the species).
372. Although not making a specific recommendation, Lang (1965a) appears to believe that this species should belong to *Esola*. But Huys & Lee (2000 p. 81) place it in "close affinity with the genus *Paralaophonte".*
373. Species redescribed by Fiers (1993).
374. The male is described by Noodt (1955d), Wells (1961) and Marinov (1971).
375. Wells (1979) proposed *marcusi* nom. nov. as a replacement subspecific name for *Klieonychocamptus kliei ponticus* Marcus, a junior secondary homonym of *K. ponticus* (Serban & Plesa). As it is named in honour of a woman—Dr Amélie Marcus—the name of this subspecies must be amended to *marcusae* (ICZN, 4th Edition, 1999, Articles 31.1.2, 31.1.3, 32.4, 32.5).
376. Species redescribed by Huys (1988d).
377. Species redescribed by Fiers (1991c).
378. See Fiers (1986b).
379. Lee (2003) upgrades from a subspecies of *Q. quinquelaophonte.*
380. Bodin (1997) places the genus *Apolaophonte* Wells & Rao, 1987 as a synonym of *Lipomelum* and expresses the

opinion that *A. hispida* could be a synonym of *L. heteromelum*. This view is confirmed by Dr Rony Huys (pers. comm.) on the basis of his examination of material from Kuwait.

381. See Lee & Huys (1999c).
382. Nom. nov. (Lee & Huys, 1999c) for *Laophonte brevifurca* sensu Griga (1963).
383. Huys & Lee (2000) revise *Esola* and redescribe *E. bulbifera* and *Mourephonte longiseta*.
384. Species redescribed by Huys & Lee (2000).
385. Lee & Huys (1999b) review the phylogenetic relationships of the family.
386. Lee & Huys (1999b) review *Normanella* and redescribe *N. dubia*, *N. minuta* and *N. tenuifurca.*
387. Species redescribed by Huys (1990b).
388. Huys (1990b) removes *Orthopsyllus* from Canthocamptidae to this new family, related to the Laophontidae group of families, without giving a formal diagnosis, but instead refers to a further paper then "in press" which will provide this. This paper has not yet been published but there is little doubt that Huys' action is justifiable and thus it is accepted here.

    Huys & Lee (1999) use the concept in their phylogenetic analysis of the Laophontoidea and Boxshall & Halsey (2004) believe "the cladogram and text comparisons as published [by Huys (1990b)] constitute sufficient diagnostic statements to differentiate the Orthopsyllidae from related families".

    Huys (1990b) also states that his promised paper on Orthopsyllidae will include the description of two new genera—*Dionyx* and *Infrapedia*—which he names without providing diagnoses; these names are *nomina nuda* until Huys' paper appears.
389. George (2002) discusses the phylogeny of the family.
390. Despite the recent attention paid to the systematics of the Laophontoidea (e.g. Huys & Willems 1989; Huys 1990b; Huys & Lee 1999; Lee & Huys 1999b; Schizas & Shirley, 2006) the relationships of *Apolethon* remain uncertain.

    Huys (1990b, p. 80) describes it, along with *Laophontella*, as "odd genera of which the affinity with Laophontidae was or is still doubtful".

    It is listed by Huys, Gee, Moore & Hamond (1996), without argument or comment, as *incertae sedis* in Laophontidae.

    Schizas & Shirley (2006) contribute new data on morphology and breeding behaviour and provide a detailed analysis and discussion on the relationships of *Apolethon* within the superfamily Laophontoidea but can do no more than conclude that the genus remain as *incertae sedis* in Laophontoidea.
391. Huys & Lee (1999) argue that the families Cletopsyllidae and Ancorabolidae cannot be placed in the superfamily Laophontoidea, and that their phylogeny requires further study. Until this is done it seems wise to place them as families *incertae sedis* in the section Podogennonta*.*
392. Huys & Lee (1999) revise the subfamily Cletopsyllinae Huys & Willems, 1989 and raise it to family rank.
393. Conroy-Dalton & Huys (2000) provide new information on this family.

393a. Lang (1944) established the subfamily Ancorabolinae but, in accordance with the Principle of Coordination (Article 36 of the ICZN, 4th Edition, 1999), the authorship must remain with Sars, 1909a

394. See Conroy-Dalton & Huys (2000) for information on the validity of records of *Ancorabolus mirabilis*.
395. *Ancorabolus ilvae* is known only from copepodid stages and Gómez & Conroy-Dalton (2002) relegate it to this status.
396. Redescribed by Conroy-Dalton (2003b)
397. See Conroy-Dalton (2003a) for a revision of *Ceratonotus* and a redescription of *C. pectinatus*.
398. Conroy-Dalton & Huys (2000) revise *Arthropsyllus*. They synonymise the two subspecies of *A. serratus* and remove *A. australis* to the new genus *Breviconia*. They include *Laophontodes echinatus* as a *species inquirenda* within *Breviconia*.
399. George (1998a); see also Conroy-Dalton (2001).
400. From their published descriptions these species appear so similar that they may be synonymous but a comparison of type specimens is required to confirm this. In the meantime *Tapholaophontodes laurenceae* should be transferred to *Algensiella*
401. Seifried (2003 p. 11) uses this term for a taxon that is "probably monophyletic" and contains all of the Syngnatharthra except for the Neobradyidae and the Podogennonta. See also Note 29.
402. Seifried (2003, p. 11) uses this term for a taxon that is "probably monophyletic" and contains all of the Syngnatharthra except for the Neobradyidae, the Podogennonta and the Chappuisiidae. See also Note 29.
403. According to Seifried (2003) the superfamily is redundant as it can be "synonymized with Ectinosomatidae, as

both taxa enclose the same species”.

404. The male is described by Wells (1964).

405. See Huys & Bodin (1997) and Seifried (1997).

406. Arlt (1983) believes the presence of morphological variability in *Bradya typica* and *B. scotti*, together with their similar ecology and the fact that often they occur sympatrically, suggests they may be synonymous.

407. The male is described by Klie (1949).

408. The female is redescribed by Por (1968a).

409. The female is redescribed by Wilson (1973).

410. Clément & Ólafsson (2001) redescribe and reassign *Ectinosoma arcticum*.

411. Bodin (1997) incorrectly states that Lang (1965a) agrees with Noodt (1958a) that this species probably belongs in *Ectinosomoides.* Lang actually believes it to be a Stage V copepodid of *Arenosetella incerta.* Its juvenile status is certain, as shown by Lang (1965a) and Wells & Rao (1987).

412. The male is described by Wells (1968).

413. See Karanovic & Pesce (2001).

414. Clément & Moore (1995, 2000) partially revise *Halectinosoma.*

415. Clément & Moore (2000) revise *Halectinosoma herdmani* and *H. elongatum*, redescribe *H. neglectum* and *H. proximum* and discuss the validity of *Ectinosoma finmarchicum*.

416. The male is described by Wells (1965a).

417. Kunz (1949) provides a partial redescription of the female and a description of the male.

418. The male is described by Clément & Moore (1995).

419. The male is described by Moore & Stevenson (1994).

420. The male is described by Rao & Ganapati (1969b) (as *Sigmatidium*).

421. Species redescribed by Hicks & Schriever (1983).

422. See Clément & Moore (1995).

423. Seifried (2003) confirms the monophyly of the Exanechentera. I retain here the rank given by Lang (1944) pending a review of nomenclature of the higher taxa of Harpacticoida.

424. This taxon contains the new families Idyanthidae and Zosimidae. In classical nomenclature it would be ranked as a superfamily and be called the Idyanthoidea.

425. Seifried (2003) raises subfamily Idyanthinae Lang, 1944 of the family Tisbidae to family rank but in accordance with the Principle of Coordination (Article 36 of the ICZN, 4th Edition, 1999), the authorship must remain with Lang (1944).

426. Moura & Martínez Arbizu (2003) place *Styracothorax* in the “Idyanthinae” of Lang’s family Tisbidae (and then show that Lang’s Tisbidae is not monophyletic).
Seifried (2003) raises Idyanthinae to family rank. Styracothoracidae thus becomes a synonym of Idyanthidae.

427. Revised by Lee & Huys (1999a), who redescribe *T. minuta*.

428. Willen (2000) transfers *Dactylopia* from the family Thalestridae.

429. The male is described by Coull (1973c). See also Drzycimski (1969).

430. Seifried (2003 p. 11) uses this term for a taxon that is “probably monophyletic” and contains the Paramesochridae, Tachidiidae and the Palinarthra. See also Note 29.

431. The subfamily Paramesochrinae was established by Huys but in accordance with the Principle of Coordination (Article 36 of the ICZN, 4th Edition, 1999), the authorship must remain with Lang.

432. The female is described by Pesta (1959).

433. The male is described by Rao & Ganapati (1969b).

434. The male is described by Krishnaswamy (1957a).

435. Transferred to *Kliopsyllus* from *Paramesochra* by Kunz (1981).

436. Bodin (1979a) describes a male that may belong to this species.

437. Nom. nov. (Wells 1979) for *Leptopsyllus reductus* Petkovski, 1955 which is a junior primary homonym of *Leptopsyllus reductus* Lang, 1948.

438. Species redescribed by Huys (1988c).

439. Seifried (2003 p.11) uses this term for a taxon that is “probably monophyletic” and contains only the sister taxa Tachidiidae and Palinarthra. See also Note 29.

440. As conceived by Lang (1944), this taxon is polyphyletic (Seifried 2003). In Seifried’s phylogenetic analysis the family Tachidiidae stands alone and thus, in her opinion, a superfamily is not required.

440a. The superfamily Tachidioidea [as Tachidiidimorpha] was established by Lang (1944) and Tachidiidae as the name of the family was first used by Sars (1909a) but, in accordance with the Principle of Coordination (Article 36 of the ICZN, 4th Edition, 1999), the authorship must remain with Boeck (1865) who established the equivalent of the Family Tachidiidae under the name Afdeling Tachidina.

441. Lang (1944) places the family Euterpinidae as a subfamily in family Tachidiidae. Huys, Gee, Moore & Hamond (1996) raise it back to family rank. Seifried (2003) returns *Euterpina* to the Tachidiidae but does not suggest resurrecting the subfamily.

442. The male is described by Petkovski (1964a).

443. Species redescribed by Montschenko (1967b), Lorenzen (1969) and Bodin (1970).

444. Described as a subgenus of *Tachidius* and raised to genus rank by Huys, Ohtsuka, Conroy-Dalton & Kikuchi (2005).

445. This genus is named and given a diagnosis by Huys, Gee, Moore & Hamond (1996 p. 228); the paper containing the formal description of *Tachidius incisipes* as *Geeopsis* has not yet been published.

446. See Huys, Ohtsuka, Conroy-Dalton & Kikuchi (2005).

447. See Seifried (2003).

448. Seifried (2003 p. 11) uses this term for a taxon that is "probably monophyletic" and contains only the families Superornatiremidae and Rotundicleipidae. In classical nomenclature it would be ranked as a superfamily and be called the Superornatiremoidea. See also Note 29.

449. Seifried (2003) absorbs the Clytemnestridae within the Peltidiidae. She states that the two genera (*Clytemnestra* and *Goniopsyllus—*see Huys & Conroy-Dalton (2000) for a revision) "belong to an advanced taxon within Peltidiidae" but does not suggest a name or rank for this taxon. In classical nomenclature it is most probable that it would rank as a subfamily, and I have adopted that concept.

449a. Lang (1948) attributes this family to Sars (1904) but Peltidiidae as the name of the family was first used by Claus (1860). In accordance with the Principle of Coordinarion (Article 36 of the ICZN, 4th Edition, 1999), the authorship of both taxa lies with Claus.

450. The male is described by Gamô (1969).

451. The male is described by Nicholls (1941a).

452. There are severe discrepancies between text and illustrations in the original description that require correcting before *Alteutha sewelli* can be confirmed in *Alteutha.*

453. Revised by Huys & Conroy-Dalton (2000), who redescribe *Clytemnestra scutellata* and *Goniopsyllus rostratus*.

454. Lang (1965a) thinks that *Tegastes* sp. of Noodt (1958a) is the male of *T. dalmatinus.*

455. The description of *Tegastes chalmersi* indicates, by its comparison with *Tegastes* (now *Syngastes*) *imthurni*, that P2–P3 exopod are composed of two segments only and, thus, the species must be transferred to *Parategastes.*

456. Seifried (2003) argues that the family Porcellidiidae is the sister-group of the family Tisbidae. Alternatively, Moura and Martínez Arbizu (2003) postulate a closer relationship arguing that *Porcellidium* is "a highly derived genus within Tisbinae, most probably the sister-group of *Sacodiscus.* Consequently …the family Porcellidiidae has to be refuted to accommodate its species within Tisbinae".

Both authors believe that within Tisbidae the genera *Scutellidium* and *Sacodiscus* represent a monophyletic branch characterised by the reduction of the oral cone and the trend to an enlarged and extremely dorso-ventrally compressed prosome. The distinctive nature of these genera has been recognised for a long time (e.g. by Boxshall (1979) who refers to them as the *Scutellidium*-group of genera).

Seifried distinguishes Porcellidiidae and Tisbidae on a large number of autapomorphies. While she recognises the *Scutellidium*-group as a distinct evolutionary line within Tisbidae she does not make a connection between this line and Porcellidiidae.

Moura and Martínez Arbizu do postulate such a relationship, placing their emphasis on the modification of the oral cone and mouthparts to form (eventually) the oral sucker of Porcellidiidae—"these characteristic modifications did not evolve de novo in Porcellidiidae from a more generalized ancestral form, but are the end stage of a step by step transformation series within Tisbidae". They rely heavily on the functional morphological studies of Tiemann (1986), which are not mentioned at all by Seifried.

The difference between these views is quite fundamental and until debate and discussion resolves it. I believe that the *status quo ante* should be maintained.

457. Walker-Smith (2001) argues that authorship of the family Porcellidiidae properly belongs to Boeck rather than Sars.

458. Synonymies by Walker-Smith (2001). She reviews the family Porcellidiidae and concludes that several of the genera described by Harris and his co-workers are invalid as they are not founded on autapomorphies. Although

the ICZN neither precludes nor declares invalid taxa that are not in accord with Hennigian principles, these are now widely accepted as the ruling paradigms in systematics.

Previously, Huys, Gee, Moore & Hamond (1996) had rejected all of the new genera described by Harris (1994) and Harris & Robertson (1994) on more subjective reasoning—that they were "based on dubious grounds" and that there was no attempt by these authors to first review *Porcellidium*.

Harris (2002) disputes this reasoning but unfortunately was writing before the publication of Walker-Smith's criticisms. The diagnosis of *Dilatatiocauda* does seem to be founded on an autapomorphy.

459. The inadequacy of the original description of *P. viride* has led to much debate on its synonymy. Lang (1948) includes many species as synonyms. Vervoort (1964) follows Lang and rejects the arguments of Bocquet (1948) that *P. fimbriatum*, *P. lecanoides* and *P. sarsi* are distinct species while Huys, Gee, Moore & Hamond (1996) accept them. This checklist follows the opinion of Huys *et al.*

460. Lang (1948) lists *Porcellidium acuticaudatum* as a synonym of *P. ovatum* Haller. Harris & Robertson (1994) place it in their new genus *Acutiramus* without comment on its relation to *P. ovatum*. Walker-Smith (2001), in synonymising *Acutiramus* with *Porcellidium*, also maintains the separate identity of the two species, but again without comment.

461. Species redescribed by Humes & Ho (1969b) and I.H. & H.S. Kim (1996).

462. Dr Rony Huys (pers. comm.) draws attention to the fact that Lang (1948) synonymised *P. charcoti* and *P. affinis* Quidor, 1906, giving preference to *P. affinis* despite the page priority favouring *P. charcoti.*

463. As it is named in honour of two women—Edith and Joy London—the name of this species must be amended to *londonarum* (ICZN, 4th Edition, 1999, Articles 31.1.2, 31.1.3, 32.4, 32.5).

464. Although Harris & Robertson (1994) consider that Geddes' specimens represent a new species they do not describe the species but simply rename the material as "*Acutiramus ovatus* (Geddes, 1968d) (not Haller, 1879)", or "*P. ovatum* Geddes, 1968 (not Haller, 1879)", or "*P. ovatum* (Geddes, not Haller)", or simply as "*A. ovatus*" (pp. 289 and 298). Until this material is formally described as a new species it must remain *incertae sedis* in the genus.

465. Species redescribed by Hicks (1982) (as *Porcellidium*).

466. The subfamily Tisbinae was established by Lang (1944) but in accordance with the Principle of Coordination (Article 36 of the ICZN, 4th Edition, 1999), the authorship must remain with Stebbing.

467. As defined by Seifried (2003). See also Volkmann (1979c).

468. Note that after Volkmann's (1979b) revision many of the records attributed to this species by Lang (1948) must be considered doubtful. *Tisbe furcata* is now thought to be confined to northwest Europe.

469. Volkmann (1979b) revises *Tisbe gracilis*. Note that she considers many of the records attributed by Lang (1948) as doubtful and the species to be confined to the north Atlantic and Arctic Ocean.

470. Species redescribed by Volkmann (1979c).

471. Redescribed by Gómez, Puello-Cruz & González-Rodriguez (2004).

472. Volkmann (1979c) describes males and females from *Idya cluthae* cotypes that she believes to be this species but urges caution as the material was in very poor condition and her description necessarily is incomplete and displays characteristics that make it dubious that it belongs to *Tisbe.*

473. Volkmann (1979c) argues that Sars (1920) described *T. compacta* from copepodids and that this makes it impossible to confirm the status of this species.

474. Volkmann (1979c) concludes that the relationship. of *T. dilatata* with *T. bulbisetosa* and *T. inflatiseta* cannot be decided until the colour of the integument of *T. dilatata* is known.

475. Volkmann (1979c) concludes that the original description of *T. varipes* is a compound of at least two species.

476. See Itô (1976) for some discussion of these species.

477. Species redescribed by Boxshall (1979) and Volkmann (1979c).

478. Species redescribed by Volkmann (1979b).

479. Species redescribed by Yeatman (1963) and Volkmann (1979b).

480. Itô (1976) reinstates *Scutellopsis* from the synonymy of *Scutellidium* (Pallares 1969) and transfers *Scutellidium macrosetum* to it, with *Scutellidium* (= *Machairopus*) *sarsi* as *incertae sedis.*

481. The male is described by Dahms & Schminke (1992).

PART 2

KEYS TO COPEPODA HARPACTICOIDA

Introduction

A word of warning: Always confirm an identification made with a key by consulting a good description of the species. Consult the Checklist for reference to appropriate descriptions. Lang (1948) provides short diagnoses, some illustrations and a bibliography for all species described prior to about 1940. Consult the Checklist for reference to descriptions for species described since then.

The last comprehensive set of keys to harapacticoid species is that of Lang (1948). My earlier keys (Wells 1976) dealt only with marine species and in many cases identification was only to a group of species within a genus. Similarly, Dussart & Defaye (1990) deal only with freshwater. There is an excellent recent key to genus level (Boxshall & Halsey 2004) and keys to many individual genera exist and are cited in this present work.

There are also some excellent regional keys, e.g. to marine species of northwest Europe (Huys, Gee, Moore & Hamond 1996) and Bulgaria (Apostolov & Marinov 1988); freshwater canthocamptids of Australia (Hamond 1987); freshwater copepods of western Europe (Dussart 1967), China (Shen 1979) and North America (Wilson & Yeatman 1959). It is arguable that regional keys are more useful than a world key, given the increasing evidence that harpacticoid species may be less widely dispersed than previously thought (though the viability of the evidence depends to some extent on the particular species concept adopted by the advocates).

Although I began this work with the simple intention of updating my original keys (Wells 1976), extending them down to species level and expanding them to include freshwater species, in fact most of the keys have had to be completely rewritten. The increase in complexity made necessary by the decision to take them to species level has also forced me to use characters that involve anatomical detail and structures, particularly the mouthparts, that I had wished to avoid because of the difficulty of their observation and the need for greater familiarity with harpacticoid structure than was the case for the 1976 keys.

These are not keys for the zoologically illiterate and they do require a basic knowledge of copepod external anatomy. However, since 1976 the publication of two books has made this information much more readily available. Huys & Boxshall (1991) give a beautifully illustrated and clearly written account of the Harpacticoida and its place among the Copepoda and Huys, Gee, Moore & Hamond (1996) provide an excellent and concise introduction to the anatomy, ecology and development of Harpacticoida and truly marvellous illustrations of some of the British species. Pages 1–31 of this latter work should be required preliminary reading for users of these present keys.

Huys *et al.* (1996) also provide an illustrated key to the families of Harpacticoida and keys to those families and genera contained in this regional fauna. Boxshall & Halsey (2004) provide keys to the family level for the entire Copepoda arranged by habitat—freshwater, estuarine, and marine—and a key to genus level for each harpacticoid family. Dussart & Defaye (2001) provide a succint account of morphology, anatomy, biology, reproduction and ecology of Copepoda and keys to those families of Harpacticoida that contain freshwater genera (though the keys include only the freshwater genera).

Format of the Keys

New species of harpacticoids are being discovered continually and it is likely that considerably less than half the species are presently known. It is important, therefore, that identification keys are able to accommodate new species with as little disturbance as possible. The traditional dichotomous key is notoriously inefficient in this respect but tabular keys have proved to be more satisfactory. Further, because a suite of characters is given for each species there is a significantly decreased chance that misidentification will occur. Newell (1970, 1972, 1976) discusses the advantages of tabular keys and describes how they operate; his methods, with modifications, are used here.

The key consists of two parts: (a) a list of characters used, with a description of the character states and how they are coded in the key, and (b) the key itself, in which the expression of the character states provides a partial description, as a kind of formula (which I term a 'codon'), of the taxon or group of taxa.

In the key to each of the families the primary key group [KG] is numbered KG 0. In this key group some codons lead direct to a species while others lead to secondary key groups, numbered KG 1 to KG n. In many cases codons in the secondary key group lead to a tertiary key group, numbered KG n/1 to KG n/n. In fewer cases a quaternary key group is required, numbered KG n/1/1 to KG n/n/n.

This highly nested construction can be extended as far as necessary. Thus it allows for increasing complexity as new species are described or as phylogenetic revisions occur. Also, new species can be accommodated within existing KG simply by inserting a new codon in the key. However, eventually it becomes necessary to undertake a major revision of the layout. Hence the need for these new keys as they have to accommodate the inclusion of freshwater species together with the phylogenetic revisions at high taxonomic levels and the large number of new species described since 1976.

Despite the flexibility of tabular keys I found it impossible to construct a manageable key direct to species of Harpacticoida, but relatively easy to do this for each family. Also, I could not construct a simple tabular key to families and have resorted to a dichotomous key. In this key an indication is provided of the genera currently covered by each determinant line; this information may help the user by giving a double check to identification.

The basic features of the external anatomy of an harpacticoid copepod that are constantly referred to in these keys are illustrated in figures 1–20. The other illustrations are of modifications that apply in specific circumstances. Note that the illustrations are not detailed drawings but are semi-diagrammatic, with most of the fine detail omitted as it is not necessary for simple identification purposes.

Glossary of Terms and Abbreviations

This Glossary is confined to the terms and abbreviations used in these keys. More detailed accounts of harpacticoid structure are given by Huys & Boxshall (1991) and Huys, Gee, Moore & Hamond (1996).

Abdomen: Used in these keys in its common sense, i.e. it comprises the last five somites and terminates in the paired caudal rami (Figs 1–2). The abdomen and the last thoracic somite (which bears the P5) together form the urosome. The first abdominal somite bears the external genitalia. In the female the first two somites usually are fused together and are known as the genital double-somite. More correctly (Huys & Boxshall 1991) the abdomen consists of the three postgenital somites and the anal somite, or telson.

Aesthetasc (or *aesthete*): A long tubular and highly flexible sensory filament on the antennule.

Allobasis: The fused basis and first endopod segment of the antenna. Often this fusion is incomplete (Fig. 8).

Anal operculum: An extension of the dorsal edge of the anal somite that at least partially covers the proctodaeum (Fig. 1).

Anal somite: The last abdominal somite; the most posterior somite of the body.

Antenna: The second cephalic appendage (Figs 7–8).

Antennule: The first cephalic appendage; sexually dimorphic (Figs 4–6).

Apophysis: A mucroniform process at the distal corner of a segment. In these keys this term is used mainly to describe the condition of the modified P2 (or P3) endopod in the male of some families (Fig. 17).

Baseoendopod: The fused basis and endopod of P5. Normally the baseoendopod bears one seta on its outer side (from the basis) and a number of setae on its inner side (from the endopod) (Fig. 16).

Basis: The distal segment of the protopod; it bears the exopod and/or endopod. It may be fused with the coxa and/or with the first segment of the endopod.

Caudal Rami: The paired terminal structures borne on the anal somite.

Cephalosome: The anterior part of the body. Comprised of the five cephalic somites plus the first thoracic somite (which bears the maxillipeds). Covered dorsally by the cephalic shield.

Cephalic shield: The dorsal carapace that covers the anterior part of the body.

Cephalothorax: Consists of the cephalosome plus the second thoracic somite (which bears the P1). These seven somites usually are fused together and covered dorsally by the cephalic shield.

Claw: A stoutly built, relatively long curved spine, sometimes with small spinules or teeth on outer edge.

Coxa: The middle segment of the protopod. Often fused with the praecoxa, and sometimes with the basis.

Endite: Accessory segments of the syncoxa of the maxilla.

Endopod: The inner ramus of a biramous appendage.

Epimera: The lateral projection of the tergite of a body somite; often termed 'epimeral plates' in the literature.

Exopod: The outer ramus of a biramous appendage.

Genital double-somite: The structure formed by the fusion of the first two abdominal somites of the female; but see also abdomen.

Hyaline field: Apparently these are areas of translucent cuticle. The term is used especially with respect to the P5 in the families Thalestridae, Dactylopusiidae, Rhynchothalestridae and Miraciidae.

Integumental window: Apparently these are translucent area of cuticle on the body and have an osmoregulatory function (Hosfeld 1999). Characteristic (but not ubiquitous) of freshwater and polyhaline genera. Also known as 'nachenorgan'.

Intercoxal sclerite: A chitinous plate connecting the coxa of the pair of pereiopods (or swimming legs). Sometimes referred to in the literature as the "coupler". May be absent in highly derived non-swimming species.

Labrum: A lobe that forms the anterior margin of the mouth.

Mandible: The first of four appendages commonly referred to as "mouthparts".

Maxillule: The second of four appendages commonly referred to as "mouthparts".

Maxilla: The third of four appendages commonly referred to as "mouthparts".

Maxilliped: The fourth of four appendages commonly referred to as "mouthparts"; the first thoracic appendage.

Metasome: The part of the body that bears the P2–P4 (and P1 if that somite is not fused to the cephalosome).

Metasomites: Somites of the metasome.

Nachenorgan: Apparently these are translucent area of cuticle on the body and have an osmoregulatory function (Hosfeld 1999). Characteristic (but not ubiquitous) of freshwater and polyhaline genera. Also known as an 'integumental window'.

Nebendorn(*en*): Area(s) of sclerotised chitin on the inner side of P1 basis, especially in species of Miraciidae.

P1–P4: The second to fifth thoracic appendages (pereiopods or swimming legs); the locomotory appendages.

P5: The sixth thoracic appendage. Always modified as a secondary sexual structure.

P6: The first, and only, abdominal appendage. Always modified as a secondary sexual structure, and usually severely reduced.

Palp: Used in these keys as a term for the protopod and rami of the mandible and maxillule.

Pereiopods: The second to fifth thoracic appendages.

Praecoxa: The proximal segment of the protopod. Often fused with the coxa; often unrecognisable.

Prehensile: A general term used to indicate that an appendage, or part of an appendage, is known or presumed to be used for grasping. It is applied when the segments of an appendage are articulated so that they can be reflected back upon one another. The degree of reflection may be quite small, as in the application of this term to the P1 endopod in many species.

Proctodaeum: The area surrounding the anus; effectively, the posterior wall of the anal somite.

Prosome: The cephalosome plus the metasome.

Protopod: The uniramous basal part of an appendage. Primitively consists of praecoxa, coxa and basis

Pseudoperculum: An outgrowth of the distal dorsal edge of the penultimate somite that extends over the anus.

Rostrum: A presomitic structure that in the adult appears to be a median extension of the anterior end of the cephalic shield; flanked by the antennules.

Segment: The articulating units of appendages, especially of the exopod and endopod.

Sensillum (pl. *sensilla*): Essentially a very long flexible seta. Not numerouus and often with a distinctive distribution that may be species specific.

Seta: A slender, hollow and usually pointed and flexible structure that projects through an aperture of the cuticle. It is always associated with an epidermal cell and with nerve tissue. It may be simple (*filiform*) or be set with few or many, long or short accessory fine plumes (*plumose*) arranged in a number of patterns. Setae (and spines) are often referred to as forming the 'armature' of the body or appendage, but probably always have a sensory function.

Setule: Small flexible, seta-like structures arising from the surface of the cuticle. Never with accessory plumes. Setules (and spinules) are often referred to as forming the 'ornamentation' of the body and appendages but their function is not understood. Their distribution pattern can be species specific.

Somite: A segment of the body.

Spine: Anatomically similar to a seta but is a rigid structure. It also may be simple and conical (*spiniform*) or be set with accessory plumes (*plumose*) or with rigid teeth (*dentate*). Spines (and setae) are often referred to as forming the 'armature' of the body or appendage, but probably always have a sensory function.

Spinule: Small rigid, spine-like structures arising from the surface of the cuticle. Never with accessory plumes, but sometimes of complex shape. Spinules (and setules) are often referred to as forming the 'ornamentation' of the body and appendages but their function is not understood. Their distribution pattern can be species specific.

Swimming legs: See pereiopods and P1–P4.

Syncoxa: The fused praecoxa and coxa of the maxilla.

Thorax: Properly (Huys & Boxshall 1991) the somites bearing the maxillipeds and P1–P5. In these keys this term is synonymous with metasome.

Tube pore: A cylindrical extension of the exit pore of an integumental gland.

Urosome: Abdomen plus the somite bearing the P5.

Urosomites: Somites of the urosome.

Abbreviations used in the Keys and Illustrations

A1	antennule
A2	antenna
Abd	abdomen; individual somites are abbreviated as Abd-1 to Abd-5
An Op	anal operculum
Benp	baseoendopod
Cph	cephalic shield
CR	caudal ramus (or rami)
Enp	endopod; individual segments—proximal to distal—are referred to as Enp-1 to Enp-3
Exp	exopod; individual segments—proximal to distal—are referred to as Exp-1 to Exp-3
Md	mandible
Mx1	maxillule
Mx2	maxilla
Mxp	maxilliped
P1–P5	the five pairs of pereiopods or "swimming legs"

P6	the highly reduced appendages of the first abdominal somite
R	rostrum
seg	segment
som	somite
Thor1–4	the four free thoracic somites (i.e. the somites bearing the P2–P5)

Key to families

1 Body largely without well defined intersomitic boundaries (except in urosome of some species). Body shape varying from recognisably linear to a bean-shaped mass. P1 similar to Fig. 67. Ectoparasitic on octopuses . . . . .Tisbidae (p. 748)[1]
- These characteristics not combined 2
2 Body laterally compressed (Fig. 21) . . . . Tegastidae (p. 703)
- Body of another shape 3
3 Body extremely dorsoventrally compressed; ovoid, shield-shaped or pyriform in dorsal and ventral view (Figs 22–23, 25–26, 29, 31–32, 34, 36, 38) 4
- Body of another shape 10
4 Body in dorsal view as Figs 22–23. P1 as Fig. 24 . . . . Porcellidiidae (p. 659)
- Not as above 5
5 Body in dorsal view as Figs 25–26. P1 as Figs 27–28 . . . . Peltidiidae (p. 646)[2]
- Not as above 6
6 Body in dorsal view as Fig. 29. P1 as Fig. 30 . . . . Hamondiidae (p. 404)[3]
- Not as above 7
7 Body in dorsal view as Figs 31–32. P1 as Fig. 33 (note that endopod is at least as long as exopod) . . . . Thalestridae (p. 738)[4]
- Not as above 8
8 Body in dorsal view as Fig. 34. P1 as Fig. 35 (note that endopod is shorter than exopod) . . . . Harpacticidae (p. 406)[5]
- Not as above 9
9 Body in dorsal view as Fig. 36. P1 as Fig. 37 . . . . Tisbidae (p. 748)[6]
- Body in dorsal view as Fig. 38. P1 as Fig. 39 . . . . .Idyanthidae (p. 427)[7]
10 Body pyriform in dorsal view, dominated by the large cephalosome (Figs 40–41). P1 as Fig. 42 (endopod may be 1–3 segmented). P5 reduced to a small plate (Fig. 43). All mouthparts reduced . .Metidae (p. 491)
- Not as above 11
11 Body weakly pyriform in dorsal view (Fig. 44), often curved in post mortem lateral view (Fig. 45). P5 exopod displaced laterally and partially visible in dorsal view (Fig. 44). Mandible endopod easily visible in lateral view, elongate and with a very long seta or terminal structure (Figs 45–46) . . . . Miraciidae (p. 493)[8]
- These characteristics not combined 12

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1. Subfamily Cholidyinae
2. Subfamily Peltidiinae
3. *Hamondia*
4. *Paramenophia*
5. *Zaus, Zausodes*
6. *Scutellidium, Sacodiscus*
7. *Dactylopia*
8. Subfamily Stenheliinae

12 Body subpyriform in dorsal view (Fig. 47). Cephalosome wide and deep so that in lateral view the body shape may resenble a question mark (Fig. 48). P1 characteristic (Fig. 49—exopod may be 1–2 segments, endopod 2–3 segments) with endopod-1 much longer than exopod .... Dactylopusiidae (p. 365)[9]
- These characteristics not combined 13
13 Body subpyriform in dorsal view (Fig. 50), weakly dorsoventrally compressed. Maxilla as Fig. 51. Maxilliped stenopodial (Fig. 12) .... Ectinosomatidae (p. 380)[10]
- These characteristics not combined 14
14 Body fusiform (Figs 18–19) 15
- Body of another shape 17
15 Antennule much shorter than cephalic shield. Maxilla characteristic (Figs 51–53) ....
.... Ectinosomatidae (p. 380)[11]
- Antennule and maxilla not as above 16
16 Antennule longer than cephalic shield. Caudal ramus very long. Antenna exopod absent. Holoplanktonic
.... Miraciidae (p. 493)[12]
- Antennule shorter than cephalic shield. Caudal ramus not longer than the last somite. Antenna exopod with 4 segments ....Novocriniidae (p. 576)
17 Body cylindrical (Fig. 20). maxilla characteristic (Figs 52–53) ....Ectinosomatidae (p. 379)[13]
- ***Either***—body cylindrical but maxilla not as above, ***Or***—body of another shape 18
18 Body cylindrical (Fig. 20). Maxilliped characteristic (Fig. 54) .... Leptastacidae (p. 476)
- ***Either***—body cylindrical but maxilla not as above, ***Or***—body of another shape 19
19 Body as Fig. 55. P1 similar to Fig. 67. Commensal with octopuses .... Tisbidae (p. 748)[14]
- These characteristics not combined 20
20 Body as Fig. 56. P1 as Fig. 67. Ectoparasitic on fish gills .... Tisbidae (p. 748)[15]
- These characteristics not combined 21
21 Body as Fig. 57. P1 as Fig. 58 .... Paramesochridae (p. 578)[16]
- These characteristics not combined...22
22 Body, and especially the caudal ramus, very characteristic (Figs 59–61). The pair of female P5 form a brood pouch (Fig. 60) .... Tetragonicipitidae (p. 717)[17]
- These characteristics not combined...23
23 Body in dorsal view as Fig. 62; cephalosome helmet-shaped. P1 as Fig. 63 .... Peltidiidae (p. 646)[18]
- These characteristics not combined 24
24 Cephalic shield with large cuticular lenses (Fig. 64). Holoplanktonic .... Miraciidae (p. 493)[19]
- Cuticular lenses absent 25
25 Cephalic shield and most body somites with lateral globular glands (Fig. 65) ....
.... Adenopleurellidae (p. 124)
- Glands not present in this form or with this wide distribution 26

9. *Diarthrodes*
10. *Peltobradya*
11. *Bradya, Bradyellopsis, Ectinosoma, Ectinosomella, Halectinosoma, Halophytophilus, Klieosoma, Microsetella, Pseudectinosoma, Pseudobradya, Rangabradya, Sigmatidium*
12. *Macrosetella*
13. *Arenosetella, Ectinosomoides, Hastigerella, Lineosoma, Noodtiella, Oikopus, Tetanopsis*
14. *Yunona*
15. *Neoscutellidium*
16. *Caligopsyllus*
17. *Oniscopsis*
18. *Clytemnestra, Goniopsyllus*
19. *Distioculus, Miracia, Oculosetella*

26 Antenna exopod with at least 6 segments 27
- Antenna exopod (when present) with not more than 4 segments 28
27 Distal segment of P2 endopod much longer than entire exopod (Fig. 66) . . . . Longipediidae (p. 488)
- Distal segment of P2 endopod shorter than exopod . . . . Canuellidae (p. 335)
28 P1 as Fig. 35 . . . . Harpacticidae (p. 405)
- P1 of another form 29
29 P1 as Fig. 67 (exopod may be 1–3 segments) . . . . Tisbidae (p. 748)[20]
- P1 of another form 30
30 P1 as Fig. 69; exopod with 3 outer spines. Body cylindrical (Fig. 68). Mouthparts degenerate. Commensal on baleen whales, sirenians and turtles . . . . Balaenophilidae (p. 199)
- P1 of another form 31
31 P1 as Fig. 70; exopod-1 with 3 outer spines, exopod-2 with 2 outer spines; endopod with 3 segments, 2nd segment with 1–2 outer spines . . . . Superornatiremidae (p. 699)[21]
- P1 of another form 32
32 P1 as Fig. 71; exopod may be 1–3 segments. P1 endopod-2 with 1 short or long claw and 1 minute or very weak seta 33
- P1 of another form 34
33 Antenna exopod of 1 segment with 2–4 setae . . . . Laophontidae (p. 430)[22]
- Antenna exopod absent or represented by 1 seta only. . . . . Ancorabolidae (p. 181)[23]
34 P1 exopod and/or endopod with brush setae (Figs 72–74) 35
- P1 without brush setae 37
35 P1 as Fig. 72. Antennule with large unguiform process on segment 2 . . . . Orthopsyllidae (p. 577)
- P1 and Antennule not as above 36
36 P1 as Fig. 73 (note the very broad, stout, rounded spine at inner distal corner of basis). Unguiform process of antennule either absent or on segment 3 . . . . Huntemanniidae (p. 423)[24]
- P1 as Fig. 74. Antennule without unguiform process . . . . Rhizotrichidae (p. 697)
37 P1 as Fig. 73 but without brush setae; endopod may be 1–2 segments . . . . . . Huntemanniidae (p. 423)[25]
- P1 not as above 38
38 P1 exopod with 3 segments. P1 exopod-1 with an inner seta 39
- ***Either***—P1 exopod with 3 segments but P1 exopod-1 without an inner seta, ***Or***—P1 exopod with less than 3 segments 42
39 Antenna absent . . . . Aegisthidae (p. 125)[26]
- Antenna present 40
40 Antenna exopod of 1–3 segments, with at most 3 setae. Mandible palp very small and uniramous, or absent. Holoplanktonic. Meso- and bathypelagic . . . . Aegisthidae (p. 125)[27]
- Antenna exopod of 3–4 segments. Mandible palp large, biramous. Mandible exopod of 3–4 segments . 41
41 Anal somite at most as long as broad, not tapering distally. Caudal ramus twice as long as broad at most . . . . Aegisthidae (p. 125)[28]
- Anal somite longer than broad, tapering distally. Caudal ramus over twice as long as broad . Rometidae[29]

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20. *Drescheriella, Octopinella*, *Tisbe*, *Volkmannia*, subfamily Cholidyinae
21. *Intercrusia*, *Neoechinophora*, *Superornatiremis*
22. all genera except *Apolethon*
23. *Laophontodes*, *Lobopleura*, *Paralaophontodes*, *Probosciphontodes*
24. *Huntemannia*
25. *Huntemannia, Rosacletodes*
26. *Tonpostratiotes*
27. Subfamily Aegisthinae
28. all genera of subfamily Cerviniinae except *Cerviniella* and *Tonpostratiotes.*

42 P1 exopod with 3 segments. P1 exopod-2 without an outer spine 43
- *Either*—P1 exopod with 3 segments but P1 exopod-2 has an outer spine, ***Or***—P1 exopod with less than 3 segments 48
43 P1 endopod-1 with an inner seta 44
- P1 endopod-1 without inner seta 45
44 P3 exopod-3 with 4 setae and spines . . . . Leptopontiidae (p. 485)[30]
- P3 exopod-3 with 3 setae and spines . . . . Arenopontiidae (p. 188)[31]
45 P2 basis with an outer seta or spine 46
- P2 basis without outer seta or spine 47
46 Caudal ramus with a dorsal unguiform projection (“dorsal thorn”). P2–P4 endopods with 2, 1 and 2 segments respectively . . . . Cylindropsyllidae (p. 366)[32]
- Caudal ramus without a dorsal thorn. P2–P4 endopods each with 2 segments . . . . . Ameiridae (p. 136)[33]
47 P2 exopod-2 with an outer spine . . . . Ameiridae (p. 136)[34]
- P2 exopod-2 without outer spine . . . . Parastenocarididae (p. 597)
48 Antenna exopod absent 49
- Antenna exopod present, though sometimes represented by 1–2 setae only 55
49 Maxilliped absent; P1 endopod not prehensile. Body cylindrical and elongate . . . . Darcythompsoniidae (p. 378)[35]
- Maxilliped well developed, subchelate 50
50 P1 endopod represented by a large blunt spinous process (e.g. as in Fig. 75) . . Huntemanniidae (p. 423)[36]
- P1 endopod with at least 2 distinct segments 51
51 P1 endopod (if present) not prehensile and at most as long as the exopod 52
- P1 endopod prehensile (Fig. 15) and longer than the exopod 53
52 P1 endopod with 3 segments . . . . Canthocamptidae (p. 202)[37]
- P1 endopod with 1–2 segments . . . . Argestidae (p. 193)[38]
53 Outer edge of P1 coxa (and usually the praecoxa also) with a crest [“crista”] of large teeth (Fig. 76) . . . . Cristacoxidae (p. 359)
- P1 without cristae 54
54 P2–P4 basis transversely elongate (Figs 77–78). Body usually ornamented with spinous processes (e.g. Fig. 79 is an extreme example) . . . . Ancorabolidae (p. 181)[39]
- P2–P4 basis not transversely elongate. Body without spinous processes . . . Canthocamptidae (p. 202)[40]
55 Antenna exopod with 4 segments 56
- Antenna exopod with 1–3 segments or represented by setae only 61

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29. Family monospecific; see p. 17 for details.
30. *Leptopontia*
31. *Arenopontia*
32. *Boreopontia*
33. *Leptomesochra*
34. *Psammonitocrella*
35. *Leptocaris*
36. *Metahuntemannia*
37. *Mesopsyllus*
38. *Eurycletodes*
39. *Algensiella*, *Ancorabolus*, *Arthropsyllus*, *Arthuricornua*, *Breviconia*, *Ceratonotus*, *Dendropsyllus*, *Dorsiceratus*, *Echinocletodes*, *Echinopsyllus*, *Juxtaramia*, *Patagoniaella*, *Polyascophorus*, *Touphapleura*, *Uptionyx*
40. *Amphibiperita*

56 Maxilla as Figs 80–81; basis characteristic, syncoxa with at most 2 endites, endopod absent or very reduced . . . . Tisbidae (p. 748)[41]
- Maxilla not as above 57
57 P1 exopod with 1 segment; P1 endopod with 1–2 segments 58
- P1 exopod and endopod each with 3 segments 59
58 Somite bearing the P1 not fused to cephalosome and only partially covered by the cephalic shield. P1 exopod and endopod each with 1 segment, with 4 and 3 setae and spines respectively . . . . Rotundicleipeidae[42]
- The somite bearing the P1 fully fused with cephalosome and cephalic shield. P1 exopod of 1 segment with 9–10 setae and spines. P1 endopod of 1–2 segments with a total of 3–7 setae and spines . . . . Aegisthidae (p. 125)[43]
59 P1 endopod with 3 segments; endopod-2 with an outer spine . . . . Superornatiremidae (p. 699)[44]
- ***Either***—P1 endopod with 3 segments but endopod-2 lacks an outer spine, ***Or***—P1 endopod with less than 3 segments 60
60 P1 endopod prehensile (Fig. 15), endopod-1 extends at least to end of exopod-3 (Fig. 82—endopod may have 2 or 3 segments) . . . . Idyanthidae (p. 427)[45]
- P1 not prehensile, endopod-1 extends to end of exopod-2 at most . . . . Neobradyidae (p. 572)
61 Body ornamented with spinous processes (e.g. similar to Fig. 79) . . . . Idyanthidae (p. 427)[46]
- Body without pronounced spinous ornamentation 62
62 P1 bearing somite not fused to cephalosome and not covered by the cephalic shield 63
- P1 bearing somite fully fused to cephalosome and at least partially covered by the cephalic shield 67
63 P1 endopod with 3 segments. Maxilliped lamelliform . . . . Phyllognathopodidae (p. 657)
- P1 endopod with 2 segments. Maxilliped not lamelliform 64
64 P5 absent in both sexes . . . . Darcythompsoniidae (p. 378)[47]
- P5 present 65
65 Caudal rami about as long as entire body . . . . Aegisthidae (p. 125)[48]
- Caudal ramus at most as long as anal somite 66
66 Maxilliped stenopodial (Fig. 12). Antenna exopod with 2 segments. P2–P4 endopods each with 1 segment only and without sexual dimorphism . . . . Chappuisiidae (p. 342)
- Maxilliped subchelate (Fig. 13). Antenna exopod with 1 segment, female P2–P4 endopods each with 3 segments. Male unknown . . . . Latiremidae (p. 475)
67 P5 absent in both sexes . . . . Canthocamptidae (p. 202)[49]
- P5 present 68
68 Maxilliped absent or reduced to a vestigial, asetose plate 69
- Maxilliped present, though it may be reduced to 1 minute segment bearing a long seta 70
69 P1 endopod not prehensile, endopod-1 only as long as exopod-1 . . . . Darcythompsoniidae (p. 378)[50]
- P1 endopod prehensile (Fig. 15), elongate, endopod-1 longer than exopod . Cylindropsyllidae (p. 360)[51]

41. Subfamily Tisbinae
42. Family monospecific; see p. 76.
43. *Cerviniella*
44. *Gideonia*
45. *Idyanthe*
46. *Meteorina*, *Styracothorax*
47. *Pabellonia*
48. *Andromastax*
49. *Stygepactophanes*
50. *Leptocaris*
51. *Cylinula*

70 Maxilliped as Fig. 83 . . . . Louriniidae[52]
- Maxilliped not as above 71
71 Maxilliped as Fig. 84; P5 absent or of 1 segment . . . . Darcythompsoniidae (p. 378)[53]
- Maxilliped not as above 72
72 P1 endopod represented by a large blunt spinous process (e.g. similar to Fig. 75) . . . . Huntemanniidae (p. 423)[54]
- P1 not as above 73
73 P1 endopod absent or represented by an asetose vestige (or possibly by a single seta—but note that this seta is considered by some authorities to be the inner seta of the basis). 74
- P1 endopod represented by at least 1 setose segment 77
74 P1 exopod with 2 segments; P2–P4 endopods with 0, 0 and 1 seta respectively . . . . Paramesochridae (p. 578)[55]
- P1 exopod with 3 segments 75
75 P2–P4 endopods absent . . . . Cletodidae (p. 343)[56]
- P2–P4 endopods each with 2 segments 76
76 All somites, except the last, with a strongly denticulate posterior edge and with at least 4 very long spiniform projections in addition . . . . Cletodidae (p. 343)[57]
- Body without spiniform projections, posterior edge of somites smooth, or nearly so . . . . Huntemanniidae (p. 423)[58]
77 Maxilliped simple, subchelate (Fig. 13). P1 exopod absent or of 1 segment . . Psammopsyllidae (p. 679)
- These characteristics not combined 78
78 P2–P4 (Fig. 85); exopod-3 may have 2–4 setae and spines; endopods absent or with 1–3 segments. Maxilliped (Fig. 86) prehensile; endopod usually with 2 segments, form of the major setae characteristic; syncoxa usually, and basis always, without setae . . . . Paramesochridae (p. 578)[59]
- These characteristics not combined 79
79 Maxilliped as Fig. 87; not or only weakly prehensile; syncoxa typically with a very long seta . . . . Idyanthidae (p. 427)[60]
- Maxilliped not as above 80
80 Maxilliped stenopodial (Figs 88–89); syncoxa without setae . . . . Zosimidae (p. 767)[63]
- Maxilliped not as above 81
81 P1 exopod and endopod each of 1 segment. P1–P4 basis extremely transversely elongate (Figs 90–91) . . . . Ameiridae (p. 136)[61]
- P1 exopod with at least 2 segments 82
82 P1 exopod with 2 segments, endopod with 1 segment. P2–P4 endopods absent in female. Male P2 endopod absent, P3–P4 endopod with 3 and 2 segments respectively . . . . Canthocamptidae (p. 202)[62]
- P1–P4 not as above 83

52. Family monospecific; see p. 55.
53. *Darcythompsonia, Pabellonia*
54. *Metahuntemannia, Talpina*
55. *Kunzia, Meiopsyllus*
56. *Monocletodes*
57. *Scintis*
58. *Pseudocletodes*
59. all genera except *Caligopsyllus*, *Kunzia*, *Meiopsyllus*
60. *Idyellopsis, Nematovorax*, *Tachidiella*
61. *Anoplosoma*
62. *Isthmiocaris*

83 P1 exopod with 2 segments 84
- P1 exopod with 3 segments 94
84 P1 endopod with 1 segment only . . . . Idyanthidae (p. 427)[63]
- P1 endopod with 2 segments 85
85 P4 endopod absent . . . . Pseudotachidiidae (p. 683)[64]
- P4 endopod present 86
86 P2 exopod with 2 segments 87
- P2 exopod with 3 segments 88
87 P2–P4 exopod and endopod each with 2 segments. P2–P4 basis extremely transversely elongate (Fig. 91) . . . . Ameiridae (p. 136)[65]
- At least 1 of the exopods or endopods of P2–P4 has 1 or 3 segments. P2–P4 basis not extremely transversely elongate . . . . Canthocamptidae (p. 202)[66]
88 P2 endopod with 3 segments 89
- P2 endopod with 1–2 segments 91
89 Antenna exopod with 2 segments. P5 with exopod distinct from basis . . . . Ameiridae (p. 136)[67]
- Antenna exopod with 1 segment. P5 with exopod fused to basis 90
90 P2–P4 exopod-3 with 6, 6 and 5 setae and spines respectively. P2–P4 exopod-1 with an inner seta . . . . Tachidiidae (p. 701)[68]
- P2–P4 exopod-3 each with 4 setae and spines. P2–P4 exopod-1 without inner seta. Male P4 exopod enlarged and lamellate (Fig. 103) . . . . Latiremidae (p. 475)
91 P1 exopod-2 with 3–4 setae and spines. P2–P4 exopods much longer than endopods 92
- P1 exopod-2 with 5–6 setae and spines 93
92 P1 endopod-1 extends beyond the end of exopod . . . . Leptopontiidae (p. 485)[69]
- P1 endopod-1 does not reach end of exopod . . . . Arenopontiidae (p. 188)[70]
93 P1 endopod much longer than exopod. Female P5 large, foliose, with the pair forming a brood pouch . . . . Tetragonicipitidae (p. 717)[71]
- P1 exopod and endopod approximately the same length. P5 not foliose . . . . Canthocamptidae (p. 202)[72]
94 P1 endopod with 1 segment 95
- P1 endopod with 2–3 segments 96
95 P1–P4 with most exopod segments elongate—about twice as long as broad . . . . . . Argestidae (p. 193)[73]
- P1–P4 with most exopod segments short—seldom much longer than broad . . Huntemanniidae (p. 423)[74]
96 P2–P4 endopods absent or represented by a minute knob or by 1 or more setae only 97
- At least 1 of the endopods of P2–P4 consist of 1 or more well developed segments 100
97 Antenna exopod represented by a single seta only . . . . Argestidae (p. 193)[75]
- Antenna exopod with 1–3 segments 98

63. *Aspinothorax*
64. *Apodonsiella*
65. *Malacopsyllus*
66. *Hypocamptus, Pseudomoraria*
67. *Paraleptomesochra*
68. *Euterpina*
69. *Leptopontia, Notopontia, Syrticola*
70. *Pararenopontia*
71. *Phyllopodopsyllus*
72. *Glaciella, Maraenobiotus*
73. *Eurycletodes, Mesocletodes*
74. *Nannopus*
75. *Austrocletodes*

98 Antenna exopod with 1–3 segments but always with a total of 6 setae . . . Pseudotachidiidae (p. 683)[76]
- Antenna exopod with 1–2 segments but never with more than 3 setae 99
99 Antenna exopod of 1 segment with 2 setae . . . . Cletodidae (p. 343)[77]
- Antenna exopod of 2 segments with a total of 3 setae . . . . Canthocamptidae (p. 202)[78]
100 P2–P4 exopods each with 2 segments . . . . Cletodidae (p. 343)[79]
- P2–P4 exopods not as above 101
101 P2–P4 exopods with 3, 3 and 2 segments respectively . . . . Argestidae (p. 193)[80]
- P2–P4 exopods not as above 102
102 P2–P4 exopods with 2, 3 and 3 segments respectively . . . . Cylindropsyllidae (p. 360)[81]
- P2–P4 exopods each with 3 segments 103
103 P4 endopod absent or vestigial, or represented by a single seta 104
- P4 endopod with at least 1 well developed segment 109
104 P1 endopod with 3 segments 105
- P1 endopod with 2 segments 106
105 P2–P4 exopod-3 each with at least 4 setae and spines. P2–P3 endopod-2 each with at least 2 setae . . . . Canthocamptidae (p. 202)[82]
- P2–P4 exopod-3 each with 2–3 setae and spines. P2–P3 endopod-2 each with 1 seta . . . . Ameiridae (p. 139)[83]
106 P1 endopod prehensile (Fig. 15) and much longer than exopod . . . . Pseudotachidiidae (p. 683)[84]
- P1 endopod not elongate—at most slightly longer than exopod 107
107 Antenna exopod represented by a single seta only. P5 a single plate with at least 7 setae and spines . . . . Canthocamptidae (p. 202)[85]
- Antenna exopod with 1 well developed segment and 2–3 setae. If P5 a single structure, endopod and exopod portions distinguishable. P5 with a total of 5 setae and spines at most 108
108 P1–P3 endopod with dwarf first segment—broader than long and only 10–15% the length of the second segment . . . . Cletodidae (p. 343)[86]
- P1–P3 endopod-1 longer than broad—about as long as endopod-2 and extending at least to the middle of exopod-2 . . . . Canthocamptidae (p. 202)[87]
109 Endopods of P2 and P4 each of 1 segment (but in a few species the male has 2 segments in P2 or P4) 110
- At least 1 of the endopods of P2 and P4 consists of 2 or more segments 115
110 P1 endopod elongate with endopod-1 much longer than entire exopod 111
- P1 endopod not elongate, at most slightly longer than exopod 112
111 P5 a single plate . . . . Cylindropsyllidae (p. 360)[88]
- P5 with exopod distinct and not fused to basis . . . . Laophontidae (p. 430)[89]

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76. *Paranannopus*
77. *Intercletodes, Pyrocletodes*
78. *Paracamptus*
79. *Enhydrosomella, Neoacrenhydrosoma*
80. *Hemicletodes*
81. *Navalonia, Willemsia*
82. *Elaphoidella*
83. *Psammonitocrella*
84. *Pseudonsiella*
85. *Cletocamptus*
86. *Australonannopus*
87. *Perucamptus*
88. *Evansula*
89. *Pseudocleta*

112 P1 endopod with 3 segments . . . . Ameiridae (p. 136)[90]
- P1 endopod with 2 segments 113
113 Antennule short and with numerous pinnate spines. Antenna exopod with 2–3 segments. P5 a single plate . . . . Pseudotachidiidae (p. 683)[91]
- Antennule without pinnate spines. Antenna exopod of 1 segment 114
114 P5 usually with exopod distinct—if fused to basis the exopod portion is separated from endopod by a deep cleft . . . . Canthocamptidae (p. 202)[92]
- P5 a single plate with exopod and endopod portions indistinguishable . . . . Huntemanniidae (p. 423)[93]
115 P2 endopod with 1 segment only 116
- P2 endopod with 2–3 segments 117
116 P5 exopod distinct from basis . . . . Canthocamptidae (p. 202)[94]
- P5 a single plate; exopod and endopod not recognisable . . . . Cylindropsyllidae (p. 360)[95]
117 P4 endopod with 1 segment only; P2 endopod usually with 2 segments 118
- P4 endopod with more than 1 segment 124
118 P1 endopod elongate—about twice as long as entire exopod . . . . Pseudotachidiidae (p. 683)[96]
- P1 endopod not elongate—at most slightly longer than exopod 119
119 P1 endopod with 2 segments—much shorter than exopod, extending at most to the end of exopod-2 120
- P1 endopod 2–3 segments—extends to the end of exopod-3 at least 123
120 P2–P4 exopod-3 each with 5 setae and spines . . . . Canthocamptidae (p. 202)[97]
- P2–P4 exopod setation not as above 121
121 P2–P4 exopod-3 with 4, 5 and 5 setae and spines . . . . Cletodidae (p. 343)[98]
- P2–P3 exopod-3 each with 6 or 7 setae and spines. P4 exopod-3 with 5–8 setae and spines 122
122 Rostrum in dorsal view acutely pointed (Fig. 92). P2 endopod short—extending to the end of exopod-1 at most . . . . Argestidae (p. 193)[99]
- Rostrum in dorsal view broad, with a rounded apex set with a fringe of numerous short fine setules (Fig. 93). P2 endopod extends almost to the end of exopod-2 . . . . Huntemanniidae (p. 423)[100]
123 Antenna with basis (Fig. 7) . . . . Ameiridae (p. 136)[101]
- Antenna with allobasis (Fig. 8) . . . . Canthocamptidae (p. 202)[102]
124 P2 endopod with 2 segments. P4 endopod with 3 segments 126
- Segmentation of P2 and P4 not in this combination 128
125 P1 endopod with 3 segments . . . . Ameiridae (p. 136)[103]
- P1 endopod with 2 segments 126

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90. *Stygonitocrella*
91. *Paranannopus*
92. *Itunella, Lessinocamptus, Morariopsis, Parepactophanes*
93. *Pontopolites*
94. *Paramorariopsis*
95. *Bolbotelos, Boreovermis, Stenocaris*
96. *Donsiella*
97. *Epactophanes*
98. *Kollerua*
99. *Eurycletodes, Mesocletodes*
100. *Nannopus*
101. *Stygonitocrella*
102. *Antrocamptus*, *Attheyella*, *Australocamptus*, *Bryocamptus*, *Cletocamptus*, *Elaphoidella*, *Epactophanoides*, *Gulcamptus*, *Itunella*, *Pilocamptus*, *Lessinocamptus*, *Paracamptus*, *Parepactophanes*, *Spelaeocamptus*
103. *Interleptomesochra, Praeleptomsochra, Pseudoleptomesochra*

126 Body subpyriform in dorsal and ventral view. Cephalosome much broader than urosome . . . . Pseudotachidiidae (p. 683)[104]

- Body cylindrical 127

127 P2–P4 exopod-3 each with 3 or each with 4 setae and spines . . . . Miraciidae (p. 493)[105]

- P2–P4 exopod-3 with 6–7, 7–8 and 7–8 setae and spines respectively . . . . Parastenheliidae (p. 595)[106]

128 P2 endopod with 3 segments; P4 endopod with 2 segments 129

- ***Either***—P2 and P4 endopod each with 2 segments,
  Or—P2 and P4 endopod each with 3 segments 136

129 Antenna with basis (Fig. 7) or incomplete allobasis 130

- Antenna with allobasis (Fig. 8) 131

130 P1 endopod with 3 segments . . . . Ameiridae (p. 136)[107]

- P1 endopod with 2 segments . . . . Latiremidae (p. 475)

131 Antenna exopod with a vestigial segment and 1 seta . . . . Argestidae (p. 193)[108]

- Antenna exopod with at least 1 well developed segment 132

132 P2 exopod-3 with 6 setae and spines . . . . Canthocamptidae (p. 202)[109]

- P2 exopod-3 with less than or more than 6 setae and spines 133

133 P1 endopod-1 extends well beyond the end of exopod 134

- P1 endopod-1 extends to the end of exopod at most 135

134 P1 exopod-3 with 5 setae and spines . . . . Pseudotachidiidae (p. 683)[110]

- P1 exopod-3 with 4 setae and spines . . . . Miraciidae (p. 493)[111]

135 Antenna exopod with 3 segments. P1 endopod extends to end of exopod at most . . . . Pseudotachidiidae (p. 683)[112]

- Antenna exopod with 2 segments. P1 endopod extends beyond end of exopod . . Miraciidae (p. 493)[113]

- Antenna exopod with 1 segment. P1 endopod extends to end of exopod at most . Latiremidae (p. 475)

136 P2 and P4 endopod each with 2 segments 137

- P2 and P4 endopod each with 3 segments 171

137 Antenna with basis (Fig. 7) 138

- Antenna with allobasis (Fig. 8) 140

138 P2–P4 basis extremely transversely elongate (Fig. 89) . . . . Ameiridae (p. 136)[114]

- P2–P4 basis not extremely transversely elongate 139

139 Maxilliped (Fig. 94) prehensile; syncoxa with 3–4 setae, basis with 1 seta. The pair of female P5 often form a large brood pouch (Fig. 95) . . . . Tetragonicipitidae (p. 717)[115]

- Maxilliped subchelate, simple (Fig. 13); syncoxa with 1 seta at most, basis without setae or spines . . . . Ameiridae (p. 136)[116]

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104. *Dactylopodella*
105. *Psammotopa*
106. *Parastenhelia*
107. *Archinitocrella, Nitocrellopsis, Stenocopia*
108. *Bodinia*, *Dizahavia*, *Eurycletodes*, *Leptocletodes*, *Mesocletodes*
109. *Attheyella*, *Bryocamptus*, *Canthocamptus*, *Poria*
110. *Xylora*
111. *Pseudodiosaccus, Schizoperoides*
112. *Cylindronannopus, Parananopus*
113. *Schizopera*
114. *Malacopsyllus*
115. *Aigondiceps*, *Diagoniceps, Godianiceps, Laophontella, Odaginiceps, Paraschizopera, Phyllopodopsyllus, Pteropsyllus, Tetragoniceps*
116. *Abnitocrella, Leptomesochra, Nitocrella, Parevansula, Pseudoleptomesochrella*

140 P1 endopod-1 extends well beyond end of exopod 141
- P1 endopod-1 extends to end of exopod at most 147
141 Caudal ramus distinctive (Fig. 96)—lamellate with very short setae; P5 distinctive (Fig. 97)—with long narrow rami . . . . Laophontopsidae (p. 474)
- Caudal ramus and P5 not as above 142
142 Antenna exopod with 2 segments . . . . Pseudotachidiidae (p. 683)[117]
- Antenna exopod with 1 segment at most 143
143 P3–P4 (and usually P2 also) exopod-1 with an inner seta . . . . Cletopsyllidae (p. 357)
- P2–P4 exopod-1 without inner seta 144
144 P1 exopod-2 with an inner seta. P1 exopod-3 with 5 setae and spines . . . . Normanellidae (p. 573)
- P1 exopod-2 without inner seta. P1 exopod-3 with 4 setae and spines 145
145 Distal segment of P1 endopod with 3 well developed filiform setae. Commensal with crabs . . . . Canthocamptidae (p. 202)[118]
- Distal segment of P1 endopod with 2 well developed setae at most, 1 of which is either spiniform and claw-like or geniculate 146
146 Female antennule with 5 segments. Male antennule chirocerate (Fig. 6). P2–P4 exopod-3 each with 4 setae and spines . . . . Laophontidae (p. 430)[119]
- Female antennule with 6–7 segments. Male antennule haplocerate (Fig. 5); at least 1 of P2–P4 exopod-3 with more than 4 setae and spines . . . . Canthocamptidae (p. 202)[120]
147 P1 endopod-1 extends to about the end of exopod-1 148
- P1 endopod-1 extends well beyond the end of exopod-1 159
148 P1 exopod-3 with 5 setae and spines 149
- P1 exopod-3 with 3–4 setae and spines 150
149 P1 endopod extends almost to the end of exopod . . . . Argestidae (p. 193)[121]
- P1 endopod does not extend to the end of exopod-2 . . . . Huntemanniidae (p. 423)[122]
150 P1 endopod with 3 segments . . . . Canthocamptidae (p. 202)[123]
- P1 endopod with 2 segments 151
151 P2–P4 exopod-3 with 4, 5 and 4 setae and spines respectively. P5 of both sexes reduced to a small plate with exopod and endopod not distinguishable . . . . Darcythompsoniidae (p. 378)[124]
- These characteristics not combined 152
152 P2–P4 exopod-3 with 7, 8 and 8 setae and spines respectively . . . . Miraciidae (p. 493)[125]
- P2–P4 exopod-3 setation not as above 153
153 P2–P4 exopod-3 with 6, 7 and 6–7 setae and spines respectively 154
- P2–P4 exopod-3 setation not as above 155
154 Antenna exopod with 3 segments . . . . Miraciidae (p. 493)[126]
- Antenna exopod with 1 segment . . . . Canthocamptidae (p. 202)[127]

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117. *Oligoxylora*
118. *Pholetiscus*
119. *Apolethon*
120. *Mesochra*
121. *Eurycletodes*
122. *Metahuntemannia*
123. *Nannomesochra, Psammocamptus*
124. *Kristensenia*
125. *Onychostenhelia*
126. *Pseudostenhelia*
127. *Mesopsyllus*

155 P2–P4 exopod-3 with 5, 6 and 6 setae and spines respectively 156
- P2–P4 exopod-3 setation not as above 158
156 P2–P4 endopod-1 minute, broader than long, asetose. P2–P4 endopods extend to end of exopod-1 at most . . . . . Cletodidae (p. 343)[128]
- P2–P4 endopod-1 well developed, longer than broad and with 1 inner seta 157
157 P2–P3 endopods extend to about the end of exopod-2. P4 endopod does not extend to the end of exopod-1 . . . . . Canthocamptidae (p. 202)[129]
- P2–P3 endopods extend to about the end of exopod-3. P4 endopod extends to midway along exopod-3 . . . . . Miraciidae (p. 493)[130]
158 P2–P4 exopod-3 with 5, 5–6 and 4–5 setae and spines respectively . . . . . Canthocamptidae (p. 202)[131]
- P2–P4 exopod-3 with either 4, 4, and 4 or 4, 5 and 5 setae and spines respectively . . . . . Cletodidae (p. 343)[132]
159 P1 endopod with 3 segments 160
- P1 endopod with 2 segments 162
160 P1 exopod-2 with an inner seta . . . . . Canthocamptidae (p. 202)[133]
- P1 exopod-2 without inner seta 161
161 P5 exopod fused to basis . . . . . Pseudotachidiidae (p. 683)[134]
- P5 exopod not fused to basis . . . . . Canthocamptidae (p. 202)[135]
162 P1 exopod-3 with 3–4 setae and spines 163
- P1 exopod-3 with at least 5 setae and spines 164
163 P5 exopod distinct . . . . . Canthocamptidae (p. 202)[136]
- P5 a single plate, exopod and endopod not recognisable . . . . . Cylindropsyllidae (p. 360)[137]
164 P1 endopod extends to halfway along exopod-3 at most . . . . . Canthocamptidae (p. 202)[138]
- P1 endopod extends to about the end of exopod-3 at least 165
165 Body linear, relatively broad, with complex ornamentation of distal edge of somites (Fig. 98) . . . . . Cletodidae (p. 343)[139]
- Body not as Fig. 98 166
166 P1 endopod-1 extends beyond the end of exopod . . . . . Canthocamptidae (p. 202)[140]
- P1 endopod-1 extends to end of exopod at most 167
167 P3 endopod extends well beyond end of exopod . . . . . Canthocamptidae (p. 202)[141]
- P3 endopod extends to end of exopod at most, usually much shorter 168
168 P5 with exopod not fused to basis . . . . . Canthocamptidae (p. 202)[142]
- P5 with exopod fused to basis; exopod and endopod of P5 may or may not be recognisable 169

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128. *Nannopodella*
129. *Pusillargillus*
130. *Pseudostenhelia*
131. *Cletocamptus*
132. *Acrenhydrosoma, Cletodes, Dyacrenhydrosoma, Enhydrosoma, Limnocletodes, Paracrenhydrosoma, Schizacron, Sphingothrix, Spinapecruris, Stylicletodes, Triathrix*
133. *Antrocamptus, Attheyella, Bathycamptus, Canthocamptus Elaphoidella, Pilocamptus, Spelaeocamptus*
134. *Carolinicola*
135. *Attheyella, Bryocamptus, Heteropsyllus, Mesochra*
136. *Antarctobiotus, Elaphoidella, Moraria*
137. *Boreovermis, Cylindropsyllus, Selenopsyllus, Stenocaris, Stenocaropsis*
138. *Afrocamptus, Ceuthonectes, Dahlakia, Hemimesochra*
139. *Actinocletodes*
140. *Mesochra*
141. *Leimia*

169 Rostrum very large, triangular or quadrate in dorsal view. Antenna exopod with 6 setae . . . . Pseudotachidiidae (p. 683)[143]

\- Rostrum moderately sized. Antenna exopod with 2–3 setae 170

170 Anal operculum with 2 stout unguiform projections medially . . . . . Cletodidae (p. 343)[144]

\- Anal operculum smooth or slightly notched . . . . . Pseudotachidiidae (p. 683)[145]

171 P1 unmodified, not prehensile (Fig. 12). Antenna with basis. P1 exopod-3 with 5–6 setae and spines. P5 with exopod fused to basis, often without distinction between exopod and endopod portions . . . . . Tachidiidae (p. 701)[146]

\- These characteristics not combined 172

172 P1 as Fig. 99, with exopod-2 extremely elongate 173

\- P1 not as above 176

173 Antenna with basis (Fig. 7). Antenna exopod with 3 segments 174

\- Antenna with allobasis (Fig. 8) … 175 . . . . .

174 First segment of antennule with 1 seta. Male P5 with 2 setae on endopod and 6 on exopod . . . . . Rhynchothalestridae (p. 698)[147]

\- First segment of antennule without setae. Male P5 with 3 setae on endopod and 7 on exopod . . . . . Hamondiidae (p. 404)[148]

175 Antenna exopod with 3 segments . . . . . Miraciidae (p. 493)[149]

\- Antenna exopod with 2 segments . . . . . Thalestridae (p. 738)[150]

176 P1 exopod-3 with 4 setae and spines. P1 endopod segments with a total of 6 setae and spines. Antenna exopod with 3 segments . . . . . Thompsonulidae (p. 747)

\- These characteristics not combined 177

177 P1 endopod with 3 segments 178

\- P1 endopod with 2 segments 194

178 P4 endopod-2 with 2 setae on inner edge . . . . . Dactylopusiidae (p. 364)[151]

\- P4 endopod-2 with at most 1 seta on inner edge 179

179 P1 endopod-1 extends only to about the end of exopod-2 180

\- P1 endopod-1 extends at least to the middle of exopod-3 184

180 P1 exopod-2 only as long as broad 181

\- P1 exopod-2 longer than broad 182

181 Antenna exopod with 2–3 segments and a total of 4 setae, with 1 seta at most on segment 1. Inner side of male P1 basis with a chitinous projection in addition to a spine. Female with a pair of ovisacs . . . . . Miraciidae (p. 493)[152]

\- Antenna exopod with 3 segments and a total of 6 setae with 2 setae on segment 1. Male P1 basis not modified. Female with a single ovisac . . . . . Pseudotachidiidae (p. 683)[153]

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142. *Attheyella, Bryocamptus, Fibulacamptus, Gulcamptus, Lofflerella, Ophirion, Paracamptus, Paramorariopsis, Pilocamptus, Thermomesochra*
143. *Paranannopus, Pseudomesochra*
144. *Barbaracletodes*
145. *Carolinicola*
146. All genera except *Euterpina*
147. *Rhynchothalestris*
148. *Ambunguipes, Lucayostratiotes*
149. *Dactylopodamphiascopsis*
150. *Parathalestris, Phyllothalestris, Thalestris*
151. *Dactylopusia, Dactylopusioides, Paradactylopodia*
152. *Robertsonia*
153. *Pseudotachidius*

182 Maxilliped endopod distinct, well developed, longer than broad and with several setae and spines. Antenna exopod with 2–3 segments with a total of 4–5 setae. Inner side of male P1 basis with a chitinous projection in addition to a spine. Female with a pair of ovisacs . . . . Miraciidae (p. 493)[154]

\- Maxilliped endopod usually either small (as long as broad at most) or not distinct, setation restricted to a strong claw and possibly a small filiform seta. Antenna exopod with 1–2 segments and a total of 1–3 setae, rarely 4. Male P1 basis unmodified. Female with a single ovisac 183

183 P1 endopod-1 at most 1.5 times as long as broad and at most half as long as endopod segments 2 and 3 together. Inner spine of male P1 basis unmodified . . . . Argestidae (p. 193)[155]

\- P1 endopod-1 at least 1.5 times as long as broad and at least half as long as endopod segments 2 and 3 together. Inner spine of male P1 basis modified – broad, flattened, spatula-like (Fig. 100) . . . . Ameiridae (p. 136)[156]

184 Antenna exopod with 2–3 segments and a total of 6–7 setae, with 2 setae on segment 1 185

\- ***Either*—**Antenna exopod with 2–3 segments, with 1 seta on segment 1, ***Or*—**Antenna exopod with 1 segment 188

185 P1 exopod-2 without inner seta. P2 exopod-3 with 6 setae and spines . . . . Miraciidae (p. 493)[157]

\- P1 exopod-2 with an inner seta. P2 exopod-3 with 7 setae and spines 186

186 P2–P4 exopod-3 each with 7 setae and spines. P1 endopod-1 at least 6 times as long as endopod segments 2 and 3 together . . . . Protolatiremidae[158]

\- P2–P4 exopod-3 with 7, 8 and 7–8 setae and spines respectively. P1 endopod-1 at most 5 times as long as endopod segments 2 and 3 together 187

187 P1 endopod-1 at least 4 times as long as endopod segments 2 and 3 together; female P2 endopod-2 with 1 innerseta. Male P5 endopod with 3 setae and spines . . . . Dactylopusiidae (p. 365)[159]

\- P1 endopod-1 at most 4 times as long as endopod segments 2 and 3 together; female P2 endopod-2 with 2 inner setae. Male P5 endopod with 2 setae and spines . . . . Pseudotachidiidae (p. 683)[160]

188 P1 endopod-1 at least 5 times as long as broad 189

\- P1 endopod-1 at most 4.5 times as long as broad 191

189 Antenna exopod with 3 segments and a total of 4–6 setae and spines . . . . Miraciidae (p. 493)[161]

\- Antenna exopod with 1–2 segments and a total of 4 setae and spines at most 190

190 Maxilliped endopod distinct, well developed, longer than broad and usually with several setae and spines. Female with a pair of ovisacs . . . . Miraciidae (p. 493)[162]

\- Maxilliped endopod not distinct, setation often restricted to a single strong claw—possibly with 1 or more small filiform setae at its base. Female with a single ovisac . . . . Ameiridae (p. 136)[163]

191 P1 endopod-1 at most ¾ the length of endopod segments 2 and 3 together . . . . . Argestidae (p. 193)[164]

\- P1 endopod-1 at least as long as endopod segments 2 and 3 together 192

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154. *Haloschizopera, Paramphiascoides, Sinamphiascus, Teissierella*
155. *Argestigens, Neoargestes*
156. *Limameira, Parameiropsis, Parapsesudoleptomesochra, Promaeira, Pseudameira, Psyllocamptus, Sarsameira*
157. *Amphiascus*
158. Family monospecific; see p. 23.
159. *Paradactylopodia*
160. *Dactylopodella, Domnuia, Idomene, Pseudotachidius*
161. *Actopsyllus, Amonardia, Amphiascoides, Amphiascopsis, Amphiascus, Bulbamphiascus,Diosaccus, Metamphiascopsis, Rhyncholagena, Robertgurneya, Schizopera, Typhlamphiascus*
162. *Antiboreodiosaccus, Diosaccopsis, Diosaccus, Pseudamphiascopsis, Rhyncholagena, Schizopera*
163. *Ameira, Ameiropsis, Biameiropsis, Haifameira, Psammameira, Stenocopia*
164. *Argestes, Argestigens, Parargestes*

192 Maxilliped endopod distinct, well developed, longer than broad and with several setae and spines. Antenna exopod with 2–3 segments with a total of 4–5 setae. Inner side of male P1 basis with a chitinous projection in addition to a spine. Female with a pair of ovisacs . . . . Miraciidae (p. 493)[165]

- Maxilliped endopod either not distinct, or small (as long as broad at most) setation restricted to a single strong claw and possibly a small filiform seta. Antenna exopod with 1–2 segments with a total of 2–4 setae and spines. Male P1 basis unmodified. Female with a single ovisac 193

193 P1 exopod-3 with 4 setae and spines. Inner spine on male P1 basis unmodified . . Argestidae (p. 193)[166]

- P1 exopod-3 with 5 setae and spines. Inner spine on male P1 basis modified—broad, flattened, spatula-like (Fig. 100) . . . . Ameiridae (p. 136)[167]

194 P4 endopod-2 with 2 setae on inner edge 195

- P4 endopod-2 with at most 1 seta on inner edge 196

195 Female genital double-somite laterally inflated (Fig. 101). P1 endopod much shorter than exopod . . . . Rhynchothalestridae (p. 698)[168]

- Female genital double-somite not markedly inflated. P1 endopod at least as long as exopod . . . . Dactylopusiidae (p. 365)[169]

196 Antenna with basis (Fig. 7) or incomplete allobasis and with exopod of 1 segment 197

- ***Either***—Antenna with basis (Fig. 7) but the exopod has 2–3 segments,
Or—Antenna with complete allobasis (Fig. 8) 202

197 Female genital double-somite consists of 2 completely separate somites, without trace of fusion even on the ventral side 198

- Somites of the female genital double-somite always fused on ventral side at least 199

198 P5 with exopod distinct from basis. Male P6 a single ovate structure with strongly sclerotised margins and without setae (Fig. 102). Male P4 exopod not modified. Commensal with crabs. . . . . Cancrincolidae (p. 200)[170]

- P5 with exopod fused to basis. Male P6 a pair of small lappets, each with 2 setae. Male P4 exopod enlarged and lamellate (Fig. 103) . . . . Latiremidae (p. 475)

199 P1 endopod-1 long and slender—about 6 times as long as broad. Maxilliped (Fig. 104) very large, prominent in lateral view of whole animal, and with endopod distinct, well developed, much longer than broad . . . . Miraciidae (p. 493)[171]

- P1 endopod-1 relatively short, 2–3 times as long as broad at most. Maxilliped endopod either not distinct or small, as long as broad at most 200

200 P1 endopod-1 much shorter than endopod-2 and never extending to the end of exopod-2 . . . . Argestidae (p. 193)[172]

- P1 endopod-1 longer than endopod-2 and extending to at least the middle of exopod-3 201

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165. *Balucopsylla, Helmutkunzia, Miscegenus, Paramphiascella, Paramphiascopsis, Pararobertsonia, Pholenota, Robertsonia, Schizopera*
166. *Argestoides*
167. *Ameira, Ameiropsis, Ameiropsyllus, Filexilia, Glabramaeira, Nitocra, Parapseudoleptomesochra, Proameira, Pseudoameiropsis, Sarsameira, Sicameira*
168. *Peltthestris*
169. *Dactylopusia, Dactylopodopsis, Sewellia*
170. *Abscondicola*, *Antillesia*
171. *Protopsammotopa*
172. *Fultonia, Neoargestes, Odiliacletodes*

201 P5 exopod distinct from baseoendopod. Inner spine on male P1 basis modified, broad, flattened, spatula-like (Fig. 100). Male P4 exopod not modified . . . . Ameiridae (p. 136)[173]

\- P5 exopod fused with baseoendopod. Inner spine on male P1 basis unmodified Male P4 exopod enlarged and lamellate (Fig. 103) . . . . Latiremidae (p. 475)

202 Female genital double-somite consists of 2 completely separate somites, without trace of fusion even on the ventral side. Male P6 a single ovate structure with strongly sclerotised margins and without setae (Fig. 102). Commensal with crabs . . . . Cancrincolidae (p. 200)[174]

\- The somites of the female genital double-somite always fused on ventral side at least. Male P6 usually a pair of small lappets, each with 1 or more setae 203

203 P1 endopod elongate, slender, extending far beyond end of exopod. P1 endopod-1 at least 6 times as long as broad and 6 times as long as endopod-2 [8–12 times is frequent for both characters] 204

\- P1 endopod-1 at most 5 times as long as broad and rarely extending beyond end of exopod 206

204 P2–P4 without sexual dimorphism, endopods never extend to end of exopod-2, endopod-3 with only 1 seta. Inner spine of male P1 basis recurved. Inner edge of male P1 basis without chitinous projections in addition to a spine. Maxilliped endopod small; as long as broad at most . . . . Ameiridae (p. 136)[175]

\- Female P2–P4 endopods extend beyond end of exopod-2, endopod-3 with at least 3 setae. Male P2 or P3 endopod usually extensively modified. Male P4 endopod as female 205

205 Maxilliped endopod distinct, well developed, longer than broad. P2–P4 exopod-3 with 4, 4 and 4 or with 5, 5 and 4 setae and spines respectively. Male P1 basis with chitinous projections on its inner edge in addition to a spine . . . . Miraciidae (p. 493)[176]

\- Maxilliped endopod either not distinct or small; as long as broad at most. P2 exopod-3 usually, and P3–P4 exopod-3 always, with more than 5 setae and spines. Male P1 basis not modified. Male P5 exopod often divided into 3 segments . . . . Parastenheliidae (p. 595)

206 Antenna with basis (Fig. 7) . . . . Dactylopusiidae (p. 365)[177]

\- Antenna with allobasis (Fig. 8) 207

207 Antenna exopod with 3 segments 208

\- Antenna exopod with 2 segments 211

208 P1 endopod-1 extends beyond end of exopod . . . . Pseudotachidiidae (p. 683)[178]

\- P1 endopod-1 extends to end of exopod at most 209

209 P1 endopod-1 at most 3 times as long as endopod-2 . . . . Pseudotachidiidae (p. 683)[179]
. . . . *or* Dactylopusiidae (p. 365)[180]

\- P1 endopod-1 at least 4 times as long as broad 210

210 Maxilliped endopod distinct, well developed, longer than broad . . . . Miraciidae (p. 493)[181]

\- Maxilliped endopod either indistinct or small; as long as broad at most . Pseudotachidiidae (p. 683)[182]

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173. *Psyllocamptus, Parapseudoleptomesochra*
174. *Cancrincola*, *Neocancrincola*
175. *Psammoleptomesochra*
176. *Schizopera*
177. *Marionobiotus*
178. *Idomene, Pseudotachidius*
179. *Afrosenia, Anapophysia, Archisenia, Bathypsammis, Danielssenia, Fladenia, Jonesiella, Leptotachidia, Micropsammis, Mucrosenia, Paradanielssenia, Peltisenia, Prionos, Psammis, Pseudomesochra, Pseudotachidius, Sentiropsis, Telopsammis*
180. For *Paradactylopodia incerta* only. This species is difficult to distinguish from the Pseudotachidiid species in this couplet. It is included in the family Dactylopusiidae in these keys.
181. *Teissierella*
182. *Idomene*

211 P5 with exopod fused to basis 212
- P5 with exopod distinct from basis 213
212 Antenna exopod with 2 segments, with 2 setae on segment 1. Female with a single ovisac. Male P1 basis unmodified . . . . Pseudotachidiidae (p. 683)[183]
- Antenna exopod with either 1 segment or with 2 segments of which the first bears only 1 seta. Female with a pair of ovisacs. Inner edge of male P1 basis with chitinous projections in addition to a spine . . . . Miraciidae (p. 493)[184]
213 Maxilliped endopod distinct, well developed, longer than broad . . . . Miraciidae (p. 493)[185]
- Maxilliped endopod either not distinct or small; as long as broad at most 214
214 P1 exopod-3 with 4 setae and spines. P3 endopod-2 with 2 inner setae . . . . Thalestridae (p. 738)[186]
- P1 exopod-3 with 5 setae and spines. P3 endopod-2 with 1 inner seta . . . . . . Pseudotachidiidae (p. 683)

183. *Pseudomesochra*
184. *Diosaccus, Schizopera*
185. *Cladorostrata*, *Diosaccus, Goffinella, Ialysus, Parialysus, Psammotopa, Pseudodiosaccopsis, Schizopera, Teissierella, Tydemanella*
186. *Eudactylopus, Neodactylopus*

Family Adenopleurellidae

KG 0 – characters

1. P1 endopod
   n - number of segments

2. P1 endopod
   long - longer than Exp
   short - shorter than Exp

3. P2–P4 Exp-3
   n:n:n - number of setae and spines on in P2, P3 and P4

4. P5
   wd - endopod and exopod well developed (although they may be fused together)
   vestigial - P5 reduced to small swelling of the segment edge

KG 0

P1 Enp segs	P1 Enp setae	P2–P4 Exp-3	P5	
2	long	6:7:7	wd	*Proceropes secunda*
2	short	6:7:7	wd	*Sarsocletodes typicus*
1	short	5:6:6	wd	*Miroslavia longicaudata*
1	short	5:6:6	wd	*Adenopleurella brevipes*

Family Aegisthidae

KG 0 – characters

1. Caudal rami, length relative to body length (from apex of rostrum to base of caudal rami)

≥5	- at least 5 times as long as entire body
≥2	- at least twice as long as entire body
M+U	- at least as long as combined length of metasome and urosome; at most 1.5 times as long as entire body
Uro	- about as long as urosome
Abd	- about as long as abdomen
Abd 2–5	- about as long as combined length of abdomen somites 2–5
Abd 3–5	- about as long as combined length of abdomen somites 3–5
Abd 4–5	- about as long as combined length of abdomen somites 4–5
≤Abd 2	- at most as long as abdomen somite 5

2. Antenna exopod

wd	- with 4 (occasionally 3?) well developed segments
reduced	- only 1 well developed segment; there may also be 1–2 very small or vestigial distal segments
absent	- exopod entirely absent

3. P1–P4 exopod
   n:n:n:n - number of segments in P1, P2, P3 and P4

4. P1–P4 endopod
   n:n:n:n - number of segments in P1, P2, P3 and P4

5. P1, exopod and endopod, distal (or only) segment
   n:n - number of setae and spines on exopod and endopod

KG 0

CR length/ body	A2 Exp	P1–P4 Exp segs	P1–P4 Enp segs	P1 Exp & Enp distal seg setae	
≥5	reduced	3:3:3:3	3:3:3:3	5:5	*Aegisthus mucronatus*
≥2	reduced	3:3:3:3	3:3:3:3	5:5	KG 1 (p. 126)
≥2	reduced	3:3:3:3	2:3:3:3	5:6	*Nudivorax todai*
M+U	reduced	3:3:3:3	3:3:3:3	5:5	*Andromastax cephaloceratus*
M+U	reduced	3:3:3:3	2:3:3:3	5:6	KG 2 (p. 127)
M+U	reduced	2:3:3:3	2:3:3:3	7:6	*Andromastax muricatus* female[1]
M+U	wd	3:3:3:3	3:3:3:3	6:5	KG 3 (p. 127)
M+U	wd	3:3:3:3	3:3:3:3	5:5	*Pontostratiotes horrida*
Uro	absent	3:3:3:3	3:3:3:3	6:5	*Tonpostratiotes tenuipedalis*
Uro	wd	3:3:3:3	3:3:3:3	6:4	*Cerviniopsis acutirostris*
Uro	wd	3:3:3:3	3:3:3:3	5:4	KG 4 (p. 131)
Abd	wd	3:3:3:3	3:3:3:3	6:5	*Stratiopontotes mediterraneus*
Abd	wd	3:3:3:3	3:3:3:3	6:3	*Eucanuella longirostrata*

Abd	wd	3:3:3:3	3:3:3:3	5:5	*Cervinia plumosa*
Abd	wd	3:3:3:3	3:3:3:3	5:4	*Cerviniopsis minutiseta*
Abd 2–5	wd	3:3:3:3	3:3:3:3	6:5	KG 5 (p. 131)
Abd 2–5	wd	3:3:3:3	3:3:3:3	5:4	KG 6 (p. 132)
Abd 3–5	wd	3:3:3:3	3:3:3:3	6:5	KG 7 (p. 132)
Abd 3–5	wd	3:3:3:3	3:3:3:3	6:4	*Cerviniopsis curviseta*
Abd 3–5	wd	3:3:3:3	3:3:3:3	6:3	*Eucanuella reticulata*
Abd 3–5	wd	3:3:3:3	3:3:3:3	5:4	KG 8 (p. 133)
Abd 3–5	wd	3:3:3:3	3:2:2:2	6:5	*Cervinia* sp. Huys, Møbjerg & Kristensen, 1997
Abd 3–5	wd	3:3:3:3	2:3:3:3	6:5	*Hemicervinia stylifera*[2]
Abd 3–5	wd	3:3:3:3	2:2:2:2	6:6	*Cervinia magna* female[3]
Abd 3–5	wd	1:1:1:1	2:2:2:1	8:4	*Cerviniella bodini*
Abd 4–5	wd	3:3:3:3	3:3:3:3	6:5	KG 9 (p. 133)
Abd 4–5	wd	3:3:3:3	3:2:2:2	6:5	KG 10 (p. 134)
Abd 4–5	wd	3:3:3:3	3:2:2:2	5:5	*Cervinia synarthra* [*sensu* Por 1967]
Abd 4–5	wd	1:1:1:2(3?)	1:1(2?):1:0	9:6	*Cerviniella lagarderei*
Abd 4–5	wd	1:1:1:1	1:2:1:1	7:3	*C. hamata*
Abd 4–5	wd	1:1:1:1	1:2:2:0	9:6	*C. talpa*
Abd 4–5	wd	1:1:1:1	1:2:2:0	9:3	*C. mirabilipes*
Abd 4–5	wd	1:1:1:1	1:1:1:1	10:6	*C. peruana*
=Abd 2	wd	3:3:3:3	3:3:3:3	6:5	KG 11 (p. 134)
=Abd 2	wd	3:3:3:3	3:3:3:3	6:3	*Eucanuella spinifera*
=Abd 2	wd	1:1:1:1	1:2:2:0	10:7	*Cerviniella langi*
=Abd 2	wd	1:1:1:1	1:1:1:1	9:6	*C. brodskayae*

1. See KG 2 (p. 127) for the male.
2. Data from Huys, Gee, Moore & Hamond (1996).
3. See KG 7/1 (p. 132) for the male.

KG 1 – characters

1. Cephalic shield ornamentation
    - ret - intricate reticulate pattern of chitinous lamellae
    - not - without such patterning

2. Maxilliped
    - n:n:n - number of setae on segments 1–3

3. Female P6, number of setae
    - 2 - 2 short setae
    - 1 - 1 long seta+ 1 vestigial seta (or spinule?)

KG 1

Cephalic shield	Maxilliped setae	Female P6 setae	
ret	0:5:3	1	*Aegisthus aculeatus*
not	0:7:3	2	*A. spinulosus*[1]

1. Male unknown.

KG 2 – characters

1. Body ornamentation

spinose - dorsal posterior edge of thorax somites 2–5 and abdomen somites 1–2 with 2 spiniform projections; hyaline frill weakly dentate

dentate - without prominent spiniform projections; hyaline frill strongly, but irregularly, dentate

2. Antenna endopod, length relative to allobasis

long - distinctly longer than allobasis

equal - about as long as allobasis

short - distinctly shorter than allobasis

3. Maxilliped

A - with 5 setae on the basal segment(s); terminal segment with 4 well developed setae

B - female with 6 setae (male with 1) on the basal segment(s); terminal segment with 4 well developed setae

C - with 6 setae on the basal segment(s); terminal segment with 3 well developed setae and 1 vestigial seta

KG 2

Body	A2 Enp	Maxilliped setae	
spinose	equal	A	*Andromastax muricatus* male[1]
spinose	short	C	*Jamstecia tarazakii*
dentate	long[1]	B	*Scabrantenna yooi*[2]

1. See KG 0 (p. 125) for female.
2. Antenna endopod of the male also is distinctive in having the inner edge set with a row of strong spinules.

KG 3 – characters

The form of the spiniform outgrowths and other ornamentation often strikingly differentiates the species of *Pontostratiotes.* These keys take this into account but as the differences are not easy to describe verbally, any identification should be checked against a good description. Dinet (1978) provides an excellent key to the species known at that time.

1. Cephalic shield, posterior corners

spiniform - with long lateral spiniform expansion

not - not expanded as above

2. Thoracic somite 4, epimera

long - expanded posteriorly as a long unguiform projection, usually extending to posterior edge of segment 5

short - unguiform expansion short or absent

3. Antennule, segment 1, external distal corner

unguiform - with a prominent unguiform projection

not - projection a small knob at most

4. Antennule, segment 1, inner edge
- A - plain, simple, without prominent bulges or excresences (may be clothed with setules)
- B - with many small tubercles
- C - with 1 multidentate excresence
- D - with 1 multidentate excresence and a small bulge or plain spur distal (usually) to this
- E - with 2 multidentate excresences
- F - with 1 recurved hook-shaped spur
- G - with a proximal recurved hook-shaped spur and a distal plain spur

KG 3

Cph post corner	Thor 4 epimera	A1 seg 1 ext distal corner	A1 seg 1 inner edge	
spiniform	long	not	E	*Pontostratiotes gladius*
not	short	not	A	*P. robustus*
not	short	not	E	*P. abyssicola*
not	long	unguiform	A	*P. sixtorum*
not	long	not	A	KG 3/1
not	long	not	B	*Pontostratiotes alatus*
not	long	not	C	KG 3/2 (p. 129)
not	long	not	D	KG 3/3 (p. 129)
not	long	not	E	KG 3/4 (p. 130)
not	long	not	F	*Pontostratiotes pubescens*
not	long	not	G	*P. inermis*

KG 3/1 – characters

1. Rostrum
   - bifid - bifid apex; extremely small, not extending beyond labrum
   - rod - rod-shaped, pointed; prominent, extending at least to edge of labrum

2. Cephalic shield and thoracic somites 2–4
   - wide - retinacula (granular lateral extensions) wide and prominent
   - narrow - retinacula very narrow or absent

3. Thoracic somites 2–4, dorsal spiniform projections (medial to the large lateral projections)
   - short - extend less than half the length of the succeeding somite
   - long - extend more than half the length of the succeeding somite

4. Thoracic somites 2–4, dorsal spiniform projections (medial to the large lateral projections)
   - n:n:n - number on somites 2, 3 and 4
   - n:n:n - number on somites 2, 3 and 4

KG 3/1

Rostrum	Cph/ Thor 2–4	Thorax 2–4	Thorax 2–4	
bifid	narrow	short	6:4:4	*Pontostratiotes pacificus* female
bifid	narrow	short	6:6:2	*P. pacificus* male
rod	wide	long	2:2:2	*Pontostratiotes* sp. Por, 1969b male[1]

1. Female unknown.

KG 3/2 – characters

1. Thoracic somites 2–4, lateral expansions
   dentate - outer edge multidentate
   smooth - outer edge smooth or with just 1 or 2 teeth

2. Cephalic shield, medial “horns” at posterior edge
   short - reaching only to thoracic somite 2
   medium - reaching to thoracic somite 3
   long - reaching to thoracic somite 4 at least

3. Antenna Exp-1
   n - number of setae

4. Antenna allobasis (or basis+Enp-1)*
   n - number of setae

* Note that in the excellent description by Itô (1982) the antenna has an allobasis while most other authors illustrate it with a basis and 2-segmented endopod. The high quality of Itô’s descriptions (compared to those of the other authors) make it most likely that all species possess an allobasis.

KG 3/2

Thor 2–4	Cph medial horns	A2 Exp1 setae	A2 allobasis setae	
dentate	long	2	1	*Pontostratiotes scotti*
dentate	short	2	2	*P. microserrulatus*
smooth	short	1	2	*P. unisetosus*
smooth	short	2	2	*P. minor*
smooth	medium	?	?	*P. lubricus*

KG 3/3 – characters

1. Thoracic somites 2–4, lateral expansions
   alate - wing-shaped; anterior part broad and rounded, tapering to a posterior point
   not - not alate; anterior part not markedly broadened

2. Thoracic somites 2–4, lateral expansions
   dentate - outer edge multidentate
   smooth - outer edge smooth or with just 1 or 2 teeth

3. Thoracic somites 2–4, ornamentation of distal edge
   A - Thor 2 with 6, Thor 3 and Thor 4 with 5 large teeth; no other ornamentation
   B - each of Thor 2–4 with 2 large teeth; no other ornamentation
   C - each of Thor 2–4 with 4 large teeth and with a large number of minute teeth between them
   D - each of Thor 2–4 with a middorsal row of 4–5 moderate sized teeth flanked by many smaller teeth
   E - Thor 2 and Thor 3 with 4 large teeth and no other ornamentation; Thor 4 with a large number of very small teeth; without large teeth
   F - Thor 2–4 without large teeth but with many small denticles

4. Cephalic shield, medial "horns" at posterior edge
short - reaching only to thoracic somite 2
medium - reaching to thoracic somite 3
long - reaching to thoracic somite 4 at least

KG 3/3

Thor 2–4 lateral expansion	Thor 2–4 lateral expansion	Thor 2–4 distal edge	Cph medial horns	
alate	dentate	D	medium	*Pontostratiotes acanthoferens*
not[1]	dentate	C	short	*P. peruanus*
not	dentate	E	long	*P. denticulatus*
not	dentate	F	medium	*P. pori*
not	smooth	B	medium	*P. glaber*
not	smooth	A	medium	*P. uxoris*

KG 3/4 – characters

1. Cephalic shield, medial "horns" at posterior edge
short - reaching only to thoracic somite 2
medium - reaching to thoracic somite 3
long - reaching to thoracic somite 4 at least

2. Thoracic somites 2–4, lateral expansions
dentate - outer edge multidentate
smooth - outer edge smooth or with just 1 or 2 teeth

3. Thoracic somites 2–4, lateral expansions
long - elongate; those of Thor 4 extending back to urosomite 5 at least
short - those of Thor 4 extending back to urosomite 3 at most

4. Antennule, segment 1
n - ratio of maximum length to breadth (excluding any excresences)

5. P1 Enp-1, length relative to exopod
1 - Enp-1 extends only as far as end of Exp-1
2 - Enp-1 extends beyond Exp-1 but not beyond end of Exp-2
3 - Enp-1 extends beyond Exp-2

6. P2 endopod, length relative to exopod
short - endopod extends approximately to end of exopod
long - endopod undoubtedly extends beyond the end of exopod

KG 3/4

Cph medial horns	Thor 2–4 lateral expansions	Thor 2–4 lateral expansions	A1 seg 1 l/b	P1 Enp-1/ Exp	P2 Enp/ Exp	
long	dentate	long	≤4	3	short	*Pontostratiotes cecilae*
long	dentate	long	≥5	1	short	*P. vasconiensis*
long	dentate	short	≤4	2	short	*P. vivierae*
long	dentate	short	≤4	2	long	*P. vitelloi*
long	smooth	short	≤4	3	long	*P. barnetti*
short	smooth	short	≤4	3	long	*P. fontani*

KG 4 – characters

1. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-3
   n:n:n - number of setae and spines on P2, P3 and P4

3. P4 Enp-2, inner edge
   n - number of setae

KG 4

P2–P4 Exp-3 setae	P2–P4 Enp-3 setae	P4 Enp-2 inner setae	
7:7:7	5:6:5	2	*Cerviniopsis muranoi*
7:7:7	5:6:4	2	*C. stylicaudata*
6:6:6	5:6:4	2	*C. obtusirostris*
6:6:6	5:6:5	1	*Expansicervinia glacieria*

KG 5 – characters

1. Female P2–P4 basis, inner edge
   unguiform - with a prominent unguiform process at distal corner (large in P2–P3, reduced in P4)
   rounded - inner edge and distal corner rounded and set with long setules; without an unguiform process
2. Female P5
   P+E - consists of distinct protopod (with 1 outer seta) and 1-segmented exopod (with 2 setae)
   fused - consists of a single element, with 3 setae

KG 5

Female P2–P4 basis	Female P5	
unguiform	P+E	*Expansicervinia tenuiseta*[1]
rounded	fused	*Cervinia tenuicauda*[1]

1. Male unknown.

KG 6 – characters

1. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-3
   n:n:n - number of setae and spines on P2, P3 and P4

KG 6

P2–P4 Exp-3 setae	P2–P4 Enp-3 setae	
5:7:7:7	4:5:6:5	*Cerniniopsis smirnovi*
5:7:7:7	4:5:6:4	*C. gorbunovi*
5:6:6:5	4:5:4:3	*C. langi*

KG 7 – characters

1. Body ornamentation
   complex - posterior edge of all somites, except the cephalic shield and the last somite, irregularly and coarsely dentate; thoracic somites with prominent unguiform epimera
   simple - posterior edge of somites not, or only slightly denticulate; epimera not markedly unguiform

2. P4 Exp-3
   n - number of setae and spines

3. P4 Enp-2, inner edge
   n - number of setae

4. Antenna exopod
   n:n:n:n - number of setae on segments 1–4

KG 7

Body	P4 Exp-3 setae	P4 Enp-2 inner setae	A2 Exp setae	
complex	7	2	2:1:1:2	*Eucanuella langi*
simple	7	2	2:1:1:3	KG 7/1
simple	7	2	1:1:1:2	*Ameliotes malagassicus*
simple	6	1	1:1:1:2	*Herdmaniopsis abyssicola*

KG 7/1 – characters

1. Female antennule
   n - number of segments
   na - not applicable

2. Mandible basis
   n - number of setae
   (v = seta vestigial)

3. P2–P4 Enp-1
n - ratio of maximum length to maximum breadth

4. P2–P4 Enp-3
n - ratio of maximum length to maximum breadth

KG 7/1

Female A1 segs	Mandible basis setae	P2–P4 Enp-1 l/b	P2–P4 Enp-3 l/b	
7	1	≈1	≈2	*Cervinia unisetosa*[1]
6	3+1v	≈2	2–3	*C. itoi*[1]
na	4	≈1	≈1	*C. magna* male[1, 2]

1. Caution: Comparison between the species in this key is made very difficult by the males being as yet unknown in *Cervinia unisetosa* and *C. itoi.*
2. See KG 0 (p. 125) for the female.

KG 8 – characters

1. Caudal ramus, origin of proximal seta on outer edge
prox - in the proximal half
distal - in the distal half
middle - almost exactly in the middle

2. Female P5 exopod
n - ratio of maximum length to breadth

3. P2–P3 Enp-1, inner distal corner
massive - a large unguiform projection; extending at least ⅓ the length of Enp-2
small - a small spiniform projection; barely reaching Enp-2

4. P2–P4 Enp-2, outer distal corner
massive - a large unguiform projection; reaching to between ¼ and ½ the length of Enp-3
small - a small spiniform projection; barely reaching ? the length of Enp-3

KG 8

CR prox outer seta	Female P5 l/b	P2–P3 inner distal corner	P2–P4 outer distal corner	
prox	4	small	massive	*Cerviniopsis clavicornis*
middle	5	small	massive	*C. inermis*
middle	6	small	massive	*C. intermedia*
distal	4	massive	small	*C. longicaudata*

KG 9 – characters

1. Male P5
P+E - a distinct protopod (1 outer seta) and 1-segmented exopod (3 setae)
fused - consists of a single element, with 3 setae

2. P2–P3 Enp-1

strong - inner edge with a relatively short, but very stout, curved spine; inner distal corner of P2 Enp-1 produced as a stout unguiform projection that extends halfway along Enp-2

weak - inner edge with a very long, stout, plumose seta that extends well beyond the end of Enp-2; inner distal corner of P2 Enp1 spiniform but without a massive unguiform projection

KG 9

Male P5	P2–P3 Enp-1	
P+E	strong	*Cervinia bradyi* male[1]
fused	strong	*C. bradyi* male [*sensu* Por1964a][1]
P+E	weak	*C. mediocauda* male[1]

1. For females of *Cervinia bradyi* see KG 11; for *C. mediocauda* see KG 10.

KG 10 – characters

1. Female P2–P4 Enp-2

n:n:n - total number of setae and spines on P2, P3 and P4

2. Female P2–P4 Enp-2, inner setae

wd - well developed

red - at least the most proximal seta very reduced

3. Female caudal ramus, proximal seta of outer edge

long - reaching the end of the ramus

short - barely reaching halfway along the outer edge

4. Female caudal ramus

n - ratio of maximum length to maximum breadth

KG 10

Female P2–P4 Enp-2 total setae	Female P2–P4 Enp-2 prox inner seta	Female CR outer seta	Female CR l/b	
7:8:7	red	short	≈7.5	*Cervinia langi*
6:8:7	red	short	≈8	*C. philippinensis*
6:7:6	wd	short	≈7.5	*C. synarthra*
6:7:6	wd	short	≈5.8	*C. mediocauda* female[1]
6:7:6	wd	long	≈7	*C. pilosa*

1. See KG 9 (p. 133) for the male. The male is unknown for the other species in this key.

KG 11 – characters

1. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

2. P2–P3 Enp

strong - inner edge of Enp-1 with a relatively short, but very stout, curvedspine; inner distal corner of P2 Enp-1 produced as a stout unguiform projection that extends halfway along Enp-2; inner setae of Enp-2 and Enp-3 much shorter than the entire endopod.

weak - inner edge of Enp-1 with a very long, stout, plumose seta that extends well beyond the end of Enp-2; inner distal corner of P2 Enp1 spiniform but without a massive unguiform projection; inner setae of all endopod segments very long—longer than the entire endopod.

3. P1 exopod, length relative to endopod

long - exopod longer than endopod; endopod extends only to the end of Exp-2

short - exopod about as long as endopod

4. P1 Exp-1

long - at least twice as long as broad

short - at most 1.5 times as long as broad

KG 11

CR l/b	P2–P3 Enp	P1 Exp	P1 Exp-1	
≈3	strong	short	short	*Cervinia bradyi* female[1]
≈2	weak	long	long	*Paracerviniella denticulata* male[2]

1. Data from Sars (1910). Por (1964a) states that the female of his material is identical with that described by Sars. See KG 9 (p. 133) for the male.
2. Female unknown.

Family Ameiridae

KG 0 – characters

1. P1
   n:n - number of segments in exopod and endopod

2. P2–P4 endopod
   n:n:n - number of segments in P2, P3 and P4

3. P2–P4 exopod, outer edge of distal segment
   n:n:n - number of setae and spines on P2, P3 and P4

4. P1 exopod, distal segment
   n - number of setae and spines

5. P1 Exp-2, inner edge
   n - number of setae
   na - not applicable (P1 exopod is less than 3 segments)

KG 0

P1 segs	P2–P4 Enp segs	P2–P4 Exp distal seg outer setae	P1 Exp distal seg setae	P1 Exp-2 inner setae	
3:3	3:3:3	3:3:3	6	1	*Stenocopia longicaudata pontica*[1]
3:3	3:3:3	3:3:3	5	1	KG 1 (p. 137)
3:3	3:3:3	3:3:3	5	0	KG 2 (p. 149)
3:3	3:3:3	3:3:3	4	1	KG 3 (p. 162)
3:3	3:3:3	3:3:2	4	0	*Parapseudoleptomesochra dubia*
3:3	3:3:3	3:2:2	5	1	*P. tureei*
3:3	3:3:3	3:2:2	5	0	KG 4 (p. 162)
3:3	3:3:3	2:2:2	5	1	KG 5 (p. 163)
3:3	3:3:3	2:2:2	5	0	KG 6 (p. 164)
3:3	3:3:3	2:2:2	4	1	KG 7 (p. 165)
3:3	3:3:2	3:3:3	5	1	*Stenocopia reducta*
3:3	3:3:2	2:2:2	5	1	KG 8 (p. 166)
3:3	3:3:2	2:2:2	4	1	KG 9 (p. 166)
3:3	3:2:2	2:2:2	5	1	*Archinitocrella newmanensis*
3:3	2:3:3	3:3:3	5	0	KG 10 (p. 167)
3:3	2:3:3	2:2:2	4	1	*Praeleptomesochra phreatica*
3:3	2:2:3	3:3:3	5	0	KG 11 (p. 167)
3:3	2:2:3	2:3:2	5	0	*Pseudoleptomesochra typica*
3:3	2:2:2	3:3:3	5	1	*Malacopsyllus hades*
3:3	2:2:2	3:3:3	4	0	*Leptomesochra hirsuta*
3:3	2:2:2	3:2:2	5	1	*Hirtaleptomesochra bispinosa*
3:3	2:2:2	3:2:2	5	0	KG 12 (p. 168)
3:3	2:2:2	2:2:2	5	1	KG 13 (p. 169)

3:3	2:2:2	2:2:2	5	0	KG 14 (p. 169)
3:3	2:2:2	2:2:2	4	1	KG 15 (p. 169)
3:3	2:2:2	2:2:2	4	0	KG 16 (p. 172)
3:3	2:2:2	1:1:2	4	0	*Pseudoleptomesochrella incerta*
3:3	2:2:1	2:2:2	4	1	KG 17 (p. 175)
3:3	2:2:1	2:2:2	4	0	KG 18 (p. 176)
3:3	2:2:1	2:2:2	4	?	*Stygonitocrella* (*Stygonitocrella*) *colchica*
3:3	2:2:1	2:1:1	4	1	*S.* (*S.*) *sequoyahi*
3:3	2:2:0–1	1:1:1	4	1	*Psammonitocrella boultoni*
3:3	2:1:1	2:2:2	4	1	KG 19 (p. 176)
3:3	1:1:1	2:2:2	5	0	*Stygonitocrella* (*Fiersiella*) *mexicana*
3:3	1:1:1	2:2:2	4	1	*S.* (*Stygonitocrella*) *dubia*
3:3	1:1:1	2:2:2	4	0	KG 20 (p. 176)
3:3	1:1:1	2:2:2	4	?	*Stygonitocrella* (*F.*) *orghidani*
3:3	1:1:0[2]	2:2:2	4	0	*Neonitocrella insularis*[2]
3:3	1:1:0	1:1:1	4	1	*Psammonitocrella longifurcata*
3:2	3:3:3	3:3:3	5	1	*Psyllocamptus* (*Psyllocamptus*) *propinquus*
3:2	3:3:3	3:3:3	5	0	KG 21 (p. 177)
3:2	3:3:3	3:3:2	5	0	*Psyllocamptus* (*P.*) *fuegiensis*
3:2	3:3:3	3:2:2	5	0	KG 22 (p. 178)
3:2	3:3:3	2:2:2	5	0	*Psyllocamptus* (*P.*) *carolinensis*
3:2	3:3:3	2:2:2	4	0	*Psammoleptomesochra australis*
3:2	3:3:3	1:1:1	4	0	*Raoleptomesochra reducta*
3:2	2:2:3	3:3:3	4	0	*Interleptomesochra reducta*
3:2	2:2:3	3:3:2	4	0	*I. attenuata*
3:2	2:2:2	3:3:3	4	1	*Malacopsyllus fragilis*
3:2	2:2:2	3:3:3	4	0	KG 23 (p. 179)
3:2	2:2:2	3:2:2	4	0	*Leptomesochra macintoshi*
3:2	2:2:2	2:2:2	4	0	KG 24 (p. 179)
3:2	2:2:2	1:1:2	4	0	*Parevansula elegans*
2:2	3:3:3	1:1:1	4	na	KG 25 (p. 180)
2:2	2:2:2	3:3:3	6	na	*Malacopsyllus hirsutus*
1:1	1:1:1	3:3:3	7	na	*Anoplosoma stryx*
1:1	1:1:1	3:3:2–3	6	na	*A. sordidum*

1. Griga (1962) illustrates P1 Exp-3 with 6 setae in the female and 5 in the male. The female condition probably is an error; it is not confirmed in the text as would be expected for a character unique in the family. See also KG 1/1 (p. 138).
2. P4 endopod is an asetose vestigial stump.

KG 1 – characters

1. Antennule segment 1
   - long - elongate; at least 3 times as long as broad
   - short - short; not more than twice as long as broad

2. P2–P4 Exp-1, inner edge
   - n:n:n - number of setae on P2, P3 and P4

3. P2–P4 Exp-2, inner edge
   - n:n:n - number of setae on P2, P3 and P4

4. P2–P4 Enp-3

n:n:n - number of setae on P2, P3 and P4

5. Antenna exopod

n - number of segments

KG 1

A1 seg1	P2–P4 Exp-1 inner setae	P2–P4 Exp-2 inner setae	P2–P4 Enp-3 setae	A2 Exp segs	
long	1:1:1	1:1:1	5:6:5	2	KG 1/1 (p. 138)
long	1:1:1	1:1:1	5:5:5	2	*Stenocopia limicola*
long	0:0:0	1:1:1	5:5:5	1	*S. setosa*
long	?:?:0	?:?:1	?:?:3	2	*S. antarctica*
short	1:1:1	1:1:1	5:6:5	2	KG 1/2 (p. 139)
short	1:1:1	1:1:1	5:6:5	1	KG 1/3 (p. 140)
short	1:1:1	1:1:1	5:5:5	1	KG 1/4 (p. 141)
short	1:1:1	1:1:1	4:5:5	2	KG 1/5 (p. 141)
short	1:1:1	1:1:1	4:4:5	2	*Sarsameira minor*
short	1:1:1	1:1:1	4:4:4	2	*S. elegantula*
short	?	?	?	2	*S. tenuipes*
short	1:1:0	1:1:1	5:6:5	1	*Parameiropsis rapiens*
short	1:0:1	1:1:1	5:6:5	1	*Biameiropsis barrowi*
short	0:1:1	0:1:1	4:4:4	2	*Nitocra baltica*
short	0:0:0	1:1:1	5:6:5	2	*Ameiropsis angulifera*
short	0:0:0	1:1:1	5:5:5	1	*Biameiropsis abbreviata*
short	0:0:0	1:1:1	5:4:5	1	*Nitocra mediterranea pontica*
short	0:0:0	1:1:1	4:5:5	1	KG 1/6 (p. 142)
short	0:0:0	1:1:1	4:4:5	1	KG 1/7 (p. 145)
short	0:0:0	1:1:1	4:4:4	1	KG 1/8 (p. 145)
short	0:0:0	1:1:1	3:5:5	1	KG 1/9 (p. 146)
short	0:0:0	1:1:1	3:4:4	2	*Pseudoameiropsis argentinus*
short	0:0:0	1:1:1	3:4:4	1	KG 1/10 (p. 147)
short	0:0:0	1:1:1	3:3:3	1	KG 1/11 (p. 148)
short	0:0:0	1:1:1	2:3:3	1	KG 1/12 (p. 148)
short	0:0:0	1:1:0	4:5:5	1	*Nitocra laingensis*
short	0:0:0	1:0:1	4:5:4	1	*N. hyperidis*
short	0:0:0	0:1:1	4:5:5	1	KG 1/13 (p. 149)
short	0:0:0	0:1:1	4:4:4	1	*Nitocra baltica*
short	0:0:0	0:0:0	3:3:3	2	*Psyllocamptus* (*Langpsyllocamptus*) *quinquespinosus*
short	0:0:0	0:0:0	3:3:3	1–2	*P.* (*L.*) *longisetosus*
short	?:0:?	?:1:?	?:5:?	1	*Nitocra pusilla*
short	?:?:0	?:?:1	?:?:5	1	*N. dubia*

KG 1/1 – characters

1. Cephalosome

frill - epimeral plates expanded laterally to provide a broad hyaline frill

simple - without a hyaline frill

2. P4 Exp-3
n - number of setae and spines

3. P4 Exp-3, proximal inner seta
long - well developed and very long, almost twice the length of Exp-3
short - thin and weak, short, extending about the end of Exp-3

4. Female P5
n:n - number of setae on endopod and exopod

5. Male P5
n:n - number of setae on endopod and exopod

KG 1/1

Cephalosome	P4 Exp-3 setae	P4 Exp-3 proximal inner seta	Female P5	Male P5	
simple	8	long	5:5	3:6	*Stenocopia longicaudata* s. str.
simple	8	long	4:5	3:6	*S. longicaudata pontica*
simple	8	short	5:5	3:5	*S. sarsi*
simple	7	short	5:5	3:5	*S. longiseta*
frill	8	long	5:5	3:4	*S. spinosa*

KG 1/2 – characters

1. Mandible exopod
absent - absent or vestigial
wd - well developed

2. P1 Enp-1
elongate - extends well beyond the end of exopod; much longer than combined length of Enp-2 and Enp-3
long - extends to approximately the end of the exopod; much longer than combined length of Enp-2 and Enp-3
short - does not extend beyond Exp-2; shorter than combined length of Enp-2 and Enp-3

3. Female P5
n:n - number of setae on endopod and exopod

4. Male P5
n:n - number of setae on endopod and exopod
uk - male unknown

5. Antenna exopod, setae of distal segment
filiform - both setae originate on distal edge; long fine setae, plain or plumose
dagger - inner seta subterminal, filiform; outer seta broad, curved, dagger-like

KG 1/2

Mandible Exp	P1 Enp-1	Female P5 setae	Male P5 setae	A2 Exp setae	
wd	elongate	5:5	2[1]:4	filiform	*Ameiropsis longicornis* [*sensu* Sars 1907][1]
wd	elongate	5:5	uk	filiform	*Ameiropsis longicornis* [*sensu* Por 1964a]
wd	elongate	4:5	uk	dagger	*A. mixta*
wd	long	5[1]:6	2[1]:5	filiform	*A. nobilis* [*sensu* Sars 1911, Bodin 1964][2]
wd	long	5[1]:5	uk	filiform	*A. nobilis* [*sensu* Guille & Soyer 1966][2]
wd	long	4:5	2[1]:4	filiform	*A. brevicornis*[1]
absent	short	5:7	uk	filiform	*Sarsameira giraulti* [*sensu* Monard 1935]
absent	short	5:6	uk	filiform	*Sarsameira giraulti* [*sensu* Wells 1968]
absent	short	4:5	3:3(4:4)[3]	filiform	*S. major*[3]

1. The outermost seta of the endopod is very small and may be mistaken for a spinule.
2. According to Sars and Bodin seta V of the female P5 exopod is small and weak. This seta is not present in the illustration by Guille & Soyer, but these authors do not comment on this in their text.
3. Male data from Chislenko (1977) who found both conditions of the P5 in his single specimen.

KG 1/3 – characters

1. Antenna endopod
   - spinose - with 7 massive spinulose spines; without geniculate setae
   - geniculate - with 1 simple spine, 5 geniculate setae and 1 simple seta

2. P1 Enp-1
   - >Exp-3 - extends well beyond the end of exopod; much longer than combined length of Enp-2 and Enp-3
   - ≈Exp-3 - extends to approximately the end of exopod; much longer than combined length of Enp-2 and Enp-3
   - <Exp-3 - extends to about halfway along Exp-3; approximately as long as combined length of Enp-2 and Enp-3
   - ≈Exp-2 - extends to approximately the end of Exp-2; approximately half the combined length of Enp-2 and Enp-3
   - <Exp-2 - extends to halfway along Exp-2 at most; ⅓ to ½ the combined length of Enp-2 and Enp-3

3. Female P5
   - d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod

4. Male P5
   - n:n - number of setae on endopod and exopod
   - uk - male unknown

5. Anal operculum, shape
   - semi - semilunar; weakly convex
   - linear - almost straight
   - heart - heart-shaped

KG 1/3

A2 Enp	P1 Enp-1	Female P5 setae	Male P5 setae	Anal op	
geniculate	≈Exp3	d:5:5	uk	semi	*Sarsameira elongata*
geniculate	<Exp2	d:5:5	uk	semi	*S. difficilis*
geniculate	≈Exp2	d:4:5	2–3:4	heart	*S. longiremis*
geniculate	≈Exp2	d:4:5	2:4	semi	*S. parva*
geniculate	<Exp3	d:4:5	2:4	semi	*S. propinqua*
geniculate	>Exp3	d:4:5	uk	semi	*S. boecki*
geniculate	<Exp2	d:4:4	uk	semi	*S. sarsi*
geniculate	<Exp2	d:3:5	uk	semi	*S. longifurcata*
spinulose	<Exp2	d:3:3	uk	straight	*Parameiropsis peruanus*
spinulose	<Exp2	f:3:3	uk	straight	*P. magnus*

KG 1/4 – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. P4 Exp-3
   n - number of setae and spines

3. P1 Enp-1
   long - extends beyond the end of Exp-2; more than half as long as combined length of Enp-2 and Enp-3
   short - extends to approximately the end of Exp-1; not more than half as long as combined length of Enp-2 and Enp-3

4. P2–P3 endopod
   long - extends beyond end of Exp-2
   short - extends only to the end of Exp-2

KG 1/4

CR l/b	P4 Exp-3 setae	P1 Enp-1	P2–P3 Enp	
1	7	long	short	*Parameira pendula*[1]
4	8	short	long	*Sarsameira knorri*

1. *Parameira pendula* is recognised as *incertae sedis* in *Sarsameira* (see Bodin 1997). The species is known only from the female, and its description is incomplete. In particular there is no description of the P5.

KG 1/5 – characters

1. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

2. Female antennule
   n - number of segments

3. Female P5
   n:n - number of setae on endopod and exopod

4. Male P5
n:n - number of setae on endopod and exopod

KG 1/5

P2–P4 Exp-3 setae	Female A1 segs	Female P5 setae	Male P5 setae	
7:7:7	9	5:6	5:6	*Sarsameira exilis*
6:7:8	9	5:6	uk	*S. peresi*
6:6:7	8	5:5	3:5	*Ameiropsis australis*

KG 1/6 – characters

1. P2–P4 Exp-3
n:n:n - number of setae and/or spines on P2, P3 and P4

2. P2–P4 Enp-1, inner edge
n:n:n - number of setae on P2, P3 and P4

3. Caudal ramus
short - as long as broad at most
long - approximately 1.25 times as long as broad

4. P1 Enp-1, length relative to exopod
>3 - extends well beyond the end of the exopod
≈3 - extends to approximately the end of the exopod
2.5 - extends to approximately the middle of Exp-3
≈2 - extends to approximately the end of Exp-2
<2 - does not extend to the end of Exp-2

5. P5 exopod*
n:n - number of setae on exopod in female and male
uk - male or female unknown
na - not applicable

* Variability in setation of P5 is common in species of *Nitocra*. It has been reported within populations and within single individuals. It can affect both endopod and exopod but has been reported only for the endopod in most of the species in this key.

KG 1/6

P2–P4 Exp-3 setae	P2–P4 Enp-1 inner setae	CR l/b	P1 Enp-1/ Exp	P5 Exp setae	
7:7:8	1:1:1	short	>3	6:6	KG 1/6/1 (p. 143)
7:7:8	1:1:1	short	≈3	6:6	*Nitocra affinis californica* (see also KG 1/6/1, p. 143)
7:7:8	1:1:1	long	≈3	5:uk	*N. hamata*
7:7:7	1:1:1	short	≈3	6:uk	*N. elegans*
7:7:7	1:1:1	short	≈3	5:6	*N. australis*
7:7:7	1:1:1	short	2.5	5:6	KG 1/6/2 (p. 144)

7:7:7	1:1:1	short	≈2	5:6	KG 1/6/3 (p. 144)
7:7:7	1:1:1	short	≈2	6:6	*Nitocra sewelli husmanni*[1]
7:7:7	1:1:1	short	≈2	4–5:5	*N. humphreysi*
7:7:7	0:0:0	short	>3	5:5	*N. minor* [*sensu* Willey 1930]
7:7:7	0:0:0	short	≈3	5:5	*N. minor* [*sensu* Por 1964a]
7:7:7	0:0:0	short	≈3	5:6	*N. minor mozambicae*
7:7:7	0:0:0	short	≈3	5:4	*N. phreatica*[2]
7:7:7	0:0:0	short	≈2–2.5	5:6	*N. fallaciosa*[3]
7:7:7	0:0:0	short	2.5	na:6–7	*N. lacustris sinoi* male [*sensu* Petkovski 1976b][4]
7:7:7	0:0:0	short	2.5	na:5–6	*N. lacustris sinoi* male [*sensu* Suárez Morales, Reid, Iliffe & Fiers 1996][4]
7:7:7	0:0:0	short	≈2	5:5–6	*N. balli*
7:7:7	0:0:0	short	≈2	6:na	*N. evergladensis* female[5]
7:7:7	0:0:0	short	<2	6:5–6	*N. pseudospinipes*
7:7:7	0:0:0	short	?	?	*N. balnearia*
?:?:?	0:0:0	long	2.5	6:6	*N. malaica*[1]

1. In *N. sewelli* and *N. malaica* the P1 Enp-1 is shorter than the combined length of Enp-2 and Enp-3.
2. Females of *N. phreatica* probably are readily distinguishable from *N. minor* as both appear to be constant in the number of setae on endopod of P5 endopod (3 in *phreatica* and 5 in *minor*).
3. *Nitocra fallaciosa* is variable with respect to several characters; see Lang (1965b) and KG 1/9 (p. 146). Material in which P2 Enp-3 has 4 setae and spines has been described by Kiefer (1949), Lang (1965b), Noodt (1952a—as *N. psammophila*) and Noodt (1953) but among them there is variability in other characters, e.g. the length of P1 Enp-1 relative to the exopod and features of abdominal ornamentation.
4. The female of this subspecies, and males other than those reported here, key out in KG 1/9 (p. 146). In these populations from the Gulf of Mexico the male P2 Enp-3 bears a spine and 3 setae. One of the setae is very short, thin and weak (the females bear 3 well developed setae) and 1 seta on P3 Enp-3 is similarly weak compared to that of the female. The only other record of this subspecies (from Romania) does not show this dimorphism and it is most probable that the western records represent a distinct taxon. Note that Suárez Morales *et al*. state that the male P5 exopod has 6–7 setae, but their illustrations show 5–6 setae.
5. See KG 1/7 (p. 145) for male.

KG 1/6/1 – characters

1. Penultimate segment, distal edge
   - complete - spinules present as a continuous ring
   - partial - spinule ring incomplete; spinules absent ventrally

2. P4 Exp-3, middle inner seta
   - stronger - longer and stronger than the distal inner seta
   - equal - not longer and stronger than the distal inner seta

3. Female P5 exopod
   - n - ratio of maximum length to maximum breadth

4. Male P5 endopod
   - n - number of setae

KG 1/6/1

Penultimate seg	P4 Exp-3 inner setae	Female P5 Exp l/b	Male P5 Enp setae	
partial	stronger	1.7	4-5	*Nitocra affinis* s. str.[1]
complete	stronger	1.5–1.8	4	*N. a. californica*
complete	stronger	1.3	4	*N. a. stygia*
complete	equal	1.8	5	*N. a. rijekana*

1. Kunz (1975) provides the latest discussion of the subspecies of *Nitocra affinis.*

KG 1/6/2 – characters

1. Anal operculum
   n - number of spinules

2. Female antennule segment 2
   n - ratio of maximum length to maximum breadth

3. Male P5
   n:n - number of setae on endopod and exopod

KG 1/6/2

Anal operculum	Female A1 seg 2	Male P5 setae	
15	1.0	3:6	*Nitocra fragilis*
10–12	1.3	4:6	*N. spinipes armata*[1]
7–8	1.5	3:6	*N. intermedia*[2]

1. Wells & Rao (1987) discuss variability in *Nitocra spinipes* and conclude that the existence of subspecies in *N. spinipes* is no longer justified.
2. As *Nitocra intermedia* is very incompletely described there are very few characters available for comparison with the other species in this key. In particular, note that while the anal operculum in these species appears to be distinctive, the number of spinules on this structure is known to vary over at least this range within other species of the genus and thus may not be a reliable separator in this key.

KG 1/6/3 – characters

1. P1 Enp-1
   n - ratio of length of Enp-1 to combined length of Enp-2 and Enp-3

2. Female P5
   n:n - number of setae on endopod and exopod

3. Male P5
   n:n - number of setae on endopod and exopod

4. Abdomen, somites 3–4, ornamentation near distal edge
   lat & vent - distal spinule row lateral and ventral only
   lat & dors - distal spinule row lateral and dorsal only
   complete - distal spinule row continuous (or almost so)

5. Abdomen, somites 2–4, anterior lateral spinule row
present *or* absent

KG 1/6/3

P1 Enp-1/ Enp-2+3	Female P5 setae	Male P5 setae	Abdomen som 2–4 distal spinules	Abdomen som 34 anterior spinules	
≈1	4–5:5	3–5:6	lat & vent	present	*Nitocra spinipes* s. str.[1]
1.25	5:5	2:6	lat & dors	absent	*N. s. orientalis*[1]
1.5	5:5	4:6	complete	present	*N. s. armata*[1]

1. Wells & Rao (1987) discuss variability in *Nitocra spinipes* and conclude the existence of subspecies in *N. spinipes* is no longer justified.

KG 1/7 – characters

1. P2–P4 Exp-3
n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-1, inner edge
n:n:n - number of setae on P2, P3 and P4

3. P2–P4 Enp-2, inner edge
n:n:n - number of setae on P2, P3 and P4

4. Female P5
n:n - number of setae on endopod and exopod

5. Male P5
n:n - number of setae on endopod and exopod

P2–P4 Exp-3 setae	P2–P4 Enp-1 inner setae	P2–P4 Enp-2 inner setae	Female P5 setae	Male P5 setae	
7:7:7	1:1:1	1:1:1	5:5	4:5	*Nitocra sphaeromata*
7:7:7	1:1:1	1:1:1	na[1]	4:7[1]	*N. evergladensis* male[1]
7:7:7	1:0:1	1:1:1	4:5	2:6	*N. reunionensis*
6:6:6	1:1:1	1:1:0	5:6	4:5	*N. mediterranea* s. str.

1. According to Bruno, Reid & Perry (2002) the P5 exopod has “1 normal and 2 pennate apical setae”and a “spine on medial corner, 2 short slender setae and 1 spine on lateral margin”, but a total of 7 setae and spines is most unusual and there must be some doubt that all are true spines or setae. See KG 1/6 (p. 142) for the female.

KG 1/8 – characters

1. Anal operculum
spinulose - fringed with spinules or setules
naked - without ornamentation

2. P2–P4 Exp-3
n - number of setae and spines on P2, P3 and P4

3. P2–P4 Enp-2, inner edge
n:n:n - number of setae on P2, P3 and P4

4. P2–P4 Enp-1, inner edge
n:n:n - number of setae on P2, P3 and P4

5. Caudal ramus, in dorsal view
n - ratio of maximum length to maximum breadth

KG 1/8

Anal operculum spinules	P2–P4 Exp-3 setae	P2–P4 Enp-2 inner setae	P2–P4 Enp-1 inner setae	CR l/b	
spinulose	7:7:7	1:1:1	0:0:0	≈1	*Nitocra quadriseta*
spinulose	6:6:6–7	1:1:1	1:1:1	<1	*N. typica*[1]
spinulose	6:6:7	1:1:1	1:1:1	≈1.6	*N. elongata*[1]
naked	6:6:7	1:1:1	1:1:1	≈1	*N. pontica*[1]
naked	6:6:7	1:1:1	0:0:0	2	*N. bdellurae*
naked	6:6:7	0:0:0	0:0:0	≈1	*Ameiropsis reducta*

1. Marcus (1969) compares *N. elongata* with *N. typica* and *N. pontica.* In her description she states that the anal operculum of *N. elongata* is fringed with "small hairs" but in her discussion she states that it is "as in *Nitocra typica*". As far as I am aware, the anal operculum in *N. typica* is always fringed with stout spinules. Marcus compounds the dilemma by stating in her table of comparison that the operculum in *N. typica* is "slender hairy". Unfortunately she does not illustrate the operculum in *N. elongata*.

KG 1/9 – characters

1. P2–P4 Exp-3
n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-2, inner edge
n:n:n - number of setae on P2, P3 and P4

3. Female P5
n - number of setae on endopod and exopod

4. Male P5
n - number of setae on endopod and exopod
na - not applicable

5. P1 Enp-1, length relative to exopod
≈3 - extends to approximately the end of the exopod
2.5 - extends to approximately the middle of Exp-3
≈2 - extends to approximately the end of Exp-2
<2 - does not extend to the end of Exp-2

KG 1/9

P2–P4 Exp-3 setae	P2–P4 Enp-2 inner setae	Female P5 setae	Male P5 setae	P1 Enp-1/ Exp	
7:7:8	0:0:0	4:6	3:6	≈3	*Nitocra cari*
7:7:7	1:1:1	5:6	2:6	≈2	*N. arctolongus*[2]
7:7:7	1:1:1	5:6	2:6	≈2	*N. lacustris*[1, 2, 3]
7:7:7	1:1:1	5:5–6	(2:6)?	2.5	*N. lacustris sinoi* [*sensu* Marcus & Por 1961][4]
7:7:7	1:1:1	5:6	na	≈2	*N. lacustris sinoi* female [*sensu* Petkovski 1976b][4]
7:7:7	1:1:1	5:5	na	2.5	*N. lacustris sinoi* female [*sensu* Suárez Morales *et al.* 1996][4]
7:7:7	1:1:1	5:5	3–4:6	2.5	*N. fallaciosa*[5]
7:7:7	1:1:1	5:5	2:6	≈3	*N. fallaciosa*[6]
7:7:7	1:1:1	5:5	2:6	<2	*N. fallaciosa* [*sensu* Apostolov 1973d]
7:7:7	1:0–1:1	5:5	1:6	<2	*N. galapagoensis*

1. *Nitocra lacustris* and *N. fallaciosa* are widespread and have been described as very variable in a range of characters. They probably represent species complexes but this cannot be determined with the present quality of descriptions. Because of this uncertainty this key can only provide indicative identifications.
2. The description of *N. arctolongus* is insufficiently detailed and inadequately illustrated. Due to this and to the extreme variability reported in *N. lacustris* the distinction between these species is difficult to assess.
3. This codon identifies 3 of the 5 subspecies of *N. lacustris*: *lacustris* s. str., *l. pacifica* and *l. colombianus.* Considerable variation in many characters has been reported for *lacustris* s. str. *N. l. pacifica* and *N. l. colombianus* are separated on relatively fine points of detail. Any identification must be confirmed by reference to the literature (e.g. Lang 1948 and Reid 1988 (*colombianus*) and Karanovic 2004 (*pacifica*). *Nitocra lacustris azorica* keys out in KG 1/10. See note 4 below for *N. lacustris sinoi.*
4. In the populations from the Gulf of Mexico recorded by Petkovski (1967b) and Suárez Morales *et al.* (1996), the male P2 Enp-3 bears a spine and 3 setae. Thus, males key out in KG 1/6 (p. 142). One of the setae is very short, thin and weak (the females bear 3 well developed setae) and 1 seta on P3 Enp-3 is similarly weak compared to that of the female.

   The only other record of this subspecies (from Romania, by Marcus & Por 1961) does not show this dimorphism and it is most probable that the western records represent a distinct taxon.

   Note also that while Suárez Morales *et al*. (1996) state that the male P5 exopod has 6–7 setae their illustrations show 5–6 setae.
5. Lang (1965b) as form *baltica*. In addition to the male P5 this form is variable in P2 Enp-3, which may bear 3 or 4 setae and spines and thus keys out also in KG 1/6 (p. 142).
6. *Nitocra fallaciosa* is variable with respect to several characters. Material in which P2 Enp-3 has only 3 setae and spines has been described by Klie (the original description—see also Lang 1948), Lang (1965b), Petkovski (1964) and Apostolov (1973d). See also note 3 of KG 1/6 (p. 142).

KG 1/10 – characters

1. P2–P4 Exp-3

   n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-2, inner edge

   n:n:n - number of setae on P2, P3 and P4

3. Female P5

   n - number of setae on endopod and exopod

4. Male P5

   n - number of setae on endopod and exopod

KG 1/10

P2–P4 Exp-3 setae	P2–P4 Enp-2 inner setae	Female P5 setae	Male P5 setae	
7:7:7	1:1:1	5:5	1:6	*Nitocra lacustris azorica*
7:7:6	0:0:0	2:5	2:6	*N. bisetosa*

KG 1/11 – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. P1 Enp-1, length relative to exopod
   long - extends well beyond end of Exp-2
   short - extends to the end of Exp-2 at most

3. Female P5 exopod
   n - ratio of maximum length to maximum breadth

KG 1/11

CR l/b	P1 Enp1/ Exp	Female P5 Exp l/b	
1.5–2	long	>3	*Nitocra divaricata* [*sensu* Pesce 1983a]
<1	short	≈2	*N. reducta fluviatilis*

KG 1/12 – characters

1. Anal operculum
   n - number of spines

2. P1 Enp-1
   n - ratio of length of Enp-1 to length of entire exopod (in midline of anterior surface)

3. P1 Enp-1
   n - ratio of length of Enp-1 to combined length of Enp-2 and Enp-3

4. Female P5 exopod
   n - ratio of maximum length to maximum breadth

5. Male P5 endopod, form of the setae and spines
   5≈ - 5 subequal spines
   3+2 - 3 short spines and 2 long setae
   uk - male unknown

KG 1/12

Anal op spines	P1 Enp-1/ Exp	P1 Enp-1/ Enp-2+3	Female P5 Exp l/b	Male P5 Enp setae	
10–12	≥1	≈2.5	≤2	5≈	*Nitocra hibernica*[1]
5–7	0.75	≈1.6	≤2	3+2	*N. incerta*[1]
8–9	0.65	≈1.6	2	uk	*N. stygia*[2]
4–5	0.75	≈1.6	>3	3+2	*N. divaricata*

1. See Por (1964d) for a discussion of the differences between these species and their possible evolutionary relationship. Note that intermediates may exist, and that this particularly compromises character 1.
2. The commentary by Por (1964d) on the relationship between *N. hibernica* and *N. incerta* in the Middle East and the Ponto-Caspian region casts doubt on the validity of this species, especially as the description is rather rudimentary.

KG 1/13 – characters

1. Anal operculum
   n - number of spines

2. P1 Enp-1
   short - does not extend to the end of Exp-2; only approximately ⅔ the combined length of Enp-2 and Enp-3
   long - extends at least to the end of Exp-2; approximately the same as the combined length of Enp-2 and Enp-3

3. P2–P4 Enp-1, inner edge
   n:n:n - number of setae

4. Female P5
   n:n - number of setae on endopod and exopod

KG 1/13

Anal operculum spines	P1 Enp-1	P2–P4 Enp-1 inner setae	Female P5 setae	
4	short	1:0:0	5:6	*Nitocra platypus* s. str.
4	short	1:1:1	5:6	*N. p. pietschmanni*
11	long	0:0:0	4:5	*N. uenoi*[1]

1.Male unknown.

KG 2 – characters

Caution: It is probable that the descriptions of some (but not all) species of *Ameira*, *Pseudameira* and some related genera are incorrect. Lang (1965a) and later workers (e.g. Conroy-Dalton & Huys 1996) report the presence of a weak third inner seta on P2–P4 Exp-3 and it has been discovered (e.g. Moore 1976a) that the antenna exopod in several species has 2 segments and not the single segment as often is stated.

1. P2–P4 Exp-1, inner edge
   n:n:n - number of setae on P2, P3 and P4

2. P2–P4 Exp-2, inner edge
n:n:n - number of setae on P2, P3 and P4

3. P2–P4 Enp-1, inner edge
n:n:n - number of setae on P2, P3 and P4

4. P2–P4 Enp-3
n:n:n - number of setae on P2, P3 and P4

KG 2

P2–P4 Exp-1 inner setae	P2–P4 Exp-2 inner setae	P2–P4 Enp-1 inner setae	P2–P4 Enp-3 setae	
1:1:1	1:1:1	1:1:1	5:5:5	*Ameiropsis robinsoni*
1:1:1	1:1:1	1:1:1	4:6:5	KG 2/1 (p. 151)
1:1:1	1:1:1	1:1:1	4:5:5	KG 2/2 (p. 151)
1:1:1	1:1:1	1:1:1	4:4:4	*Ameira lusitanica*
1:1:0	1:1:1	1:1:1	4:5:5	KG 2/3 (p. 152)
1:1:0	1:1:1	1:1:1	4:5:4	*Pseudameira gracilis*
1:1:0	1:1:1	1:1:1	4:4:4	*P. mixta*
1:0:0	1:1:1	1:1:1	4:5:5	*P. brevifurca*
0:0:0	1:1:1	1:1:1	4:6:5	KG 2/4 (p. 152)
0:0:0	1:1:1	1:1:1	4:5:5	KG 2/5 (p. 153)
0:0:0	1:1:1	1:1:1	4:5:4	KG 2/6 (p. 156)
0:0:0	1:1:1	1:1:1	4:4:5	KG 2/7 (p. 157)
0:0:0	1:1:1	1:1:1	4:4:4	KG 2/8 (p. 157)
0:0:0	1:1:1	1:1:1	3:5:4	*Psammameira reducta*[1]
0:0:0	1:1:1	1:1:1	3:4:4	KG 2/9 (p. 158)
0:0:0	1:1:1	1:1:1	3:4:3	*Sicameira gracilis*
0:0:0	1:1:1	1:1:1	3:3:3	KG 2/10 (p. 158)
0:0:0	1:1:1	1:1:1	2:3:3	KG 2/11 (p. 159)
0:0:0	1:1:1	0:0:0	4:5:5	*Pseudameira limicola*
0:0:0	1:1:1	0:0:0	4:4:4	*Ameiropsyllus monardi*
0:0:0	1:1:1	0:0:0	3:3:3	*Nitocra reducta* s. str.
0:0:0	1:0:1	1:1:1	3:4:4	*Ameira reducta*
0:0:0	0:1:1	1:1:1	4:6:5	*Proameira phaedra*
0:0:0	0:1:1	0:0:0	4:4:4	*Ameiropsyllus arianus*
0:0:0	0:1:0	1:1:1	4:4:5	*Ameira divagans pontica*
0:0:0	0:0:1	0:0:0	4:5:4	KG 2/12 (p. 159)
0:0:0	0:0:1	0:0:0	4:4:4	KG 2/13 (p. 160)
0:0:0	0:0:1	0:0:0	4:4:3	*Filexilia trisetosa*
0:0:0	0:0:0	1:1:1	4:4:4	KG 2/14 (p. 160)
0:0:0	0:0:0	0:0:0	4:4:4	KG 2/15 (p. 161)
0:0:0	0:0:0	0:0:0	3:3:3	KG 2/16 (p. 161)

1. Considered *incertae sedis* in the family Ameiridae.

KG 2/1 – characters

1. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

2. P1 Enp-1, length relative to exopod
   ≈3 - extends to approximately the end of the exopod, or to well beyond
   2.5 - extends to approximately the middle of Exp-3
   ≈2 - extends to approximately the end of Exp-2
   ≈1 - extends to approximately the end of Exp-1

3. Caudal ramus, dorsal view, ratio of maximum length to maximum breadth
   <1 - distinctly broader than long
   >1 - at least as long as broad, but not more than 1.5 times as long as broad
   ≈2 - approximately twice as long as broad

4. Anal operculum
   orn - ornamented with fine setules or with spinules
   plain - without ornamentation

5. Antenna exopod
   n - number of segments

KG 2/1

P2–P4 Exp-3 setae	P1 Enp1/ Exp	CR l/b	Anal operculum	A2 Exp segs	
7:8:8	≈3	<1	orn	2	*Proameira thetiensis*
7:8:8	≈2	>1	plain	1	*P. dubia*
7:7:8	≈3	<1	orn	1	*P. arenicola*
7:7:8	≈3	<1	plain	2	*P. psammophila*
6:8:8	2.5	>1	plain	1	*P. simplex* [*sensu* Sars 1907, Chislenko 1967]
(6:8:8)?	(2.5)?	≈2	(plain)?	(1)?	*P. simplex* [*sensu* Guille & Soyer 1966][1]
6:6:7	≈1	>1	?	1	*P. echinipes*
6:6–7:7–8[2]	≈2	>1	orn	1	*P. signata*[2]

1. Guille & Soyer describe only the caudal ramus and the female P5. The P5 differs considerably from that illustrated by Sars and Chislenko in the relative proportions of the exopod setae.
2. In listing the variability in P2–P4 Exp-3, Por (1964b) does not state which of the four possible combinations are represented in his material.

KG 2/2 – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

3. P1 Enp-1, length relative to exopod
   >3 - extends beyond the end of the exopod

<3 - extends to the distal half of Exp-3
2 - extends only to the end of Exp-2

4. Female P5
   n:n - number of setae on endopod and exopod
   uk - female unknown

5. Male P5
   n:n - number of setae on endopod and exopod

KG 2/2

CR l/b	P2–P4 Exp-3 setae	P1 Enp1/ Exp	Female P5 setae	Male P5 setae	
≈1	6:6:7	>3	5:5	3:5	*Ameiropsis australis*
2	7:7:8	2	4:5	1:5	*Pseudameira perplexa*
6	6:6:7	<3	uk	5:5	*Haifameira archibenthoica*[1]

1. The male P5 endopod and exopod are fused together and the total number of setae on P5 is 11.

KG 2/3 – characters

1. Female antennule
   n - number of segments

2. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

3. P1 Enp-1, length relative to exopod
   <3 - extends to the distal half of Exp-3
   <2 - extends almost to the end of Exp-2
   1 - extends only to the end of Exp-1

4. Female P5
   n:n - number of setae on endopod and exopod

KG 2/3

A1 segs	CR l/b	P1 Enp-1/ Exp	Female P5 setae	
8	≈1	<2	6:7	*Pseudameira reflexa*[1]
7	≈3	1	5:5	*P. furcata*[1]
6	≈1	<3	4:5	*P. minutissima*[1]

1. Male unknown.

KG 2/4 – characters

1. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

2. Female P5
   n:n - number of setae on endopod and exopod

3. Male P5
n:n - number of setae on endopod and exopod

KG 2/4

P2–P4 Exp-3 setae	Female P5 setae	Male P5 setae	
7:7:8	5:6	2:6?	*Proameira hiddensoensis*[1]
6:6:8	4:5	2:5	*Nitocra delaruei*

1. Male P5 exopod bears 4 well developed setae and 2 minute structures that could be setae or setules.

KG 2/5 – characters

1. Antenna
basis *or* allobasis (Figs 7–8)

2. Caudal ramus, in dorsal view
n - ratio of maximum length to maximum breadth

3. P1 Enp-1, length relative to exopod
>>3 - Enp1 extends well beyond end of exopod (exopod extends to less than 85% of length of Enp-1)
≈3 - Enp1 approximately as long as exopod (exopod extends to not less than 90% of length of Enp-1)
<3 - Enp1 extends approximately to the middle of Exp-3
≤2 - Enp1 extends to end of Exp-2 at most

4. Female P5
n:n - number of setae on endopod and exopod

5. Male P5
n:n - number of setae on endopod and exopod
uk - male unknown

KG 2/5

A2	CR l/b	P1 Enp1/ Exp	Female P5 setae	Male P5 setae	
allobasis	≥2.2	≤2	4:2	uk	*Pseudameira birulai*
allobasis	≈2	≤2	3–4:2	uk	*P. antennulata*
allobasis	1.3	≤2	4:5	2:4	*P. reducta*[1]
allobasis	≤1	≤2	6:7	uk	*P. reflexa*
allobasis	≤1	≤3	5:6	uk	*P. breviseta*[1]
allobasis?	≤1	≈3	4:5	2:3	*Ameira parvula nana* [*sensu* Dinet 1971][2]
basis	2	≈3	4:5	2:6	*A. speciosa*
basis	2	<3	4:6	uk	*A. bathyalis*
basis	1.5	>>3	4:5	2:5	*A. tenuicornis*
basis	≤1	>>3	4:4–5	2:4–5	KG 2/5/1 (p. 154)
basis	≤1	≈3	4:4–5	2–3:3–5	KG 2/5/2 (p. 155)
basis	≤1	≈3	4:3–5[3]	1:4	*Ameira spinipes*[3]
basis	≤1	<3	4:4–5	2:4–5	KG 2/5/3 (p. 156)
basis	<1	<3	4:5	4:5	*Ameira confluens*[4]

1. Klie (1950) is not precise in his description of the P1 Enp-1. For *P. breviseta* he states only that it is shorter than the exopod. For *P. reducta* he implies that it is as long as the exopod but Wells' (1963a) illustration shows it as reaching only to the end of Exp-2.
2. Dinet's illustration shows the antenna with an allobasis, but his text states "Le basis porte deux soies ...". It is most probable that his illustration is wrong.
3. The P5 of the only known female probably is deformed. The right side has the exopod articulated with the basis, but bearing only 3 setae, while the left side has the exopod fused to the basis (in the manner common in late copepodid stages) but bearing 4 well developed setae and 1 very small seta. Refer to Nicholls (1939a).
4. In the P5 of both sexes the exopod is fused to the basis. The female condition is similar to that commonly found in late copepodid stages—but Ranga Reddy (1984) reports the presence of an ovisac. The male is highly peculiar in bearing 4 setae on the endopod. If the P5 as described is confirmed as the normal condition in this species, then it cannot be a species of *Ameira.*

KG 2/5/1 – characters

Caution: It is probable that the description of some (but not all) species of *Ameira* is incorrect. For several species Lang (1965a) records the previously unreported presence of a weak third inner seta on P2–P4 Exp-3 and Moore (1976a) has discovered that the antenna exopod in some species has 2 segments and not the single segment as often is stated.

These characters are not used in this key because of this state of uncertainty and the reader is advised to be cautious about them even in descriptions of otherwise impeccable quality.

This key uses the variability reported in the literature but the morphometric data from P1 must be treated with caution. There are 3 potential sources of error:

- The data may be derived from measurements taken from small illustrations.
- Often it is difficult to determine accurately the point of origin of Enp-1 on the basis.
- The junction between endopod segments 1 and 2 and segments 2 and 3 may be oblique to the proximal-distal axis. All measurements were taken in the mid-line of the anterior surface.

1. P1 exopod, length relative to Enp-1
   n - distance that exopod extends along Enp-1, expressed as % of length of Enp-1

2. P1 Enp-1
   n - ratio of length of Enp-1 to combined length of Enp-2 and Enp-3

3. P1 Enp-3
   n - ratio of length of Enp-3 to Enp-2

4. Female P5
   n:n - number of setae on endopod and exopod
   uk - female unknown

5. Male P5
   n:n - number of setae on endopod and exopod
   uk - male unknown

KG 2/5/1

P1 Exp/ Enp-1	P1 Enp-1/ Enp-2+3	P1 Enp-3/ Enp-2	Female P5 setae	Male P5 setae	
85	1.2	≈3	4:5	2:5	*Ameira longipes*[*sensu* Vervoort 1964]
65	≈3.3	≈3	4:5	2:5	*A. longipes*[1, 2]
72	≈3	≈2	4:5	2:5	*A. minuta* [*sensu* Chislenko 1967]

67	3.5	≈1	4:5	2:5	*A. minuta* [*sensu* Sars 1907]
67	3.5	1.7	4:5	2:5	*A. minuta* [*sensu* Wiborg 1964]
60	3.7	≈1	4:5	uk	*A. minuta* [*sensu* Vervoort 1964]
70	3.6	1.8	4:5	2:4	*A. scotti* [*sensu* Sars 1911]
67	2.8	2.5	4:5	uk	*A. scotti* [*sensu* Chislenko 1967]
72	2.7	≈2	4:5	uk	*A. parascotti*
85	1.2	2.2	4:5	uk	*A. parvula* [*sensu* Vervoort 1964][1]
83	2.2	≈3	uk	2:5	*A. parvula* [*sensu* Mielke 1974][1]
83	1.4	≈3	4:4–5	uk	*A. parvula* [*sensu* Chislenko 1977][1]
83	1.4	≈3	4:4	uk	*A. parvula* [*sensu* Vilela 1965][1]
80	1.5	2.2	4:5	?	*A. parvula* [*sensu* Vervoort 1962][1]
78	1.4	3.3	4:5	uk	*A. parvula* [*sensu* Petkovski 1964][1]
75	1.3	≈3	4:5	2:5	*A. parvula* [*sensu* Mielke 1975][1]
75	1.7	≈3	4:5	2:4	*A. parvula* [*sensu* Pallares 1975d][1, 3]
71	1.4	3	4:5	uk	*A. parvula* [*sensu* Vos 1945][1]
72	1.3	≈3	4:5	2:5	*A. parvuloides*[4]

1. *Ameira longipes* and *A. parvula* are almost cosmopolitan in their distribution and frequently have been reported as occurring together. Considerable variability in many characters, including somitic ornamentation, is reported for both species—but especially for *A. parvula.* Wells & Rao (1987) provide the latest discussion.
2. Lang (1965a), Wells & Rao (1987).
3. The male P5 reported by Pallares differs considerably from that in other records of *A. parvula.*
4. See Wells & Rao (1987) for a discussion of the differences between *A. parvula* and *A. parvuloides.*

KG 2/5/2 – characters

1. P2-P3 Exp-3
   n:n - number of setae and spines on P2 and P3

2. Female antennule
   n - number of segments

3. Female P5
   n - number of setae on endopod and exopod

4. Male P5
   n:n - number of setae on endopod and exopod
   uk - male unknown

KG 2/5/2

P2–P3 Exp-3 setae	Female A1 segs	Female P5 setae	Male P5 setae	
7:7	8	4:5	2:3	*Ameira parvula*[1]
7:7	8	4:5	2(3?):5	*A. parvula* [*sensu* Wells & Rao 1987]
7:7	8	4:4	uk	*A. parvula*[1, 3]
7:7	8	4:4–5	2–3:3–4	*A. parvula*[1, 4]
7:7	7	4:5	3:5	*A. usitata*[*sensu* Klie 1950]
6:6	7	4:5	2:3	*A. parvula nana*[5]

1. *Ameira parvula* is almost cosmopolitan in its distribution. Considerable variability in many characters, including

somitic ornamentation, has also been reported. See also KG 2/5/1 (p. 154). Wells & Rao (1987) provide the latest discussion.
2. Giesbrecht (1882) and Sars (1907); see Lang (1948).
3. Monard (1928) as *Ameira tau.*
4. Lang (1948) records this variability in a sample from a single location.
5. Data from the redescription by Dinet (1971).

KG 2/5/3 – characters

1. P2–P3 Exp-3
   n:n - number of setae and spines on P2 and P3

2. Female P5
   n:n - number of setae on endopod and exopod

3. Male P5
   n:n - number of setae on endopod and exopod
   uk - male unknown

KG 2/5/3

P2–P3 Exp-3 setae	Female P5 setae	Male P5 setae	
7:7	4:5	uk	*Ameira usitata* [*sensu* Kunz 1975]
6:6	4:4–5	2:4	*A. pusilla*

KG 2/6 – characters

1. Female antennule
   n - number of segments

2. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

3. P1 endopod
   long - Enp-1 extends to the middle of Exp-3; Enp-3 three times as long as Enp-2
   short - Enp1 extends to the middle of Exp-2; Enp-3 approximately as long as Enp-2

4. Female P5
   d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod

5. Male P5
   d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod
   uk - male unknown

KG 2/6

Female A1 segs	CR l/b	P1 Enp	Female P5 setae	Male P5 setae	
8	≈1	long	d:3:5	uk	*Ameira faroerensis*
7	3	short	f:4:2	f:1:2	*Limameira mediterranea*

KG 2/7 – characters

1. Female antennule
   n - number of segments

2. Antenna
   basis *or* allobasis (Figs 7–8)

3. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

4. Female P5
   n - number of setae on endopod and exopod

5. Male P5
   n - number of setae on endopod and exopod

KG 2/7

Female A1 segs	A2	P2–P4 Exp-3 setae	Female P5 setae	Male P5 setae	
8	basis	5:5:7	4:5	2:4	*Ameira divagans* s. str.
6[1]	allobasis	6:6:7	4:4	4:4	*Pseudameira signyensis*[1]

1. The terminal segment of female antennule may show traces of its fusion from 2 segments.

KG 2/8 – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. Female antennule
   n - number of segments

3. P1 Enp-1, length relative to exopod
   short - extends approximately to the end of Exp-2
   long - extends at least to the distal half of Exp-3

4. P5 female
   n - number of setae on endopod and exopod

5. P5 male
   n - number of setae on endopod and exopod

KG 2/8

CR l/b	Female A1 segs	P1 Enp-1/ Exp	Female P5 setae	Male P5 setae	
≤1	8	long	5:7	3:4	*Ameira grandis*[1]
≈1	8	long	5:6	1:5[1]	*Psammameira parasimulans*[2]
≈2	6	short	4:4	4:4	*Pseudameira crassicornis*

1. Considered *incertae sedis* in family Ameiridae.
2. In the male P5, the endopod bears 1 true seta with a long slender spinule external to it. Setae I and III of the exopod are very small.

KG 2/9 – characters

1. Female antennule
   n - number of segments

2. Antenna
   basis *or* allobasis (Figs 7–8)

3. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

4. Female P5
   n - number of setae on endopod and exopod

5. Male P5
   n - number of setae on endopod and exopod

KG 2/9

Female A1 segs	A2	P2–P4 Exp-3 setae	Female P5 setae	Male P5 setae	
8	allobasis	6:6:7	5:5	2:6	*Psammameira hyalina*
7	basis	5:5:7	4:4	2:3	*Ameira atlantica*

KG 2/10 – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. Female antennule
   n - number of segments

3. Antenna
   basis *or* allobasis

4. P1 Enp-1, length relative to exopod
   short - extends approximately to the end of Exp-2
   long - extends at least to the distal half of Exp-3

5. Female P5
   n - number of setae on endopod and exopod

KG 2/10

CR l/b	Female A1 segs	A2	P1 Enp-1/ Exp	Female P5 setae	
≈2.5	6	allobasis	short	4:3[2]	*Pseudameira trisetosa*[1, 2]
≈1.5	7	basis	long	2:5	*Sicameira langi*[1]

1. Male unknown.
2. Seta III of female P5 exopod is small and weak and may easily be mistaken for a spinule.

KG 2/11 – characters

1. P1 Enp-1, length relative to exopod
 long - extends approximately to the end of Exp-3
 short - does not extend beyond the middle of Exp-3

2. P2–P3 endopod, length relative to exopod
 long - endopod extends approximately to the end of exopod
 short - endopod shorter than exopod

3. P4 endopod, length relative to exopod
 long - extends at least to the middle of Exp-3
 short - extends only into the proximal half of Exp-3

KG 2/11

P1 Enp-1/Exp	P2–P3 Enp/Exp	P4 Enp/Exp	
long	long	long	*Sicameira leptoderma*
short	short	short	*S. intermedia*

KG 2/12 – characters

1. Caudal ramus, in dorsal view
 n - ratio of maximum length to maximum breadth

2. Female P5 endopod
 short - extends to approximately $^{1}/_{5}$ the length of exopod; seta I originates apically, alongside seta II
 long - extends to approximately ⅓ the length of exopod; seta I originates subterminally; setae II–III are apical

3. Female P5 exopod, inner edge
 short - long spinules confined to proximal half
 long - long spinules extend almost the entire length

4. Male P5
 n - number of setae on endopod and exopod

KG 2/12

CR l/b	Female P5 Enp	Female P5 Exp	Male P5 setae	
≈3	short	short	3:6	*Filexilia attenuata*[1]
≈4.5	long	long	2:5	*F. longifurca*[1]

1. See Conroy-Dalton & Huys (1996) for excellent redescriptions and comments on these species, and for a dichotomous key to *Filexilia*.

KG 2/13 – characters

1. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

2. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

3. Female P5
   n - number of setae on endopod and exopod

4. Female P5 exopod
   n - ratio of maximum length to maximum breadth

Conroy-Dalton & Huys (1996) provide comments on the species and a dichotomous key to *Filexilia*.

KG 2/13

P2–P4 Exp-3 setae	CR l/b	Female P5 setae	Female P5 Exp l/b	
6:6:8[1]	2.3	4:6	2.6	*Filexilia azorica*[1, 3]
5:5:7	1.7	4:6	2.6	*F. brevipes*
5:5:7	3.0	4:5	2.2	*F. brevipes*[2, 3]
5:5:7	1.8	4:6	3.3	*F. pestae*[3]
5:5:7	2.2	4:5	3.7	*F. marinovi*[3]

1. P4 Exp-3 distal inner seta is minute, recurved and difficult to see in anterior view.
2. Data from material collected at Agay, France (Conroy-Dalton & Huys 1996).
3. Male unknown

KG 2/14 – characters

1. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

2. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

3. Female antennule
   n - number of segments

4. Female P5
   n - number of setae on endopod and exopod

5. Male P5
n - number of setae on endopod and exopod
uk - male unknown

KG 2/14

P2–P4 Exp-3 setae	CR l/b	Female A1 segs	Female P5 setae	Male P5 setae	
6:6:7	2	7	2:5	uk	*Glabrameira bengalensis*
5:5:7	1.3	8	5:6	2:5	*Ameira listensis*

KG 2/15 – characters

1. Caudal ramus, in dorsal view
n - ratio of maximum length to maximum breadth

2. P1 endopod
n - ratio of length of Enp-3 to Enp-2

3. Female P5 exopod
n - ratio of maximum length to maximum breadth

4. Female genital somite*, posterior edge
dorsal - spinules dorsolateral
ventral - spinules ventrolateral

* There appear also to be significant differences in the ornamentation of other female urosomites, but the description of these features in *F. intermedia* is incomplete.

Conroy-Dalton & Huys (1996) provide a dichotomous key to *Filexilia*.

KG 2/15

CR l/b	P1 Enp-3/ Enp-2	Female P5 Exp l/b	Female genital somite	
3.3	4.0	2.7	dorsal	*Filexilia gravellicola*
2.7	3.0	3.0	ventral	*F. intermedia*[1]

1. Male unknown.

KG 2/16 – characters

1. P2–P4 Exp-3
n:n:n - number of setae and spines on P2, P3 an d P4

2. P1 Enp-1, length relative to exopod
long - Enp-1 extends approximately to the end of exopod
short - Enp-1 extends approximately to end of Exp-2; never reaches the middle of Exp-3

3. P2–P4 endopod, length relative to exopod
long - extends at least to the middle of Exp-3
medium - extends at least to the middle of Exp-2, usually to just less than the end of Exp-2
short - extends to the middle of Exp-2 at most

4. Female P5
n - number of setae on endopod and exopod

5. Mandible basis
n - number of long, strong setae

KG 2/16

P2–P4 Exp-3 setae	P1 Enp1/ Exp	P2–P4 Enp/ Exp	Female P5 setae	Mandible basis setae	
5:5:6	long	long	4:6	1	*Nitocra blochi*
5:5:7	short	medium	4:6	2	*Psyllocamptus (Langopsyllocamptus) triarticulatus*[1]
5:5:7	short	short	5:4	2	*P.* (*L.*) *quadrispinosus*[1]

1. Male unknown.

KG 3 – characters

1. Antenna exopod
n - number of segments

2. P2–P4 Exp-1, inner edge
n:n:n - number of setae on P2, P3 and P4

3. P2–P4 Exp-2, inner edge
n:n:n - number of setae on P2, P3 and P4

4. P2–P4 Enp-1, inner edge
n:n:n - number of setae on P2, P3 and P4

KG 3

A2 Exp segs	P2–P4 Exp-1 inner setae	P2–P4 Exp-2 inner setae	P2–P4 Enp-1 inner setae	
1	0:0:0	1:1:1	1:1:1	*Nitocra sewelli* s. str.
1	0:0:0	0:1:1	0:0:0	*N. platypus bakeri*
2	1:1:1	1:1:1	1:1:1	*Ameiropsis minor*

KG 4 – characters

1. P2–P4 Enp-3
n:n:n - number of setae on P2, P3 and P4

2. P2–P4 Enp-1, inner edge
n:n:n - number of setae on P2, P3 and P4

3. Female P5
n:n - number of setae and spines on endopod and exopod

4. Male P5
n:n - number of setae and spines on endopod and exopod

Karanovic (2004) provides a dichotomous key to *Parapseudoleptomesochra.*

KG 4

P2–P4 Enp-3 setae	P2–P4 Enp-3 inner setae	Female P5 setae	Male P5 setae	
2:2:2	1:1:1	4:4	2:4	*Parapseudoleptomesochra pristina*
2:2:2	0:0:0	4:4	2:3	*P. mielkei*
2:2:2	0:0:0	3:5	1:3	*P. waltairensis*
2:1:2	0:0:0	3:4	1:3	*P. trisetosa*

KG 5 – characters

1. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-3
   n:n:n - number of setae on P2, P3 and P4

3. P2–P4 Enp-1, inner edge
   n:n:n - number of setae on P2, P3 and P4

4. Female P5
   n:n - number of setae on endopod and exopod
   uk - female unknown

5. Male P5
   n:n - number of setae on endopod and exopod
   uk - male unknown

Karanovic (2004) provides a dichotomous key to *Parapseudoleptomesochra.*

KG 5

P2–P4 Exp-3 setae	P2–P4 Enp-3 setae	P2–P4 Enp-1 inner setae	Female P5 setae	Male P5 setae	
6:5:6	2:4:4	0:0:0	4:6	uk	*Parapseudoleptomesochra incerta*
5:5:6	3–4:3–4:4	1:1:1	5:6	1–3:5	KG 5/1 (p. 163)
5:5:6	3:4:4	1:0:1	uk	1:5	*Parapseudoleptomesochra iranica*
5:5:6	2:4:4	1:1:1	1–4:4–5	1:5	*P. syriaca*[1]
5:5:5	4:4:4	0:0:0	0:4	0:4	*P. morimotoi*
5:5:5	2:3:2	1:1:1	4:3	1:3	*P. subterranea* s. str.[2]
5:5:5	2:3:2	1:1:1	5:2	1:2	*P. subterranea deminuta*[2]
4:4:5	3:4:4	0:0:0	4:5	3:6	*P. polychaeta*

1. The normal condition of the female P5 is 4:4. Of the 31 known females, one has 2:4, one has 3:5 and in one the right P5 is 4:4 and the left is 1:4 (Cottarelli, Puccetti & Saporito 1985).
2. The setation of P1 Exp-2 is unknown in *P. subterranea* This species thus is considered also in KG 6 (p. 164).

KG 5/1 – characters

1. P2–P4 Enp-3
   n:n:n - number of setae on P2, P3 and P4

2. Female P5
    n:n - number of setae on endopod and exopod

3. Male P5
    n:n - number of setae on endopod and exopod

4. Caudal ramus, in dorsal view
    n - ratio of maximum length to maximum breadth

5. Anal operculum, number and form of spines or spinules on distal edge
    n - number of broad, stout spines
    spinules - anal operculum clothed with a large number of small fine spinules

Karanovic (2004) provides a dichotomous key to *Parapseudoleptomesochra.*

KG 5/1

P2–P4 Enp-3 setae	Female P5 setae	Male P5 setae	CR l/b	Anal operculum	
3:4:4	5:6	1:5	≈1	5	*Parapseudoleptomesochra attirei*[1]
3:3–4:4[2]	5:6	2–3:5[2]	1.5	spinules	*P. hellenica*[2]
3–4:3–4:4	5:6	3:5	≈1	spinules	*P. italica*[3]

1. The original description states that the female P5 endopod bears 6 setae, but the illustration clearly indicates that the outermost is only a long setule.
2. The description does not comment on the nature or extent of this variability.
3. P2–P3 Enp-3 setation is reported in these combinations: 3:3, 3:4, 4:4.

KG 6 – characters

1. P2–P4 Exp-3
    n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-3
    n:n:n - number of setae on P2, P3 and P4

3. P2–P4 Enp-2, inner edge
    n:n:n - number of setae on P2, P3 and P4

4. P2–P4 Enp-1, inner edge
    n:n:n - number of setae on P2, P3 and P4

5. Female P5
    n:n - number of setae on endopod and exopod

6. Male P5
    n:n - number of setae on endopod and exopod
    uk - male unknown

Karanovic (2004) provides a dichotomous key to *Parapseudoleptomesochra.*

KG 6

P2–P4 Exp-3 setae	P2–P4 Enp-3 setae	P2–P4 Enp-2 inner setae	P2–P4 Enp-1 inner setae	Female P5 setae	Male P5 setae	
5:5–6:6	2:4:4	1:1:1	0:0:0	4:6	uk	*Parapseudoleptomesochra botosaneanui*
5:5:5	2:3:2	1:1:1	1:1:1	4:3	1:3	*P. subterranea* s. str.[1]
5:5:5	2:3:2	1:1:1	1:1:1	5:2	1:2	*P. subterranea deminuta*[1]
4:4:4	2:3:3	0:0:0	0:0:0	4:5	uk	*P. tridens*

1. The setation of P1 Exp-2 is unknown in *P. subterranea* This species thus is considered also in KG 5 (p. 163).

KG 7 – characters

1. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-3
   n:n:n - number of setae on P2, P3 and P4

3. Female P5
   n:n - number of setae on endopod and exopod
   uk - female unknown

4. Male P5
   n:n - number of setae on endopod and exopod
   uk - male unknown

5. Anal operculum, number and form of spines or spinules on distal edge*
   n - number of spines (which may be broad and stout or slender)
   spinules - anal operculum clothed with a large number of small fine spinules
   nude - distal edge without ornamentation

* Note that in each state there may also be a row of minute setules just anterior to the distal edge.

6. Last somite, dorsal surface
   n - number of transverse rows of spinules anterior to the anal operculum

Karanovic (2004) provides a dichotomous key to *Parapseudoleptomesochra.*

KG 7

P2–P4 Exp-3 setae	P2–P4 Enp-3 setae	Female P5 setae	Male P5 setae	Anal operculum spines	Last somite spinules	
4:4:6	2:3:2–3	1–2:4	1:5	spinules	0	*Haifameira pori*
4:4:6	2:3:3	3:4	2:5	spinules	0	*Parapseudoleptomesochra karamani*
4:4:6	2:3:2	uk	2:4	12	1	*P. rouchi*
4:4:6	1:2:3	2:5	2:5	≈15	1	*P. heruridensis*
4:4:6	1:2:2	4:4	uk	9	0	*P. ommeyyadensis*
4:4:6	1:2:1	3:6	2:5	5	2	*P. almoravidensis*
4:4:6	1:2:1	3:4	2:5	4	1	*P. almohadensis*
4:4:5–6	1:2:1	5:6	2:5	spinules	1	*P. minoricae*[1]
4:4:5	2:2:2	5:6	2:6	nude	0	*P. balnearia*

4:4:5	1:2:1	3:4	2:5	spinules	1	*P. baeticola*
4:4:4	2:2:2	1:3	1:3	15	0	*P. guadalhorcensis*
4:4:4	1:2:2	2:4	2:5	11	1	*P. fernandezi*

1. *Parapseudoleptomesochra minoricae* is known from many localities in Spain, Minorca and Algeria and is reported to have a considerable degree of variability in many characteristics. Variability is recorded between locations, within a single location and, occasionally, within an individual. See Rouch (1986, 1987) for description and comment.

KG 8 – characters

1. P2–P4 Exp-3
    n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-3
    n:n:n - number of setae on P2, P3 and P4

3. Female P5
    distinct:n:n - basis and exopod not fused together: number of setae on endopod and exopod
    fused:n - basis and exopod fused together: total number of setae on P5

4. Male P5
    distinct:n:n - basis and exopod not fused together: number of setae on endopod and exopod
    fused:n - basis and exopod fused together: total number of setae on P5

KG 8

P2–P4 Exp-3 setae	P2–P4 Enp-3 setae	Female P5	Male P5	
5:5:6	3:3:2	d:3:4	d:1:5	*Nitocrellopsis elegans*
4:4:4	3:3:3	f:3	f:3–4	*N. intermedia*

KG 9 – characters

1. P1 Enp-3
    n - number of setae and/or spines

2. P2–P4 Exp-3
    n:n:n - number of setae and spines on P2, P3 and P4

3. P2–P4 endopod, distal segment
    n:n:n - number of setae on P2, P3 and P4

4. Female P5
    n:n - number of setae on endopod and exopod

5. Mandible endopod
    n - number of setae

KG 9

P1 Enp-3 setae	P2–P4 Exp-3 setae	P2–P4 Enp distal seg setae	Female P5 setae	Mandible Enp setae	
3	4:4:5	2:2:2	4:5	5	*Nitocrellopsis ioneli*[1]
3	4:4:4	2:2:2	4:4	4	*N. rouchi*
2	5:5:5	2:2:2	2:4	5	*N. petkovskii*
2	4:4:5	2:2:2	4:5	5	*N. ahaggarensis*
2	4:4:5	2:2:2	2:5	5	*N. texana*
2	4:4:5	1:2:1	3:4	5	*N. hellenica*
2	4:4:5	1:2:1	3:4	4	*N. hippocratis*

1. Data from redescription by Fiers & Iliffe (2000).

KG 10 – characters

1. P3–P4 Enp-2, inner edge
   n:n - number of setae on P3 and P4

2. P2–P4 endopod, length relative to exopod
   n:n:n - relative length in P2, P3 and P4 where *n* is one of these states:
   1.5 - endopod extends approximately to the middle of Exp-2
   2 - endopod extends approximately to the end of Exp-2
   2.5 - endopod extends to approximately the middle of Exp-3

3. Female P5
   n:n - number of setae on endopod and exopod

4. Male P5
   n:n - number of setae on endopod and exopod
   uk - male unknown

KG 10

P3–P4 Enp-2 inner setae	P2–P4 Enp/Exp	Female P5 setae	Male P5 setae	
1:1	2:2.5:2.5	2:5	uk	*Praeleptomesochra pygmaea*
0:0	1.5:2:2	3:5	1:3	*P. africana*
0:0	1.5:1.5:1.5	3:4	2:3	*P. similis*

KG 11 – characters

1. P2–P4 endopod, distal segment
   n:n:n - number of setae on P2, P3 and P4

2. Female P5
   n:n - number of setae on endopod and exopod

3. P5 Male
n:n - number of setae on endopod and exopod

4. P5 exopod, outer proximal corner
pore - with a long setule and a long tube pore
naked - naked or with 1 true seta

KG 11

P2–P4 Enp distal seg setae	Female P5 setae	Male P5 setae	P5 Exp opc	
4?:3:4	4:5	1:3	naked	*Interleptomesochra boguensis*
2:4:4	4:5	1:3	absent	*I. noodti*
2:3:4	4:5	1:4	absent	*I. tenuicornis*
2:3:4	3:5?	1:4?	present	*I. elongata*[2]
2:2:4?	3:5	1:4	absent	*I. eulittoralis*[3]

1. Lindgren's (1975) illustration of P2 Enp-2 shows 4 setae (distributed 2.2.0) but in his comparative table he states there are only 3 (1.2.0). There is no textual description. It is possible the distal inner element is only a very long setule.
2. Bŏzić (1955) states the P5 exopod has "une soie proximale externe tronquée, à tégument mince, surmontée d'une soie très courte". There can be no doubt the first of these elements is a tube pore. The second may be a true seta—such a seta exists in this position in *I. eulittoralis* and *I. noodti*—but the illustration is not of sufficient clarity for this to be certain.
3. Mielke (1975) found 4 setae on P4 Exp-3 and believes that Noodt (1952b) failed to observe the very small seta at the outer distal corner.

KG 12 – characters
1. Female P5
n:n - number of setae on endopod and exopod

2. Male P5
n:n - number of setae on endopod and exopod

3. P2–P3 Exp-3, inner distal corner
wd - with a slender setule (or seta?) approximately ⅓ the length of adjacent spine
vestigial - with a very reduced setule

KG 12

Female P5 setae	Male P5 setae	P2–P3 Exp-3	
4:4	1:3	wd	*Pseudoleptomesochrella halophila* [*sensu* Apostolov 1969c, as *P. pontica*]
4:4	2–3:3	vestigial	*P. halophila* [*sensu* Mielke 1975]
3:4	2:3	vestigial	*P. halophila* [*sensu* Noodt 1952b]

KG 13 – characters
1. P2–P4 Exp-3
n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-2
n:n:n - number of setae on P2, P3 and P4

3. Female P5
n:n - number of setae on endopod and exopod
uk - female unknown

4. Male P5
n:n - number of setae on endopod and exopod
uk - male unknown

KG 13

P2–P4 Exp-3 setae	P2–P4 Enp-2 setae	Female P5 setae	Male P5 setae	
5:5:6	2:4:2	3:3	uk	*Nitocrella dussarti*[1]
5:5:6	2:3:2	3:4	2:5	*N. gracilis*
5:5:5	3:4:3	4:3	3:4	*N. chappuisi*
4:4:4	2:2:2	uk	2:5	*N. negreai*[1]

1. As the setation of P1 is not completely known, *N. dussarti* (KG 13–14) and *N. negreai* (KG 13–16) are included in all possible keys. Check identifications made with this key against the original description.

KG 14 – characters

1. P2–P4 Exp-3
n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-2
n:n:n - number of setae on P2, P3 and P4

3. Female P5
n:n - number of setae on endopod and exopod
uk - female unknown

4. Male P5
n:n - number of setae on endopod and exopod

KG 14

P2–P4 Exp-3 setae	P2–P4 Enp-2 setae	Female P5 setae	Male P5 setae	
5:5:6	2:4:2	3:3	uk	*Nitocrella dussarti*[1]
4:4:5	1:3:3	3:2	3:2	*Nitocrella delayi*
4:4:4	2:2:2	uk	2:5	*N. negreai*[1]

1. As the setation of P1 is not completely known, *N. dussarti* (KG 13–14) and *N. negreai* (KG 13–16) are included in all possible keys. Check identifications made with this key against the original description.

KG 15 – characters

1. P2–P4 Exp-3
n:n:n - number of setae and/or spines on P2, P3 and P4

2. P2–P4 Enp-2
n:n:n - number of setae on P2, P3 and P4

3. P1–P4 Enp-1, inner edge
n:n:n:n - number of setae on P2, P3 and P4

4. Female P5
n:n - number of setae on endopod and exopod
uk - female unknown

5. Male P5
n:n - number of setae on endopod and exopod
uk - male unknown

KG 15

P2–P4 Exp-3 setae	P2–P4 Enp-2 setae	P1–P4 Enp-1 inner setae	Female P5 setae	Male P5 setae	
5:5:6	4:4:4	1:1:1:1	4:4	2:5	*Nitocrella absentia*
5:5:6	3:4:1	1:1:1:1	3[1]	uk	*Abnitocrella eberhardi*[1]
4:4:6	4:3:1–2[2]	0:0:0:0	2[2]	1[2]	*A. halsei*[2]
4:4:6	3:4:3	1:1:1:1	4:4	uk	*Nitocrella trajani*
4:4:6	3:3:3	1:1:1:1	1–2:4	1:5	*N. obesa*
4:4:6	3:2:2	1:1:1:1	1:4	1:4	*N. monchenkoi*
4:4:6	3:2:2	1:1:1:1	uk	1:3	*N. kirgizica*
4:4:6	3:2:1	1:1:1:1	0:4	0:4	*N. afghanica*
4:4:6	2:2:2	0:0:0:0	1:4	1:4	*N. unispinosa*
4:4:6	2:2:2	1:1:1:1	1:3	1:3	*N. jankowskajae*
4:4:6	2:2:2	0:0:0:0	2–3:4	2:4	*N. caraioni*
4:4:6	2:2:2	0:0:0:0	0:4	0:5	*N. motasi*
4:4:6	2:2:2	0:0:0:0	0:3	0:4	*N. yokotai*
4:4:6	2:2:2	0:?:?:?	3:3	uk	*N. vasconica*
4:4:6	2:2:1	0:1:1:1	0:4	uk	*N. nana*
4:4:6	1:2:1	0:1:1:1	0:4	0:4	*N. stetinai*
4:4:6	1:2:1	0:0:0:0	3:4	uk	*N. mara*
4:4:5	3:3:3	1:1:1:1	0:3	0:3	*N. kyzylkumica*
4:4:5	3:2:2	1:0:0:0	3:4	uk	*N. rhodiensis*
4:4:5	2:2:2	1:1:1:1	4[3]	uk	*N. reducta*[3]
4:4:5	2:2:2	0:1:1:1	0:2	uk	*N. asiatica*
4:4:5	2:2:2	0:0:0:0	3:4	2:5	*N. cubanorum*
4:4:5	2:2:2	0:0:0:0	0:3	0:5	*N. japonica*
4:4:5	2:2:2	1:0:0:0	3–4:4	2:5	*N. achaiae*[4]
4:4:5	2:2:2	1:0:0:0	2–3:4	uk	*N. stammeri*[4, 5]
4:4:4–5	2:2:2	1:0:0:0	3–4:4	uk	*N. stammeri*[4, 6]
4:4:5	2:2:2	1:0:0:0	3–4:4	uk	*N. stammeri*[4, 7]
4:4:4	2:2:2	1:0:0:0	4:4	3:5	*N. slovenica*
4:4:4	2:2:2	1:0:0:0	3:4	2:5	*N. morettii*[4, 8, 9]
4:4:4	2:2:2	1:0:0:0	3:4	2:4	*N. psammophila*[4, 8]

4:4:4	2:2:2	0:0:0:0	4:5	2:5	*N. omega*[9]
4:4:4	2:2:2	0:0:0:0	2:5	2:5	*N. spinulosa*[9]
4:4:4	2:2:2	?:?:?:?	uk	2:5	*N. negreai*[9, 10]
4:4:4	2:2:2	0:0:0:0	3:3	2:1	*N. stochi*[11]
4:4:4	2:2:2	0:0:0:0	2–3:3–4	2:3–4	KG 15/2 (p. 172)[11]
4:4:4	2:2:1	0?:0:0:0	2–3:4	uk	*N. juturna*
4:4:4	2:2:1	0:0:0:0	3:3	uk	*N. fedelitae*
4:4:4	2:2:1	0:0:0:0	3:2	2:2	*N. pescei*
4:4:4	1:2:1	0–1:0:0:0	2:4	uk	*N. maggii*
4:3:4	2:2:3	1:0:0:0	uk	2–3:4	*N. hoffmilleri*

1. Female P5 is reduced to a vestige bearing 3 setae. One seta originates on the setophore of the remnant basis, with 2 further setae internal to this.
2. P5 is reduced to a vestige. One seta originates on the setophore of the remnant basis. The female also has a seta internal to this. P4 Enp-2 bears 1 seta in the female and 2 in the male.
3. P5 is a bilobed plate with 3 setae on the inner and 1 on the outer lobe.
4. In *Nitocrella stammeri* the caudal ramus is approximately as long as broad. In *N. achaiae*, *N. morettii* and *N. psammophila* it is approximately twice as long as broad.
5. Data from the original description. As the setation of P1 Exp-2 is not described by Chappuis it is unclear whether his specimens key out in this key or KG 16 (p. 172). The male of this species is known only from the Roman material of Cottarelli & Fasano (1978)—see KG 16.
6. Data from Pesce (1983a). Pesce records some specimens with an asymmetric setation of P4 Exp-3. He does not state whether the symmetrical specimens have 4 or 5 setae, but his illustrations and their captions imply that it is 4.

   As the setation of P1 Exp-2 is not described by Pesce, it is unclear whether his specimens key out in this key or KG 16 (p. 172). The male of this species is known only from the Roman material of Cottarelli & Fasano (1978)—see KG 16.
7. Data from the Sicilian specimens of Cottarelli & Fasano (1978), who describe the 4-setose condition of female P5 endopod as “aberrante”. The male of this species is known only from the Roman material of Cottarelli & Fasano (1978)—see KG 16 (p. 172).
8. It is very difficult to separate females of *Nitocrella morettii* and *N. psammophila* on the basis of published descriptions. Note also that Pesce’s (1985a) redescription of *N. psammophila* differs significantly (e.g. in P1 and caudal ramus) from the original description.
9. See KG 15/1 for further information on separating males of these species.
10. As the setation of P1 is unknown *Nitocrella negreai* is included in all possible keys (KG 13–16). Check any identification made with this key against the original description.
11. In the species in KG 15/2 the anal operculum always bears spinules, whereas that of *N. stochi* is naked.

KG 15/1– characters

This key is required only to separate the males of the species (see KG 15 note 9).

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. Anal operculum
   n - approximate number of spinules

3. P1 Enp-1, inner edge
   n - number of setae

4. P1, relative length of exopod and endopod
   long - approximately equal
   short - exopod extends only to about the end of Enp-2

5. Male P5 exopod

long dist - approximately twice as long as broad; origin of seta I in distal half and about opposite that of seta V

short dist - approximately as long as broad; origin of seta I in distal half and about opposite that of seta V

long prox - approximately twice as long as broad; origin of seta I in proximal half and proximal to that of seta V

KG 15/1

CR l/b	Anal operculum spines	P1 Enp-1 inner setae	P1 Exp/ Enp	Male P5 Exp	
≈2	10–12	1	?	long dist	*Nitocrella morettii*
≈2	16–17	0	≈	long dist	*N. omega*
≈1.5	≈5	0	<	short dist	*N. spinulosa*
≈1.2	≈12	?	?	long prox	*N. negreai*

KG 15/2 – characters

1. P5 exopod

n:n - number of setae in female and male

uk - male or female unknown

2. Mandible basis

n - number of setae

KG 15/2

P5 Exp setae	Mandible basis setae	
4:4	0?	*Nitocrella hirta* s. str.[1]
4:uk	?	*N. h. bucarestiensis*[1]
3:3	1	*N. longa*[1]
3:uk	0	*N. tirolensis*[1]
3:uk	?	*N. hirta caucasica*[1]

1. These species are extremely difficult to separate, especially as not all descriptions are comprehensive and *Nitocrella hirta* is very variable. *Nitocrella h. bucarestiensis* and *N. h. caucasica* are not included in the review of the genus by Petkovski (1976b).

KG 16 – characters

1. Anal operculum, distal edge

present - with a number of large spinules (usually referred to as "spines")

absent - without large spinules

2. Antenna exopod

n - number of segments

3. P1 Enp-1, length relative to exopod
short - Enp-1 extends to end of Exp-2 at most
medium - Enp-1 extends to about the middle of Exp-3
long - Enp-1 extends well beyond the end of the exopod

4. P2–P4 Exp-3
n:n:n - number of setae and spines on P2, P3 and P4

5. P2–P4 Enp-2
n:n:n - number of setae on P2, P3 and P4

KG 16

Anal operculum spines	A2 Exp segs	P1 Enp-1/ Exp	P2–P4 Exp-3 setae	P2–P4 Enp-2 setae	
present	1	short	5:5:6	2:3:3	*Novanitocrella aboriginesi*
present	1	short	5:5:6	2:2:2	*Novanitocrella aestuarina*
present	1	short	4:4:6	2:2:2	*Nitocrella aktereki*
present	1	short	4:4:6	1:2:1	*N. beatricis*
present	1	short	4:4:6	1:1:1	*N. paceae*
present	1	short	4:4:5	1:2:1	KG 16/1 (p. 174)
present	1	short	4:4:5	2:2:2	*Nitocrella stammeri*[1]
present	1	short	4:4:4–5	2:2:2	*N. stammeri*[2]
present	1	short	4:4:4	2:2:2	*N. skyrensis*[3]
present	1	short	4:4:4	2:1:1	*N. kosswigi*[4]
present	1	short	3:3:3	2:2:2	*N. tonsa*
absent	1	short	4:4:6	2:2:2	*N. tschatcalica*
absent	1	short	4:4:5	1:2:1	KG 16/2 (p. 174)
absent	1	short	4:4:5	1:1:1	*Nitocrella africana* female[5]
absent	1	short	4:4:4	2:2:2	*N. kunzi*
absent?	1	?	4:4:4	2:2:2	*N. negreai*[6]
absent	1	long	5:5:6	4:4:4	*Leptomesochra infima*
absent	1	long	4:4:5	3:4:4	*Leptomesochra* sp. Bodin, 1964
absent	2	medium	4:4:6	2:2:2	*Pseudoleptomesochrella venezolana*
absent	2	medium	3:3:5	2?:2?:2?	*P. marina*
absent	2	medium	3:3:5	2:2:1	*P. bisetosa*

1. Data from original description and from the Roman specimens of Cottarelli & Fasano (1978). As the setation of P1 Exp-2 is not described in the original description it is unclear whether these specimens key out in this key or KG 15 (p. 169). The Roman material of Cottarelli & Fasano contains the previously unknown male. See KG 15 for the Sicilian specimens of Cottarelli & Fasano.
2. Data from Pesce (1983a). Pesce records some specimens with an asymmetric setation of P4 Exp-3. He does not state whether the symmetrical specimens have 4 or 5 setae, but his illustrations and their captions imply that it is 4.
As the setation of P1 Exp-2 is not described by Pesce, it is unclear whether his specimens key out in this key or KG 15 (p. 169). The male of this species is known only from the Roman material of Cottarelli & Fasano (1978).
3. *Nitocrella skyrensis* is distinguished from the *N. stammeri* of Pesce (see note 2) by having only 2 setae on P5 endopod in both sexes.
4. Data from Damian & Botosaneanu's (1955) male. See also KG 16/1 (p. 174).
5. See KG 16/2 (p. 174) for the male. In *Nitocrella africana* the P5 consists of a single small lobe with 1 long outer seta and 2 very short inner setae.
6. As the setation of P1 is unknown *Nitocrella negreai* is included in all possible keys (KG 13–16). Check any identifi-

cation made with this key against the original description. The description of the anal operculum states the distal edge is naked but that there is a row of spinules across the face of the operculum.

7. In *Pseudoleptomesochrella marina* the outer "seta" of P2–P4 Enp-2 is reduced to a small spinule-like structure and it is not certain that it is a true seta.

KG 16/1 – characters

1. P2–P3 endopod, length relative to exopod
   - long - endopod extends to middle of Exp-2
   - short - endopod extends to end of Exp-1 at most

2. Female P5
   - n:n - number of setae on endopod and exopod

3. Male P5
   - n:n - number of setae on endopod and exopod
   - uk - male unknown

4. Mandible endopod
   - n - number of setae

KG 16/1

P2–P3 Enp/Exp	Female P5 setae	Male P5 setae	Mandible Enp setae	
long	2:4	2:5	4	*Nitocrella kosswigi*[1]
short	3:4	uk	?	*N. somalica*
?	3:4	2:5	2	*N. neutra*[2]

1. Data from the original description (Noodt 1954a) and Damian & Botosaneanu's (1955) female. See also KG 16 (p. 172).
2. Lang (1948) states that in *Nitocrella neutra* P1 Exp-3 bears 5 setae and spines and thus this key should also contain this species. However, Petkovski (1959a) has pointed out that the 5-setose condition in *N. neutra* is indicated only in a table of setation, and that the illustration of P1 shows only 4 setae.

KG 16/2 – characters

1. Caudal ramus, in dorsal view
   - n - ratio of maximum length to maximum breadth

2. P1 Enp-1, inner edge
   - n - number of setae

3. P2–P4 Exp-2. inner edge
   - n:n:n - number of setae on P2, P3 and P4

4. Female P5
   - n:n - number of setae on endopod and exopod
   - na - not applicable

5. MaleP5
   - n:n - number of setae on endopod and exopod
   - uk - male unknown

KG 16/2

CR l/b	P1 Enp-1 inner setae	P2–P4 Exp-2 inner setae	Female P5 setae	Male P5 setae	
≈1	1	1:1:1	3:4	uk	*Nitocrella petkovskii*
≈2.5	0	1:1:0	0:4	0:4	*N. hypogea*
4	1	1:1:0	na	3[1]	*N. africana* male[1]

1. See KG 16 (p. 172) for the female. In *Nitocrella africana* the P5 consists of a single small lobe with 1 long outer seta and 2 very short inner setae.

KG 17 – characters

1. P2–P4 endopod, distal segment
   n:n:n - number of setae on P2, P3 and P4

2. P2–P3 Enp-1, inner edge
   n:n - number of setae on P2 and P3

3. Female P5
   n:n - number of setae on endopod and exopod
   na - not applicable

4. Male P5
   n:n - number of setae on endopod and exopod

Suárez-Morales & Iliffe (2005) and Karanovic (2006) provide dichotomous keys to *Stygonitocrella*.

KG 17

P2–P4 Enp distal seg setae	P2–P3 Enp-1 inner setae	Female P5 setae	Male P5 setae	
2:1:1	0:0	0	0	*Stygonitocrella djirgalanica*[1]
2:2:2?[1]	1:1	na	0:3	*S.* (*Fiersiella*) *tianschanica* male[2]
1:1:1	0:0	0:3	0:4	*S. (F.) montana*

1. *Species inquirenda* in *Stygonitocrella.* Many features of its morphology need to be confirmed. The description is unillustrated and type material no longer exists.
2. See KG 19 (p. 176) for female. P2–P3 Enp-2 bear 2 apical setae; P4 endopod bears 1 apical seta and a very small seta (?setule) on the outer edge.

KG 18 – characters

1. Anal operculum
   present - with a number of large spinules (usually referred to as "spines")
   absent - without large spinules

2. P2–P4 endopod, distal segment
   n:n:n - number of setae on P2, P3 and P4

3. P2–P4 Exp-2, inner edge
n:n:n - number of setae on P2, P3 and P4

Suárez-Morales & Iliffe (2005) and Karanovic (2006) provide dichotomous keys to *Stygonitocrella*.

KG 18

Anal operculum spines	P2–P4 Enp distal seg setae	P2–P4 Exp-2 inner setae	
present	1:2:1	1:0:1	*Stygonitocrella* (*Stygonitocrella*) *petkovskii*
absent	2:2:1	1:1:1	*S. (S.) karamani*

KG 19 – characters

1. P1 exopod
short - exopod extends only to the end of Enp-2; Enp-1 extends approximately to the end of Exp-2
long - exopod about as long as endopod; Enp-1 extends approximately to the end of Exp-1

2. P2 Enp-1, inner edge
n - number of setae

3. Female P5
n:n - number of setae on endopod and exopod

Suárez-Morales & Iliffe (2005) and Karanovic (2006) provide dichotomous keys to *Stygonitocrella*.

KG 19

P1 Exp	P2 Enp-1 inner setae	Female P5 setae	
short	0	0:3	*Stygonitocrella* (*Fiersiella*) *tianschica* female[1]
long	1	0:2	*S.* (*F.*) *pseudotianschica*

1. See KG 17 (p. 175) for male.

KG 20 – characters

1. P1 Enp-1, inner edge
n - number of setae

2. P2–P4 Exp-3
n:n:n - number of setae and spines on P2, P3 and P4

3. P2–P4 endopod
n:n:n - number of setae on P2, P3 and P4

4. Female P5
n:n - number of setae on endopod and exopod

5. Male P5
n:n - number of setae on endopod and exopod

Suárez-Morales & Iliffe (2005) and Karanovic (2006) provide dichotomous keys to *Stygonitocrella*.

KG 20

P1 Enp-1 inner setae	P2–P4 Exp-3 setae	P2–P4 Enp setae	Female P5 setae	Male P5 setae	
1	4:4:6	1:2:1	2:4	2:4	*Stygonitocrella* (*Fiersiella*) *bispinosa*
1	4:4:5	2:2:0	0:2	0:2	*Neonitocrella insularis*[1]
1	4:4:5	1:2:1	3:4	2:5	*Stygonitocrella* (*F.*) *trispinosa*
1	4:4:5	1:2:1	1:4	1:5	*S.* (*F.*) *unispinosa*
1	4:4:5	1:2:1	0:1	0:1(2?)[2]	*Inermipes humphreysi*[2]
1	4:4:4	1:2:1	3:5	2:4	*Stygonitocrella* (*Stygonitocrella*) *ljovuschkini*
0	4:4:6	1:1:1	0:4	0:4	*S.* (*F.*) *guadalfensis*

1. P4 endopod reduced to a minute asetose stump.
2. One seta and a terminal spiniform projection that clearly is a spine fused to the segment.

KG 21 – characters

1. P1 En2
n - number of setae

2. Female P5
n:n - number of setae on endopod and exopod

3. Male P5
n:n - number of setae on endopod and exopod

4. Female P5, longest seta on endopod and exopod
A - endopod - seta I is twice as long as any other seta;
exopod - seta III is twice as long as any other seta
B - endopod - seta III is 3 times as long as any other seta;
exopod - setae I and III are at least twice as long as other setae
C - endopod - seta III is twice as long as any other seta;
exopod - setae I and III are approximately equal in length and almost twice as long as seta II
D - endopod - setae III and IV are approximately equal in length;
exopod - setae I and III are approximately equal in length and about twice as long as seta II
E - endopod - setae III and IV are approximately equal in length;
exopod - seta II is the longest seta
F - endopod - seta III is the longest seta;
exopod - seta II is the longest seta

G - endopod - seta III is the longest seta;
exopod - setae II, III and IV are approximately equal in length

5. Male P5, longest seta on endopod and exopod
A - endopod - seta I is the longest seta;
exopod - seta III is the longest seta
B - endopod - setae I and II are approximately equal in length;
exopod - seta III is the longest seta
C - endopod - seta II is twice as long as any other seta;
exopod - setae I and III are approximately equal in length
D - endopod - seta III is the longest seta;
exopod - seta II is the longest seta
E - endopod - seta III is the longest seta;
exopod - setae III and IV are approximately equal in length
F - endopod - seta III is the longest seta;
exopod - seta IV is the longest seta
uk - male unknown

KG 21

P1 Enp-2 setae	Female P5 setae	Male P5 setae	Female P5 longest seta	Male P5 longest seta	
4	4:4	4:4	D	C	*Psyllocamptus* (*Psyllocamptus*) *totoramensis*[1]
4	4:4	3:3	C	?	*P.* (*P.*) *bermudae*
3	4:4	4:4	A	B	*P.* (*P.*) *tahuesensis*[1]
3	4:4	4:4	B	D	*P.* (*P.*) *sinaloensis*[1]
3	4:6	4:6	F	E	*P.* (*P.*) *minutus* [*sensu* Moore 1976a]
3	4:6	3:6	F	A	*P.* (*P.*) *minutus* [*sensu* Kunz 1951, Noodt 1955c]
3	4:6	3:6	E	uk	*P.* (*P.*) *minutus* [*sensu* Sars 1911]
3	4:6	3:6	F	uk	*P.* (*P.*) *minutus* [*sensu* Vervoort 1962]
3	4:6	3:6	G	uk	*P.* (*P.*) *minutus* [*sensu* Monard 1928]

1. See Gómez (2002a) for a detailed comparison of these species.

KG 22 – characters

1. P2–P4 Enp-3
n:n:n - number of setae on P2, P3 and P4

2. Female P5
n:n - number of setae on endopod and exopod
uk - female unknown

3. Male P5
n:n - number of setae on endopod and exopod

KG 22

P2–P4 Enp-3 setae	Female P5 setae	Male P5 setae	
3:3:3	4:5	4:4	*Psyllocamptus* (*Psyllocamptus*) *eridani*
2:3:3	uk	3:4	*P.* (*P.*) *monachus*

KG 23 – characters

1. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-2
   n:n:n - number of setae on P2, P3 and P4

3. Female P5
   d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod

4. Male P5
   d *or* f:n:n:(n) - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod: (total number of setae)
   uk - male unknown

5. Rostrum
   small - reduced to a small knob, round or pointed
   large - a large acutely pointed lobe, extending to about the middle of antennule segment 2

KG 23

P2–P4 Exp-3 setae	P2–P4 Enp-2 setae	Female P5	Male P5	Rostrum	
5:5:7	2:2:2	f:2–3:5:(8–9)	f:3:5:(9)	small	*Leptomesochra attenuata*
5:5:6	3:3:3	f:4:5:(10)	f:3:5:(9)	small	*L. confluens*
5:5:6	3:3:3	d:4:4:(9)	f:2:5:(8)	small	*L. theodoridis*
5:?:6	5:?:3	f:3:5:(9)	uk	large	*L. nasuta*

KG 24 – characters

1. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-2
   n:n:n - number of setae on P2, P3 and P4

3. Female P5
   n:n - number of setae on endopod and exopod

4. Male P5
   n:n - number of setae on endopod and exopod
   uk - male unknown

5. P1 Enp-1, length relative to exopod

>>:prox	- Enp-1 extends far beyond end of exopod: origin of inner seta clearly in proximal half of Enp-1
3 distal:prox	- Enp-1 extends into the distal half of Exp-3: origin of inner seta clearly in proximal half of Enp-1
3 prox:middle	- Enp-1 does not extend to the middle of Exp-3: origin of inner seta in the middle of Enp-1
3 prox:distal	- Enp-1 does not extend to the middle of Exp-3: origin of inner seta clearly in distal half of Enp-1
2:distal	- Enp-1 extends only to the end of Exp-2: origin of inner seta clearly in distal half of Enp-1

KG 24

P2–P4 Exp-3 setae	P2–P4 Enp-2 setae	Female P5 setae	Male P5 setae	P1 Enp-1	
4:4:5	2:2:2	1:4	uk	3 distal:prox	*Parevansula secunda*
4:4:5	2:2:1	1:4	1:4	3 prox:distal	*P. reductiformia*
3:3:4	2:2:1	1:4	1:4	2:distal	*P. elongatus*
3:3:4	2:2:1	1:3	1:3	>>:prox	*P. mediterranea*
3:3:4	2:2:1	1:3	1:3	3 distal:prox	*P. vermiformis*
3:3:4	2:2:1	1:3	uk	3 prox:middle	*P. wellsi*

KG 25 – characters

1. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-2
   n:n:n - number of setae on P2, P3 and P4

3. Mandible endopod
   n - number of segments

4. Maxilliped syncoxa
   n - number of setae

5. Male P5
   n:n - number of setae on endopod and exopod

KG 25

P2–P4 Exp-3 setae	P2–P4 Enp-3 setae	Mandible Enp segs	Maxilliped syncoxa setae	Male P5 setae	
4:4:5	2:2:2	1	1	1:4	*Paraleptomesochra wellsi*
4:4:4	1:1:1	2	0	2:4	*P. minima*

Family Ancorabolidae

Caution: In this family P1–P4 Enp-1 (and sometimes the entire endopod) may be reduced to a small stump, thus making it difficult to count the number of segments. Also, the setae often are very small and the presence of tube pores can further confuse the observer. Any identification must be checked against a good description

KG 0 – characters
Conroy-Dalton & Huys (2000) provide a phylogenetic analysis of the genera *Ancorabolus*, *Arthropsyllus*, *Breviconia*, *Juxtaramia* and *Uptionyx* that includes many more characters for distinguishing the genera than is possible in this key format.

1. P1
   n:n - number of segments in exopod and endopod

2. P2 and P4 endopod
   n:n - number of segments in P2 and P4
   (r = segment is rudimentary, but distinguishable)

3. P1 exopod, distal segment
   n - number of setae and spines
   (r = seta is rudimentary, but distinguishable)

4. P2–P4 exopod, distal segment
   n:n:n - number of setae and spines on P2, P3 and P4

5. P2 and P4 endopod, distal (or only) segment
   n:n - number of setae on P2 and P4
   na - not applicable (endopod absent)

KG 0

P1 segs	P2 & P4 Enp segs	P1 Exp distal seg setae	P2–P4 Exp distal seg setae	P2 & P4 Enp distal seg setae	
3:2	2:2	4	6:7:7	2:4	*Laophontodes whitsoni* [*sensu* T. Scott 1912]
3:2	2:2	4	6:7:7	2:2	*Laophontodes whitsoni* [*sensu* Pallares 1975b]
3:2	2:2	4	6:6:6	2:4	*L. macclintocki*
3:2	2:2	4	6:6:6	2:2	KG 1 (p. 182)
3:2	2:2	4	6:6:6	1:1	*Laophontodes gracilipes*
3:2	2:2	4	5:6:6	2:2	*L. psammophilus*
3:2	2:2	4	5:6:5	1:2	*Dorsiceratus triarticulatus*
3:2	2:2	4	5:5:6	2:2	*Laophontodes spongiosus*
3:2	2:2	4	5:5:5	2:4	*L. macropodia* female
3:2	2:2	4	5:5:5	2:3	*L. macropodia* male[1]
3:2	2:2	4	5:5:5	2:3	*L. armatus* [*sensu* Pallares 1968a][1]
3:2	2:2	4	5:5:5	2:2	*L. armatus* [sensu Lang 1936b, Willey 1930]
3:2	2:2	4	4:4–5:4	2:4	*Echinocletodes bodini*[2]
3:2	2:2	4	4:4:4	(2?):4	*E. armatus*[2]

3:2	2:2	4	4:4:4	2:3	*E. walvisi*[2]
3:2	2:1	4	6:6:6	2:3	*Laophontodes typicus*
3:2	1:1	4	6:7:7	2:4	*L. hamatus*, *L. bicornis*[3]
3:2	1:1	4	6:6:6	2:3	*L. ornatus*
3:2	1:1	4	5:5:5	2:1	KG 2 (p. 183)
3:2	0:1	4	5:5:5	na:2	*Algensiella boitanii*, *A. laurenceae*[4]
3:2	0:1	4	5:5:5	na:1	*Lobopleura ambiducti*[5]
3:2	0:0	4	4:4:5	na:na	KG 3 (p. 183)
3:2	0:0	4	4:4:4	na:na	*Tapholaophontodes rollandi*
3:0	0:1r	4	4:4:4	na:1r	*Echinopsyllus normani*[6]
2:2	2:2	5	5:6:5[7]	2:2	KG 4 (p. 184)[7]
2:2	2:2	5	5:6:5[7]	2:1	*Ceratonotus concavus*[7]
2:2	2:2	5	5:6:5	1:2	*Dorsiceratus octocornis*
2:2	2:2	5	4:4:4	3:4	KG 5 (p. 184)
2:2	2:2	5	4:4:4	3:3	KG 6 (p. 185)
2:2	2:2	5	4:4:4	2:3	KG 7 (p. 185)
2:2	2:1r	4	5:6:5	2:1	*Ceratonotus coineaui*
2:2	2:0	5	5:5:5	2:na	*Patagoniella vervoorti*
2:2	1:1r	5	5:6:5	2:1	*Ceratonotus pectinatus*
2:2	1:0	5	4:4:4	1:na	*Tapholaophontodes remotus*
2:2	0:2	5	5:6:5[7]	na:1	*Polyascophorus martinezi* female[7]
2:2	0:2	5	5:6:5[7]	na:2	*Polyascophorus martinezi* male[7]
2:2	0:2	5	5:5:4	na:1	KG 8 (p. 186)
2:2	0:1	5	4:?:4	na:1	*Dendropsyllus antarcticus*
2:2	0:0	5	4:4:4	na:na	*Tapholaophontodes remotus*
2:2	0:0	4–5	5:5:5	na:na	KG 9 (p. 186)
2:1	1:1	4	5:6:5	1:1	*Polyascophorus gorbunovi*
2:0	0:2	5	5:6:5	na:2	*Arthuricornua anendopodia*

1. In *L. macropodia* the P5 is short and broad—about 1.5 times as long as broad; in *L. armatus* it is long and slender—at least 6 times as long as broad.
2. In *E. bodini* and *E. walvisi* P2–P4 Enp-1 bears 1 inner seta; this segment is naked in *E. armatus*. The setation of female P5 is 3:5, 2:5 and 4:3 respectively; the male is known only for *E. armatus*.
3. The caudal ramus is 3.5 times as long as broad in *L. hamatus* and 7 times as long as broad in *L. bicornis*.
4. The 2 species of *Algensiella* may be synonymous; see Checklist Note 400 (p. 99).
5. This codon will also include *Lobopleura expansa* (= *Laophontodes expansus*) that is at present in KG 2 (p. 183) if Conroy-Dalton (2004) is correct in her speculation that Sars (1908) misinterpreted the structure of P2–P4.
6. Data from redescription by Conroy-Dalton (2003b).
7. In P2 and P3 there is a long tube pore close to the outer distal corner; this could easily be mistaken for a further seta.

KG 1 – characters

1. Cephalic shield, in dorsal view

  orn - with 2 pairs of lateral "horns"

  unorn - without pronounced lateral "horns"; distal lateral corners appear gently rounded

2. P2–P4 Exp-2, inner edge

  n:n:n - number of setae on P2, P3 and P4

KG 1

Cephalic shield	P2–P4 Exp-2 inner setae	
orn	1:1:1	*Laophontodes hedgpethi*
unorn	0:0:0	*L. mourois*

KG 2 – characters

1. Body shape in dorsal view
   - compressed - very broad, dorsoventrally compressed
   - slender - almost cylindrical

2. Caudal ramus
   - 3 - about as long as the last 3 somites
   - 1 - slightly longer than the anal somite

3. P1 basis
   - outer - basis with seta on outer side only; inner side naked
   - in+out - basis with a seta on inner and outer sides

4. P1 Enp-2
   - 2 - with a claw and 1 long, geniculate seta
   - 3 - with a claw, 1 long, geniculate seta and 1 shorter, filiform seta

KG 2

Body shape	CR length	P1 basis setae	P1 Enp-2 setae	
compressed	3	outer	2	*Lobopleura expansa*[1, 2]
slender	1	in+out	3	*Laophontodes propinquus*[2]

1. This species occurs in this key only if Conroy-Dalton (2004) is not correct in her speculation that Sars (1908) misinterpreted the structure of P2–P4 (see KG 0 note 5, p. 182).
2. The description of *Laophontodes propinquus* is incomplete and possibly inaccurate. The setation of P2–P3 is not described but it is probable that it is the same as in *L. typicus*, and thus the same as *L. expansus*. P1 is illustrated with an inner seta on the basis and with 3 setae on Enp-2. These conditions would be unique in the genus and thus require confirmation. The species can be distinguished easily on body shape (see Lang 1948).

KG 3 – characters

1. Abdomen, somite 4, lateral lobate processes (similar to somites 1–3)
   - present *or* absent

2. Anal operculum, distal edge
   - setulose - with long fine setules
   - naked - without ornamentation

3. Caudal ramus, inner edge
concave - weakly concave (best seen in dorsal view); with a distinct step basally(best seen in ventral view)
straight - straight; base not swollen

KG 3

Abdomen som 4	Anal operculum	CR inner edge	
present	setulose	straight	*Probosciphontodes ptenopostica*[1]
absent	baked	concave	*P. stellata*[1]

1. Data from original descriptions and the amendments by Conroy-Dalton (2004).

KG 4 - characters

1. Dorsal ornamentation of body
elaborate - cephalic shield and thoracic somites each with at least 1 pair of very long, multidentate projections (these may also be present on some urosomites)
simple - body somites with short broad, non-dentate projections

2. Caudal ramus
n - ratio of maximum length to maximum breadth

3. Antenna basis
n - number of setae

4. Female antennule
n - number of segments

5. Female P5 exopod
n - number of setae*

*exopod also bears a long tube pore on the distal edge that can easily be mistaken for a seta

KG 4

Body	CR l/b	A2 basis setae	Female A1 segs	Female P5 setae	
elaborate	˜10	1	3	3	*Ceratonotus thistlei*
simple	˜3.5	2	4	5	*Touphapleura schminkei*

KG 5 – characters

1. P1 Exp-2, seta III
spine - spiniform
seta - setiform (and usually geniculate)

2. Mandible palp
n - number of setae

KG 5

P1 Exp-2 seta III	Mandible palp setae	
5	spine	*Arthropsyllus serratus* female
5	seta	*Breviconia australis*
6	seta	*Uptionyx verenae*

KG 6 – characters

1. Body ornamentation
   - simple - lateral processes not branched, broad at their base, rounded at apex, and shorter than the width of the segment that bears them; dorsal processes small and not well defined
   - complex - lateral processes often branched, always long, thin and acutely pointed at apex; dorsal processes prominent, long, thin and acutely pointed at apex

2. Cephalic shield, paired dorsal processes in anterior half
   present *or* absent

3. Mandible palp
   n - number of setae

KG 6

Body ornam.	Cph processes	Mandible palp	
simple	absent	5	*Arthropsyllus serratus*
simple	present	?	*Ancorabolus mirabilis*[1]
complex	present	5	*Ancorabolus hendrickxi*
complex	present	3	*Ancorabolus confusus*

1. See Conroy-Dalton & Huys (2000) for a discussion of the true nature of this species. It is incompletely described and is included in both KG 6 and KG 7 because the setation of P2–P4 is not fully known.

KG 7 – characters

1. Caudal rami
   - distant - origin widely separated; inner side concave
   - close - origin closely adjacent; inner side straight

2. Cephalic shield, paired dorsal processes in anterior half
   present *or* absent

3. Antennule, recurved process at base of posterior edge of segment 2
   present *or* absent

4. Dorsal ornamentation of body
   - A - posterior edge of cephalic shield and thoracic somites 2–5 with a pair of elongate, dorsal processes that extend at least into the distal half of the following somite
   - B - posterior edge of cephalic shield and thoracic somites 2–4 with a pair of short, dorsal processes that barely extend to the middle of the following somite; thorax 5 without this type of ornamentation

C - posterior edge of thoracic somites 2–4 with a pair of very short, dorsal processes that barely extend beyond the posterior edge of the somite; cephalic shield and thorax 5 without this type of ornamentation

KG 7

CR	Cph processes	A1 seg 2 process	Body	
distant	present	present	A	*Ancorabolus mirabilis*[1, 2]
distant	present	present?	?	*A. ilvae*[1, 3]
distant	absent	absent	B	*A. inermis*[1]
close	absent	absent	C	*Juxtaramia polaris*[1]

1. Confirm identification of these species by consulting Conroy-Dalton & Huys (2000) and George (2001).
2. See Conroy-Dalton & Huys (2000) for a discussion of the true nature of this species. It is incompletely described and is included in both KG 6 (p. 185) and KG 7 because the setation of P2–P4 is not fully known.
3. This species is known only from juvenile stages; see George (2001).

KG 8 – characters

1. Caudal ramus
   long - longer than entire abdomen
   short - shorter than entire abdomen

2. Caudal ramus
   n - ratio of maximum length to maximum breadth

KG 8

CR	CR	
long	≈13	*Dendropsyllus thomasi*
short	≈8	*D. magellanicus*

KG 9 – characters

1. Dorsal ornamentation of body
   complete - cephalic shield and each somite except the last with a mid dorsal H-shaped chitinous projection
   abdomen - these projections only on abdomen somites 2–4

2. Caudal ramus
   n - ratio of maximum length to maximum breadth

3. Antenna exopod
   absent - exopod entirely absent
   seta - exopod represented by 1 seta

4. Female P3 endopod
   absent - endopod entirely absent
   seta - endopod represented by 1 seta

5. P5, inner side

present - with a strong, plumose seta*

absent - strong seta absent

* Note that close to the origin of the strong seta there also may be a weaker seta and 2 tube pores. In some descriptions the weak seta is not noted and there is said to be 2 setae. This is almost certainly an error, with tube pores being identified as setae.

KG 9

Body	CR l/b	A2 Exp	Female P3 Enp	P5 inner seta	
complete	≈7	seta	seta	present	*Paralaophontodes exopoditus*
complete	≈5	absent	seta	absent	*P. elegans*
abdomen	≈5	absent	absent	present	*P. echinatus*

Family Arenopontiidae

KG 0 – characters

1. P1
   n:n - number of segments in exopod and endopod

2. P2–P4 endopod
   n:n - number of segments in P2 and P4

3. P1 Exp, distal segment
   n - number of setae and spines

4. P2–P4 Exp, distal segment
   n:n:n - number of setae and spines on P2, P3 and P4

5. P2–P4 Enp-2
   n:n - number of setae and spines on P2, P3 and P4

KG 0

P1 segs	P2–P4 Enp segs	P1 Exp distal seg setae	P2–P4 Exp-3 distal	P2–P4 Enp-2 setae	
3:2	2:2:2	5	3:3:3	2:2:2	*Arenopontia orientalis*
3:2	2:2:2	4	4:3:4	1:1:1	*A. phreatica*
3:2	2:2:2	4	3:3:4	3:3:2	*A. secunda*
3:2	2:2:2	4	3:3:4	3:2:2	KG 1 (p. 189)
3:2	2:2:2	4	3:3:4	3:1:2	KG 2 (p. 189)
3:2	2:2:2	4	3:3:4	2:2:2	KG 3 (p. 190)
3:2	2:2:2	4	3:3:4	2:1:2	*Arenopontia speluncae*
3:2	2:2:2	4	3:3:3	3:2:2	KG 4 (p. 191)
3:2	2:2:2	4	3:3:3	3:1:2	*Arenopontia accraensis*
3:2	2:2:2	4	3:3:3	2:2:2	*A. intermedia*
3:2	2:2:2	4	3:3:3	2:1:2	KG 5 (p. 191)
3:2	2:2:2	4	3:3:3	1:1:3	*Arenopontia subterranea* [*sensu* Chappuis 1954a][1]
3:2	2:2:2	3	3:3:4	3:2:2	*A. huysi*
3:2	2:2:2	3	3:3:3	3:2:2	*A. spinicaudata*
3:2	2:1:2	4	3:3:3	3:1:2	*A. australis*
3:2	1:1:2	3	3:3:4	3:1:1	*A. africana*
2:2	2:2:2	4	3:4:4	3:2:2	*Pararenopontia breviarticulata*
2:2	1:1:2	3	3:3:4	2:1:2	*P. trisetosa*

1. *Arenopontia subterranea* is in urgent need of review. For a common and widespread species it is surprisingly inadequately described. A large amount of variability also is reported, but has yet to be analysed.
   A determination arrived at with this key must be considered temporary until all descriptions have been consulted. Taxonomic information is provided by Kunz (1937), Chappuis (1954a), Marinov (1971), Cottarelli (1975b), Mielke (1975), Lindgren (1976) and Arlt (1983).

KG 1 – characters

1. Caudal ramus

aesthete?	- dorsal articulated seta (seta VII) has the tubular and flexible form of an aesthetasc
arrow	- seta VII filiform except for the distal quarter where it is expanded like an arrow head
filiform	- seta VII filiform

2. Abdomen somites 2–4, hyaline frill

smooth	- hyaline frill wide, fully divided into rectangular lappets, distal edge straight, smooth
round	- hyaline frill wide, fully divided into rectangular lappets, distal edge rounded, smooth
denticulate	- hyaline frill wide, fully divided into rectangular lappets, distal edge finely denticulate
trifid	- hyaline frill wide, fully divided into rectangular lappets each of which is trifid or quadrifid over much of its length
absent?	- hyaline frill apparently absent (not mentioned in descriptions) but possibly very narrow and with a smooth distal edge

3. P5

n - number of setae and spines

4. Caudal ramus, spiniform projection from middle of inner edge

present *or* absent

5. Abdomen somites, cuticle with 10–12 parallel anteroposterior thickenings

present *or* absent

KG 1

CR seta VII	Abdomen som 2–4 hyaline frill	P5 setae	CR inner edge	Abdomen cuticular pattern	
filiform	absent?	4	absent	absent	*Arrenopontia acantha*
filiform	smooth?	2	absent	absent	*A. chauffriassei*
filiform	denticulate	4	absent	absent	*A. ishikariana* [*sensu* Itô 1968]
filiform	rounded	4	absent	absent	*A. ishikariana* [*sensu* Mielke 1987a]
arrow	trifid	4	present	absent	*A. spicata*
aesthete?	smooth	4	absent	present	*A. clasingi*

KG 2 – characters

1. Caudal ramus

aesthete?	- dorsal articulated seta (seta VII) has a tubular and flexible form more typical of an aesthetasc
arrow	- seta VII filiform except for the distal quarter where it is expanded like an arrow head
filiform	- seta VII filiform

2. Abdomen somites 2–4, hyaline frill

smooth	- hyaline frill wide, fully divided into rectangular lappets, distal edge straight, smooth
round	- hyaline frill wide, fully divided into rectangular lappets, distal edge rounded, smooth
denticulate	- hyaline frill wide, fully divided into rectangular lappets, distal edge finely denticulate

trifid - hyaline frill wide, fully divided into rectangular lappets each of which is trifid or quadrifid over much of its length
absent? - hyaline frill apparently absent (not mentioned in descriptions) but possibly very narrow and with a smooth distal edge

3. P1 Enp-1, length relative to exopod
long - Enp-1 extends beyond the middle of Exp-3
medium - Enp-1 extends to the middle of Exp-3 at most
short - Enp-1 extends to the end of Exp-2 at most

KG 2

CR seta VII	Abdomen som 2–4 hyaline frill	P1 Enp-1/Exp	
filiform	absent?	medium	*Arenopontia longiremis*
filiform	smooth	short	*A. gussoae* [*sensu* Mielke 1987a]
filiform	smooth	long	*A. indica*[1]
aesthete?	smooth	medium	*A. gussoae* [*sensu* Cottarelli 1973]

1. Data from the redescription by Wells & Rao (1987).

KG 3 – characters
1. Caudal ramus, in dorsal view
n - ratio of maximum length (without terminal unguiform projection) to maximum breadth

2. Abdomen somites, cuticle with a reticulum of thickened chitin
present *or* absent

3. P5
spine - inner distal corner with a stout spine
ungui - inner distal corner a massive unguiform projection

4. P1 Enp-1, seta in middle of inner edge
present *or* absent

5. A2 exopod
present *or* absent

KG 3

CR l/b	Abdomen cuticular pattern	P5	P1 Enp-1 inner seta	A2 Exp	
≈2	present	ungui	present	present	*Arenopontia ornamenta*
≈1	absent	spine	absent	absent	*A. problematica*

KG 4 – characters

1. P5

ungui - inner distal corner a massive unguiform projection
spine - inner distal corner not unguiform but bearing a stout spine
seta - inner distal corner not unguiform but bearing a long, filiform seta

2. Abdomen, hyaline frill of female somites 2–4 and male somites 1–4

simple - entire*, distal edge plain*
denticulate - partial division into broad lappets*, division restricted to distal quarter; distal edge broadly denticulate*
striated - finely striated* throughout

* The terminology of Moore (1976c).

3. P1 Enp-1, length relative to exopod

>>Exp-3 - extends well beyond end of exopod
=Exp-3 - extends to approximately the end of Exp-3
=Exp-2 - extends to approximately the end of Exp-2
<Exp-2 - extends to about halfway along Exp-2 at most

4. Anal somite, dorsal distal edge adjacent to anal operculum

n - with *n* large spinules each side of operculum
naked - without ornamentation

5. Anal operculum, distal edge

setulose - with many long fine setules
naked - without ornamentation

KG 4

P5	Abdomen hyaline frill	P1 Enp-1/ Exp	Anal somite	Anal operculum	
ungui	denticulate	=Exp-3	3–4	naked	*Arenopontia pacifica*
spine	simple	=Exp-2	naked	setulose	*A. dillonbeachia*
spine	simple?	>>Exp-3	naked	naked	*A. riedli*
seta	simple?	=Exp-2	naked	naked	*A. arenarida*
seta	striated	<Exp-2	naked	naked	*A. stygia*

KG 5 – characters

1. Abdomen somites, cuticle with a reticulum of thickened chitin

present *or* absent

2. Abdomen, hyaline frill of female somites 2–4 and male somites 1–4

smooth - complete division into narrow lappets*; distal edge plain*
denticulate - complete division into narrow lappets*; distal edge finely denticulate*
bifid - complete division into narrow lappets*; striated*; distal edge bifid

* The terminology of Moore (1976c).

3. P1 Enp-1, length relative to exopod
long - Enp-1 extends well beyond end of exopod
short - Enp-1 does not reach the end of Exp-3

4. P5
ungui - inner distal corner a massive unguiform projection
seta - inner distal corner not unguiform but bearing a long, stout seta

5. P5
n - number of setae and spines

KG 5

Abdomen cuticle pattern	Abdomen hyaline frill	P1 Enp-1/ Exp	P5	P5 setae	
present	smooth	short	ungui	3	*Arenopontia reductaspina*
absent	bifid	short	seta	4	*A. peteraxi*
absent	?	long	seta	4	*A. subterranea*[1]
absent	denticulate	long	seta	4	*A. nesiae*[2]

1. *Arenopontia subterranea* is in urgent need of review. For a common and widespread species it is surprisingly inadequately described. A large amount of variability also is reported, but has yet to be analysed.

   A determination arrived at with this key must be considered temporary until all descriptions have been consulted. Taxonomic information is provided by Kunz (1937), Chappuis (1954a), Marinov (1971), Cottarelli (1975b), Mielke (1975), Lindgren (1976) and Arlt (1983).
2. Many of the arguments used by Cottarelli (1975b) to distinguish *A. nesiae* from *A. subterranea* are based on a comparison with very inadequately described aspects of *A. subterranea* or do not take notice of the range of variation described for this species.

Family Argestidae

KG 0 – characters

1. P1–P4 endopod
   n:n:n:n - number of segments in P1, P2, P3 and P4
   s - segment is represented by a seta only

2. P1–P4 Exp-3
   n:n:n:n - number of setae and spines on P1, P2, P3 and P4

3. P1–P4 endopod, distal segment
   n:n:n:n - number of setae on P1, P2, P3 and P4
   na - not applicable (endopod absent)

4. P1–P4 Exp-1, inner edge
   n:n:n - number of setae on P1, P2, P3 and P4

5. P1–P4 Exp-2, inner edge
   n:n:n - number of setae on P1, P2, P3 and P4

KG 0

P1–P4 Enp segs	P1–P4 Exp-3 setae	P1–P4 Enp distal seg setae	P1–P4 Exp-1 inner setae	P1–P4 Exp-2 inner setae	
3:3:3:3	5:7:8:8	3:5:6:5	1:1:1:1	1:1:1:1	KG 1 (p. 194)
3:3:3:3	5:7:8:7	3:5:5:5	1:1:1:1	1:1:1:1	*Argestes mollis*
3:3:3:3	5:7:8:7	3:5:5:5	0:1:1:1	1:1:1:1	KG 2 (p. 195)
3:3:3:3	5:7:8:6	3:5:5:5	0:1:1:1	1:1:1:1	*Parargestes tenuis arcticus*
3:3:3:3	5:7:7:6	4:4:4:4	0:0:0:0	1:1:1:1	*Bodinia peterrummi*[1]
3:3:3:3	4:7:8:8	3:4:5:5	0:0:0:0	1:1:1:1	*Argestoides prehensilis*
3:3:3:3	4:7:7:7	3:5:5:5	0:1:1:1	1:1:1:1	*Neoargestes incertus*
3:3:3:3	4:7:7:7	3:4:5:5	0:1:1:1	1:1:1:1	*N. variabilis*
3:3:3:3	4:6:6:5	3:4:4:4	0:0:0:0	1:1:1:1	*Bodinia meteorensis*[1]
2:3:3:3	5:7:8:7	4:3:4:4	0:1:1:1	1:1:1:1	*Fultonia gascognensis*
2:3:3:3	5:7:8:6	4:4:4:4	0:1:1:1	1:1:1:1	*F. hirsuta* [*sensu* Sars 1910], *F. bougisi* s. str.[2]
2:3:3:3	5:7:8:6	3:4:4:3	0:1:1:1	1:1:1:1	*Fultonia hirsuta* [*sensu* T. Scott 1902]
2:3:3:3	5:7:7:6	4:4:4:4	0:1:1:1	1:1:1:1	*F. bougisi corallicola*
2:3:3:3	4:7:8:7	4:4:4:4	0:1:1:1	0:1:1:1	*Argestes sarsi*[3]
2:3:3:3	4:7:8:6	4:4:4:4	0:1:1:1	1:1:1:1	*Odiliacletodes gracilis*
2:3:3:3	4:7:7:7	4:4:5:5	0:1:1:1	1:1:1:1	*Neoargestes variabilis*
2:3:3:2	4:7:8:7	3:4:4:4	0:1:1:1	1:1:1:1	*Dizahavia halophila*
2:2:2:2	5:8:7:7	3:4:3:4	0:0:0:0	1:1:1:1	*Corallicletodes boutierei*
2:2:2:2	5:7:8:8[4]	4:4:4:4	0:0:0:0	1:0:0:na[4]	*Hemicletodes typicus*[4]
2:2:2:2	5:7:8:7	4:4:5:4	0:0:0:0	1:1:1:1	*Mesocletodes faroerensis* female
2:2:2:2	5:7:7:7	4:5:5:5	0:1:1:1	1:1:1:1	*Eurycletodes* (*Oligocletodes*) *peruanus*
2:2:2:2	5:7:7:7	4:5:5:4	0:1:1:1	1:1:1:1	KG 3 (p. 195)

2:2:2:2	5:7:7:7	4:4:5:4	0:1:1:1	0:1:1:1	*Eurycletodes* (*Eurycletodes*) *serratus*, *E.* (*E.*) *laticaudata*[5]
2:2:2:2	5:7:7:7	3:5:5:4	0:1:1:1	1:1:1:1	*Eurycletodes* (*O.*) *echinatus*
2:2:2:2	5:7:7:7	3:4:5:4	0:1:1:0	1:1:1:1	*E.* (*O.*) *similis*
2:2:2:2	5:7:7:7	3:4:4:4	0:1:1:0	1:1:1:1	*E.* (*O.*) *monardi*
2:2:2:2	5:7:7:7	3:4:4:4	0:1:1:0	0:1:1:1	*Hypalocletodes salomonis*
2:2:2:2	5:7:7:7	3:4:4:2	0:1:0:0	0:1:1:1	*Eurycletodes* (*O.*) *quadrispinosa*
2:2:2:2	5:7:7:7	3:3:4:4	0:1:1:1	1:1:1:1	*E.* (*O.*) *parasimilis*
2:2:2:2	5:7:7:7	3:3:4:4	0:1:1:0	1:1:1:1	*E.* (*O.*) *petiti*
2:2:2:2	5:7:7:6	4:5:5:5	0:0:0:0	0:0:1:1	*Megistocletodes translucens*
2:2:2:2	5:7:6:5	3:3:3:3	0:0:0:0	0:1:1:1	*Mesocletodes thieli*
2:2:2:2	5:6:7:7	3:3:3:3	0:1:1:0	1:1:1:1	*Eurycletodes* (*O.*) *verisimilis*
2:2:2:2	5:6:6:6	3:3:3:3	0:0:0:0	1:1:1:1	*E.* (*O.*) *irelandica*
2:2:2:2	5:6:4:4	3:3:3:3	0:0:0:0	0:1:1:1	*Mesocletodes arenicola*
2:2:2:2	4:7:8:7	4:4:5:4	0:0:0:0	1:1:1:1	*M. faroerensis* male
2:2:2:2	4:7:8:6	4:5:5:4	0:1:1:0	0:1:1:1	*Leptocletodes debilis*
2:2:2:2	4:7:8:6	3–4[6]:5:5:2	0:1:1:0	0:1:1:1	*Leptocletodes* sp. Soyer, 1964d[6]
2:2:2:2	4:7:7:7	4:4:5:5	0:0:0:0	0:1:1:1	KG 4 (p. 196)
2:2:2:2	4:7:7:7	4:4:5:4	0:1:1:1	0:1:1:1	*Eurycletodes* (*E.*) *gorbunovi*, *E.* (*E.*) *rectangulatus*[7]
2:2:2:2	4:7:7:7	3:4:4:4	0:1:1:0	0:1:1:1	*Hypalocletodes aberrans*
2:2:2:2	4:7:7:7	2:5:5:5	0:0:0:0	0:1:1:1	*Mesocletodes parirrasus*
2:2:2:2	4:7:7:7	2:4:4:4	0:0:0:0	0:1:1:1	*M. carpinei*
2:2:2:2	4:6:6:6	4:4:4:4	0:0:0:0	0:1:1:1	*M. kunzi*
2:2:2:2	4:6:6:6	4:3:3:3	0:0:0:0	0:1:1:1	KG 5 (p. 196)
2:2:2:2	4:6:6:6	3:5:5:5	0:0:0:0	0:1:1:1	*Mesocletodes farauni*
2:2:2:2	4:6:6:6	3:4:4:4	0:0:0:0	0:1:1:1	*M. fladensis*, *M. katharinae*[8]
2:2:2:2	4:6:6:5	3:4:4:2	0:0:0:0	0:1:1:1	*Leptocletodes chaetophorus*
2:2:2:2	4:6:6:5	3:3:4:4	0:0:0:0	0:1:1:1	*Mesocletodes irrasus*
2:2:2:2	4:6:6:5	3:3–4:4:4–5[9]	0:0:0:0	0:1:1:1	*M. variabilis*[9]
2:2:2:2	4:6:6:5	2:2:2:2	0:0:0:0	0:1:1:1	*M. duosetosus*
2:2:2:2	4:6:6:5	1:3:3:3	0:0:0:0	0:1:1:1	*M. monensis*
2:2:2:2	3:6:6:5	3:4:4:3	0:0:0:0	0:1:1:1	*M. brevifurca*
2:2:2:1	5:7:7:7	3:3:4:2	0:1:1:0	1:1:1:1	*Eurycletodes* (*O.*) *arcticus*
2:2:2:1	4:7:7:7	3:3:2:5	0:1:1:0	1:1:1:1	*E.* (*O.*) *latus* [*sensu* Marinov 1971]
2:2:2:1	4:7:7:7	3:3:2:2	0:1:1:0	1:1:1:1	*E.* (*O.*) *latus*
2:2:2:1	4:6:6:5	1:3:2:2	0:0:0:0	0:1:1:1	*Mesocletodes ameliae*
2:2:2:1	3:6:6:5	2:3:2:2	0:0:0:0	0:1:1:1	*M. commixtus*
2:1:1:1	4:6:6:5	2:2?:4:4	0:0:0:0	0:1:1:1	*M. langi*
2:1:1:1	3:6:6:5	2:4?:4.3	0:0:0:0	0:1:1:1	*M. dolichurus*
2:0:0:0	5:5:5:5	3:na:na:na	0:0:0:0	0:0:0:0	*Austrocletodes tricomatosum*
1:2:2:2	4:6:6:5	2:2:3:3	0:0:0:0	0:1:1:1	*Mesocletodes guillei*
1:1:1:1	5:7:7:7	4:4:2:2	0:1:0:0	1:1:1:1	*Eurycletodes* (*O.*) *oblongus*
1:1:1:1	5:7:7:7	4:3:1:2	0:1:1:1	1:1:1:1	*E.* (*O.*) *abyssi*
1:1:1:1	5:7:7:7	3:2:4:2	0:?:?:?	1:?:?:?	*E.* (*O.*) *uniarticulatus*
1:1:1:1	5:6:7:7	3:4:2:2	0:1:1:0	1:1:1:1	*E.* (*O.*) *hoplurus*
1:1:1:1	4:7:7:7	3:2:2:2	0:1:1:0	1:1:1:1	KG 6 (p. 197)
1:1:1:1	4:6:6:5	4:4:2:2	0:1:1:0	1:1:1:1	*Eurycletodes* (*O.*) *major*
1:1:1:1	4:6:6:5	3:3:3:3	0:0:0:0	0:1:1:1	*Mesocletodes soyeri*
1:1:1:1	4:6:6:5	3:2:2:2	0:0:0:0	0:1:1:1	*M. abyssicola*

1:1:1:1	4:6:6:5	2:4:4:4	0:0:0:0	0:1:1:1	*M. robustus*
1:1:1:1	4:6:6:5	2:3:3:3	0:0:0:0	0:1:1:1	*M. opoteros*
1:1:1:1	4:6:6:5	2:2:2:2	0:0:0:0	0:1:1:1	*M. abyssicola*
1:1:1:1	4:6:6:5	1:2:2:3	0:0:0:0	0:1:1:1	*M. makarovi*
1:1:1:1	4:5:5:5	1:2:2:2	0:0:0:0	0:1:1:1	*M. inermis*
1:1:1:1	3:6:6:5	1:4:4:3	0:0:0:0	0:1:1:1	*M. quadrispinosa*
1:1:1:1	3:5:5:5	3:3:3:3	0:0:0:0	0:1:1:1	*M. bathybia* [*sensu* Soyer 1964d][10]
1:1:1:1	3:5:5:5	1:3:3:2?	0:0:0:0	0:1:1:1	*M. bathybia* [*sensu* Por 1964a]
1:1:s:s	4:6:5:5	2:2:1:1	0:0:0:0	0:1:0:1	*M. trisetosa*
1:1:1:0	4:7:7:7	2:1:2:na	0:1:1:0	1:1:1:1	*Eurycletodes* (*O.*) *minutus*
1:1:0:0	4:7:7:7	2:1:na:na	0:1:1:0	1:1:1:1	*E.* (*O.*) *minutus* [*sensu* Por 1965]

1. The defining feature of the genus *Bodinia* is the elaboration of the distal ventral edge of abdomen somite 4 as a spinose "apron" (George 2004a) overlapping the proximal half of the last somite.
2. These species may be distinguished on the female P5 exopod (males are unknown in *Fultonia*), which bears 7 setae and spines in *F. hirsuta* and 8 in *F. bougisi* s. str. From the available descriptions it is extremely difficult to find other characters for differentiating these species. The ornamentation of the abdomen may provide a resolution, but requires a redescription of both species.
3. Usually considered as *incertae sedis* in *Fultonia.*
4. P4 exopod has only 2 segments; the second bears 8 setae and spines.
5. These species may be distinguished on the number of segments in the mandible palp; 2 in *E. serratus*, 1 in *E. latidauda*. From the available descriptions it is extremely difficult to find other characters for differentiating these species. Sars (1920) states that the distal edge of the urosomites is more heavily ornamented in *E. serratus* than in *E. laticaudata*, but this is not immediately obvious from his illustrations.
6. The right limb has 4 setae (and 1 on segment 1) and the left limb has 3 (and none on segment 1) in the only known specimen of this species.
7. The anal operculum is dentate in *E. gorbunovi* and naked in *E. rectangulatus.*
8. In the male *M. fladensis* (the female is unknown) P1–P4 endopods are well developed, extending at least to the end of Exp-1. In the female *M. katharinae* (the male is unknown) they are very reduced in length, with only that of P1 extending as far as halfway along Exp-1.
9. *Mesocletodes variabilis* is known from 1 female only, but there is variability between right and left sides of this specimen.
10. Soyer (1964d) describes this as "*Mesocletodes boutierei* n. sp." but in a postscript to the same paper he notes that the description of *M. bathybia* Por, 1964a may place in doubt the validity of his new species. He does not formally suggest synonymy but Bodin (1997) has placed it so.

KG 1 – characters

1. Female P5
   n:n - number of setae on endopod and exopod

2. Female P5 exopod
   A - seta I about as long as seta II; both seta I and seta II are at least 2.5 times as long as seta III
   B - seta I much shorter than seta II; both seta I and seta II are less than twice as long as seta III

3. Female P5 exopod
   n - ratio of length to breadth

KG 1

Female P5 setae	Female P5 Exp setae	Female P5 Exp l/b	
4:5	A	≈4	*Argestigens uniremis*[1, 2]
4:5	B	3	*A. abyssalis*[1, 2]
4:4	B	2.5	*A. glacialis*[2]

1. These species are very similar and any identification must be checked against the original description.
2. Males are unknown in *Argestigens*

KG 2 – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. Mandible
   complete - both exopod and endopod present
   partial - exopod absent; endopod present

KG 2

CR l/b	Mandible Exp/Enp	
1	complete	*Abyssameira reductus* male[1]
4–5	partial	*Parargestes tenuis* s. str. female[2]

1. Female unknown.
2. Male unknown.

KG 3 – characters

1. Female P5
   n:n - number of setae on endopod and exopod

2. Female P5 exopod
   ovate: n - ovate: ratio of maximum length to maximum breadth
   rect: n - rectangular: ratio of maximum length to maximum breadth

3. Anal operculum, distal edge
   dentate *or* naked

4. P1–P4 Enp-2
   n - ratio of maximum length to maximum breadth

5. Mandible palp
   n - number of segments

KG 3

Female P5 setae	Female P5 shape l/b	Anal operculum	P1–P4 Enp-2 l/b	Mandible palp segs	
2:5	ovate:≈2	dentate	<4	1	*Eurycletodes* (*Oligocletodes*) *pori*
3:5	ovate:≈2	dentate	<4	2	*E. ephippiger*
1:3	rect:≈3	naked	8–10	2	*E. profundus*

KG 4 – characters

1. P1–P4 Enp-1, inner edge
   n:n:n:n - number of setae on P1, P2, P3 and P4

2. Female P5
   n - number of setae on endopod and exopod

3. Mandible
   complete - both exopod and endopod present
   partial - exopod absent; endopod present

KG 4

P1–P4 Enp-1 inner setae	Female P5 setae	Mandible Exp/Enp	
1:1:1:1	3:4	complete	*Mesocletodes bodini*[1]
0:0:0:1	3:5	partial	*M. parabodini*[1]

1. Male unknown.

KG 5 – characters

1. P1–P4 endopod
   A - Enp-2 at least twice as long as broad;
   except in P4, the endopod extends at least to the end of Exp-1
   B - very reduced; Enp-2 barely longer than broad;
   except in P1, endopod never reaches to the end of Exp-1

2. P1 Enp-1, inner edge
   n - number of setae

3. Female P5
   n:n - number of setae on endopod and exopod

4. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

KG 5

P1–P4 Enp	P1 Enp-1	Female P5 setae	CR l/b	
A	1	3:6	2	*Mesocletodes sarsi*[1]
B	0	2:5	4–5	*M. glaber*[1]

1. Male unknown

KG 6 – characters

1. Female P5
   n - number of setae on endopod and exopod

2. P1 endopod
   long - extends beyond end of Exp-1
   short - reaches only to end of Exp-1

KG 6

Female P5	P1 Enp	
2:5	long	*Eurycletodes* (*Oligocletodes*) *denticulatus*[1]
2:4	short	*E.* (*O.*) *aculeatus*[1]

1. Male unknown.

Family Balaenophilidae

This family probably contains three species: *Balaenophilus unisetus* Aurivillius, 1879, *B. umigamecolus* Ogawa, Matsuzaki & Misaki, 1997 and *Harpactichechus manatorum* Ortiz, Rogelio Lalana & Torres Fundora, 1992. Unfortunately the description of *H. manatorum* is incomplete and of poor quality and impossible to compare in detail with the descriptions of the two *Balaenophilus* species.

In addition to the characters used in this key, Ogawa *et al.* (1997) claim the distal segment of both rami of P1 of *B. umigamecolus* bears three strong claws (one of which is very small), compared with only two in *B. unisetus*, but this is not readily observable in their illustrations.

Species of this family have been found only as ectoparasites on baleen whales (*B. unisetus*), sea turtles (*B. umigamecolus*) and manatees (*H. manatorum*). All life cycle stages occur on these hosts.

KG 0 – characters

1. Body size
   n(n)- average length in mm (range)

2. Caudal ramus
   n - ratio of maximum length to maximum breadth (in dorsal view)

3. P4 Exp-2, inner edge
   n - number of setae

KG 0

Body size mm	CR l/b	P4 Exp-2 inner setae	
2.2(2.0–2.4)	≈4	1	*Balaenophilus unisetus*
1.2(1.1–1.3)	≈1.5	0	*B. umigamecolus*
1.2(?)	≈2?	0	*Harpactichechus manatorum*

Family Cancrincolidae

KG 0 – characters

The species of this family are found only in association with crabs, usually living in the gill chambers.

1. P1 Exp-2, inner edge
   n - number of setae

2. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

3. P2–P4 Enp-3
   n:n:n - number of setae and spines on P2, P3 and P4

4. P2–P4 Exp-2 inner edge
   n:n:n - number of setae on P2, P3 and P4

5. P2–P4 Enp-2, inner edge
   n:n:n - number of setae on P2, P3 and P4

KG 0

P1 Exp-2 inner setae	P2–P4 Exp-3 setae	P2–P4 Enp-3 setae	P2–P4 Exp-2 inner setae	P2–P4 Enp-2 inner setae	
1	7:7:5–6	4:5:5	1:1:0	1:0:0	*Cancrincola longiseta*
1	6:6:5–6	4:5:5	1:1:0	1:0:0	KG 1
0	6:6:6	4:5:5	1:1:1	1:1:1	*Antillesia cardisomae*
0	6:6:6	4:5:5	1:1:0	0:0:0	*Neocancrincola platensis*
0	4:4:5	4:4:4	0:0:0	1:0:1	*Abscondicola humesi*

KG 1 – characters

1. P1 Enp-1, inner seta
   long - seta extends at least to the end of Enp-2
   short - seta extends only to the end of Enp-1

2. Female P5 exopod
   n - ratio of maximum length to maximum breadth

3. Female P5 exopod, relative length of seta II and seta IV
   equal - seta II ≈ seta IV
   II>IV - seta II longer than seta IV
   IV>II - seta II shorter than seta IV

KG 1

P1	Female	Female	
Enp-1	P5	P5	
inner	Exp	Exp	
seta	l/b	setae II/IV	
long	2	equal	*Cancrincola jamaicensis*
short	2	II>IV	*C. abbreviata*[1]
short	1.5	IV>II	*C. plumipes*[1]

1. It is extremely difficult to distinguish between the males of *Cancrincola plumipes* and *C. abbreviata.* Refer to descriptions by Humes (1957a, 1958).

Family Canthocamptidae

Several genera are highly speciose with the distinction between species and subspecies often based on subtle combinations of characters.

Many species are said to exhibit wide variation in, for example, somitic ornamentation; shape and ornamentation of the caudal ramus and anal operculum; setation (and occasionally segmentation) of one or more of P1–P5. In some species, differences of this order are known or can reasonably be inferred to be due to intrapopulation variability, and for a few species experiments provide direct evidence of ecophenoplasticity. But in most cases such data are not available and small morphological differences have to be used to diagnose species or subspecies.

Sexual dimorphism occurs in many structures in addition to the normally dimorphic antennule and P5—for example, in the caudal ramus, leg segmentation, leg setation and the form of spines and setae.

These keys attempt to take account of the observed differences and thus a species may appear more than once.

Sometimes separate keys are given for females and males, in order to provide sufficient data to separate the species within acceptable limits imposed by the tabular format.

The widest variability is in freshwater species—the vast majority of species in this family—and the problem is compounded by the tendency of authors to consider only the fauna of the region they are investigating when assigning their material to taxa. Comparisons often are made only within that geographic locale with the consequence that very similar or almost identical morphological forms from widely separated locations, or widely different habitats or ecological zones, are described as different new species. Of course, this is not necessarily wrong, but it does make it difficult to construct world keys to species. In these keys I have tried to ignore geography.

Many species are incompletely described; sometimes even major features such as setation of the antenna exopod and of P1–P4 are unknown. For some species the most probable condition may be inferred, either because the condition appears to be universal in the genus or by considering the species description in the context of the systematics of the family at the time it was made. Where such inferences have been made the inferred data are enclosed in parentheses. Where it would be unsafe to make an inference the unknown data are indicated by a question mark, rather than add the species to each of the possible alternatives. Thus, users of this key are advised also to consult codons that contain incomplete data relevant to their species.

KG 0 – characters

1. P1
   n:n - number of segments in exopod and endopod

2. P2 and P4 endopod
   n:n - number of segments

3. P2–P4 exopod, distal segment*
   n:n:n - number of setae and spines on P2, P3 and P4

* P4 exopod often is sexually dimorphic. Usually this is expressed as minor differences in the number or form of the setae and spines or in the proportions of the segments. But in males of *Loefflerella* and *Fibulacamptus* the setation of P4 Exp-3 is so modified as to make this character very difficult to read. Fortunately they are easily recognised since 1 of the terminal setae has evolved to a unique form that has been likened to a "grapnel" (see Hamond 1987). *Loefflerella* and *Fibulacamptus* are keyed to species in KG 28, p. 292.

4. Antenna exopod
n:n - number of segments: total number of setae*
0:n - exopod absent: number of setae* representing the exopod

* True setae must be distinguished from setules, which may be quite long.

KG 0

P1 segs	P2 & P4 Enp segs	P2–P4 Exp distal seg setae	A2 Exp segs setae	
3:3	3:2	6:7:7	2:4	KG 1 (p. 207)
3:3	3:2	6:7:7	1:3–4	KG 2 (p. 211)
3:3	3:2	6:7:7	1:2	*Poria derketo*
3:3	3:2	6:7:6	2:4	KG 3 (p. 213)
3:3	3:2	5:6:5	1:4	*Attheyella* (*Delachauxiella*) *reducta*
3:3	2:2	7:7:7	1:3	*Mesochra paranaensis*
3:3	2:2	6:7:7	2:5	*Heteropsyllus nanus*
3:3	2:2	6:7:7	2:4	KG 4 (p. 214)
3:3	2:2	6:7:7	1:4	KG 5 (p. 227)
3:3	2:2	6:7:7	1:3	KG 6 (p. 249)
3:3	2:2	6:7:7	1:2	KG 7 (p. 256)
3:3	2:2	6:7:7	1:?	KG 8 (p. 256)
3:3	2:2	6:7:6	2:4	*Bryocamptus* (*Bryocamptus*) *minutus*, *B.* (*B.*) *intercalaris*[1]
3:3	2:2	6:7:6	1:4	KG 9 (p. 257)
3:3	2:2	6:7:6	1:3	*Mesochra inconspicua*
3:3	2:2	6:7:6	0:0	*Mesopsyllus atargatis*
3:3	2:2	6:6:7	(1):?	*Attheyella* (*Mrazekiella*) *dogieli*
3:3	2:2	6:6:6	(2):?	*Bryocamptus* (*Bryocamptus*) *chappuisi*
3:3	2:2	6:6:6	1:4	*Attheyella* (*Delachauxiella*) *clavifurcata*
3:3	2:2	6:6:5	1:4	KG 10 (p. 257)
3:3	2:2	5:7:7	2:4	KG 11 (p. 258)
3:3	2:2	5:7:7	1:4	*Mesochra bodini*
3:3	2:2	5:7:7	1:3	*Bathycamptus eckmani*
3:3	2:2	5:6:6	2:4	KG 12 (p. 258)
3:3	2:2	5:6:6	1:4	KG 13 (p. 259)
3:3	2:2	5:6:6	1:3	KG 14 (p. 278)
3:3	2:2	5:6:6	1:2	KG 15 (p. 278)
3:3	2:2	5:6:5	1:4	KG 16 (p. 279)
3:3	2:2	5:5:6	1:4	KG 17 (p. 280)
3:3	2:2	5:5:5	1:4	KG 18 (p. 281)
3:3	2:2	5:5:5	1:2	KG 67 (p. 334)
3:3	2:2	5:5:5	1:1(2)[2]	*Psammocamptus galapagoensis*[2]
3:3	2:2	5:5:4	1:4	*Antrocamptus coiffaiti* female[3]
3:3	2:2	4:6:5	1:4	*Elaphoidella vandeli*
3:3	2:2	4:5:5	1:2	KG 19 (p. 282)
3:3	2:2	4:4:4	1:3	*Mesochra reducta*
3:3	2:2	?:7:?	(1:3)	*M. pestai*
3:3	2:1	6:7:7	1:4	*Attheyella* (*Attheyella*) *gladkovi sibirica*

3:3	2:1	6:7:6	1:4	*Attheyella* (*Attheyella*) *gladkovi* s. str. female
3:3	2:1	6:5:6	1:4	*Attheyella* (*Attheyella*) *gladkovi* s. str. male
3:3	2:1	5:6:6	1:4	KG 20 (p. 283)
3:3	2:1	5:6:6	1:3	*Pilocamptus pauliani*
3:3	2:1	5:6:6	1:2	*Epactophanoides udegeicus*
3:3	2:1	5:6:5	1:4	KG 21 (p. 285)
3:3	2:1	5:5:6	1:4	*Elaphoidella africana*
3:3	2:1	5:5:6	1:3	KG 22 (p. 285)
3:3	2:1	5:5:5	1:2–3	*Spelaeocamptus spelaeus*
3:3	2:1	4:4:4	1:3	*Elaphoidella miurai*
3:3	2:1	4:4:4	1:2	*Taurocletodes dubius*, *T. tumenae*[4]
3:3	2:0	5:6:6	1:4	KG 23 (p. 286)
3:3	2:0	5:6:5	1:4	*Elaphoidella coiffaiti*
3:3	2:0	5:5:5	1:4	*E. reducta*
3:3	1:1	4:5:4	1:4	*Antrocamptus catharinae*
3:2	3:2	6:7:7	2:4	KG 24 (p. 287)
3:2	2:2	6:7:7	2:5	*Bryocamptus* (*Bryocamptus*) *baikalensis*
3:2	2:2	6:7:7	2:4	KG 25 (p. 287)
3:2	2:2	6:7:7	1:4	KG 26 (p. 290)
3:2	2:2	6:7:7	1:3	KG 27 (p. 291)
3:2	2:2	6:7:7	1:2	*Mesopsyllus secundus*
3:2	2:2	6:7:6[7]	2:4	*Bryocamptus* (*Bryocamptus*) *crassipes*[5]
3:2	2:2	6:7:6	1:4	KG 28 (p. 292)
3:2	2:2	6:7:6	1:3	*Ophirion communis*
3:2	2:2	6:6:7	1:4	KG 29 (p. 293)
3:2	2:2	5:6:6	2:4	KG 30 (p. 294)
3:2	2:2	5:6:6	2:3	KG 31 (p. 295)
3:2	2:2	5:6:6	1:4	KG 32 (p. 295)
3:2	2:2	5:6:6	1:3	KG 33 (p. 297)
3:2	2:2	5:6:6	1:2	KG 34 (p. 299)
3:2	2:2	5:6:6	0:0	*Amphibiperita neotropica*
3:2	2:2	5:6:5	2:4	KG 35 (p. 300)
3:2	2:2	5:6:5	1:7[6]	*Cletocamptus schmidti*[6]
3:2	2:2	5:6:5	1:5[7]	*C. gabrieli*[7]
3:2	2:2	5:6:5	1:4	KG 36 (p. 301)
3:2	2:2	5:6:5	1:2–3	KG 37 (p. 302)
3:2	2:2	5:6:5	1:1	*Thermomesochra reducta*
3:2	2:2	5:5–6:5	1:4	*Paramorariopsis irenae* female[8]
3:2	2:2	5:5:6	2:4	KG 38 (p. 303)
3:2	2:2	5:5:6	1:4	KG 39 (p. 304)
3:2	2:2	5:5:6	1:3	KG 40 (p. 305)
3:2	2:2	5:5:6	1:2	KG 41 (p. 306)
3:2	2:2	5:5:6	1:1	*Dahlakia xenuus*
3:2	2:2	5:5:5	2:4	KG 42 (p. 306)
3:2	2:2	5:5:5	2[9]:3	*Cletocamptus feei* female[9]
3:2	2:2	5:5:5	1:4	*Elaphoidella einslei*
3:2	2:2	5:5:5	1[9]:3	*Cletocamptus feei* female[9]
3:2	2:2	5:5:5	(1):?	*Moraria colchica*
3:2	2:2	5:5:5	1:2	*Moraria mongolica*
3:2	2:2	5:5:5	1:1	*Pholetiscus wilsoni*

3:2	2:2	5:5:4	2:3	KG 43 (p. 307)
3:2	2:2	5:5:4	1:5[10]	*Cletocamptus axi*[10]
3:2	2:2	5:5:4	1:2–3	KG 44 (p. 308)
3:2	2:2	5:5:4	1:2[10]	*Cletocamptus axi*[10]
3:2	2:2	5:5:4	1:1	*Ceuthonectes mirabilis*
3:2	2:2	5:5:4	0:1	*Cletocamptus confluens*
3:2	2:2	5:4:6	2:2–3	*Bryocamptus* (*Bryocamptus*) *weberi*
3:2	2:2	5:4:6	1:2	*Ceuthonectes bulbiseta*
3:2	2:2	5:4:5	2:4	*Bryocamptus* (*Arcticocamptus*) *bryobates*
3:2	2:2	5:4:4	1:3	*Elaphoidella romanica*
3:2	2:2	5:?:?	1:4	*E. armata*
3:2	2:2	5:?:?	1:2	*Cletocamptus kummleri*
3:2	2:2	4:6:6	2:4	*Bryocamptus* (*Articocamptus*) *cuspidatus kessleri*
3:2	2:2	4:6:5	(1):?	*Anatarctobiotus neotropica*
3:2	2:2	4:5:6	1:3	KG 45 (p. 310)
3:2	2:2	4:5:6	1:2	KG 46 (p. 311)
3:2	2:2	4:5:5	1:4	KG 47 (p. 312)
3:2	2:2	4:5:5	1:3	*Antarctobiotus nichollsi*
3:2	2:2	4:5:5	1:2	KG 48 (p. 313)
3:2	2:2	4:5:5	1:1	*Pholetiscus orientalis*
3:2	2:2	4:5:4	2:4	KG 49 (p. 313)
3:2	2:2	4:5:4	1:4	KG 50 (p. 314)
3:2	2:2	4:4:5	1:4	KG 51 (p. 314)
3:2	2:2	4:4:5	1:3	KG 52 (p. 315)
3:2	2:2	4:4:4	2:3	*Moraria intermedia*
3:2	2:2	4:4:4	1:4	KG 53 (p. 316)
3:2	2:2	4:4:4	1:3	KG 54 (p. 317)
3:2	2:2	4:4:4	1:2	KG 55 (p. 322)
3:2	2:2	4:4:4	1:1	*Pholetiscus rectiseta*
3:2	2:2	4:4:3	1:4	*Elaphoidella calypsonis*
3:2	2:1	5:6:6	2:4	*Bryocamptus* (*Bryocamptus*) *birsteini*
3:2	2:1	5:6:6	2:3	*B.* (*B.*) *aquaeductus* f. *petkovskii* Apostolov, 1971b
3:2	2:1	5:6:6	1:4	KG 56 (p. 323)
3:2	2:1	5:6:5	2:4	*Gulcamptus huronensis*
3:2	2:1	5:6:5	1:2	*Cletocamptus retrogressus*
3:2	2:1	5:6:4	1:2	*Elaphoidella caeca*
3:2	2:1	5:5:6	2:4	*Bryocamptus* (*Bryocamptus*) *borus*
3:2	2:1	5:5:6	2:3	KG 57 (p. 324)
3:2	2:1	5:5:5	(2):?	*Bryocamptus* (*Bryocamptus*) *reductus*
3:2	2:1	5:5:5	1:4	KG 58 (p. 325)
3:2	2:1	5:5:5	1:2	*Epactophanes*[11]
3:2	2:1	5:5:4	2:3	*Paracamptus schmeilli*
3:2	2:1	5:5:4	1:3	*Cletocamptus merbokensis*
3:2	2:1	5:?:6	1:4	*Elaphoidella pectinata*, *E. brevifurcata*[112]
3:2	2:1	4:4:4	1:4	*E. apostolovi* female[13]
3:2	2:0	5:5:5	1:3	*Perucamptus rapiens*
3:2	2:0	5:5:4	0:1	*Cletocamptus helobius*
3:2	1:2	5:5:5	1:4	*Paramorariopsis anae* female[14]
3:2	1:2	4:4:4	1:4	*Itunella* males[15]
3:2	1:1	5:5:5	1:4	*Itunella intermedia*[15]

3:2	1:1	5:5:5	1:2	*Epactophanes*[11]
3:2	1:1	4:5:5	1:3	KG 59 (p. 325)
3:2	1:1	4:5:5	1:2	*Lessinocamptus pivai* male[16]
3:2	1:1	4:5:4	1:2	KG 60 (p. 326)
3:2	1:1	4:4:5	1:4	*Morariopsis dumonti* female[17]
3:2	1:1	4:4:5	1:2	*M. scotenophila*, *M. kieferi*[18]
3:2	1:1–2	4:4:4	1:4(–5?)	*Itunella*[15]
3:2	1:1	4:4:4	1:2	*Morariopsis baicalensis* female[19]
3:2	1:1	3:4:4	1:1	*Stygepactophanes jurassicus*
3:2	1:1	3:3:4	1:2	*Parepactophanes minuta*
3:2	0–1:0	5:5:4	2:3	KG 61 (p. 327)
2:2	2:2	5:6:5	2:4	KG 62 (p. 327)
2:2	2:2	5:6:5	2:3	*Maraenobiotus vejdovskyi arcticus*
2:2	2:2	5:6:5	1:4	KG 63 (p. 329)
2:2	2:2	5:5:5	2:4	*Maraenobiotus aischghoi*
2:2	2:2	5:5:5	1:4	KG 64 (p. 330)
2:2	2:2	4:6:5	2:4	*Maraenobiotus fontinaloides* female[20]
2:2	2:2	4:5:5	1:4	KG 65 (p. 331)
2:2	2:2	4:5:5	2:4	KG 66 (p. 332)
2:2	2:2	4:5:4	2:4	*Hypocamptus brehmi* male[21] [*sensu* Dussart 1957]
2:2	2:2	4:4:6	1:4	*H. carpaticus*
2:2	2:1–2	4:4:3	1:4	*H. paradoxus* [*sensu* Cottarelli, Berera & Maiolini, 2004]
2:2	2:1	4:4:5	1:4	*Pseudomoraria triglavensis* male[22]
2:2	2:1	4:4:4	2:4	*Hypocamptus paradoxus* [*sensu* Sterba 1969][22]
2:2	2:1	4:4:3	1:4	*H. ruffoi*
2:2	2:1	4:3:2	1:3	*H. paradoxus* [*sensu* Kreis 1926][22]
2:1	0:0/2[23]	2:3:3	1:3	*Isthmiocaris longitelson*[23]

1. Males of *B. intercalaris* and *B. minutus* s. str. and both sexes of *B. minutus schizodon*. It is impossible to determine the difference between males of these species from their published descriptions. *B. minutus schizodon* differs from the nominate subspecies only in P2 Enp-2 being 2-segmented. See KG 3 (p. 213) for females of *B. intercalaris* and *B. minutus* s. str.
2. Antenna exopod setation consists of 1 well developed and 1 rudimentary seta.
3. See KG 16 (p. 279) for the male. This codon can also lead to the highly variable species *Elaphoidella vasconica* (see KG 18, p. 281). *Antrocamptus coiffaiti* is readily distinguished by the P5 being a fused single plate.
4. The 2 species of *Taurocletodes* are distinguished by the relative length of P1 Enp-2 to Enp-3. In *T. dubius* Enp-2 is approximately equal to Enp-3. In *T. tumenae* Enp-2 is only half as long as Enp-3. There are further differences in the male P5; see Karaytuğ & Huys (2004).
5. The illustration of P4 exopod shows 6 setae but the text states that there are 7.
6. Antenna exopod has 5 long spinules that can easily be mistaken for setae; the number of true setae is 2.
7. According to the text of the original description, the antenna exopod has 2 long and 3 short setae but it is not clear from the illustration whether the "short setae" are true setae or long spinules.
8. Male unknown. Note that in the only other species of *Paramorariopsis* there is significant sexual dimorphism in segmentation of P2–P3 endopods.
9. The illustration in the original description shows 2 segments in the antenna exopod, but this may well be an error. See KG 43 (p. 307) for the male.
10. Antenna exopod has 1 or 2 true setae plus some long, stout spinules that can easily be mistaken for setae.
11. Bruno & Cottarelli (1999) state that "*Epactophanes* is a controversial genus, and its definition is to some extent still circumstantial". Final identification to species requires consideration of their arguments.
12. Females of these species appear to be identical but males are distinguished by their P5 exopod, which bears 4 setae in *E. dentata* and 3 in *E. brevifurcata.*

13. See KG 58 (p. 325) for the male.
14. See KG 36 (p. 301) for the male.
15. P4 endopod is sexually dimorphic in this genus. Females are 1-segmented while males usually have 2 segments, though there are reliable reports that these may sometimes be fused together. Of more importance, there is debate on how many valid species there are in the genus.

    It would appear that *I. intermedia* is sufficiently distinct, but that *I. bacescoi* cannot be distinguished from some of the variants included in *I. muelleri.* The differences are very small and readers should compare their material carefully with the several descriptions that are available.

    In addition to those cited by Lang (1948) descriptions are provided for *I. bacescoi* by Chappuis & Serban (1953) and for *I. muelleri* by Chislenko (1967), Marinov (1971) and Bodin (1972b). Noodt (1954b) and Marinov (1971) provide opinion and discussion also.

    It seems unlikely that material can now be identified to *I. tenuiremis.*
16. Female unknown.
17. See KG 47 (p. 312) for the male.
18. Males unknown. Females are distinguished on the setation of P2–P4 Enp-2 (2:2:2 in *M. scotenphila* and 4:4:4 in *M. kieferi*).
19. See KG 55 (p. 322) for the male.
20. See KG 62 (p. 327) for the male.
21. See KG 66/2 (p. 333) for the female.
22. The male of *Pseudomoraria triglavensis* has only 2 segments in P1–P4 exopod; in the female (see KG 65, p. 331) P1–P2 have 2 segments and P2–P4 have 3. These variants of *Hypocamptus paradoxus* have only 2 segments in P1–P4 exopod, but are known only from the male.
23. P4 endopod is 2-segmented in the male and absent in the female.

KG 1 – characters

This key contains only females (P2 endopod with 3 segments). For males (P2 endopod with 2 segments) of these species see KG 4 (p. 214).

1. Anal operculum, distal edge

    spinulose - with 3–20 prominent spines, their width inversely correlated with number; spines may be bifid

    setulose - with many fine setules (“fine hairs”)

    dentate - with a large number of very small denticles

    naked - without ornamentation

2. Female caudal ramus, dorsal, ratio of maximum length to maximum breadth

    ≥2 - 2 or greater, but significantly less than 3

    <2 - significantly less than 2, but usually at least as long as broad

3. P1 Enp-1, length relative to exopod

    3 - Enp-1 extends to the end of Exp-3

    >2 - Enp-1 extends at least to the end of Exp-2

    <2 - Enp-1 extends to the middle of Exp-2 at most

4. P2–P4 endopod, distal segment

    n:n:n - number of setae and spines on P2, P3 and P4

5. Female P5

    x:y - number and form of setae and spines on endopod (x) and exopod (y),

endopod: A - 7(?) setae (it is possible that seta VI may be a spinule); seta IV small and weak; seta VI vestigial
B - 6 setae; all well developed
C - 6 setae; seta V small and weak, or vestigial
D - 5 setae; all well developed, plumose
E - 4 setae; all well developed, plumose

exopod: A - 5 setae; all well developed; seta I originates at extreme subapical of inner edge
B - 5 setae; seta I small and weak, or vestigial; seta I originates at extreme subapical of inner edge
C - 5 setae; seta I small and weak; seta I originates distally on the inner edge, about a quarter of of the length of the edge below the outer distal corner
D - 5 setae; setae I and IV small and weak, or vestigial; seta I originates at extreme subapical of inner edge
E - 6(?) setae; seta I well developed, plumose and originates in proximal half of inner edge; seta II (? this may be a spinule) originates at extreme subapical of inner edge and is small and weak, or vestigial

KG 1

Anal operculum	Female CR l/b	P1 Enp-1/ Exp	P2–P4 Enp distal seg setae	Female P5	
spinulose	4–5	2.5	4:5:5	C:B	*Canthocamptus robertcokeri*
spinulose	3	2.5	5:5:5	C:B	*C. microstaphylinus*
spinulose	3	2.5	5:5:5	C:D	*C. oregonensis*
spinulose	≥2	2–3[1]	5:5:5	C:D *or* E	*C. staphylinus*[1]
spinulose	≥2	2.5	5:5:5	B:A	*C. iaponicus*
spinulose	≥2	2.5	5:5:5	C.A	*C. kitaurensis*
spinulose	≥2	2.5	5:5:5	C:B	KG 1/1 (p. 209)
spinulose	≥2	2.5	5:4:5	C:A	*Canthocamptus carinatus*
spinulose	≥2	2.5	4:5:5	B:A	*Bryocamptus* (*B.*) *pilosus*
spinulose	≥2	<2	4:5:5	B:A	*B.* (*B.*) *borutzkyi*
spinulose	≥2	2.5	4:5:5	C:B	*Canthocamptus assimilis*[2]
spinulose	≥2	2.5	4:5:5	C:A	*C. vagus*[2]
spinulose	<2	2.5	4:5:5	B:A	KG 1/2 (p. 209)
spinulose	<2	2.5	4:5:5	C:A	*Bryocamptus* (*B.*) *umiatensis*
spinulose	<2	<2	4:5:5	B:A	*B.* (*B.*) *vejdovskyi*
spinulose	<2	<2	4:5:5	E:A	KG 1/3 (p. 210)
setulose	≥2	3	5:5:5	B:A	*Canthocamptus semicirculus*
setulose	<2	3	5:5:5	B:A	*C. mirabilis* [*sensu* Itô & Takashio 1980][3]
dentate	?	2.5	5:5:5	C:B	*C. latus*, *C. bulbifer*[4]
dentate	<2	3	5:5:5	C:A	*C. baikalensis*
naked	<2	3	5:5:5	B:A	KG 1/4 (p. 210)
naked	=2	2.5	5:5:5	A:B	*Canthocamptus glacialis*
naked	<2	3	5:5:5	B:A	KG 1/5 (p. 211)
naked?	<2	3	4:5:5	B:A	*Canthocamptus gibba*
naked	≥2	2.5	5:5:5	C:B	*C. staphylinoides*[5]
naked	≥2	2–3[1]	5:5:5	C:B, D *or* E	*C. staphylinus*[1]

1. *Canthocamptus staphylinus* is a highly variable species with several characters that vary within what can reasonably be presumed to be a single population (Gurney 1932; Lang 1948). See also KG 1/1.
2. See Wilson (1956a) and Wilson & Yeatman (1959) for discussion and description of features that distinguish these species from *C. staphylinoides*.
3. Chang (2001) believes that *C. mirabilis* from Japan represents at least one as yet undescribed species. See KG 1/4 (p. 210) for *C. mirabilis* from China.
4. These very similar species are endemic to Lake Baikal; see Borutzky (1947).
5. Setation of P2 Enp-3 is not described in the original description. Wilson (1956a) affirms there are 5 setae and that forms that have only 4 setae are not this species (see note 2 above). Wilson records material from Alaska that has a naked anal operculum as a variant; spinulose forms key out in KG 1/1.

KG 1/1 – characters

1. Anal somite, lateral distal edges
   - ungui - with a short unguiform projection
   - simple - straight; without a projection

2. Female caudal ramus, setae IV and V
   - present - with a basal "cleavage plane" (Fig. 3)
   - absent - without a "cleavage plane"

3. Female P5 exopod, setae III–V (i.e. the setae originating on the outer edge)
   - equal - setae III–V approximately equal in length
   - unequal - setae IV–V approximately equal in length but only about half as long as seta III

4. Anal operculum, distal edge
   - n - number of spines

KG 1/1

Anal somite	Female CR terminal setae	Female P5 Exp setae III–V	Anal operculum spines	
ungui	present	equal	11–14	*Canthocamptus takkobuensis*
ungui	present	unequal	6–9	*C. macrosetifer*
ungui	absent	equal	8–17	*C. staphylinus*[1]
simple	absent	unequal	5–6	*C. staphylinoides*[2]

1. *Canthocamptus staphylinus* is known to be a highly variable species with several characters that vary within what can reasonably be presumed to be a single population (Gurney 1932, Lang 1948). See also KG 1 (p. 207).
2. Setation of P2 Enp-3 is not described in the original description. Wilson (1956a) affirms there are 5 setae and that forms that have only 4 setae are not this species (see KG 1 note 2, p. 209). Wilson records material from Alaska that has a naked anal operculum as a variant (see KG 1).

KG 1/2 – characters

1. P2–P4 Enp-1, inner edge
   - n:n:n - number of setae on P2, P3 and P4

2. Anal operculum, form of the spines
   - simple *or* bifid

KG 1/2

P2–P4 Enp-1 inner setae	Anal operculum spines	
1:1:1	bifid	*Bryocamptus* (*Bryocamptus*) *minutus* [*sensu* Sars 1907][1]
0:1:1	simple	*B.* (*B.*) *hutchinsoni*[2]
0:1:1	bifid	*B.* (*B.*) *hutchinsoni*[2]

1. It is possible that Sars was mistaken in illustrating P4 Exp-3 with 3 outer setae; all other European records show only 2 setae.
2. Anal operculum has a mixture of bifid and simple spines in material of *B. hutchinsoni* from northwest North America (Alaska to northwest USA). In all other material of this North American species all spines are simple.

KG 1/3 – characters

1. Female caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. Abdomen somites 3–4, ornamentation at posterior edge
   lateral - a row of stout spines lateral only
   lat+vent - the lateral row of stout spines continues across venter as a row of small spinules

3. P3 Enp-2, inner edge
   n - number of setae

KG 1/3

Female CR l/b	Abdomen som 3–4 ornament	P3 Enp-2 inner setae	
≈1	lateral	0	*Bryocamptus* (*Bryocamptus*) *tarnogradskyi*
≈1.8	lat+vent	1	*B.* (*B.*) *yohteiensis*

KG 1/4 – characters

1. Anal operculum
   straight - operculum straight or slightly curved; without a prominent hyaline frill
   triang - operculum appears triangular in shape due to a prominent triangular hyaline frill

2. Female caudal ramus, seta V
   filiform - simple, filiform
   bulbous - bulbous at base

3. Female P5 exopod
   n - ratio of maximum length to maximum breadth

KG 1/4

Anal operculum	Female CR terminal seta	Female P5 Exp l/b	
straight	filiform	3.1	*Canthocamptus mirabilis*[1]
straight	bulbous	1.5–1.8	*C. coreensis*
triang	bulbous	2.6	*C. morimotoi*[2]

1. Data from redescription from Chinese topotypes by Chang (2001). Chang believes that all material of *C. mirabilis* from Japan belongs to an as yet undescribed species.
2. Data from redescription by Chang (1998).

KG 1/5 – characters

1. Anal operculum
 straight - operculum straight or slightly curved; without a prominent hyaline frill
 triang - operculum appears triangular in shape due to a prominent triangular hyaline frill

2. Female caudal ramus, outer terminal seta (seta IV)
 filiform 1 - simple, filiform; accessory spinules on outer side only
 filiform 2 - simple, filiform; accessory spinules on inner and outer sides
 bulbous - slightly bulbous at base, main shaft incurved; accessory spinules on inner side only
 sickle - sickle-shaped; accessory spinules on inner side only

3. Female P5 exopod
 n - ratio of maximum length to maximum breadth

4. Female P5 exopod, seta II
 long - approximately as long as exopod
 medium - about ¾ the length of exopod
 short - only half the length of exopod

KG 1/5

Anal operculum	Female CR outer terminal seta	Female P5 Exp l/b	Female P5 Exp seta II	
straight	filiform 1	≈1.7	medium	*Canthocamptus tomikoae*
triang	filiform 1	≈3	short	*C. prominulus*
triang	filiform 2	2.8	long	*C. odaeensis*
triang	bulbous	3	long	*C. incurvisetosus*
triang	sickle	2.8	long	*C. resupinatus*

KG 2 – characters

1. A2 exopod
 n - number of setae and spines

2. P2 and P4 endopod, distal segment

n:n - number of setae on P2, P3 and P4

3. Male P5

n:n - number of setae and spines on endopod and exopod

uk - male unknown

4. Female P5

n:n - number of setae and spines on endopod and exopod

uk - female unknown

na - not applicable

5. Female P5 endopod, seta I

extreme - about twice as long as other setae

long - the longest seta, but less than 1.5 times as long as any other seta

not - not the longest seta

uk - female unknown

KG 2

A2 Exp setae	P2 & P4 Enp distal seg setae	Male P5 setae	Female P5 setae	Female P5 Enp seta I	
4	5:5	na	6:5	longest	*Attheyella (Mrazekiella) stachanovi* female[1]
4	5:5	na	6:5	not	KG 2/1 (p. 212)
4	5:5	na	5–6:6	longest	*Attheyella (M.) byblis* female[2]
4	4:6	uk	6:4	not	*Canthocamptus sublaevis*
?	4:5	na	6:5	extreme	*Attheyella (M.) borutzkyi* female[3]
3–4	4:5	na	6:5	longest	female of *A. (M.) illinoisensis* and *A. (M.) nordenskioldii*[4]
4	4:5	uk	6:5	not	*Bryocamptus* (*Bryocamptus*) *campaneri*
4	4:5	1–2:5	5:5	not	*Attheyella* (*M.*) *spinipes* [*sensu* Reid 1987b]
?	3:5	2:5	uk	uk	*A. (M.) meridionalis*

1. For the male see KG 5/2(male) (p. 241).
2. For the male see KG 5/1(male) (p. 240).
3. See KG 8 (p. 256) for the male.
4. See KG 5 (p. 227) and KG 6/5 (p. 253) for female variants and for the male. These 2 species are clearly distinguishable only in their "typical" forms. Lang (1948) synonymised them but other authors appear to disagree. See Checklist Note 229 (p. 91) and refer to Lang (1948) and Wilson & Yeatman (1959) before making a determination.

KG 2/1 – characters

1. Body shape

even - body almost linear with only a slight taper from proximal part of cephalosome to the anal somite; all somites almost cylindrical

uneven - body not linear; cephalosome much wider than thoracic somites; in thoracic somite 5, the genital double-somite and abdomen somite 3 the distal end is much wider than the proximal

2. Caudal ramus
filiform - at least 1 terminal seta is well developed, long and filiform
conical - distal edge with 2 short weak setae flanking a median, broad conical structure

3. Anal operculum, distal edge
spinulose - with 12–14 small spines
setulose - with a large number of fine setules

4. Anal somite, ventral surface
spinous - with 2 short "conical projections"
naked - without such projections

5. Female P5 endopod
long - at least 1 seta extends beyond end of exopod
short - setae at most extend only to the end of exopod

KG 2/1

Body shape	CR terminal setae	Anal operculum	Anal somite	Female P5 Enp	
even	filiform	setulose	naked	long	*Attheyella* (*Ryloviella*) *amurensis*[2]
even	filiform	spinulose	naked	short	*Canthocamptus kunzi*[1]
uneven	filiform	setulose	spinous	long	*C. longifurcatus*[1]
uneven	conical	setulose	spinous	long	*C. verestschagini*[2]

1. Male unknown.
2. See KG 5/2(male) (p. 230) for the reputed male of this species.

KG 3 –characters

1. Female P2–P4 Enp-2
n:n:n - number of setae and spines in P2, P3 & P4

2. Female P5
n - number of setae and spines on endopod and exopod

KG 3

Female P2–P4 Enp-2 setae	Female P5 setae	
5:6:5	6:5	*Bryocamptus* (*Bryocamptus*) *aberrans*[1]
4:5:5	6:5	*B.* (*B.*) *minutus* s. str.[2]
4:4:4	4:5	*B.* (*B.*) *intercalaris*[2]

1. Male unknown.
2. See KG 0 (p. 202) for male.

KG 4

Included in this key are males of the species whose females are in KG 1 (p. 207). In order to provide sufficient data for species determination separate keys are given for females and males (p. 217).

KG 4(female) – characters

1. Antennule
    n - number of segments

2. P2–P4 Enp-2
    n:n:n - number of setae and spines on P2, P3 and P4

3. P2–P4 Enp-1, inner edge
    n:n:n - number of setae on P2, P3 and P4

4. P5
    n:n - number of setae and spines on endopod and exopod

5. Anal operculum, distal edge
    <10 - with <10 strong spines
    >15 - with >15 relatively strong spines
    dentate - with a large number (usually >20) of small teeth
    setulose - with many fine setules (“fine hairs”)
    naked - without ornamentation on the distal edge

KG 4(female)

A1 segs	P2–P4 Enp-2 setae	P2–P4 Enp-1 inner setae	P5 setae	Anal operculum	
8	5:6:5	1:1:1	6:5	<10	*Bryocamptus* (*Bryocamptus*) *hiatus*[1]
8	5:6:5	1:1:1	5:5	<10	*B.* (*B.*) *mrazeki*
8	5:6:5	1:1:1	6:5	naked	*Attheyella* (*Attheyella*) *heterospina*
8	5:6:5	0:0:0	6:5	naked	*Bryocamptus* (*Bryocamptus*) *kozhowi*
8	5:5:5	1:1:1	6:5	naked	*Bryocamptus* (*Limocamptus*) *hiemalis verestschagini*[2]
8	5:5:5	1:1:0	6:5	naked	*B.* (*L.*) *hiemalis* s. str.[2]
8	5:5:5	0:0:1	5:5	<10	*Bryocamptus* (*Bryocamptus*) *cokeri*
8	5:5:5	0:0:0	5:5	naked	*B.* (*B.*) *longisetosus*
8	5:5:4	0:1:1	5:5	<10	*B.* (*B.*) *hiatus*[3]
8	5:5:4	0:0:0	6:4	>15	*Bryocamptus* (*Limocamptus*) *hostensis*
8	5:4:5	0:0:0	5:6	<10	*Bryocamptus* (*Bryocamptus*) *tenuis*
8	4:6:5	1:1:1	6:5	naked	*Bryocamptus* (*Limocamptus*) *calvus*, *B.* (*L.*) *hiemalis yunnanensis*[4]
8	4:5:5	1:1:1	6:5	dentate	*Bryocamptus* (*Limocamptus*) *nivalis*
8	4:5:5	1:1:1	6:5	setulose	*B.* (*L.*) *nivalis*
8	4:5:5	1:1:1	6:5	naked	KG 4/1(female) (p. 215)
8	4:5:5	0:0:1	5:5	<10	*Bryocamptus* (*Bryocamptus*) *sinuatus*
8	4:5:5	0:0:0	5:5	<10	KG 4/2(female) (p. 216)
8	4:5:5	0:0:0	5:5	naked	*Bryocamptus* (*Bryocamptus*) *incertus*[5]
8	4:5:5	?:?:?	6:5	<10	*B.* (*B.*) *washingtonensis*
8	4:5:4	1:1:1	6:5	naked	*Bryocamptus* (*Limocamptus*) *lacustris*
8	4:5:4	0:1:1	5:5	<10	*Bryocamptus* (*Bryocamptus*) *hiatus*[6]
8	4:5:4	0:1:0	6:5	>15	*Bryocamptus* (*Limocamptus*) *horai*
8	4:5:4	0:1:0	6:5	setulose	*B.* (*L.*) *dacicus*

8	4:5:3–4	1:1:0	6:5	dentate	*B.* (*L.*) *hoferi*
8	4:5:3–4	0:1:0	6:5	dentate	*B.* (*L.*) *echinatus*
8	4:4:5	0:0:0	5:5	<10	*Bryocamptus* (*Bryocamptus*) *abyssicola*
8	4:4:4	1:1:1	6:5	naked	*Bryocamptus* (*Limocamptus*) *hiemalis verestschagini*[2]
8	4:4:4	0:1:1	5:5	<10	*Bryocamptus* (*Bryocamptus*) *hiatus*[3]
8	4:4:4	0:1:0	6:5	setulose	*Bryocamptus* (*Limocamptus*) *morrisoni*
8	4:4:3	0:1:0	6:5	setulose	*B.* (*L.*) *praegeri*
8	3:5:5	0:0:0	6:5	naked	*Bryocamptus* (*Bryocamptus*) *bulbochaetus*
7	5:5:5	0:0:0	5:5	<10	*B.* (*B.*) *longifurcatus*
7	5:5:5	0:0:0	5:5	naked	*B.* (*B.*) *longicaudatus*
7	4:5:5	1:1:1	6:5	setulose	*Bryocamptus* (*Limocamptus*) *douwei*
7	4:5:4	0:1:0	6:5	setulose	*B.* (*L.*) *dacicus*
5	5:5:4	1:1:1	5:5	naked	KG 4/3(female) (p. 216)
5	4:5:3	1:1:1	4–5:5	dentate	*Heteropsyllus rostratus*
5	3:3:3	0:0:0	4:5	naked	*H. nunni*
5	(5:5?):3	1:1:1	5:5	naked	*H. curticaudatus*

1. Specimens from Alaska (Ishida 1992b).
2. *Bryocamptus hiemalis* is widely distributed in North America and has been recorded in Lake Baikal, far eastern Russia, Nepal, China and Japan. There is also a record from Bulgaria.

   Wilson & Yeatman (1959: p. 853) refer to it as the "*B. hiemalis* complex … A group of closely related forms of uncertain taxonomic status" and state that "The range of variation within and between populations is unknown and the named forms may represent species, subspecies, or merely variations of a single species to which the name *B. hiemalis* is applicable".

   Lang (1948) removed the subspecies *brevifurca* to *B. nivalis*. Borutzky (1952) and Wilson & Yeatman (1959) provide much useful information on this species and its varieties.
3. Material from North Carolina, USA (Wilson & Yeatman 1959).
4. The descriptions of these species are not good enough to separate them with any certainty. Borutzky (1952) considers them as varieties of *Bryocamptus hiemalis* and can distinguish them only on the length of the caudal ramus—reputed to be about as long as broad in *B. calvus* and broader than long in *B. hiemalis yunnanensis*, but the difference is very small. See also note 2 above.
5. Borutzky (1952) gives data on the variability of this Lake Baikal endemic.
6. Material from Quebec, Canada and North Carolina , USA (Wilson & Yeatman 1959).

KG 4/1(female) – characters

1. Abdomen somites 3–4, dorsal distal edge
   - spinulose - lateral spinule row continued across dorsum
   - naked - lateral spinule rows not continued across dorsum

2. P1 Enp-1
   - equal - Enp-1 about as long as combined length of Enp-2 and Enp-3
   - short - Enp-1 distinctly shorter than combined length of Enp-2 and Enp-3

3. P4 Enp-2, seta IV
   well developed *or* rudimentary

KG 4/1(female)

Abdomen som 3–4	P1 Enp-1/ Enp-2+3	P4 Enp-2 seta IV	
spinulose	equal	well developed	*Bryocamptus* (*Limocamptus*) *hiemalis elongatus*[1]
naked	equal	well developed	*B.* (*L.*) *h. yetti*[1]
naked	short	rudimentary	*B.* (*L.*) *pacificus*

1. *Bryocamptus hiemalis* is widely distributed in North America and has been recorded in Lake Baikal, far eastern Russia, Nepal, China and Japan. There is also a record from Bulgaria.

Wilson & Yeatman (1959: p. 853) refer to it as the "*B. hiemalis* complex … A group of closely related forms of uncertain taxonomic status" and state that "The range of variation within and between populations is unknown and the named forms may represent species, subspecies, or merely variations of a single species to which the name *B. hiemalis* is applicable".

Lang (1948) removed the subspecies *brevifurca* to *B. nivalis*. Borutzky (1952) and Wilson & Yeatman (1959) provide much useful information on this species and its varieties.

KG 4/2(female) – characters

1. Anal somite, ventral distal edge
   - A - anal cleft lined with small spinules plus 2 very long curved spinules distally (extending into distal half of caudal ramus)
   - B - anal cleft lined with spinules that decrease in size evenly from distal to proximal; longest spinules barely extend to a quarter of the length of the caudal ramus

2. P5
   - A - all endopod setae much shorter than the longest exopod seta
   - B - some endopod setae equal in length to the longest exopod seta

KG 4/2(female)

Anal cleft	P5 setae	
A	A	*Bryocamptus* (*Bryocamptus*) *incertus*[1]
B	B	*B.* (*B.*) *elaphoides*

1. Borutzky (1952) gives data on the variability of this Lake Baikal endemic.

KG 4/3 (female) – characters

1. P1 Exp-3
   - n - number of setae and spines

2. P1 Enp
   - long - endopod significantly longer than exopod; exopod extends only halfway along Enp-3; Enp-1 extends almost to the end of Exp-2
   - medium - endopod significantly longer than exopod; exopod extends to more than halfway along Enp-3; Enp-1 extends to middle of Exp-2
   - short - endopod approximately as long as exopod; Enp-1 extends to the middle of Exp-2

3. P5 endopod
   - acute - triangular, with acute apex; origin of seta IV apical, origin of setae III and V subapical
   - truncate - truncate distally; setae II-V originate on distal edge

4. Maxilliped syncoxa

n - number of setae

KG 4/3(female)

P1 Exp-3 setae	P1 Enp	P5 Enp	Maxilliped syncoxa setae	
5	long	acute	2	*Heteropsyllus exiguus*
5	short	acute	1	*H. meridionalis*
4	medium	truncate	1	*H. major*

KG 4(male) – characters

1. P5

n:n - number of setae and spines on endopod and exopod

2. P2 and P4 endopod, distal segment

n:n - number of setae and spines on P2 and P4

3. P2 and P4 Enp-1, inner edge

n:n - number of setae on P2 and P4

4. Caudal ramus, dorsal, ratio of maximum length to maximum breadth

≈1 - significantly less than 1.5 (but usually not broader than long)

≈1.5 - significantly less than 2 and more than 1

≈2 - significantly less than 2.5 and more than 1.5

≈2.5 - significantly less than 3 and more than 2

5. Anal operculum

spinulose - with 3–20 prominent spines, their width inversely correlated with number; spines may be bifid

setulose - with many fine setules ("fine hairs")

dentate - with a large number of very small denticles

naked - without ornamentation

KG 4(male)

P5 setae	P2 & P4 Enp distal seg setae	P2 & P4 Enp-1 inner setae	CR l/b	Anal operculum	
4:6	3:3	0:0	≈1	naked	*Heteropsyllus nunni*
3:5	5:4	1:1	≈1	naked	*H. major*
3:5	4:5	1:1	≈1.5	naked	*Canthocamptus gibba*
3:5	4:3	1:1	≈1.5	dentate	*Heteropsyllus rostratus*
3:4	4:3	1:1	≈1	naked	*H. masculus*
2:6	5:5	1:1	≈2	naked	KG 4/1(male) (p. 219)
2:6	5:5	1:1	≈1.5	naked	KG 4/2(male) (p. 219)
2:6	5:5	1:1	≈1	naked[1]	*Canthocamptus morimotoi* [*sensu* Chang 1998][1]
2:6	5:4	1:1	≈3	spinulose	*C. oregonensis*

2:6	5:4	1:1	≈2.5	spinulose	KG 4/3(male) (p. 220)
2:6	5:4	1:1	≈2	spinulose	KG 4/4(male) (p. 220)
2:6	5:4	1:1	≈2	setulose	*Canthocamptus semicirculus*
2:6	5:4	1:1	≈2	dentate	*C. baikalensis*
2:6	4:4	1:1	≈2	spinulose	*Bryocamptus* (*Bryocamptus*) *washingtonensis*
2:6	4:4	1:1[2]	≈1.5	spinulose	*B.* (*B.*) *vejdovskyi*[2]
2:6	4:4	1:1	≈1	spinulose	*B.* (*B.*) *umiatensis*
2:6	4:4	1:0	≈2	spinulose	KG 4/5(male) (p. 221)
2:6	4:4	1:0	≈1.5	spinulose	KG 4/6(male) (p. 222)
2:6	4:4	1:0	≈1.5	naked	*Bryocamptus* (*Bryocamptus*) *incertus*[3]
2:6	4:4	1:0	≈1	spinulose	KG 4/7(male) (p. 222)
2:6	4:4	0:1	≈1	spinulose	KG 4/8(male) (p. 223)
2:6	4:4	0:0	≈1.5	spinulose	KG 4/9(male) (p. 223)
2:6	4:4	0:0	≈1	spinulose	KG 4/10(male) (p. 224)
2:6	4:4	0:0	≈1	naked	KG 4/11(male) (p. 224)
2:6	4:3	1:0	≈1.5	spinulose	KG 4/12(male) (p. 225)
2:6	4:3	1:0	≈1	spinulose	KG 4/13(male) (p. 225)
2:6	4:3	1:0	≈1	setulose	*Bryocamptus* (*Limocamptus*) *nivalis*
2:6	4:3	1:0	≈1	dentate	*B.* (*L.*) *nivalis*
2:6	4:3	0:0	≈1	setulose	*B.* (*L.*) *dacicus*
2:6	3:4	1:0	≈1	naked	*B.* (*L.*) *pacificus*
2:5	3:4	0:1	≈1	spinulose	*Bryocamptus* (*Bryocamptus*) *hiatus*[4]
2:6	3:3	1:0	≈1	setulose	*Bryocamptus* (*Limocamptus*) *hiemalis yetti*[5]
2:6	3:3	1:0	≈1	naked	KG 4/14(male) (p. 226)
2:6	3:3	0:0	≈1	setulose	*Bryocamptus* (*Limocamptus*) *praegeri*
2:6	3:2–3	0:0	≈1	spinulose	*B.* (*L.*) *echinatus*
2:5	5:5	1:1	?	dentate	*Canthocamptus latus*
2:5	5:5	1:1	≈1	naked[2]	*C. morimotoi* [sensu Miura 1969a][1]
2:5	5:4	1:1	3	spinulose	KG 4/15(male) (p. 226)
2:5	5:4	1:1	≈2	setulose	*Canthocamptus glacialis*
2:5	5:4	1:1	≈1	naked	*Heteropsyllus meridionalis*
2:5	5:3	1:1	≈2	naked	*Attheyella* (*Attheyella*) *heterospina*
2:5	4:4	1:1	4–5	spinulose	*Canthocamptus robertcokeri*
2:5	4:4	0:0	≈2	naked	*Bryocamptus* (*Bryocamptus*) *longicaudatus*
2:5	4:4	0:0	≈1	setulose	*Bryocamptus* (*Limocamptus*) *dacicus*
2:5	3–4:4	0:1	≈1	spinulose	*Bryocamptus* (*Bryocamptus*) *hiatus*[4]
2:5	2:2	1:0	≈1	naked	*Bryocamptus* (*Limocamptus*) *hiemalis elongatus*[5]

1. Anal operculum is triangular in shape. The distal edge is naked but there is a row of setules proximally.
2. The description is ambiguous with respect whether P4 Enp-1 is naked or has an inner seta; see also KG 4/4(male) (p. 220). Anal operculum spines normally are simple but are bifid in forma *minutiformis* from Connecticut and Michigan (USA).
3. Borutzky (1952 p. 186) gives data on the variability of this species, which is endemic to Lake Baikal.
4. Material from eastern USA; see also KG 4/11(male) (p. 224).
5. *Bryocamptus hiemalis* is widely distributed in North America and has been recorded in Lake Baikal, far eastern Russia, Nepal, China and Japan. There is also a record from Bulgaria.

   Wilson & Yeatman (1959: p. 853) refer to it as the "*B. hiemalis* complex … A group of closely related forms of uncertain taxonomic status" and state that "The range of variation within and between populations is unknown and the named forms may represent species, subspecies, or merely variations of a single species to which the name *B. hiemalis* is applicable".

Lang (1948) removed the subspecies *brevifurca* to *B. nivalis*. Borutzky (1952) and Wilson & Yeatman (1959) provide much useful information on this species and its varieties.

See also KG 4/13(male) (p. 225).

KG 4/1(male) – characters

1. Anal operculum
   - straight - straight or slightly convex
   - triang - acute triangular shape

2. Anal somite, ventral
   - few - 2 large spinules only each side of anal cleft
   - many - 2 large and 4–6 small spinules each side of anal cleft

3. P3 Exp-2, outer spine
   - long - bluntly lanceolate; extends beyond end of Exp-3
   - short - bluntly lanceolate; extends to origin of medial outer spine of Exp-3

4. P5 endopod
   - orn - with spinules on anterior surface at origin of endopod setae
   - naked - without such spinules

5. P5 exopod
   - n - ratio of maximum length of maximum breadth

KG 4/1(male)

Anal operculum shape	Anal somite ventral spine	P3 Exp-2 outer	P5 Enp	P5 Exp l/b	
straight	few	long	naked	1.6	*Canthocamptus tomikoae*
triang	many	short	orn	2.4	*C. prominulus*

KG 4/2(male) – characters

1. Caudal ramus, inner edge
   - present - with a group of spinules about midway along the edge
   - absent - inner edge naked

2. P4 Exp-3, outer terminal seta or spine
   - A - filiform, with a large number (≈17) slender accessory spinules on outer side; inner side with ≈10 long and very fine spinules
   - B - filiform, with about 4 slender accessory spinules on outer side only
   - C - spine stout, finger-like, with 3–6 strong teeth on outer side; inner side with about 4 small spinules

KG 4/2(male)

CR inner edge terminal spine	P4 Exp-3 outer	
present	A	*Canthocamptus odaeensis*
present	B	*C. coreensis*
present	C	*C. resupinatus*
absent	B	*C. incurvisetosus*
absent	C	*C. mirabilis*[1]

1. *Canthocamptus mirabilis* is redescribed by Chang (2001). Chang believes all the material from Japan recorded as *C. mirabilis* belongs to an as yet undescribed species.

KG 4/3(male) – characters

1. Anal somite, lateral
   - ungui - with a small, blunt unguiform projection near distal edge
   - simple - straight; without a projection

2. P1 Enp-1
   - long - Enp-1 extends to the end of Exp-3
   - short - Enp-1 extends to middle of Exp-3 at most

3. P1 Enp-3
   - n - ratio of length of Enp-3 to Enp-2 (in midline of anterior surface)

4. P5 endopod
   - n - ratio of length of inner to outer setae

5. P3 Enp-3
   - long - 2 terminal setae—at least 1 seta extends beyond the end of the apophysis of Enp-2
   - short - 2 terminal setae—both rudimentary
   - naked - apex without setae; inner side with 2 short spinules

KG 4/3(male)

Anal somite	P1 Enp-1	P1 Enp-3/ Enp-2	P/5 Enp setae	P3 Enp-3	
ungui	short	≈1.5	≈1.7	short	*C. microstaphylinus monardi*
simple	short	≈1.5	≈2.5	long	*C. iaponicus*
simple	long	≈1.5	≈6	short	*C. carinatus*

KG 4/4(male) – characters

1. Caudal ramus, setae IV and V
   - present - with a basal “cleavage plane” (Fig. 3)
   - absent - without a “cleavage plane”

2. Anal somite, lateral

ungui - with a small, blunt unguiform projection near distal edge

simple - straight; without a projection

3. Anal operculum

n - number of spines

4. P3 Enp-3

2wd - with 2 well developed setae; the shorter extends at least as far as the end of the apophysis of Enp-2, the longer about 5 times as long as the apophysis

1wd - with at least 1 well developed seta, which seldom extends to the end of the apophysis of Enp-2

spls - without setae; with 2 spinules only

naked - without setae or spinules

5. P4 Enp-2, inner setae

wd - well developed, extending approximately to the end of the unguiform projection of distal edge; origin of seta II subterminal

weak - setae small and thin; origin of seta II at inner distal corner

vest - setae rudimentary

KG 4/4(male)

CR terminal setae	Anal somite spines	Anal operc setae	P3 Enp-3	P4 Enp-2 inner setae	
present	ungui	12–16	spls	vest	*Canthocamptus takkuboensis*
present	simple	6–8	naked	wd	*C. kitaurensis*
absent	ungui	8–17	1wd	weak	*C. staphylinus*[1]
absent	simple	4	2wd	wd	*C. staphylinoides*

1. *Canthocamptus staphylinus* is a highly variable species with several characters that vary within what can reasonably be presumed to be a single population (Gurney 1932; Lang 1948).

P5 exopod probably always has 6 setae but seta II (situated at the inner distal corner) is always small and weak and may even be rudimentary, giving the appearance of only 5 setae and a setule. For this reason this species also is included in KG 4/14 (male) (p. 226).

Consult Gurney (1932) and Lang (1948) before finalising your identification of *C. staphylinus.*

KG 4/5(male) – characters

1. Anal somite, distal edge

lat/vent - 4 large spinules laterally and 3 ventrally, either side of anal cleft

ventral - a few large spinules laterally; anal cleft naked

2. P1 Enp-1, length relative to exopod

long - Enp-1 extends into the proximal half of Exp-3

short - Enp-1 extends to end of Exp-2 at most

3. P5 exopod, setae V–VI

short - equal in length and much shorter than any other exopod seta

long - seta VI shortest exopod setae; seta V as long as setae I, II and IV

KG 4/5(male)

Anal somite	P1 Enp-1/ Exp	P5 Exp setae	
lat/vent	long	short	*Bryocamptus* (*Bryocamptus*) *yohteiensis*
ventral	short	long	*B.* (*B.*) *pilosus*

KG 4/6(male) – characters

1. Anal operculum

n - number of spines

2. Anal somite, ventral distal edge

sp. curved - with 2 long curved spinules either side of the anal cleft

sp. straight - with 2 long straight spinules either side of the anal cleft

naked - without long curved spinules; naked or with small spinules

KG 4/6(male)

Anal operculum spines	Anal somite ventral	
8–10	naked[1]	*Bryocamptus* (*Bryocamptus*) *vejdovskyi*[1, 2]
2–3[2]	sp. curved	*B.* (*B.*) *incertus*[1, 3]
5	sp. straight	*B.* (*B.*) *mrazeki* [*sensu* Minkiewicz 1916][4]

1. The "typical" forms of *Bryocamptus vejdovskyi* and *B. incertus* are relatively easily distinguished but the distinction becomes blurred when the range of variability is included. Before making a decision consult Lang (1948), Borutzky (1952), Wilson & Yeatman (1959) and Reed (1990). Note that *B. vejdovskyi* is widely distributed in the Holarctic but *B. incertus* is endemic to Lake Baikal.
2. Reed (1990) records males in which curved spinules are present. Note also that the anal operculum spines normally are simple but are bifid in forma *minutiformis* from Connecticut and Michigan, USA.
3. The "typical" form has 2–3 spines but the full range is 0–7. Borutzky (1952) gives more data on the variability of this species, which is endemic to Lake Baikal.
4. See Lang (1948). The original description is not detailed. A subsequent description by Štěrba (1964) appears to differ in some significant respects from that of Minkiewicz (see also KG 4/11(male), p. 224).

KG 4/7(male) – characters

1. Anal operculum

n - number of spines, which may be simple or bifid

2. Anal somite, ventral distal edge

spinulose - anal cleft with 2 large spinules either side and with small spinules within the cleft

naked - ventral anal segment without spinules

KG 4/7(male)

Anal operculum spines	Anal somite ventral	
9–10 bifid[1]	naked	*Bryocamptus* (*Bryocamptus*) *hutchinsoni*[1]
6 simple	spinulose	*B.* (*B.*) *cokeri*

1. Material from Alaska, western Canada and western USA; some of the spinules at the lateral end of the row may be simple. See Wilson & Yeatman (1959); see also KG 4/12(male) (p. 225).

KG 4/8(male) – characters

1. Anal operculum
   n - number of spines

2. P1 Enp-1, length relative to exopod
   long - Enp-1 extends approximately to halfway along Exp-3
   short - Enp-1 extends approximately to halfway along Exp-2

3. P5 endopod
   i>o - inner seta longer than outer
   o>i - outer seta longer than inner

4. P5 exopod, setae I and II
   short - both setae short, not extending to the end of the longest endopod seta, spiniform, plumose
   long - seta I filiform, extending at least to the end of the longest endopod seta; seta II shorter, very thin, may be rudimentary in some forms

KG 4/8(male)

Anal operculum spines	P1 Enp-1/ Exp	P5 Benp setae	P5 Exp setae I–II	
7–8	2.5	i>o	short	*Bryocamptus* (*Bryocamptus*) *tarnogradskyi*
5–7	1.5	o>i	long	*B.* (*B.*) *hiatus*[1]

1. Material from eastern North America (Wilson & Yeatman (1959).

KG 4/9(male) – characters

1. P1 Exp-3, longest seta
   seta I *or* II

2. P4 Enp-2, outermost seta
   simple - plain filiform seta
   curved - slender curved spine

3. P5 exopod
   A - setae I, II, IV, V and VI approximately equal in length and approximately a quarter of the length of seta III

B - setae I, II, V and VI approximately equal in length and approximately ⅓ the length of seta III; seta IV about half the length of seta III

KG 4/9(male)

P1 Exp-1 longest seta	P4 Enp-2 outer seta	P5 Exp setae	
I	simple	A	*Bryocamptus* (*Bryocamptus*) *tenuis*
II	curved	B	*B.* (*B.*) *sinuatus*

KG 4/10(male) – characters

1. Anal operculum spines
   simple *or* bifid

2. P4 Enp-2, seta III
   filiform - slender, filiform, usually sparsely plumose along the outer side
   dentate - broad, bluntly spiniform, dentate along distal half of outer side

3. P5 exopod, seta III
   A - more than twice as long as any other seta
   B - equal to setae II and IV and less than twice as long as any other seta

KG 4/10(male)

Anal operculum spines	P4 Enp-2 seta III	P5 Exp seta III	
simple	filiform	A	*Bryocamptus* (*Bryocamptus*) *longisetosus*
simple	dentate	A	*B.* (*B.*) *elaphoides*
bifid	filiform	B	*B.* (*B.*) *minutus* [*sensu* Sars 1907]

KG 4/11(male) – characters

1. P1, setae and spines of Exp-3 and Enp-3
   short - setae not more than 1.5 times as long as the ramus; Exp-3 with setae III–IV spiniform
   long - all setae extremely long, 2–3 times as long as the ramus

2. P3 Enp-1, inner edge
   n - number of setae

3. P4 Enp-2
   A - outermost seta a simple spine; seta II only slightly longer than seta III
   B - outermost seta a curved spine; seta II twice as long as seta III

KG 4/11(male)

P1 distal setae	P3 Enp-1 inner setae	P4 Enp-2 setae	
short	1	B	*Bryocamptus* (*Bryocamptus*) *abyssicola*
long	0	A	*B.* (*B.*) *kozhowi*

KG 4/12(male) – characters

1. Anal operculum
   n - number of spines, which may be *simple* or *bifid*

2. P.6
   n - number of setae

3. P5 exopod, setae I–II
   long - seta I extends far beyond the end of exopod; seta II nearly half as long as seta III
   short - seta I very short, barely reaching the end of exopod; seta II approximately a quarter of the length of seta III

KG 4/12(male)

Anal operculum spines	P6 setae	P5 setae I–II	
9 bifid	2	long	*Bryocamptus* (*B*) *mrazeki* [*sensu* Sterba 1964][1]
3 simple	3	short	*B.* (*Bryocamptus*) *borutzkyi*

1. See also KG 4/5(male) (p. 221).

KG 4/13(male) – characters

1. Anal operculum
   n - number of spines

2. P1 Enp-1, inner edge
   n - number of setae

KG 4/13(male)

Anal operculum spines	P1 Enp-1 inner setae	
9–10	1	*Bryocamptus* (*Bryocamptus*) *hutchinsoni*[1]
6	0	*B.* (*B.*) *hiatus*[2]

1. *B. hutchinsoni* is a variable species widespread in North America. See Wilson & Yeatman (1959) and KG 4/6(male) (p. 222).
2. Material from Alaska (Ishida 1992b).

KG 4/14(male) – characters

1. P1 Enp-1, length relative to exopod
   long - Enp-1 extends approximately to halfway along Exp-3
   short - Enp-1 extends to the end of Exp-2 at most

2. P2 Enp-2
   n - ratio of maximum length to maximum breadth (measured in midline of anterior surface)

3. P4 Enp-2, relative length of median seta (seta II)
   long - approximately 5 times as long as other setae
   short - approximately twice as long as other setae

4. P5 exopod, relative length of setae I and II
   long - seta I extends beyond end of seta II
   short - seta I barely extends to the origin of seta II

KG 4/14(male)

P1	P2	P4	P5	
Enp-1/	Enp-2	Enp-2	Exp	
Exp	l/b	seta II	seta I/II	
long	≈3	long	long	*Bryocamptus* (*Limocamptus*) *hiemalis* s. str.[1]
long	≈3	long	short	*B.* (*L.*) *hiemalis verestschagini*[1]
short	≈2	short	long	*B.* (*L.*) *lacustris*

1. *Bryocamptus hiemalis* is widely distributed in North America and has been recorded in Lake Baikal, far eastern Russia, Nepal, China and Japan. There is also a record from Bulgaria.
   Wilson & Yeatman (1959: p. 853) refer to it as the "*B. hiemalis* complex … A group of closely related forms of uncertain taxonomic status" and state that "The range of variation within and between populations is unknown and the named forms may represent species, subspecies, or merely variations of a single species to which the name *B. hiemalis* is applicable".
   Lang (1948) removed the subspecies *brevifurca* to *B. nivalis*. Borutzky (1952) and Wilson & Yeatman (1959) provide much useful information on this species and its varieties.

KG 4/15(male) – characters

1. Caudal ramus, setae IV and V
   present - with a basal "cleavage plane" (Fig. 3)
   absent - without a "cleavage plane"

2. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

3. P5 exopod, inner edge
   present - a strong seta originates in proximal half inner edge
   absent - inner seta is small and originates in distal half

KG 4/15(male)

CR terminal setae	CR l/b	P5 Exp inner seta	
present	≈2.7	absent	*Canthocamptus microstaphylinus*
absent	≈2.2	present	*C. staphylinus*[1]

1. *Canthocamptus staphylinus* is a highly variable species with several characters that vary within what can reasonably be presumed to be a single population (Gurney 1932; Lang 1948).
   P5 exopod probably always has 6 setae but seta II (situated at the inner distal corner) is always small and weak and may even be rudimentary, giving the appearance of only 5 setae and a setule. For this reason this species also is included in KG 4/14(male) (p. 226).
   Consult Gurney (1932) and Lang (1948) before finalising your identification of *C. staphylinus.*

KG 5

Because sexual dimorphism is pronounced in the majority of the species in this key, separate keys are given for females and males (p. 238).

Some species are very inadequately described, but should be taken into account. Females of these species have been placed in 5/11(female) (p. 238) and males in 5/13(male) (p. 248).

KG 5(female) – characters

1. Anal operculum, shape as seen in dorsal view

lunar - usually a shallow arc; distal edge naked, or with a large number of fine setules or small spinules, or with a few strong spinules

triangular - very variable but based on a triangular or tongue shaped form. In some species it appears to be a superficial structure arising from just above the distal edge of a lunar operculum. Distal edge naked or ornamented with a hyaline membrane, or fine setules, or very small spinules, or finely or coarsely serrated; the structure may be asymmetrical and may vary in form within a species

2. P1 Enp-1, length relative to exopod

>>3 - Enp-1 extends far beyond end of exopod; exopod extends at most to approximately ¾ the length of Enp-1

≈3 - Enp-1 extends approximately to the end of Exp-3

≈2 - Enp-1 extends at least to the distal half of Exp-2 and at most to the proximal half of Exp-3

≈1.5 - Enp-1 extends beyond Exp-1, but not into the distal half of Exp-2

≈1 - Enp-1 extends at most to approximately the end of Exp-1

3. P2–P4 Enp-1, inner edge

n:n:n - number of setae on P2, P3 and P4

4. P2–P4 Enp-2

n:n:n - number of setae and spines on P2, P3 and P4

(Care must be taken to exclude spinules and setules from this formula)

5. P5

n - number of setae and spines on endopod and exopod

KG 5(female)

Anal operculum shape	P1 Enp-1/Exp	P2–P4 Enp-1 inner setae	P2–P4 Enp-2 setae	P5 setae	
lunar	>>3	1:1:1	6:6:5	6:5	*Attheyella* (*Mrazekiella*) *wulmeri*[1]
lunar	>>3	1:1:1	4–5:6:5–6	5:5	KG 5/1(female) (p. 229)
lunar	>>3	1:1:1	5:6:5	4:5	*Attheyella* (*Ryloviella*) *carolinensis*
lunar	>>3	1:1:1	5:6:5	4:4	*A.* (*R.*) *carolinensis*
lunar	>>3	1:1:1	5:6:5	3:5	*A.* (*R.*) *carolinensis*
lunar	>>3	1:1:1	4:6:5	6:4	*A.* (*Delachauxiella*) *longipes*
lunar	>>3	1:1:1	4:6:4	4:4–5	*A.* (*Mrazekiella*) *tetraspinosa*
lunar	>>3	1:1:0	6:5–6:5	6:5	*A.* (*M.*) *wulmeri*[2]
lunar	≈3	(1:1:1)	(6:6):5	6:5	*A.* (*M.*) *northumbricoides*[3]
lunar	≈3	1:1:1	5:6:5	6:5	*A.* (*M.*) *illinoisensis, A. (M.) nordenskioldi*[4]
lunar	≈3	1:1:1	4:6:5	6:4	*A.* (*Delachauxiella*) *stillicidarum*
lunar	≈3	1:1:1	4:6:5	5:5[5]	*Mesochra xenopoda*[5]
lunar	≈3	1:1:0	3:4:2	6:5	*Attheyella* (*Attheyella*) *namkungi*
lunar	≈2	1:1:1	5:6:5	6:5	KG 5/2(female) (p. 230)
lunar	≈2	1:1:1	5:6:5	6:4	*Canthocamptus howardorum*
lunar	≈2	1:1:1	5:6:4	6:5	KG 5/3(female) (p. 231)
lunar	≈2	1:1:1	5:5:4	6:5	*Attheyella* (*Attheyella*) *paucisetosa*
lunar	≈2	1:1:1	4:6:4–5	6:5	*A.* (*A.*) *wierzejskii*
lunar	≈2	1:1:1	4:5:4	6:4	*A.* (*Delachauxiella*) *ciliata*
lunar	≈2	1:1:1	4:4:3	4:5	*Heteropsyllus serratus*
lunar	≈2	1:1:0	5:6:5	6:5	*Attheyella* (*Attheyella*) *nepalensis*
lunar	≈2	1:1:0	5:6:4	6:5	*A.* (*Chappuisiella*) *vivianii*
lunar	≈2	1:1:0	5:5–6:3	6:5	*A.* (*Ch.*) *bullata*
lunar	≈2	1:1:0	5:3:3	6:5	*A.* (*Ch.*) *laciniata*
lunar	≈2	1:1:0	4:5:5[6]	6:4	*Attheyella* (*Delachauxiella*) *nuda*[6]
lunar	≈2	1:1:0	4:5:3	6:4(6?)	*A.* (*Attheyella*) *idahoensis* [sensu Roland 1964][7]
lunar	≈2	1:1:0	2:2–4:2–3	6:5	KG 5/4(female) (p. 231)
lunar	≈2	1:1:0	1:1:2	6:5	*Attheyella* (*Attheyella*) *coiffaiti*[8]
lunar	≈2	1:0:0	4:5:3–4[9]	6:5	*A.* (*A.*) *yesoensis*[9]
lunar	≈2	0:0:0	5:6:4	5:3–4	KG 5/5(female) (p. 232)
lunar	≈2	0:0:0	5:5:4	5:4	*Pilocamptus trichotus*
lunar	≈2	0:0:0	4:5:4	5:4	*P. kamerunensis* s. str.
lunar	≈2	0:0:0	4:5:3	5:4	*P. k. villosus*
lunar	≈2	?:?:?	?:?:?	6:5	*Attheyella* (*Chappuisiella*) *huaronensis*
lunar	≈1.5	1:1:1	5:6:5	6:5	KG 5/6(female) (p. 233)
lunar	≈1.5	1:1:1	4:6:5	6:5	*Attheyella* (*Chappuisiella*) *pichilafquensis*[10]
lunar	≈1.5	1:1:0	5:6:5	6:5	*A.* (*Ch.*) *ablatifurcata*
lunar	≈1.5	1:1:0	3:4:4	4:5	*Heteropsyllus pseudonunni*

lunar	≈1.5	(0:0:0)	?:?:4	5:4	*Pilocamptus schroederi*
lunar	≈1	1:1:1	3:3:4	5:4[5]	*Heteropsyllus confluens*[5]
lunar	≈1	1:1:0	4:4:4	4:5[5]	*Mesochra hinumaensis*[5]
triangular	≈3	1:1:1	5:6:5	6:4	KG 5/7(female) (p. 234)
triangular	≈3	1:1:1	4:6:5	6:4	KG 5/8(female) (p. 234)
triangular	≈3	1:1:1	4:6:4	6:4	*Attheyella* (*Delachauxiella*) *yemanjae*
triangular	≈3	1:1:1	5:6:5	5:4	*A.* (*D.*) *dadayi*
triangular	≈3	1:1:0	4:6:5	6:4	*A.* (*D.*) *yemanjae*
triangular	≈3	1:1:0	4:5:3	6:4	*A.* (*D.*) *pauliani*
triangular	≈3	?:?:?	?:?:5	6:4	*A.* (*D.*) *aculeata* (see KG 5/11(female), p. 238)
triangular	≈3	?:?:?	?:?:?	6:4	*A.* (*D.*) *horvathi* (see KG 5/11(female), p. 238)
triangular	≈2	1:1:1	5:6:5	6:5	*A.* (*Attheyella*) *orientalis*[11]
triangular	≈2	1:1:1	5:6:5	6:4	KG 5/9(female) (p. 236)
triangular	≈2	1:1:1	5:5:5	6:4	*Attheyella* (*Delachauxiella*)*tasmaniae*
triangular	≈2	1:1:1	4:6:5	6:4	KG 5/10(female) (p. 237)
triangular	≈2	1:1:1	3:6:5	6:4	*Attheyella* (*Delachauxiella*) *caecosetosa*
triangular	≈2	?:?:?	?:?:?	6:4	*A.* (*D.*) *maxima* (see KG 5/11(female), p. 238)
triangular	?	?:?:?	?:?:?	6:4	*A.* (*D.*) *ferox*, *A.* (*D.*) *insignis* (see KG 5/11(female), p. 238)

1. See Karanovic (1999a). This form has been found in southern England, France, Italy and Portugal.
2. See Karanovic (1999a). This form has been found in Italy and the Balkans.
3. Setation inferred from the description, which claims a likeness to *A. northumbrica* (=*A. dentata*), but this species is so poorly described that it is unlikely that specimens can be assigned to it with any degree of confidence.
4. These 2 species are clearly distinguishable only in their "typical" forms. Lang (1948) synonymised them but other authors appear to disagree. See Checklist Note 229 (p. 91) and refer to Lang (1948) and Wilson & Yeatman (1959) before making a determination. See also KG 2 (p. 211).
5. P5 basis and exopod fused together.
6. The outer apical seta of P4 Enp-2 is rudimentary.
7. Roland describes the P5 Exp of his single female as having "deux petits épines" subterminally on the inner edge; 6 setae on P5 exopod is otherwise unknown in *Attheyella*. Other records of *A. idahoensis* (see KG 9, p. 257) record only 1 such spine. Roland's female also differs from other records of *A. idahoensis* in the 7-setose condition of P4 Exp-3.
8. Cave dwelling populations in Japan (Ishida 1995a).
9. The outer seta in the 4-setose condition of P4 Enp-2 is vestigial.
10. Both 4:5:5 and 5:6:5 (see KG 5/8(female), p. 234) conditions of P2–P4 Enp-2 occur within a single individual. More extensive variations are possible; one individual has been reported with a setation of 3:4:5.
11. Subspecies *orientalis* s. str. and *orientalis heterospina.*

KG 5/1(female) – characters

1. Body surface ornamentation
   - A - "body clothed with minute spinules" [Bowman, Prins & Morris 1968]
   - B - "covered with dense rows of hairs" [Borutzky 1952]
   - C - spinulation confined to discrete rows near distal margin of abdominal somites

2. Antennule
   - n - number of segments

3. P5 endopod, form of setae
   A - all setae extends to about the same point
   B - setae I–IV extend to about the same point; seta V extends to about halfway along the other setae
   C - setae I–II extend more than twice as far as setae III–IV

4. P5 exopod (in anterior view)
   A - approximately 2.5 times as long as broad; spinules continuous along inner and outer edges; numerous transverse rows of spinules on anterior face
   B - approximately 2.5 times as long as broad; spinulation confined to outer edge and proximal part of inner edge
   C - approximately 1.7 times as long as broad; inner edge without spinules; outer edge with a few spinules on proximal part; anterior face with a few transverse rows and some scattered spinules on the outer half

5. P2 Enp-2
   n - number of setae

KG 5/1(female)

Body surface	A1 segs	P5 Enp setae	P5 Exp	P2 Enp-2 setae	
A	7	A	A	4–5	*Attheyella* (*Ryloviella*) *baikalensis*
B	8	B	C	5	*A.* (*A.*) *pilosa*
C	8	C	B	5	*A.* (*Mrazekiella*) *spinipes*

KG 5/2(female) – characters

1. Caudal ramus, in dorsal view
   A - inner edge with an acutely pointed unguiform process, clothed in setules, originating in proximal half and extending almost to the end of the ramus; outer edge with a pronounced step at about halfway
   B - inner and outer edges convex; width at apex more than half that at base
   C - approximately even taper from base to apex; width at apex much less than half that at base
   D - inner edge strongly convex; outer edge convex in proximal half, concave distally; width at apex much less than half that at base

2. Abdomen, ornamentation at distal edge of somites 2–4
   A - dorsal distal edge serrate; each somite with a continuous row of long spinules across venter from the lateral edges of the somite
   B - dorsal distal edge serrate; somite 4 with a continuous row of long spinules across venter from the lateral edges; somites 2–3 with naked venter
   C - dorsal distal edge smooth; somite 4 with a continuous row of long spinules across venter from the lateral edges; somite 3 as somite 4 but with ventral spinules much shorter than lateral; somite 2 with venter naked
   D - distal dorsal edge smooth; each somite with long spinules lateral and ventrolateral; venter naked on somite 2, with small spinules on somites 3–4
   E - distal dorsal edge serrate; spinules present laterally but ventral condition unknown

3. Cephalic shield and thorax, ornamentation

A - distal dorsal edges weakly serrate; surface with numerous rows and groups of minute setules and/or spinules

B - distal dorsal edges weakly serrate; surface without ornamentation? (not mentioned in species description)

C - distal dorsal edges strongly serrate; surface without ornamentation? (not mentioned in species description)

D - distal dorsal edges strongly serrate; surface of cephalosome naked; surface of thoracic somites with numerous rows and groups of minute setules and/or spinules

E - distal edges smooth; surface without ornamentation

F - distal edges smooth; surface of cephalosome naked; surface of thoracic somites with numerous rows and groups of minute setules and/or spinules

G - distal dorsal edges smooth; surface with numerous micropores and sensilla but without setules or spinules; cephalosome with a group of long setules aborally

4. P5 exopod, in anterior view

present - spinules present on anterior face and may also be present on inner and/or outer edges

absent - spinules not present on anterior face but are present on inner and/or outer edges

KG 5/2(female)

CR	Abdomen ornamen.	Cph & thorax	P5 Exp	
A	E	?	present	*Attheyella* (*Attheyella*) *obatogamensis*
B	C	D	present	*A.* (*A.*) *crassa*
B	A	A	present	*A.* (*Chappuisiella*) *rotoruensis*
B	A	B	present	*A.* (*Ch.*) *fuhrmanni*
B	B	E	present	*A.* (*Ch.*) *levigata*
B	D	G	present	*A.* (*Ch.*) *hirsuta*
C	A	C	present	*A.* (*Ch.*) *crenulata*
C	B	F	absent	*A.* (*Ch.*) *australica*
D	A	C	absent	*A.* (*Ch.*) *godeti*

KG 5/3(female) – characters

1. Caudal ramus

narrow - approximately twice as long as broad; inner side weakly convex, without spinules; outer side with 2–3 stout spinules around the origin of distal outer seta

broad - approximately 1.5 times as long as broad; inner side strongly convex in proximal half, with a group of long fine setules in distal half; outer side with numerous long fine setules distally

KG 5/3(female)

CR	
narrow	*Attheyella* (*Chappuisiella*) *camposi*
broad	*A.* (*Ch.*) *vivianii*

KG 5/4(female) – characters

1. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

2. P5 endopod

broad - width of endopod at origin of seta I nearly half the length from apex to inner proximal corner; origin of seta I significantly distal to the articulation of exopod with basis; setae II and III adjacent

narrow - width of endopod at origin of seta I only a quarter of the length from apex to inner proximal corner; origin of seta I level with articulation of exopod with basis; origin setae II and III separated by a long gap

3. Antenna exopod, length relative to basis

long - exopod extends almost to end of basis

short - exopod extends only about halfway along basis, approximately to the origin of basis seta

KG 5/4(female)

CR	P5	A2	
l/b	Enp	Exp/basis	
<2.5[1]	broad	long	*Attheyella* (*Attheyella*) *nakaii*[1]
≈2	narrow	short	*A.* (*A.*) *coreana*[2]
≈3.5	narrow	short	*A.* (*A.*) *coiffaiti*[3]

1. Data from redescription by Ishida (1987). Ishida (1994a) describes 2 morphs of the caudal ramus. The long morph is 2–2.2 times as long as broad and the short morph is only 1.5 times as long as broad.
2. It is probable that at least 2 species are represented by this codon. See Kim, Soh & Lee (2005: p. 1292).
3. Data from redescription by Ishida (1995a).

KG 5/5(female) – characters

1. Antennule

n - number of segments

2. Caudal ramus, dorsal

ungui - dorsal distal edge prolonged as an unguiform projection

knob - dorsal distal edge with a short knobbly projection

smooth - dorsal distal edge not prolonged

3. Anal somite

lat+vent - with spinules lateral and ventral

naked - without spinules

4. P5

n:n - number of setae and spines on endopod and exopod

5. P5 exopod, shape

long oval - approximately twice as long as broad

short oval - approximately 1.5 times as long as broad

circular - approximately as long as broad

KG 5/5(female)

A1 segs	CR dorsal	Anal somite	P5 setae	P5 Exp	
8	ungui	lat+vent	5:4	short oval	*Pilocamptus africanus*[1]
8	ungui	lat+vent	5:4	long oval	*P. alluaudi*
8	knob	lat+vent	5:4	circular	*P. verrucosus*
8	smooth	lat+vent	5:4	short oval	*P. monodi*
8	smooth	lat+vent	5:4	long oval	*P. vulgaris*
8	smooth	lat+vent	5:4[2]	long oval	*P. pilosus*[2]
8	smooth	naked	5:4	short oval	*P. jeanneli*
7	smooth	lat+vent	5:3?[3]	long oval	*P. georgevitchi*[3]

1. *Pilocamptus africanus* is the only species in this key in which the distal edge of the body somites is said to be finely dentate; all others are smooth.
2. The seta on inner edge of P5 exopod is reduced to a small size or is vestigial.
3. The inner side of P5 exopod has a step without a seta. It is not clear from the published description whether the step is actually the site of origin point of a lost seta.

KG 5/6(female) – characters

1. Caudal ramus, shape in dorsal view
   - conical - almost even taper from base to apex; without extraordinary features
   - ungui - conical, with dorsal distal edge extended as an unguiform projection that is upwardly directed at apex
   - keel - conical, with a ridge or keel on dorsal aspect
   - barrel - barrel shaped; inner and outer edges weakly convex, apex only slightly narrower than base
   - convex - inner side strongly convex

2. P5 exopod, location of accessory spinulation
   - A - outer edge with a few spinules at origins of setae III–V; inner edge with long spinules along entire length proximal to origin of seta I; anterior face with many spinules on inner half
   - B - outer edge with a few spinules at origins of setae III–V; inner edge naked; anterior face with 2 groups of 2 spinules only on proximal half of face
   - C - only accessory spinulation is on outer edge with a few spinules at origins of setae III–V
   - D - outer edge with a few spinules at origins of setae III–IV; inner edge with long spinules along entire length proximal to origin of seta I;anterior face naked
   - E - outer edge with a few spinules at origins of setae III–IV; inner edge naked; anterior face with 2 rows of spinules on inner half proximal to origin of seta I
   - F - only accessory spinulation is on outer edge with a few spinules at origins of setae IV–V

3. P5 exopod
   - n - ratio of maximum length to maximum breadth

4. P1 Enp-3
   - n - ratio of length of Enp-3 to length of Enp-2 (in midline of anterior face)

5. P2–P4 Enp-2
   - n:n:n - number of setae and spines on P2, P3 and P4

   (Care must be taken to avoid mistaking spinules for true seta or spines)

KG 5/6(female)

CR shape	P5 Exp spinules	P5 Exp l/b	P1 Enp-3/ Enp-2	P2–P4 Enp-2 setae	
conical	F	≈2	≈1	4:6:5	*Attheyella* (*Chappuisiella*) *orinocoensis*
conical	C	≈1.5	≈1	5:6:5	*A.* (*Ch.*) *pichilafquensis*[1]
conical	C	≈1.5	≈1	4–5:5–6:5	*A.* (*Ch.*) *pichilafquensis*[2]
ungui	A	≈2	>1	5:6:5	*Attheyella billwilliamsi*[3]
keel	D	2.5	≈1	5:6:5	*A.* (*Ch.*) *maorica*
barrel	E	≈1	>1	5:6:5	*A.* (*Ch.*) *chilensis*
convex	B	≈2	?	5:6:5	*A.* (*Ch.*) *palustris*

1. Original description; material from Chile.
2. This species is known to be highly variable in the setation of P2–P4 endopod, especially in Ecuador (Löffler 1963) and Colombia (Gavaria 1993); variability occurs even within an individual.
3. Described as *Canthocamptus* but considered here as *incertae sedis* in *Attheyella*; see Checklist Note 232 (p. 92).

KG 5/7(female) – characters

1. Antennule
   - n - number of segments

2. Anal operculum
   - long naked - extends to end of caudal rami; distal edge naked
   - short naked - does not extend to end of caudal rami; distal edge naked
   - short fh - does not extend to end of caudal rami; distal edge clothed with fine setules

3. Caudal ramus, in dorsal view
   - n - ratio of maximum length to maximum breadth

4. P5 exopod
   - n - ratio of maximum length to maximum breadth

5. P5 endopod, setae V and VI
   - long - much longer than half the length of setae II–IV
   - short - less than half the length of setae II–IV

KG 5/7(female)

A1 segs	Anal operculum	CR l/b	P5 Exp l/b	P5 Enp setae V–VI	
8	long naked	≈1	≈1.5	short	*Attheyella* (*Delachauxiella*) *trigonura*
8	short naked	≈2	≈2	long	*A.* (*D.*) *hannae*
7	short fh	≈1	≈5	long	*A.* (*D.*) *longiseta*
7	short fh	≈2	≈2.6	long	*A.* (*D.*) *dumonti*

KG 5/8(female) – characters

1. Anal operculum
   - long - extends to end of caudal rami; distal edge clothed with fine spinules or setules

short 1 - does not extend to middle of caudal rami; distal edge clothed with fine spinules or setules
short 2 - does not extend to middle of caudal rami; distal edge very coarsely serrate

2. Dorsal and lateral parts of hyaline frill of all somites except anal somite
weak - weakly serrate; teeth usually sharp, serrations of even length and quite regular
weak+ - weakly serrate; teeth sharp; serration becomes more irregular on abdomen, with a large dorsolateral tooth on segments 2–3
coarse - coarsely serrate; usually a mixture of large and small, sharp and rounded teeth
coarse+ - extremely coarsely serrate; dorsal part with very uneven and usually broad blunt teeth; dorsolaterally with large sharp teeth, these being especially large on the abdomen

3. Abdomen somites 2–4, rows of spinules near posterior edge
A - all somites with continuous spinule row across venter from high on lateral side (except for a small midventral gap on somite 2)
B - all somites with spinule rows from lateral to ventrolateral only
C - somites 3–4 with continuous spinule row across venter from high on lateral side; somite 2 with spinule rows from lateral to ventrolateral only
D - somite 4 with continuous spinule row across venter from high on lateral side; somites 2–3 with spinule rows from lateral to ventrolateral only
E - somite 4 with continuous spinule row across venter from high on lateral side; somite 3 with spinule rows from lateral to ventrolateral only; somite 2 with lateral spinules only

4. P5 endopod
A - all setae approximately equal in actual length
B - setae V–VI extend to less than halfway along setae III–IV
C - setae V–VI extend beyond halfway along setae III–IV
D - setae V–VI extend beyond halfway along seta III
E - setae V–VI extend to less than halfway along seta III but beyond halfway along seta IV
F - seta V extends beyond halfway along setae III–IV; seta VI extends only to halfway along setae III–IV at most

5. P1 Exp-2, inner edge
n - number of setae

KG 5/8(female)

Anal operc	Hyaline frill	Abd som 2–4	P5 Enp setae	P1 Exp-2 inner setae	
long	coarse+	C	A	0	*Attheyella* (*Delachauxiella*) *mortoni*
long	weak+	A	C	1	*A.* (*D.*) *fimbriata*
long	weak	B	B	1	*A.* (*D.*) *wieseri*
short 1	weak	D	C	1	*A.* (*D.*) *dedeckkeri*
short 1	coarse	C	?	0	*A.* (*D.*) *broiensis*
short 2	coarse	C	C	1	*A.* (*D.*) *echinopyge*
short 2	coarse	E	C	1	*A.* (*D.*) *lanata*

short 2	coarse	E	D	0	*A.* (*D.*) *yemanjae*
short 2	coarse	E	E	0	*A.* (*D.*) *serrata*

KG 5/9(female) – characters

1. Anal operculum
   - long - extends far beyond caudal rami; distal edge with an hyaline membrane
   - medium 1 - extends approximately to the end of caudal rami; distal edge with small spinules
   - medium 2 - extends approximately to the end of caudal rami; distal edge naked
   - short 1 - does not extend to end of caudal rami; distal edge naked
   - short 2 - does not extend to end of caudal rami; distal edge irregularly indented

2. Dorsal and lateral parts of hyaline frill of all somites except anal somite
   - A - very weakly and irregularly serrate; teeth increase in size and sharpness in abdomen
   - B - weakly and irregularly bluntly serrate
   - C - all somites (? information not always known for cephalosome and thorax) with approximately regular fine sharp serrations
   - D - serrate; cephalosome with irregular square lappets; thorax with many irregular sharp teeth; abdomen with a few irregular blunt teeth
   - E - cephalosome unknown; thorax serrate dorsolaterally (dorsal unknown); abdomen smooth

3. Abdomen somites 2–4, rows of spinules near posterior edge
   - A - spinules circumsegmental, usually except for a small gap middorsal and midventral
   - B - somite 2 unknown; somites 3–4 with continuous spinule row across venter from high on lateral
   - C - somites 3–4 with continuous spinule row across venter from high on lateral side; somite 2 with spinule rows from lateral to ventrolateral only
   - D - somites 3–4 with spinule row lateral to ventrolateral only; somite 2 with spinule rows lateral only

4. P5 endopod
   - A - all setae approximately equal length
   - B - setae I, V, VI approximately equal length and shorter than setae II–IV
   - C - setae V–VI approximately equal length and half to ⅔ the length of other setae
   - D - setae V–VI approximately equal length and less than half the length of other setae
   - E - seta V much shorter than any other seta
   - F - seta VI at most half as long as any other seta
5. P5 exopod
   - n - ratio of maximum length to maximum breadth

KG 5/9(female)

Anal op	Hyaline frill	Abd som 2–4	P5 Enp setae	P5 Exp l/b	
long	C?	D	F	≈2.5	*Attheyella* (*Delachauxiella*) *schindleri*
medium 1	D	B	E	≈1.5	*A.* (*D.*) *brehmi*
medium 2	B	D	F	≈2	*A.* (*D.*) *clavigera*
medium 2	E	?	D	≥2	*A.* (*D.*) *incae*
short 1	B	A	C	≈2	*A.* (*D.*) *inconstans*

short 1	C	B	B	≈2.5	*A.* (*D.*) *freyi*
short 2	A	C	A	≈1	*A.* (*D.*) *bennetti*

KG 5/10(female) – characters

1. Dorsal and lateral parts of hyaline frill of all somites except anal somite
   - A - irregularly serrate; large teeth on all somites
   - B - almost regularly serrate; small teeth on all somites
   - C - cephalosome and thorax irregularly serrate; abdomen with very regular, long and sharp serrations
   - D - irregularly serrate; teeth decrease in size from cephalosome so that in abdomen somites 3–4 the frill is an irregularly wavy edge
   - E - irregularly serrate, with small teeth on cephalosome degrading to a wavy edge on thorax segments 3–4 and abdomen somite 2 and becoming larger again on posterior abdomen somites

2. Abdomen segments 2–4, rows of spinules near posterior edge
   - A - somite 2 unknown; somites 3–4 with continuous spinule row across venter from high on lateral side
   - B - somites 3–4 with continuous spinule row across venter from high on lateral side; somite 2 with spinule rows lateral to ventrolateral only
   - C - somite 4 with continuous spinule row across venter from high on lateral side; somites 2–3 with spinule rows from lateral to ventrolateral only; midventral gap wider on somite 2 than on 3
   - D - somite 4 with continuous spinule row across venter from high on lateral side; somites 2–3 with spinule rows from lateral to ventrolateral only; midventral gap narrow on both somites

3. P5 endopod
   - A - seta VI the shortest seta but at least half as long as any other seta
   - B - seta V the shortest seta but at least half as long as any other seta
   - C - seta V the shortest seta; much shorter than setae III and VI and about half as long as other setae

4. P1 Exp-2, inner edge
   - n - number of setae

5. Caudal ramus, seta IV
   - filiform - slender or with a slightly bulbous base
   - globular - with a massively globular base

KG 5/10(female)

Hyaline frill	Abdomen som 2–4	P5 Enp setae	P1 Exp-2 inner setae	CR outer terminal seta	
A	B	B	1	filiform	*Attheyella* (*Delachauxiella*) *longifurca*
A	D	B	1	globular	*A.* (*D.*) *globulisetosa*
B	A	A	1	filiform	*A.* (*D.*) *freyi*
B	B	B	1	filiform	*A.* (*D.*) *timmsi*
C	C	B	1	filiform	*A.* (*D.*) *henryae*
D	A	C	0	filiform	*A.* (*D.*) *humidarum*
E	C	B	1	filiform	*A.* (*D.*) *lacinulata*

KG 5/11(female) – characters

1. Dorsal and lateral parts of hyaline frill of all somites except anal somite
   - serrated - all somites serrated
   - mixed - cephalic shield and thorax serrated, abdomen smooth
   - smooth - all somites smooth

2. Abdomen somites 2–4, rows of spinules near posterior edge
   - circum - circumsomitic except for a small midventral gap
   - lat+vlat - lateral and ventrolateral only

3. P5 endopod
   - A - all setae approximately the same length
   - B - seta I, V, VI much shorter than setae II, III, IV
   - C - seta I the shortest, seta III the longest; other setae approximately the same length

4. P5 exopod
   - n - ratio of maximum length to maximum breadth

5. Caudal ramus, inner distal corner
   - square - square or slightly rounded
   - ungui - a long finely pointed unguiform projection

KG 5/11(female)

Hyaline frill	Abdomen som 2–4	P5 Enp setae	P5 Exp l/b	CR inner distal corner	
serrated	lat+vlat	A	<1	square	*Attheyella* (*Delachauxiella*) *incerta*
serrated	lat+vlat	A	≈2	square	*A.* (*D.*) *salvatoris*
serrated	lat+vlat	B	≈2	square	*A.* (*D.*) *insignis*
serrated	lat+vlat	?	1.25	square	*A.* (*D.*) *horvathi*
serrated	circum	C	≈2	square	*A.* (*D.*) *ferox*
mixed	lat+vlat	B	≈3	ungui	*A.* (*D.*) *aculeata*
smooth	lat+vlat	B	≈2	square	*A.* (*D.*) *maxima*

KG 5(male) – characters

1. Anal operculum, shape as seen in dorsal view
   - lunar - usually a shallow arc; distal edge naked, or with a large number of fine setules or small spinules, or with a few strong spinules
   - triangular - very variable but based on a triangular or tongue shaped form. In some species it appears to be a superficial structure arising from just above the distal edge of a lunar operculum. Distal edge naked or ornamented with a hyaline membrane, or fine setules, or very small spinules, or finely or coarsely serrated. The structure may be asymmetrical and may vary in form within a species

2. P1 Enp-1, length relative to exopod

>>3 - Enp-1 extends far beyond end of exopod; exopod extends at most to approximately ¾ the length of Enp-1

≈3 - Enp-1 extends at least well into the distal half of Exp-3

≈2 - Enp-1 extends at least to the distal half of Exp-2 and at most to the proximal half of Exp-3

≈1.5 - Enp-1 extends beyond Exp-1, but not into the distal half of Exp-2

≈1 - Enp-1 extends at most to approximately the end of Exp-1

3. P2 and P4 Enp-1, inner edge

n:n:n - number of setae on P2, P3 and P4

4. P5

n - number of setae and spines on endopod and exopod

KG 5(male)

Anal operculum shape	P1 Enp-1/ Exp	P2 & P4 Enp-1 inner setae	P5 setae	
lunar	>>3	1:1	1–2:5	KG 5/1(male) (p. 240)
lunar	>>3	1:1	1:4	*Attheyella* (*Mrazekiella*) *tetraspinosa*
lunar	>>3	1:0	2:5	*A.* (*M.*) *wulmeri*
lunar	>>3	1:0	1:4	*A.* (*Ryloviella*) *baikalensis*
lunar	≈3	1:1	3:5	*A.* (*Mrazekiella*) *illinoisensis*, *A.* (*M.*) *nordenskioldii*[1]
lunar	≈3	(1:1)	3:(5)	*A.* (*M.*) *northumbricoides*[2]
lunar	≈3	1:1	2:6	*Canthocamptus verestschagini*
lunar	≈3	1:0	2:4–6	KG 5/2(male) (p. 241)
lunar	≈3	1:0	2:3	*A.* (*Delachauxiella*) *stillicidarum*
lunar	≈2	1:1	2:5	KG 5/3(male) (p. 241)
lunar	≈2	1:1	2:4	*Attheyella* (*Attheyella*) *wierzejskii* [*sensu* Chappuis 1933][3]
lunar	≈2	1:0	3:5	KG 5/4(male) (p. 241)
lunar	≈2	1:0	2:5	KG 5/5(male) (p. 242)
lunar	≈2	1:0	2:4	KG 5/6(male) (p. 243)
lunar	≈2	0:0	2:4	*Pilocamptus trichotus*
lunar	≈2	0:0	1:4	KG 5/7(male) (p. 244)
lunar	≈2	0:0	1:3	*Pilocamptus pilosus*
(lunar)	1.5	1:0	4:6	*Heteropsyllus pseudonunni*
lunar	1.5	1:0	2:5	KG 5/8(male) (p. 244)
lunar	1.5	(0):0	1:4	*Pilocamptus schroederi*
lunar	≈1	1:0	3:6	*Mesochra hinumaensis*
(lunar)	≈1	1:1	2:5	*Heteropsyllus confluens*
triangular	≈3	1:0–1	2:4	KG 5/9(male) (p. 245)
triangular	≈3	1:0	2:3	KG 5/10(male) (p. 246)
triangular	≈3	1:0	1:3	KG 5/11(male) (p. 247)
triangular	≈3	0:0	2:3	*Attheyella* (*Delachauxiella*) *dedeckkeri*

triangular	≈3	?	?	*A.* (*D.*) *horvathi* (see KG 5/14(male), p. 249)
triangular	≈2	1:1	2:5	*A.* (*Attheyella*) *orientalis*[4]
triangular	≈2	1:1	2:4	KG 5/12(male) (p. 247)
triangular	≈2	1:0	2:3	KG 5/13(male) (p. 248)
triangular	≈2	0:0	2:3	*Attheyella* (*Delachauxiella*) *brehmi*
triangular	≈2	?	2:4	KG 5/14(male) (p. 249)
triangular	?	?	2:4	KG 5/14(male) (p. 249)

1. These species are clearly distinguishable only in their "typical" forms. Lang (1948) synonymised them but other authors appear to disagree. See Checklist Note 229 (p. 91) and refer to Lang (1948) and Wilson & Yeatman (1959) before making a determination. See also KG 2 (p. 211) and KG 5(female) (p. 227).
2. Setation inferred from the description, which claims a likeness to *A. northumbrica* (=*A. dentata*), but this species is so poorly described it is unlikely that specimens can be assigned to it. It can be distinguished from *A. illinoisensis* and *A. nordenskioldii* by the anal operculum, which naked or clothed with fine setules in these species but bears 13 spinules in *A. northumbricoides.*
3. Chappuis provides illustrations of 2 variants of the male P5, but in both the exopod bears 4 well developed setae. The original description has an illustration of a single male in which the left side has 5 well developed setae, the right has 3 well developed setae plus 1 very reduced structure that probably is a seta and 2 vestigial elements on the outer side, whose true nature is indeterminable. All this information is from Lang (1948). See also KG 5/3(male) (p. 241).
4. Subspecies *orientalis* s. str. and *orientalis heterospina.*

KG 5/1(male) – characters

1. Caudal ramus, in dorsal view
   - n - ratio of maximum length to maximum breadth

2. P2 and P4 Enp-2
   - n:n - number of setae and spines on P2 and P4

3. P5 endopod
   - A - with 2 well developed spines, approximately equal in length and not extending beyond end of exopod
   - B - with 2 well developed, spinulose setae; inner seta extends well beyond end of exopod, outer seta shorter than exopod
   - C - with 1 long, well developed, spinulose seta that extends well beyond end of exopod; outer seta absent
   - D - with 2 short spines; inner spine extends only to the middle of the exopod; outer spine very short
   - E - as D but with outer spine absent

4. Urosome, spinule row at posterior edge of somites
   - circum - circumsomitic
   - vent+lat - restricted to ventral and lateral sides at most

KG 5/1(male)

CR l/b	P2 & P4 Enp-2 setae	P5 Enp setae	Urosome	
≈1	5:5	A	vent+lat	*Attheyella* (*Mrazekiella*) *byblis*
≈2	5:5	E	vent+lat	*A.* (*M.*) *spinipes*

≈2	5:5	F	vent+lat	*A.* (*M.*) *spinipes*
≈2	4:5	B	vent+lat	*A.* (*R.*) *carolinensis*
≈2	4:5	C	vent+lat	*A.* (*R.*) *carolinensis*
≈2	4:5	B	circum	*A.* (*R.*) *pilosa*

KG 5/2(male) – characters

1. Caudal ramus, shape

    cyl - nearly cylindrical; base 1.2–1.5 as broad as apex

    conical - distinct taper from base to apex; base about twice as broad as apex

2. P2 & P4 Enp-2

    n:n - number of setae and spines on P2 and P4

3. P5 exopod

    n - number of setae and spines

KG 5/2(male)

CR	P2 & P4 Enp-2 inner setae	P5 Exp setae	
cyl	5:5	5	*Attheyella* (*Mrazekiella*) *stachanovi*
conical	5:(5)?	4–5	*A.* (*Ryloviella*) *amurensis* [*sensu* Borutzky 1952]
conical	?	6	*A.* (*R.*) *amurensis* [*sensu* Alekseyev 1989]
conical	3:3	5	*A.* (*Attheyella*) *namkungi*

KG 5/3(male) – characters

1. P2 and P4 Enp-2

    n:n - number of setae and spines on P2 and P4

2. Caudal ramus, inner edge

    hook - with a small sharp process in the proximal half

    smooth - smooth, without a hook

KG 5/3(male)

P2 & P4 Enp-2 setae	CR	
5:5	smooth	*Attheyella* (*Attheyella*) *crassa*
4:3	hook	*A.* (*A.*) *obatogamensis*
3:3	hook	*A.* (*A.*) *wierzejskii*

KG 5/4(male) – characters

1. P4 Exp-3, outer terminal spine

    simple - relatively simple; needle-shaped and with 3 slender lateral teeth, with the most distal being so close to the tip of the spine that it gives it a bifid appearance

    distorted - gross, distorted and heavily sclerotised; with 2 lateral teeth, which are blunt and deformed; apical portion is a broad blade

KG 5/4(male)

P4 Exp-3 outer terminal spine	
simple	*Attheyella* (*Chappuisiella*) *crenulata*[1]
distorted	*A.* (*Ch.*) *godeti*[1]

1. The best comparison of these species is provided by Löffler (1963: p. 220, Abb 12k). *A. crenulata* is redescribed by Menu-Marque & Bosnia (1986).

KG 5/5(male) – characters

1. P4 Exp-3, outer terminal spine

unmodified - a simple, long, slender spine with 6–10 accessory spinules on outer side

minimal - a simple, long, slender spine with accessory spinules on outer side but differs from the unmodified condition in that the reduced number (2–4) of accessory spinules are large and arise from distinct step-like nodes on the spine

moderate - moderately modified; spine is slender and curved (tusk-like) with a single accessory spinule near the tip

extensive - extensively modified; the spine is distorted, thickened, and the accessory spinules resemble large teeth fused to the spine

extreme - an extremely modified massive structure, often flattened and blade-like; spine contorted, heavily sclerotised; accessory spinules without obvious demarcation from the spine

2. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

3. P5 exopod

n - ratio of maximum to maximum breadth

4. P2 and P4 Enp-2

n:n - number of setae and spines on P2 and P4

5. P5 endopod, relative lengths of inner and outer setae

i=o - inner seta approximately as long as outer seta

i>o - inner seta longer than outer, but considerably less than twice as long

i2o - inner seta approximately twice as long as outer seta

i2+o - inner seta considerably longer than outer seta

6. P5 endopod, outer seta

long - extends to a point considerably proximal to the end of exopod

equal - extends to approximately the end of exopod

short - extends well beyond the end of exopod

KG 5/5(male)

P4 Exp-3 outer spine	CR l/b l/b	P5 Exp setae	P2 & P4 Enp-2 setae	P5 Enp outer	P5 Enp terminal seta	
unmodified	≈4	≈3	5:?	i2o	short	*Attheyella* (*Attheyella*) *idahoensis*
unmodified	≈3	≈3	4:2	i2+o	short	*A.* (*A.*) *yesoensis*
unmodified	≈3	≈2	3–4:3	i2o	long	*A.* (*A.*) *coreana*[1]
unmodified	≈3	≈2	2:3[1]	i2o	equal	*A.* (*A.*) *nakaii*[2]
unmodified	≈3	≈2	2:3	i2o	long	*A.* (*A.*) *coiffaiti*
unmodified	2.5	≈3	5:3	i>o	equal	*A.* (*A.*) *idahoensis*[3]
unmodified	≈2	≈3	4:3	i>o	long	*A.* (*A.*) *nepalensis*
unmodified	≈1.5	≈2	4:3	i>o	equal	*A.* (*A.*) *crassa* [*sensu* Ishida 1987]
unmodified	≈1	≈1	4:3	i2o	equal	*A.* (*A.*) *paucisetosa*
minimal	≈2	≈3	4:4	i2o	short	*A.* (*Chappuisiella*) *australica*
minimal	≈1.5	≈1.5	3:4	i>o	long	*A.* (*Ch.*) *oculta*
minimal	≈1.5	≈1	4:5	i2o	equal	*A.* (*Ch.*) *hirsuta*
moderate	≈1.5	≈2	5:3	i>o	equal	*A.* (*Ch.*) *fuhrmanni*
extensive	≈1	≈2	4:4	i2o	short	*A.* (*Ch.*) *rotoruensis*
extensive	?	≈2	?	i>o	short	*A.* (*Ch.*) *huaronensis*
extreme	≈2	1.5	?	i=o	long	*A.* (*Ch.*) *godeti*
extreme	≈1.5	≈2	3(4?):2	i>o	equal	*A.* (*Ch.*) *guyanensis*
extreme	≈1.5	1.5	?:3	i>2o	equal	*A.* (*Ch.*) *subdola*

1. It is probable that at least 2 species are represented by this codon. See Kim, Soh & Lee (2005: p. 1292).
2. Ishida (1994a) records great variability in setation of female P2–P4 endopod. Unfortunately he makes no comment on the situation among males.
3. Data from the redescription by Roland (1964).

KG 5/6(male) – characters

1. Anal operculum
    n - number of spinules
    naked - without spinules or setules

2. P5
    distinct - exopod distinct, not fused to basis
    fused - exopod fused to basis

3. P2 and P4 Enp-2
    n:n - number of setae and spines on P2 and P4

KG 5/6(male)

Anal operculum spines	P5	P2 & P4 Enp-2	
5	distinct	4:5	*Canthocamptus howardorum*
naked	fused	3:4[1]	*Attheyella* (*Delachauxiella*) *nuda*[1]

1. One of the terminal setae of P4 Enp-2 is vestigial.

KG 5/7(male) – characters

1. Dorsal part of hyaline frill of all somites except anal somite
   serrate (very weakly and irregularly) *or* smooth

2. Anal operculum
   fh - distal edge clothed with fine short setules ("fine hairs")
   lfsp - distal edge clothed with long fine spinules
   smsp - distal edge clothed with small spinules

3. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

4. P2 and P4 Enp-2
   n:n - number of setae and spines on P2 and P4

5. P5 exopod, seta IV
   long - extends beyond the end of exopod
   short - extends to the end of exopod, at most

KG 5/7(male)

Hyaline frill	Anal operculum	CR l/b	P2 & P4 Enp-2 setae	P5 Exp seta IV	
serrate	fh	≈1	4:3	long	*Piloocamptus africanus*
serrate	lfsp	1.5	3–4:2	long	*P. kamerunensis villosus*
smooth	fh	≈1	4:3	long	*P. jeanneli*, *P. vulgaris*, *P. verrucosus*[1]
smooth	smsp	≈1	4:3	long	*P. pilosus*
smooth	fh	≈1	4:3	short	*P. allaudi*
smooth	fh	≈2	?:3	short	*P. georgevitvhi*

1. Males of these species are extremely similar and may be impossible to differentiate on the basis of the published descriptions.

KG 5/8(male) – characters

1. Dorsal part of hyaline frill of all somites except anal somite
   serrate (weakly and irregularly) *or* smooth

2. Anal operculum
   fh - distal edge clothed with fine short setules ("fine hairs")
   smsp - distal edge clothed with small spinules

3. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

4. P4 Exp-3, outer terminal spine
   unmodified - a simple, long, slender spine with 6–10 accessory spinules on outer side
   minimal - minimally modified; a simple, long, slender spine with accessory spinules on outer side

but differs from the unmodified condition in that the reduced number (2–4) of accessory spinules are large and arise from distinct step-like nodes on the spine

extreme - an extremely modified massive structure, often flattened and blade-like; spine contorted, heavily sclerotised; accessory spinules without obvious demarcation from the spine

5. P2 and P4 Enp-2

n:n - number of setae and spines on P2 and P4

Hyaline frill	Anal operculum	CR l/b	P4 Exp-3 outer terminal spine	P2 & P4 Enp-2 setae	
smooth	smsp	≈1	unmodified	4:5	*Attheyella billwilliamsi*[1]
smooth	smsp	≈2	minimal	4:5	*A.* (*Chappuisiella*) *maorica*
smooth	smsp	≈1.5	minimal	4:3	*A.* (*Ch.*) *palustris*
smooth	fh	≈1.5	minimal	4:4	*A.* (*Ch.*) *chilensis*
serrate	fh	≈1	minimal	4:4	*A.* (*Ch.*) *ablatifurcata*
serrate	smsp	≈1.5	extreme	(4:3)[2]	*A.* (*Ch.*) *pichilafquensis*[2]

1. Described as *Canthocamptus* but considered here as *incertae sedis* in *Attheyella*; see Checklist Note 232 (p. 92).
2. Material from Chile (Löffler 1961) is described as 4:3, with no mention of variability. Material from Ecuador (Löffler 1963) and Colombia (Gavaria 1993) is characterised by significant variability—possibly all combinations of 4–5:2–3 are represented.

KG 5/9(male) – characters

1. Dorsal part of hyaline frill of all somites except anal somite

coarse - very coarsely and irregularly serrated

weak/smooth - cephalosome and metasomites with weakly serrated frill; urosomites with smooth frill

smooth/weak - cephalosome and metasomites with smooth frill; urosomites (except the anal somite) with weakly serrate frill

2. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

3. P2 and P4 Enp-2

n:n - number of setae and spines on P2 and P4

4. P2 and P4 Enp-1, inner edge

n:n - number of setae on P2 and P4

5. P5 exopod

n - ratio of maximum length to maximum breadth

KG 5/9(male)

Hyaline frill	CR l/b	P2 & P4 Enp-2 setae	P2 & P4 Enp-1 inner setae	P5 Exp l/b	
coarse	≈2	4:5	1:1	≈3	*Attheyella* (*Delachauxiella*) *dumonti*
coarse	≈1	4:5	1:1	≈3	*A.* (*D.*) *longiseta*
smooth/weak	≈1	4:3	1:0	<2	*A.* (*D.*) *trigonura*
weak/smooth	≈1	(4):?	(1):1	<2	*A.* (*D.*) *aculeata*

KG 5/10(male) – characters

1. Dorsal part of hyaline frill of all somites except anal somite
   - smooth - without serration
   - weak 1 - weakly and irregularly serrated
   - weak 2 - weakly and irregularly serrated but with 1–2 large teeth dorsolateral on abdomen somites
   - weak 3 - weakly serrate with relatively even sized teeth, especially on metasome; abdomen serrations weaker and less regular mid dorsum and with a tendency for larger teeth dorsolaterally
   - coarse 1 - very coarsely and irregularly serrated; abdomen somites with a very large dorsolateral tooth irregularly spaced; abdomen with large blunt regularly spaced teeth.

2. Anal operculum, distal edge
   - naked - without ornamentation
   - fh - with fine short setules (“fine hairs”)
   - smsp - with small spinules or denticles
   - dentate - with long slender teeth
   - serrate - very coarsely and irregularly serrated

3. P5
   - distinct - exopod distinct, not fused to basis
   - fused - exopod fused to basis

4. P1 Exp-2, inner edge
   - n - number of setae

5. P2 and P4 Enp-2
   - n:n - number of setae and spines on P2 and P4

KG 5/10(male)

Hyaline frill	Anal operculum	P5	P1 Exp-2 inner setae	P2 & P4 Enp-2 setae	
smooth	fh	fused	0	3[1]:3	*Attheyella* (*Delachauxiella*) *pauliani*[1]
weak 1	naked	distinct	(1)	4:3	*A.* (*D.*) *hannae*
weak 2	dentate	distinct	1	2:3	*A.* (*D.*) *fimbriata*
weak 3	smsp	distinct	1	2–3:4	*A.* (*D.*) *dedeckeri*
coarse 1	serrate	distinct	1	3:4	*A.* (*D.*) *echinopyge*
coarse 2	smsp	distinct	0	3:3	*A.* (*D.*) *mortoni*

1. Middle seta of P2 Enp-2 is minute.

KG 5/11(male) – characters

1. P5 exopod, setae
   - terminal - all 3 setae terminal in origin
   - proximal - origin of seta III distinctly proximal to the terminal origin of setae II–III

2. P2 Enp-2
   - projection - outer edge with an acutely pointed lateral projection subapically; origin of inner seta midway along inner edge
   - step - outer edge with a distally directed pointed projection approximately halfway along and with an abrupt, step-like reduction in width subapically; origin of inner seta distinctly in proximal half of inner edge

KG 5/11(male)

P5 Exp setae	P2 Enp-2	
terminal	projection	*Attheyella* (*Delachauxiella*) *lanata*
proximal	step	*A.* (*D.*) *yemanjae*

KG 5/12(male) – characters

1. Anal operculum
   - broad - a broad based triangle—base longer than sides; apex rounded; sides weakly convex
   - narrow - a narrow based triangle—base at most as long as sides; apex acutely pointed; sides strongly concave

2. P2 and P4 Enp-2
   - n:n - number of setae and spines on P2 and P4

KG 5/12(male)

Anal operculum shape	P2 & P4 Enp-2 setae	
broad	5?:5	*Attheyella* (*Delachauxiella*) *clavigera*
narrow	5:5	*A.* (*D.*) *wieseri*
narrow	3–4:5?[1]	*A.* (*D.*) *freyi*[1]

1. P2 Enp-2 usually bears 3 setae but occasionally has an additional seta in the distal half of the inner side. The situation in P4 is more complex. There is always a total of 5 elements (3 terminal, 2 on the inner edge) but those of the inner edge are usually very small and it is not clear from the description whether they are setae or setules. It is likely that they are setae as they seem to be set in definite notches in the edge. In some specimens the distal of these inner elements is much longer.

KG 5/13(male) – characters

Most of the species in this key are extremely well described by Hamond (1987) [as species of *Canthocamptus*—see Checklist Note 188 (p. 89)]. The males of many species are very similar and it is essential that determinations are checked with these descriptions.

1. Caudal ramus, outer distal corner
   - ungui - unguiform
   - square - square or rounded, but never unguiform

2. P1 Exp-2, inner edge
   - n - number of setae

3. P2 and P4 Enp-2
   - n:n - number of setae and spines on P2 and P4

4. Anal operculum
   - narrow - narrow base, straight sides—base shorter than sides; finely denticulate
   - equilateral - base approximately as long as the sides; sides straight or weakly convex; often with a apical papilla; finely denticulate or unevenly, coarsely toothed
   - short - not extending to end of caudal ramus; broad base—much longer than height of triangle; sides strongly convex, with an apical papilla

5. P5 endopod, relative lengths of inner and outer setae
   - i>o - inner seta longer than outer, but considerably less than twice as long
   - i≈2o - inner seta approximately twice as long as the outer seta, or longer

6. P5 exopod, relative length of inner seta
   - i<2 - inner seta less than twice as long as others
   - i≈2o - inner seta approximately twice as long as the others, or longer

KG 5/13(male)

CR	P1 Exp-2 inner	P2 & P4 Enp-2 setae	Anal operculum	P5 Enp setae	P5 Enp seta I	
ungui	1	3:3	narrow	i≈2o	i<2	*Attheyella* (*Delachauxiella*) *tasmaniae*
square	1	3:4	short	i>o	i<2	*A.* (*D.*) *caecosetosa*
square	1	3:3	equilateral	i≈2o	i≈2o	*A.* (*D.*) *bennetti*
square	1	2:4	narrow	i≈2o	i<2	*A.* (*D.*) *globulisetosa*
square	1	2:4	narrow	i≈2o	i≈2o	*A.* (*D.*) *lacinulata*, *A.* (*D.*) *longifurca*[1]
square	1	2:4	equilateral	i>o	i<2	*A.* (*D.*) *henryae*
square	1	2:4	equilateral	i>o	i≈2o	*A.* (*D.*) *timmsi*
square	0	3:3	equilateral	i>o	i<2	*A.* (*D.*) *humidarum*

1. In *A. lacinulata* the ramus is only about as broad as long, while in *A. longifurcata* the caudal ramus is always clearly longer than broad and may be as much as 1.5 times as long as broad. Also, the anal operculum in *A. lacinulata* is fringed with much longer and finer teeth.

KG 5/14(male) – characters

1. P1 Enp-1, length relative to exopod
   - long - Enp-1 extends approximately to the end of Exp-3
   - short - Enp-1 extends at least to the distal half of Exp-2 and at most to the proximal half of Exp-3

2. Anal operculum
   - long - extends well beyond end of caudal ramus
   - short - extends to end of caudal ramus at most

3. P5 endopod
   - A - inner seta longer than outer; both setae extend beyond end of exopod
   - B - inner seta longer than outer; inner seta extends slightly beyond end of exopod but outer seta does not reach end of exopod
   - C - inner seta only about as long as outer; both setae extend beyond end of exopod

4. P5 exopod
   - A - setae I–III originate on the distal edge
   - B - only setae I–II originate on the distal edge
   - C - setae I and III originate on distal edge but seta II arises from a small peduncle from that edge

KG 5/14(male)

P1 Enp1/ Exp	Anal operculum	P5 Enp setae	P5 Exp terminal setae	
long	?	?	A	*Attheyella* (*Delachauxiella*) *horvathi*
short	long	A	B	*A.* (*D.*) *maxima*
?	short	A	C	*A.* (*D.*) *insignis*
?	short	B	B	*A.* (*D.*) *incae*
?	short	C	B	*A.* (*D.*) *ferox*

KG 6 – characters

1. Rostrum
   - large - large and broad
   - small - small and narrow

2. Dorsal part of hyaline frill of all somites except anal somite
   - serrate - serrated
   - smooth - without serration

3. Anal operculum
   - fh - semilunar; distal edge naked or with a large number of very small, fine setules ("fine hairs") or spinules
   - spinose - semilunar; distal edge with 3–20 large spines
   - triang - produced as a triangular lamella that extends to or beyond the end of the caudal rami

4. P1, length of Enp-1 relative to exopod

>> 3 - Enp-1 extends well beyond end of Exp-3

≈ 3 - Enp-1 extends to approximately the end of Exp-3

< 3 - Enp-1 extends to approximately halfway along Exp-3

≈ 2 - Enp-1 extends to approximately the end of Exp-2

< 2 - Enp-1 does not reach the end of Exp-2

5. Male P3 endopod, apophysis

long - very long, curved; extends well beyond end of terminal segment, often more than half its length is in this terminal portion

short - short, curved; at most extends just past end of terminal segment

KG 6

Rostrum	Hyaline frill	Anal operculum	P1 Enp-1/ Exp	Male P3 Enp apophysis	
large	smooth	fh	>>3	short	KG 6/1 (p. 250)
large	smooth	fh	≈3	short	KG 6/2 (p. 252)
large	smooth	fh	<3	short	KG 6/3 (p. 252)
large	smooth	fh	<2	short	*Mesochra quadrispinosa*
large	smooth	spinose	>>3	short	*Mesochra alaskana*
large	smooth	spinose	≈3	short	KG 6/4 (p. 253)
large	smooth	spinose	<3	short	*Mesochra flava* [*sensu* Lang 1948]
large	smooth	spinose	≈2	short	*M. mexicana*
small	smooth	spinose	<2	long	*Bryocamptus* (*Limocamptus*) *viduus*
small	serrate	fh	≈3	long	KG 6/5 (p. 253)
small	serrate	spinose	>>3	long	*Attheyella* (*Attheyella*) *jureiae*
small	serrate	spinose	≈3	long	KG 6/6 (p. 255)
small	serrate	triang	≈3	long	*Attheyella* (*Attheyella*) *orientalis*[1]

1. Subspecies *afghanica* and *mesasiatica* only.

KG 6/1 – characters

Species of *Mesochra* often are most readily distinguished on details of somitic ornamentation and other subtle characters that are difficult to use in keys.

Some species are not well described. It is essential that determinations to species be checked against their descriptions. Fiers & Rutledge (1990) provide a dichotomous key to *Mesochra*.

1. Female antennule

n - number of segments

2. Female P2–P4 Enp-2

n:n:n - number of setae and spines on P2, P3 and P4

3. Female P5

n:n - number of setae on endopod and exopod

4. Male P2 and P4 Enp-2
 n:n - number of setae and spines on P2 and P4
 uk - male unknown

5. Male P5
 n:n - number of setae and spines on endopod and exopod
 uk - male unknown

KG 6/1

Female A1 segs	Female P2–P4 Enp-2 setae	Female P5 setae	Male P2 & P4 Enp-2 setae	Male P5 setae	
7	5:5:5	5:5	uk	uk	*Mesochra nana*
6–7	5:5:5	5:5	4?:?	2:5	*M. stellfeldi*[1]
6	5:5:5	5:5	5:5	2:6	KG 6/1/1
6	5:5:5	5:5	5:5	2:5	*M. pygmaea*[2]
6	5:5:4	5:6	?	?	*M. pygmaea* [*sensu* Monard 1928]

1. *Mesochra stellfeldi* is so poorly described that it is impossible to obtain the detail necessary to separate it from similar species.
2. *Mesochra pygmaea* almost certainly is a species complex. In this form all 5 setae of the female P5 exopod are well developed. It has been recorded from Norway, Atlantic and Mediterranean France, and Spanish Sahara. Sars (1907) is the only person to describe the male. He illustrates P5 exopod with only 5 setae. Illustrated descriptions are given by Sars and by Bodin (1970, as *Leptomesochra* sp.) and Marinov & Apostolov (1985). See also KG 6/1/1.

KG 6/1/1 – characters

1. Female P5 endopod
 n - ratio between the lengths of seta II and seta I

2. Female P5 exopod
 n - ratio between the lengths of seta IV and seta V

3. Male P5 exopod
 n - ratio between the lengths of seta III and seta IV

KG 6/1/1

Female P5 Enp	Female P5 Exp	Male P5 Exp	
1.9–2.2	2–2.2	2.5–3.5	*Mesochra pygmaea*[1]
1.4	1.6	1.7	*M. bodini*[2]

1. *Mesochra pygmaea* almost certainly is a species complex. In this form seta IV of the female P5 exopod and seta V in the male are small and weak and perhaps easily overlooked. This form has been recorded from Arctic seas, the German Bight and the eastern Mediterranean. Illustrated descriptions are given by Steuer (1943), Chislenko (1967) and Mielke (1975).

2. Kunz's (1975) illustration of the male P3 endopod of *M. bodini* shows it lacking an apophysis; this is most unlikely to be correct.

KG 6/2 – characters

Species of *Mesochra* often are most readily distinguished on details of somitic ornamentation and other subtle characteristics that are difficult to use in keys.

Some species are not well described. It is essential that determinations to species be checked against their descriptions. Fiers & Rutledge (1990) provide a dichotomous key to *Mesochra*.

1. Rostrum
   normal - straight-sided, truncate
   flask - flask-shaped, wide at base but rapidly narrowing

2. Female antennule
   n - number of segments

3. Female P2–P4 Enp-2
   n:n:n - number of setae and spines on P2, P3 and P4

4. Male P2 and P4 Enp-2
   n:n - number of setae and spines on P2 and P4

5. Male P5
   n:n - number of setae and spines on endopod and exopod
   uk - male unknown

KG 6/2

Rostrum	Female A1 segs	Female P2–P4 Enp-2 setae	Male P2 & P4 Enp-2 setae	Male P5 setae	
normal	7	5:5:5	5:4	3:4	*Mesochra rapiens*[1]
flask	6	4:5:5	uk	uk	*M. arenicola*

1. *Mesochra rapiens* also is characterised by the modifications to the male P3 exopod. The segments are unusually broad (see Lang 1948 or Gurney 1932).

KG 6/3 – characters

Species of *Mesochra* often are most readily distinguished on details of somitic ornamentation and other subtle characters that are difficult to use in keys.

Some species are not well described. It is essential that determinations to species be checked against their descriptions. Fiers & Rutledge (1990) provide a dichotomous key to *Mesochra*.

1. Female P2–P4 Enp-2
   n:n:n - number of setae and spines on P2, P3 and P4

2. Female P5 exopod

long - longer than broad

short - only as long as broad

3. Male P5

n:n - number of setae and spines on endopod and exopod

KG 6/3

Female P2–P4 Enp-2 setae	Female P5 l/b	Male P5 setae	
5:5–6:5	long	3:6	*Mesochra armoricana*
5:5:5	short	3:4–5	*M. heldti*

KG 6/4 – characters

Species of *Mesochra* often are most readily distinguished on details of somitic ornamentation and other subtle characters that are difficult to use in keys.

Some species are not well described. It is essential that determinations to species be checked against their descriptions. Fiers & Rutledge (1990) provide a dichotomous key to *Mesochra*.

1. Female P2–P4 Enp-2

n:n:n - number of setae and spines on P2, P3 and P4

2. Male P5

n:n - number of setae and spines on endopod and exopod

3. Male P5 exopod, origin of setae IV and V

normal - adjacent in the lateral plane of the body

modified - adjacent in the antero-posterior plane of the body

KG 6/4

Female P2–P4 Enp-2 setae	Male P5 setae	Male P5 Exp setae IV–V	
5:5:5	3:6	normal	*Mesochra pallaresae*
4:5:5	4:6	modified	*M. flava* [*sensu* Soyer 1977]

KG 6/5

The species in this key are all very similar and several are known to be variable. To provide maximum assistance separate keys are given for females and males (p. 254) but it is essential that any determination be checked against the descriptions.

KG 6/5(female) – characters

1. P5

n:n - number of setae and spines on endopod and exopod

2. P2–P4 Enp-2
n:n:n - number of setae and spines on P2, P3 and P4

3. P5 endopod, longest seta (this character only applies to the 6-setose condition)
A - seta I is the longest but is only slightly longer than seta II; these are almost twice as long as any other seta
B - seta I is the longest but is only slightly longer than any of setae II–IV
C - seta IV is the longest, but is only slightly longer than seta III; these are about twice as long as any other seta
D - seta IV is the longest seta but is only about 20% longer than setae II, III and V
III - seta III is twice as long as any other seta
IV - seta IV is almost twice as long as any other seta
na - not applicable (P5 endopod with less than 6 setae)

4. P5 exopod
n - ratio of maximum length to maximum breadth

KG 6/5(female)

P5 setae	P2–P4 Enp-2 setae	P5 Enp longest seta	P5 Exp l/b	
6:5	6:5–6:5	A	≈2	*Attheyella* (*Mrazekiella*) *wulmeri*[1]
6:5	6:6:5	III	≈1.5	*A.* (*M.*) *dentata* s. str.
6:5	6:6:5	IV	≈2	*A.* (*M.*) *mongoliana*
6:5	6:6:5	C	2.5	*A.* (*M.*) *yunnanensis*
6:5	5:6:5	D	1.7	*A.* (*M.*) *alta*
6:5	5:5:5	B	≈2	*A.* (*M.*) *nordenskioldi*
5:5	6:6:5	na	≈3	*A.* (*M.*) *quinquespinosa*
4:5	6:6:5	na	1.6	*A.* (*M.*) *dentata* s. str.
3:5	6:6:5	na	≈2	*A.* (*M.*) *trispinosa*

1. Data from the redescription by Karanovic (1999a).

KG 6/5(male) – characters
1. P5
n:n - number of setae and spines on endopod and exopod

2. P2 and P4 Enp-2
n:n - number of setae and spines on P2 and P4

3. P5 endopod, relative length of setae or spines
A - 2 setae only; seta I at least twice as long as seta II
B - 2 setae only; seta I only slightly longer than seta II
C - 3 setae; seta II at least twice as long as seta I and seta III

D - 3 setae; seta II is slightly longer than seta I and seta II
E - 3 setae; seta I and seta II approximately the same length and about 1.5 times as long as seta III
F - 4 setae; seta III at least twice as long as any other seta
G - 3 or 4 setae of progressively decreasing length

4. P5 exopod
n - ratio of maximum length to maximum breadth

KG 6/5(male)

P5 setae	P2 & P4 Enp-2 setae	P5 Enp setae	P5 Exp l/b	
2:5	5–6:5	A	1.6	*Attheyella* (*Mrazekiella*) *wulmeri*
2–3:5	5:5	B	≈2	*A.* (*M.*) *trispinosa*
2–3:5	5:5	D	≈2	*A.* (*M.*) *trispinosa*
3:5	(6:5)?	D	2.3	*A.* (*M.*) *yunnanensis*
3:5	(6:5)?	E	≈3	*A.* (*M.*) *quinquespinosa*
3–4:5	5:5	C	1.4	*A.* (*M.*) *dentata* s. str.
3–4:5	5:5	F	1.4	*A.* (*M.*) *dentata* s. str.
3–4:5	5:5	G	1.7	*A.* (*M.*) *nordenskioldi*

KG 6/6 – characters

1. Caudal ramus
long - longer than the anal somite; at least twice as long as broad
short - shorter than the anal somite; about as long as broad

2. Female P2–P4 Enp-2
n:n - number of setae and spines on P2, P3 and P4

3. Female P5 endopod, relative length of setae
A - seta II the longest; seta V very small, not reaching the end of exopod; seta III much shorter than setae II and IV
B - seta IV the longest; a progressive increase in length from seta I to seta IV; seta V reaches the end of exopod

4. Female P5 exopod, inner side
straight - straight; distal corner square; origin of seta I at this corner
convex - convex; distal corner a rounded lobe; origin of seta I not at this corner

KG 6/6

CR	Female P2–P4 Enp-2 setae	Female P5 Enp setae	Female P5 Exp setae	
long	6:7:5	A	convex	*Attheyella* (*Mrazekiella*) *dentata otmanli*
short	6:5–6:5	B	straight	*A.* (*M.*) *americana*

KG 7 – characters

1. P1 Enp-1
   - long - Enp-1 extends well beyond the end of Exp-3
   - short - Enp-1 extends only to the end of Exp-2

2. P2 and P4 Enp-2
   - n:n - number of setae and spines on P2 and P4

3. Female antennule
   - n - number of segments

4. Female P5
   - n - number of setae and spines on endopod and exopod

5. Male P5
   - n - number of setae and spines on endopod and exopod

KG 7

P1 Enp1 setae	P2 & P4 Enp-2 segs	Female A1 setae	Female P5 setae	Male P5	
long	4:3	8	4:4	0:3	*Attheyella* (*Attheyella*) *jureiae*
short	5:4–5	7	4:5	6:5–6	*Nannomesochra arupinensis*

KG 8 – characters

1. Anal operculum
   - fh - semilunar; distal edge with numerous fine setules ("fine hairs")
   - weak - semilunar; distal edge with ≈13 small, short spinules
   - strong - semilunar; distal edge with 11–12 strong spinules
   - triang - triangular, extending to about the end of the caudal rami

2. Caudal ramus, in dorsal view, ratio of maximum length to maximum breadth
   - long - length greater than breadth
   - short - length approximately the same as breadth

3. Female antennule
   - n - number of segments
   - na - not applicable

4. Female P5
   - n:n - number of setae and spines on endopod and exopod
   - na - not applicable

5. Male P5
   - n:n - number of setae and spines on endopod and exopod
   - uk - male unknown

KG 8

Anal operculum	CR l/b	Female A1 segs	Female P5 setae	Male P5 setae	
fh	l>b	na	na	2:5	*Attheyella* (*Mrazekiella*) *borutzkyi* male[1]
weak	l≈b	(8)	5:(5)	3:(5)	*A.* (*M.*) *northumbricoides*
strong	l>b	8	6:5	uk	*A.* (*M.*) *ussuriensis*
triang	l≈b	8	6:4	2:4	*A.* (*Delachauxiella*) *maxima*

1. See KG 0 (p. 202) for the female.

KG 9 – characters

1. Female antennule
   n - number of segments

2. Female P2–P4 Enp-2
   n:n:n - number of setae and spines on P2, P3 and P4

3. Female P5
   n:n - number of setae and spines on endopod and exopod

4. Male P2 and P4 Enp-2
   n:n - number of setae and spines on P2, P3 and P4
   uk - male unknown
5. Male P5
   n:n - number of setae and spines on endopod and exopod
   uk - male unknown

KG 9

Female A1 segs	Female P2–P4 Enp-2 setae	Female P5 setae	Male P2 & P4 Enp-2	Male P5 setae	
8	4:6:5	6:5	4:5	2:5	*Attheyella* (*Chappuisiella*) *lewisae*
8	3:4:3	6:6	uk	uk	*A.* (*Attheyella*) *idahoensis* [*sensu* Ishida 1993]
7	3:5:3	6:5	5:3	2:5	*A.* (*A.*) *alaskaensis*

KG 10 – characters

1. Female P2–P4 Enp-2
   n:n:n - number of setae and spines on P2, P3 and P4

2. Female P5
   n:n - number of setae and spines on endopod and exopod

3. Male P2 and P4 Enp-2
n:n - number of setae and spines on P2 and P4
uk - male unknown

4. Male P5
n:n - number of setae and spines on endopod and exopod
uk - male unknown

KG 10

Female P2–P4 Enp-2 setae	Female P5 setae	Male P2 & P4 Enp-2 setae	Male P5 setae	
4:6:5	4:4	uk	uk	*Elaphoidella pintoae*
3–4:5:4	6:4	2:3	2:3	*Attheyella* (*Delachauxiella*) *ornata*

KG 11 – characters
1. Female antennule
n - number of segments

2. Female P3 endopod
n - number of segments

3. Female P2–P4 endopod, distal segment
n:n:n - number of setae and spines on P2, P3 and P4

4. Male P2 and P4 Enp -2
n:n - number of setae and spines on P2 and P4

5. Male P5 exopod
n - number of setae and spines

KG 11

Female A1 segs	Female P3 Enp segs	Female P2–P4 Enp distal seg setae	Male P2 & P4 Enp-2 setae	Male P5 Exp setae	
8	3	5:3:4	4:3	6	*Bryocamptus* (*Bryocamptus*) *newyorkensis*
7	2	3:5:4	2:2	5	*B.* (*B.*) *tuberculatus*

KG 12 – characters
1. Female antennule
n - number of segments

2. Female P2–P4 Enp-2

n:n:n - number of setae and spines on P2, P3 and P4

3. Female P5

n:n - number of setae and spines on endopod and exopod

4. Male P2 and P4 Enp-2

n:n:n - number of setae and spines on P2 and P4

5. Male P5

n:n - number of setae and spines on endopod and exopod

KG 12

Female A1 segs	Female P2–P4 Enp-2 setae	Female P5 setae	Male P2 & P4 Enp-2 setae	Male P5 setae	
8	4:5:3	1–3:4	4:3	0:4	*Elaphoidella necessaria*
7	3:2:2	6:4	3:3	2:4	*Bryocamptus* (*Limocamptus*) *smirnovi*

KG 13

This key contains members of the speciose and widely distributed freshwater genus *Elaphoidella.*

Limited variability within populations is regularly reported in readily observable features of setation and ornamentation and in absolute and relative lengths of various structures.

Studies that reveal the existence of a complex mosaic of variability within a homogeneous geographic locality are becoming more common and are impacting on the taxonomy of the genus. For example, Karanovic (2001) proposes 7 species sink into the synonymy of *E. phreatica*—a species common in alpine regions from France and Italy, through the Balkans and Hungary to Romania. Karanovic believes this is the result of hybridisation accompanying postglacial advance, and possibly is ongoing. Other candidates for this theory include the Holarctic subspecies of *E. bidens.*

Alternatively, variability has been encapsulated taxonomically in subspecies. For example, *E. sewelli* is represented by 8 subspecies distributed in west Africa, Madagascar, India and the West Indies. It seems most probable that these will in time be regarded as distinct species.

These taxonomic issues make constructing a simple key to species difficult, especially for the highly variable species, and result in the frequent inability to key out to single species.

Variability in the characters of setation used in this key are most complex in the species *Elaphoidella elaphoides*, *phreatica*, *jeanelli*, *denticulata* and *moreae*. This key deals with all known combinations but it is entirely possible that others will be discovered.

The identity of species of *Elaphoidella* often may be best confirmed by the pattern of ornamentation of the urosome, which may be complex, and by the details of shape and setation of the caudal ramus.

Sexual dimorphism occurs in several characters and separate keys are given for females (p. 260) and males (p. 271).

Any identification arrived at with this key must be considered tentative. It must be checked against the descriptions, particularly for correspondence in characteristics not included in this key, and any discrepancies considered carefully in the light of modern taxonomic knowledge and trends. Identification to a species from a very distant geographic locality must be treated with circumspection.

KG 13(female) – characters

1. P2–P4 Enp-2
   n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-1, inner edge
   n:n:n - number of setae on P2, P3 and P4

3. P5
   n:n - number of setae and spines on endopod and exopod

4. Dorsal part of hyaline frill of all urosomites except the anal somite
   serrate - distal edge serrated; form varies from weakly distorted to strong irregular serration to regularly denticulate
   smooth - simple; without serration or division into denticles

5. Anal operculum
   spinose - semilunar; distal edge with *n* large spinules or tubercle-like extensions of the edge: number of such structures
   fh - semilunar; distal edge naked or with a large number (greater than about 18) of very fine setules ("fine hairs") or small spinules
   triang - triangular, extending at least to halfway along the caudal rami; distal edge naked and not hyaline
   hyaline - triangular, extending to the end of the caudal rami; distal edge with a broad hyaline membrane

KG 13(female)

P2–P4 Enp-2	P2–P4 Enp-1	P5 setae	Hyaline frill	Anal operculum	
5:6:5	1:1:1	4:5	serrate	fh	*Elaphoidella intermedia* [*sensu* Borutzky 1967]
5:6:5	1:1:1	4:5	smooth	fh	*E. gracilis* var. *serrulata* Damian & Botosaneanu, 1955
5:6:4	1:1:1	4:6	smooth	fh	*E. bryophila*, *E. grandidieri*[1]
5:6:4	1:1:1	4(3?):5?[2]	smooth	hyaline	*E. hyalina*[2]
5:6:4	1:1:1	4:5	smooth?	fh?[3]	*E. reedi*[3]
5:6:4	1:1:1	4:5	smooth	fh	KG 13/1(female) (p. 263)
5:6:4	1:1:1	4:5	serrate	spinose:10–14	*Elaphoidella bidens decorata*
5:6:4	1:1:1	4:5	serrate	fh	KG 13/2(female) (p. 265)
5:6:4	1:1:1	4:4	smooth	fh	*Elaphoidella grandidieri*[1]
5:6:4	1:1:1	4:4	serrate	fh	KG 13/3(female) (p. 266)
5:6:4	1:1:1	4:4	smooth	fh	KG 13/4(female) (p. 266)
5:6:4	1:1:1	4:3	serrate	fh	KG 13/5(female) (p. 267)
5:6:4	1:1:1	4:3	smooth	fh	KG 13/6(female) (p. 268)
5:6:4	1:1:1	4:3	smooth?	?	*Elaphoidella superpedalis*
5:6:4	1:1:1	3:5	serrate	fh	*E. trisaetosa*
5:6:4	1:1:1	3:4	smooth	fh	*E. arambourgi*
5:6:4	1:1:1	3:3	serrate	fh	*E. plesai*

5:6:4	1:1:1	3:3	smooth	spinose:3–4	*E. franci*
5:6:4	1:1:1	3:3	smooth	fh	KG 13/7(female) (p. 269)
5:6:4	1:1:0	5:6	serrate	spinose:10–14	*Elaphoidella bidens subterranea*
5:6:4	1:1:0	4:5	serrate	spinose:10–14	*E. bidens* s. str.
5:6:4	1:1:0	3–4:4	serrate	fh	*E. phreatica*[4]
5:6:4	1:1:0	3:3–4	smooth	fh	*E. proserpina*
5:6:4	1:1:0–1	2:3	?	spinose:6	*E. cvetkovi*
5:6:4	0:0:0	4:4	serrate	spinose:10–12	*E. jojoi*
5:6:4	0:0:0	4:4	serrate	fh	KG 13/8(female) (p. 269)
5:6:4	0:0:0	3:4	serrate	spinose:9	*Elaphoidella cavicola*
5:6:4	0:0:0	3:4	serrate	fh	*E. phreatica*[4]
5:5:4	1:1:1	4:5	serrate	fh	*E. californica*
5:5:4	1:1:1	3–4:4	serrate	fh	*E. phreatica*
5:5:4	1:1:0	4:5[5]	serrate	fh	*E. crassa*[5]
5:5:4	1:1:0	4:4	smooth	fh	*E. pandurskyi*
5:5:4	1:1:0	2–3:4	smooth	fh	*E. tenera*
5:5:4	1:0:1	4:4	serrate	fh	*E. marjoryae*
5:5:4	1[6]:0:0	3:5	smooth	spinose:9	*E. fonticola*[6]
5:5:4	0:0:0	4:4	smooth	fh	*E. cabezasi*
5:5:3	1:1:0	3:3	smooth	spinose:11	*E. cavernicola*
5:5:3	1:1:0	0:3	smooth	spinose:7	*E. balkanica*
5:5:3	0–1:1:0	3:4	smooth	spinose:10	*E. iskrecensis*
5:5:3	0:0:0	4:5	serrate	spinose:13	*E. sabanillae*
5:5:3	0:0:0	4:2	smooth?	spinose:13–16	*E. margaritae*
5:4:3	0:0:0	4:4	smooth	fh	*E. surinamensis*[7]
5?:4:3	0:1:0	4:4	serrate	?	*E. nyongi*[8]
4:6:5	1:1:1	3:4	serrate	fh	*E. jeanneli*[9]
4:6:4	1:1:1	5:4	smooth?	fh	*E. birsteini*
4:6:4	1:1:1	4:4	serrate	fh	*E. phreatica*[4]
4:6:4	1:1:1	3:4	serrate	fh	*E. phreatica*, *E. jeanneli*[10]
4:6:4	1:1:1	4:4	smooth	spinose:≈14	*E. brevicaudata*
4:6:4	1:1:0	4:4	serrate	spinose:12–14	*E. thienemanni*
4:6:4	1:0:0	4:4[11]	smooth?	fh	*E. czerkessica*[11]
4:6:4	0:0:0	3–4:4	serrate	fh	*E. phreatica*[4]
4:5:4	1:1:1	4:5	serrate	fh	*E. femurata*
4:5:4	1:1:1	4:4	serrate	fh	*E. fluviuscherbae*
4:5:4	1:1:0	4:5	serrate	fh	*E. denticulata*
4:5:4	1:1:0	3–4:3	serrate	spinose:7	*E. plutonis quadrispinosa*
4:5:4	1:1:0	0:3	serrate	fh	*E. garbetensis*
4:5:4	0:0:0	4:4	serrate	fh	*E. quemadoi*
4:5:3	1:1:1	4:4	serrate	fh	*E. subgracilis*[12]
4:5:3	1:1:1	4:4	smooth	spinose:≈10	*E. kieferi*
4:5:3	1:1:0	4:5	serrate	spinose:14	*E. jasonis*
4:5:3	1:1:0	4:4	smooth?	fh	*E. labani*
4:5:3	1:1:0	3–4:4	serrate	spinose:9–18	*E. elaphoides*[13]
4:5:3	1:1:0	3–4:3	serrate	spinose:8–14	*E. plutonis* s. str.

4:5:3	1:1:0	3:4	smooth	spinose:6	*E. bulbifera*
4:5:3	1:1:0	0:4	serrate	spinose:12–15	*E. moreae*[14]
4:5:3	1:1:0	0:3	serrate	fh	*E. garbetensis*
4:5:3	1:0:0	3–4:4	serrate	spinose:9–18	*E. elaphoides*[13]
4:5:3	0:1:1	4:5	serrate	triang	*E. silvestris*
4:5:3	0:1:0	4:4	serrate	fh	*E. sewelli occidentalis*[15]
4:5:(3)	0:1:(0)	4:4	serrate	spinose:≈12	*E. sewelli eremita*[15]
4:5:3	0:1:0	4:4	smooth	fh	*E. malayica*
4:5:3	0:0:0	4:5	smooth	fh	*E. kenyensis*, *E. massai*[16]
4:5:3	0:0:0	4:4	smooth	spinose:10–12	*E. taroi*[17]
4:5:3	0:0:0	4:4	smooth	spinose:7	*E. schubarti*
4:5:2	1:1:0	4:4	smooth?	fh	*E. labani*
4:5:2	1:1:0	3:3	serrate	spinose:17	*E. bisetosa*
4:4:4	1:1:0	4:5	serrate	fh	*E. denticulata*
4:4:4	1:0:1	4:4	smooth?	fh	*E. carterae*
4:4:3	1:1:0	4:4	smooth	fh	*E. sewelli* s. str.[15]
4:4:3	1:0:0	4:3	smooth?	spinose:12–14	*E. paraelaphoides*
4:4:3	0:0:0	4:4	serrate	spinose:9–14	*E. paraplesia*
4:4:3	0:0:0	4:4	smooth?	fh	*E. vietnamica*
4:3:4	1:1:0	4:4	serrate	spinose:10–14	*E. bromeliaecola*
4:3:3	1:0:0	3:3	serrate	fh	*E. janas*
3:6:4	1:1:1	3:4	serrate	fh	*E. jeanneli*[9]
3:6:4	1:0:0	4:5	smooth	spinose:≈16	*E. parvifurcata*[18]
3:5–6:3	0:0:0	4:4	serrate	spinose:18	*E. sewelli americana*[15]
3:5:4	1:1:0	4:5	serrate	fh	*E. denticulata*
3:5:4	1:1:0	3–4:4	serrate	spinose:9–18	*E. elaphoides*[13]
3:5:4	1:0:0	3–4:4	serrate	spinose:9–18	*E. elaphoides*[13]
3:5:4	0:1:0	3–4:4	serrate	spinose:9–18	*E. elaphoides*[13]
3:5:4	0:0:0	3–4:4	serrate	spinose:9–18	*E. elaphoides*[13]
3:5:3	1:1:0	4:5	smooth	spinose:12–14	*E. propedamasi*
3:5:3	1:1:0	3–4:4	serrate	spinose:9–18	*E. elaphoides*[13]
3:5:3	1:1:0	4:3	serrate	spinose:15–16	*E. aprutina*
3:5:3	1:0:0	4:3	smooth?	fh	*E. shawangunkensis*
3:5:3	0:0:0	4:5	serrate	fh	KG 13/9(female) (p. 270)
3:5:3	0:0:0	4:4	serrate	spinose:12–16	*Elaphoidella sewelli africana, E. s. indica*[15]
3:5:3	0:0:0	4:4	serrate	fh	KG 13/10 (female) (p. 270)
3:5:3	0:0:0	4:4	smooth	spinose:8	*Elaphoidella suarezi*
3:5:2	1:0:0	3:3?[19]	serrate	spinose:13–15	*E. tiberina*[19]
3:4:3	1:0:0	3–4:4	serrate	spinose:9–18	*E. elaphoides*[12]
3:4:3	0:0:0	4:3	serrate	fh	*E. prohumboldti*
3:3:3	1:1:0	4:4	smooth?	fh	*E. putealis*
3:3:3	1:1:0	3:3	smooth	fh	*E. federicae*
3:3:3	1:0:0	4:3	smooth	fh	*E. amabilis*
3:3:2	0:0:0	3:3	smooth	spinose:7–8	*E. damianae*
2:5:3	1:1:0	4:4	serrate	spinose:14	*E. subplutonis*
2:2:2	0:0:0	4:4	serrate	spinose:7	*E. bispina*

1. In *E. bryophila* the female P5 exopod is subcircular. In *E. grandidieri* it is linear and about twice as long as broad. Note also that a great deal of variability is known for the P5 in *E. grandidieri*. This is especially so for the setation of the exopod, which can vary from 3–6 well developed setae. However, the outer edge always bears a number of smaller, fine structures, which have variously been regarded as true setae or spines or as accessory spinules. It would seem probable that the true variation is from 4–6 true setae and spines.
2. The only description of *E. hyalina* gives the formula of 4:5 but the illustrations show the outer spine of the endopod as minute and the 2 spines on the inner edge of the exopod as very small. It is not certain from the description whether these are spines or spinules.
3. The unillustrated description of *E. reedi* describes the operculum as "a narrow membrane with serrate edge". I have interpreted "serrate" as describing a large number of small spinules or teeth.
4. See Karanovic (2001) for a discussion of variability in *E. phreatica.*
5. In *E. crassa* the outer spine on P5 exopod is very small. The inner edge also carries a minute spinule in proximal half.
6. In *E. fonticola* the inner seta on P2 Enp-1 is minute, almost vestigial.
7. Data from Defaye & Dussart (1988).
8. In the only description of *E. nyongi* the setation of P2–P4 Enp-2 must be inferred from small and inadequate illustrations. P2 Enp-2 bears a total of 6 elements. This probably represents 5 setae and spines—the outer proximal element is most likely to be a spinule but the outer distal element could be a spine. P3 Enp-2 has a total of 4 elements and while the terminal pair are obviously true setae there is no way to tell what the outer 2 are. P4 Enp-2 has 3 long terminal structures that must be true setae. The formula used in this codon assumes all the structures in P3 Enp-2 are true setae.
9. Data supplemented by Brancelj (1986).
10. With variability now reported in both species it is extremely difficult to distinguish between them—especially for females. A careful comparison of specimens with the descriptions given for *E. jeanneli* by Brancelj (1986 and the literature quoted therein) and for *E. phreatica* by Karanovic (2001 and the literature quoted therein) is necessary.
11. The outermost spine on P5 exopod is fused to the edge.
12. Data from Wilson (1975).
13. See Pesce (1985b) for a summary of variability in female *E. elaphoides.*
14. Pesce (1981a) records the setal formula for P2–P4 Enp-2 as 4:4–5:3 or 4:5:3 and Enp-1 as 1:0–1:1 but gives no indication of the observed combinations of these variant data. His illustrations provide the formulae 4:5:3 and 1:1:0 and I have assumed this is the majority condition.
15. Lang (1948: p. 1150) provides a detailed comparison of all the subspecies of *E. sewelli* then known; it is still valid.
16. Females of these species were considered inseparable by Chappuis (1936a), their author (see Lang 1948).
17. Data supplemented by Yeatman (1983).
18. *Elaphoidella parvifurcata* differs from all species in this key in having a 9-segmented antennule.
19. The only description of *E. tiberina* states that P5 exopod has 4 setae. The illustration shows 5 appendages, of which the middle 3 are large setae. It is probable the minute outermost appendage is a small spine and the innermost appendage a simple setule.

KG 13/1(female) – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. P5 exopod
   n - ratio of maximum length to maximum breadth

3. P5 endopod

large - reaching to about the end of exopod
wd - relatively well developed, reaching to about halfway along exopod
red - reduced, reaching at most to a quarter of the way along the exopod
vest - vestigial; does not extend past the origin of exopod

4. P5 endopod setae

A - setae I–IV approximately equal length; all setae extend well beyond end of exopod
B - setae I–III approximately equal length and 1.5–2 times as long as seta IV; seta IV reaches end of exopod
C - setae I–III approximately equal length; seta IV very small, at most $^1/_5$ the length of setae I–III and extending only halfway along the exopod
D - setae II–III approximately equal length; seta I greater than half the length of setae II–III; seta IV minute, at most $^1/_8$ the length of setaeII–III
E - setae II–III approximately equal length and 1.3–1.5 times as long as setae I and IV; setae I and IV approximately equal length and extending only to end of exopod
F - setae II–III approximately length; seta I more than half the length of setae II–III; seta IV shorter than seta I and less than half the length of setae II–III; seta I does not reach end of exopod

5. P5 exopod setae

A - setae I, IV and V approximately equal length and at most half as long as setae II or III
B - setae IV–V approximately equal length and only a quarter of the length of other setae; setae I–III elongate, at least 5 times as long as setae IV–V; seta III the longest
C - seta II the longest seta; relative lengths of setae (from I–V) – 3: 6.5: 4: 1.5: 1
D - seta II the longest seta; relative lengths of setae (from I–V) – 2.5: 4: 3: 1.5: 1
E - seta II the longest seta; relative lengths of setae (from I–V) – 1.5: 3: 2: 1.5: 1
F - seta II the longest seta; relative lengths of setae (from I–V) – 4.5: 13.5: 9: 2: 1; setae IV–V very thin and weak

KG 13/1(female)

CR l/b	P5 Exp 1/b	P5 benp	P5 Enp setae	P5 Exp setae	
≈3	≈2	vest	E	B	*Elaphoidella gracilis*
≈2	≈4	red	E	B	*E. reedi*, *E. kodiakensis*[1]
≈2	2.5	wd	G	E	*E. elongata*
≈1.5	≈2	red	B	F	*E. grandidieri*[2]
≤1.5	≈2	large	A	D	*E. colombiana*
<1.5	≈3	red	F	B	*E. wilsonae*
<1.5	≈3	red	B	C[3]	*E. longipedis* [*sensu* Dussart 1982][3]
<1.5	≈2	red	A	A	*E. ganeshi*
<1.5	≈2	red	B	B	KG 13/1/1(female)
<1.5	≈2	wd	C	B	*Elaphoidella cuspidata*
?	≈1	wd	D	B	*E. laevis*

1. These species are very similar and identification is best achieved by reference to Wilson (1975). Possibly the most reliable character is the site of origin of seta V on P5 exopod; in *E. reedi* this is about halfway along the outer edge while in *E. kodiakensis* it is distinctly in the distal half of the edge.
2. See also KG 13(female) note 1 (p. 268).

3. Dussart states that P5 exopod “muni de 3 soies et de 4 petites épines au bord externe”. His illustration shows the proximal 2 “épines” as minute (they may definitely be considered spinules) and the 2 distal spines to be very long and slender and possibly set in distinct sockets—thus they may be true spines and the real number of setae and spines is 5. This, plus the quite different proportions of the setae and spines make it unlikely that Dussart’s material is conspecific with *E. longipedis* Chappuis, 1931.

KG 13/1/1(female) – characters

1. Caudal ramus, seta or spine at outer distal corner
   - A - at least as long as caudal ramus; spiniform, slightly deformed
   - B - at least as long as caudal ramus; filiform, very slender, possibly bulbous at base
   - C - at most only as long as caudal ramus; spiniform, sinuously deformed

2. Dorsal part of hyaline frill of thoracic somites
   - serrate - distal edge weakly serrated
   - smooth - simple; without serration or division into denticles

3. Abdomen somites 2–4, ornamentation at distal edge
   - A - long slender spinules, singly and in small groups, scattered circumsegmentally
   - B - a group of 4 long slender spinules dorsolateral and ventrolateral
   - C - large spinules in a continuous series from dorsolateral to ventrolateral

KG 13/1/1(female)

CR seta outer distal corner	Thorax dorsal hyaline frill	Abdomen som 2–4 distal ornamentation	
A	smooth	A	*Elaphoidella pescei*
C	smooth	B	*E. valkanovi*
B	serrate	C	*E. similis*

KG 13/2(female) – characters

1. P5 exopod, origin of seta V
   - proximal - in proximal half of segment
   - distal - in distal half of segment

2. P3 Enp-2, relative length of distal inner seta (seta III)
   - short - seta III approximately as long as setae I–II
   - long - seta III 2–3 times as long as seta I and II

3. P4 Enp-2, relative length of distal inner seta (seta III)
   - short - seta III approximately 1.5 times as long as next longest seta
   - medium - seta III slightly more than twice as long as next longest seta
   - long - seta III almost 3 times as long as next longest seta

KG 13/2(female)

P5	P3	P4	
Exp	Enp-2	Enp-2	
seta V	seta III	seta III	
proximal	short	short	*Elaphoidella angirmii*
distal	short	long	*E. intermedia*
distal	long	medium	*E. nepalensis*

KG 13/3(female) – characters

1. Caudal ramus
   - conical - a truncated cone—apex about half the width of the base; outer side approximately straight; inner side may be straight or convex in the extreme proximal portion and concave distal to that; dorsal side does not extend beyond ventral side
   - ovoid - semi-ovoid; sides almost parallel proximally and smoothly curving medially in the distal half; base about 2.5 times as wide as apex; dorsal side does not extend beyond ventral side
   - unequal - a truncated cone in dorsal view but dorsal side longer than ventral side so that origin of principal terminal seta seems to be ventral

2. P5 endopod, relative length of setae
   - A - setae I–III of equal length and 4 times as long as seta IV
   - B - setae I–III of equal length and twice as long as seta IV

3. P5 exopod, relative length of setae
   - A - seta II 3 times as long as setae I and III and 7 times as long as seta IV
   - B - seta II about 1.5 times as long as seta III, 3 times as long as seta I and 7 times as long as seta IV
   - C - seta II twice as long as setae I and III; seta IV a minute spine
   - D - seta II slightly longer than seta III, 2–3 times as long as seta I and twice as long as seta IV

KG 13/3(female)

CR	P5	P5	
shape	Enp	Exp	
	setae	setae	
conical	A	A	*Elaphoidella phreatica*[1]
unequal	B	B	*E. grandidieri*[2]
unequal	B	C	*E. affinis*[3]
ovoid	B	D	*E. montenegrina*

1. See Karanovic (2001) for a discussion of variability in *E. phreatica.*
2. See also KG 13(female) note 1 (p. 263).
3. P5 exopod bears 3 well developed setae, 4 spinules on the inner edge and 3 on the outer edge. The most distal outer spinule is so close to the origin of the outer seta that it could be mistaken for a minute seta or spine. Thus there could appear, to the unwary observer, to be a total of 4 true setae and spines, hence its inclusion in this key as well as KG 13/5(female) (p. 267).

KG 13/4(female) – characters

1. Caudal ramus, in lateral view
   - A - dorsal side terminates level with ventral side; principal terminal seta not bulbous at base

B - dorsal side extends beyond end of ventral side so that origin of principal terminal seta seems to be ventral; dorsal side about ? longer than ventral; principal terminal seta not bulbous at base

C - dorsal side extends beyond end of ventral side so that origin of principal terminal seta seems to be ventral; dorsal side about twice as long as ventral; principal terminal seta bulbous at base

2. P5 exopod

n - ratio of maximum length to maximum breadth

3. P5 endopod, relative length of setae

A - setae I–III approximately equal in length and 10–15 times as long as the minute seta IV

B - setae I–III approximately equal in length and 3–5 times as long as the minute seta IV

B - setae I–III approximately equal in length and 2–2.5 times as long as the well developed seta IV

4. P5 exopod, relative length of setae

A - setae I and IV minute, equal length; setae II–III 5–7 times as long as setae I and IV

B - setae I and IV small, equal length, seta III about 1.5 times their length; seta II 5 times as long as setae I and IV

C - setae IV minute; setae I and III 5–8 times as long as seta IV; seta II 2–3 times as long as setae I and III

D - setae IV minute; setae I and III 9–12 times as long as seta IV; seta II about 1.5 times as long as setae I and III

E - all setae well developed, relative lengths (from I–V)—1:3.5:2.5:1.5

F - all setae well developed, relative lengths (from IV)—1:3.5:2:0.6

5. P4 Enp-2

n:n:n:n - relative length of setae I–IV

KG 13/4(female)

CR	P5 Exp l/b	P5 Enp setae	P5 Exp setae	P4 Enp-2 setae	
A	≈1	A	A	2.2:3.5:4:1	*Elaphoidella arambourgi*
A	≈1	B	B	2.3:4:1.3:1	*E. brevipes*
A	1.5	C	F	2.7:3.7:2:1	*E. uva*
B	2.5	C	D	2:2:2.8:1	*E. vaga*
C	≈2	C	E	1.5:2:3:1	*E. apicata*
?	2.25	C	C[1]	1.3:1.6:5:1	*E. longipedis* [*sensu* Chappuis 1931][1]

1. P5 exopod bears 3 well developed setae and 4 small spinules on the outer edge. The most distal outer spinule is so close to the origin of the outer seta that it could be mistaken for a minute seta or spine. Thus there could appear, to the unwary observer, to be a total of 4 true setae and spines, hence its inclusion in this key as well as KG 13/6(female) (p. 268). See also KG 13/1(female) note 3 (p. 263).

KG 13/5(female) – characters

1. Caudal ramus, dorsal, maximum length of caudal ramus

short - less than the length of the lateral edge of anal somite long - much greater than the length of the lateral edge of anal somite

2. Caudal ramus, in lateral view
   d=v - dorsum terminates level with ventrum
   d>v - dorsum extends beyond end of ventrum so that origin of principal terminal seta seems to be ventral

3. P5 endopod
   small - small, extending about a quarter of the length of exopod; setae I–III approximately equal length and twice as long as seta IV
   vest - vestigial; setae I–III approximately equal length and less than twice as long as seta IV

4. P5 exopod
   A - inner and outer edge with many setules or spinules; all setae well developed, filiform, bisetulose; relative lengths (setae I–IV)—1:2:1
   B - edges naked; seta I small and weak; setae II–III spiniform stout; relative lengths (setae I–IV)—1:6:2

5. P4 Enp-2
   filiform - all filiform; relative lengths (setae I–IV)—1: 3: 6: 1.5
   spiniform - terminal setae stout, spiniform; relative lengths (setae I–IV)—1:1.5:0.8:0.4

KG 13/5(female)

CR/ anal somite	CR shape	P5 benp	P5 Exp	P4 Enp-2 setae	
short	d>v	small	A[1]	filiform	*Elaphoidella affinis*[1]
long	d=v	vest	B	spiniform	*E. gordani*

1. P5 exopod bears 3 well developed setae, 4 spinules on the inner edge and 3 on the outer edge. The most distal outer spinule is so close to the origin of the outer seta that it could be mistaken for a minute seta or spine. Thus, to the unwary observer there could appear to be a total of 4 true setae and spines.

KG 13/6(female) – characters

1. P5 endopod
   A - with 4 stout setae; setae I–III approximately equal length and 2–2.5 times as long as seta IV; the longest seta extends to about halfway along exopod seta II
   B - with 4 stout biplumose spines; setae I–III approximately equal length; seta IV about ⅔ the length of others; the longest spine extends more than halfway along exopod seta II

2. P5 exopod
   A - with 3 long, slender biplumose setae; relative lengths (setae I–III)—1:3:2
   B - with 3 long, slender biplumose setae; relative lengths (setae I–III)—1:1.25:3.75
   C - with 3 stout biplumose spines; relative lengths (setae I–III)—1:1.3:0.7

KG 13/6(female)

P5 Enp	P5 Exp	
A	A	*Elaphoidella grandidieri*[1]
A	B	*E. longipedis* [*sensu* Chappuis 1931][2]
B	B	*E. lindbergi*

1. See also KG 13(female) note 1 (p. 263).
2. P5 exopod bears 3 well developed setae and the outer edge has 4 small spinules. The most distal outer spinule is so close to the origin of the outer seta that it could be mistaken for a minute seta or spine. Thus there could appear, to the unwary observer, to be a total of 4 true setae and spines. See also KG 13/3(female) note 2 (p. 266).

KG 13/7(female) – characters

1. Anal operculum
   - setules - distal edge clothed with numerous very fine setules
   - dentate - distal edge dentate; approximately 20 small sharp teeth

2. Abdomen somites 3–4, spinules at distal edge
   - A - a continuous row across venter from dorsolateral to dorsolateral
   - B - segment 3 with a continuous row across venter from ventrolateral to ventrolateral; segment 4 with short rows ventrolateral and midventral

3. P4 Enp-2, origin of setae III–IV
   - A - seta III apical; seta IV subapical
   - B - setae III and IV apical

4. P3 Enp-2
   - n - ratio of maximum length to maximum breadth

KG 13/7(female)

Anal operculum	Abdomen som 3–4 spinules	P4 Enp-2 setae III–IV	P3 Enp-2 l/b	
setules	A	A	2.5	*Elaphoidella stammeri*[1]
dentate	B	B	3.3	*E. cvetkae*

1. Data from the original description and Petkovski (1983).

KG 13/8(female) – characters

1. Caudal ramus, in lateral view
   - d=v - dorsum terminates level with ventrum
   - d>v - dorsum extends beyond end of ventrum so that origin of principal terminal seta seems to be ventral

2. Anal operculum
spinules - distal edge clothed with numerous very fine spinules
naked - distal edge without armature

3. P5 exopod
n - ratio of maximum length to maximum breadth

4. P5 exopod, relative length of setae
short - relative lengths (setae I–IV)—1:3.5:1.3:0.5
long - relative lengths (setae I–IV)—1:5.5:3.8:1.2

KG 13/8(female)

CR shape	Anal operculum	P5 Exp l/b	P5 Exp setae	
d=v	spinules	1.2	short	*Elaphoidella phreatica*[1]
d>v	naked	1.6	long	*E. neotropica*

1. See Karanovic (2001) for a discussion of variability in *E. phreatica.*

KG 13/9(female) – characters

1. P5 baseoendopod, length relative to exopod
short - endopod lobe extends about halfway along exopod
long - endopod lobe extends to end of exopod

2. P5 endopod
n:n:n:n - relative lengths of setae I–IV

3. P5 exopod
n:n:n:n:n - relative lengths of setae I–V

KG 13/9(female)

P5 Enp/ Exp	P5 Enp setae	P5 Exp setae	
short	1:4:4:4	1:17:15:10:6.5	*Elaphoidella limnobia*
long	1:2.5:2.5:0.8	1:8:5:2.5:1.5	*E. elgonensis*

KG 13/10(female) – characters

1. Anal operculum
fine - distal edge clothed with numerous fine setules
coarse - distal edge with 25–30 small broad spinules

2. Dorsal part of hyaline frill of all somites except anal somite
serrate - strongly serrate
mixed - cephalic shield and thorax smooth; abdomen weakly serrate

KG 13/10(female)

Anal operculum	Hyaline frill	
fine	mixed	*Elaphoidella sewelli minuta*[1]
coarse	serrate	*E. longiseta*

1. Lang (1948) provides a detailed comparison of all the subspecies of *E. sewelli* then known; it is still valid.

KG 13(male) – characters

1. P2 and P4 Enp-2
   n:n - number of setae and spines on P2 and P4

2. P2 and P4 Enp-1, inner edge
   n:n - number of setae on P2 and P4

3. P5
   n:n - number of setae and spines on endopod and exopod

4. P4 Exp-3, modifications to setae and spines
   none - all setae and spines of normal form; setae filiform, often plumose; spines elongate, often plumose but never with strong spinules or teeth
   III–V - III–V are stout spines, usually elongate, but always with strong accessory spinules (articulated with spine) or teeth (fused to spine); teeth may be very long and curved, giving the spine an "antler-like" appearance
   III–IV - III–IV modified as above, but V is a normal spine
   IV–V - IV–V modified as above, but III usually is a long plumose seta, never spiniform
   V–VI - V–VI modified as above
   IV - only IV is modified as above; III is usually a long plumose seta and V a normal spine
   Vcrochet - V resembles a crochet hook; other setae and spines normal
   Vstumpy - V is a very short stout spine, much shorter than others; other setae and spines normal
   claw - VI is a very short spine, not extending beyond the end of Exp-3, broad at the base and claw-like; the deep step in the segment edge at the origin of VI is at 90° to the edge so the spine appears to be set within the segment and its inner side is closely applied to the segment edge.

5. Anal operculum
   spinose - semilunar; distal edge with *n* large spinules or tubercle-like extensions of the edge
   fh - semilunar; distal edge naked or with a large number of very fine setules ("fine hairs") or small spinules
   triangular - triangular, extending at least to halfway along the caudal rami; distal edge not hyaline, naked or with numerous small setules or spinules
   hyaline - triangular, extending to the end of the caudal rami; distal edge with a broad hyaline membrane

KG 13(male)

P2 & P4 Enp-2 setae	P2 & P4 Enp-1 inner setae	P5 setae	P4 Exp-3 spines	Anal operculum	
5:4	1:1	2:5	none	spinose:18	*Elaphoidella nepalensis*
5:4	1:0	0:2	none	fh	*E. gordani*
5:3	1:0	0:4	none	fh	*E. pescei*
5:3	1:0	0:3	V–VI	spinose:7	*E. balkanica*
4:4[1]	1:1	0:4	none	fh	*E. apicata*[1]
4:3	1:0	0:4	none	fh	KG 13/1(male) (p. 274)
4:3	1:0	0:4	none	triangular	*Elaphoidella arambourgi*
4:3	1:0	0:4	III–V	fh	*E. phreatica*
4:3	1:0	0:4	III–IV	fh	*E. fonticola*
4:3	1:0	0:4	claw	fh	KG 13/2(male) (p. 274)
4:3	1:0	(0:3)	none	spinose:13	*Elaphoidella cvetkovi*
4:3	1:0	0:3	none	fh	*E. proserpina*
4:3	1:0	0:3	none	hyaline	*E. hyalina*
4:3	1:0	0:3	III–V	fh	*E. phreatica*
4:3	1:0	0:3	IV–V	fh	*E. stammeri*[2]
4:3	1:0	0:3	IV–V	spinose:12	*E. ruffoi*[3]
4:3	1:0	0:3	V–VI	spinose:11	*E. cavernicola*
4:3	1:0	0:3	claw	fh	*E. montenegrina*
4:3	1:0	0:3	claw	triangular	*E. grandidieri*
4:3	0:0	0:4	none	spinose:12–14	*E. jojoi*
4:3	0:0	0:4	none	spinose:8	*E. cavicola*
4:3	0:0	0:4	none	fh	*E. cabezasi*
4:3	0:0	0:4	III–V	fh	*E. phreatica*
4:3	0:0	0:4	claw	fh	*E. neotropica*
4:3	0:0	0:3	none?	triangular	*E. silvestris*[4]
4:3	0:0	0:3	none	?	*E. nyongi*[5]
4:2[6]	1:0	0:4	IV–V	fh	*E. brevipes*[6]
3:3–4	1:0	0:4	IV–V	fh	*E. jeanneli*
3:3	1:0	0:4	IV–V	spinose:15–16	*E. aprutina*
3:3	1:0	0:4	III–V	spinose:10–13	*E. elaphoides*
3:3	1:0	0:4	none	fh	*E. amabilis*
3:3	1:0	0:4	claw	spinose:16	*E. parvifurcata*
3:3	1:0	0:4	claw	fh	KG 13/3(male) (p. 275)
3:3	1:0	0:3[8]	none	fh	*Elaphoidella putealis*[8]
3:3	1:0	[0:3][9]	none	fh	*E. garbetensis*[9]
3:3	1:0	0:3	III–V	spinose:12–14	KG 13/4(male) (p. 276)
3:3	1:0	0:3	IV–V	spinose:10–14	KG 13/5(male) (p. 276)
3:3	1:0	0:3	IV–V	spinose:8	*Elaphoidella bulbifera*
3:3	1:0	0:3	IV–V	spinose:3–4	*E. franci*[2]
3:3	1:0	0:4	IV–V	fh	*E. sewelli* s. str.[7]
3:3	1:0	0:3	III–V	spinose:10–12	*E. plutonis* s. str.
3:3	1:0	0:2[8]	none	fh	*E. putealis*[8]

3:3	1:0	0:2	claw	fh	*E. shawangunkensis*
3:3	0:0	0:4	III–V	spinose:12–15	*E. moreae*
3:3	0:0	0:4	IV–V	spinose:8	*E. incerta*
3:3	0:0	0:3	none	spinose:18–20	*E. janas*
3:3	0:0	0:3	none	spinose:7–8	*E. damianae*
3:3	0:0	0:3	none	fh	*E. taroi*[10]
3:3	0:0	0:3	IV–V	spinose:6	*E. schubarti*
3:3	0:0	0:3	IV	spinose:6	*E. malayica*[10]
3:3	0:0	0:2	none	spinose:13–16	*E. margaritae*
3:2	1:0	0:4	V–VI	fh	*E. colombiana*
3:2	0:0	0:4	none	spinose:20	*E. massai*
3:2	0:0	0:4	none	spinose:16	*E. quemadoi*[11]
3:?	1:(0)	0:4	claw	fh	*E. subgracilis*
2.4[1]	1:1	0:4	none	fh	*E. apicata*[1]
2:3	1:0	0:3	none	spinose:≈18	*E. federicae*
2:3	1:0	0:3	IV–V	spinose:9	*E. jochenmartensi*
2:3	1:0	0:3	III–IV	spinose:10–13	*E. elaphoides*
2:3	1:0	0:3	Vcrochet	fh	*E. serbica*
2:3	1:0	0:2[4]	none	fh	*E. putealis*[4]
2:3	0:0	0:4	III–V	spinose:12–15	*E. moreae*
2:3	0:0	0:3	none	fh	*E. sewelli minuta*[7]
2:3	0:0	0:3	IV–V	fh	*E. humboldti*
2:3	0:0	0:3	IV	fh	*E. longiseta*
2:2	1:0	0:4[12]	none	spinose:≈14	*E. brevicaudata*[12]
2:2	1:0	0:2–3	III–IV	spinose10–13	*E. elaphoides*
2:2	0:0	0:4	none	spinose:12–14	*E. propedamasi*
2:2	0:0	0:4	none	fh	KG 13/6(male) (p. 277)
2:2	0:0	0:4	Vstumpy	fh	*Elaphoidella kenyensis* s. str.
2:2	0:0	0:4	Vstumpy	spinose:6	*E. kenyensis curticauda*
2:2	0:0	0:3	IV	spinose:10–14	*E. sewelli africana*[7]
2:2	0:0	0:2–3	IV–V	fh	*E. labani*
1:3	1:0	0:3	III–IV	spinose:10–13	*E. elaphoides*
1:2	0:0	0:3	IV–V	spinose:10–12	*E. subcrenobia*
?:3	?:0	0:3	IV	fh	*E. surinamensis*
?:2	?:0	0:4	none	fh	*E. similis*

1. P2 Enp-2: The description states that the segment has a "forme conique avec deux courtes épines au bord interne et deux soies apical plus longues" but the spines are very small and may be spinules.
2. *Elaphoidella stammeri* and *E. franci* are also characterised by the P3 endopod, where the terminal seta is a stout spine with long, strong spinules in the distal half. The spinules arise at an obtuse angle to the spine, giving it the appearance of a 2-dimensional fir tree. In some accounts the spinules are illustrated as fused to the spine, in others they are articulated.
3. *Elaphoidella ruffoi* is also distinguished by the terminal spine of P4 Enp-2 being stout and curved.
4. The illustration of P4 Exp-3 must be in error. It shows the outer edge with only 1 spine—corresponding to the proximal spine of the female. The text gives no indication there is sexual dimorphism in this ramus.
5. If the illustration is correct, *E. nyongi* is also unusual in that the setation of P3 Enp-3 is limited to 1 vestigial apical spine.
6. *Elaphoidella brevipes* is also characterised by P4 Enp-2 bearing 2 very stout terminal spines, rather than setae.

7. Lang's (1948) detailed comparison of all the subspecies of *E. sewelli* then known is still valid.
8. In *E. putealis* the P5 exopod bears 1 long and 1 short, plumose seta, plus 1 minute "spine" that can easily be mistaken for a spinule. See note 9.
9. In *E. garbetensis* the P5 exopod is fused to the basis. It may also be distinguished from *E. putealis* by its serrate hyaline frill.
10. *Elaphoidella taroi* and *E. malayica* are also characterised by the unguiform inner distal corner of the caudal ramus and the broad blade-like nature of P2 Enp-2, which tapers to an acute point and bears 1 thin seta, 1 plumose seta and 1 small, smooth seta on the outer side of the point.
11. *Elaphoidella quemadoi* is also distinguished by the P4 Enp-1 being vestigial.
12. P5 exopod has 1 short spine at outer distal corner, 2 long, plumose terminal spines and 1 vestigial spine at outer distal corner.

KG 13/1(male) – characters

1. Abdomen somites 2–4, ornamentation at distal edge
   A - somites 2–4 with very stout spinules lateral and ventrolateral, possibly with very small spinules across midventer
   B - somites 2–4 with spinule rows continuous from ventrolateral to ventrolateral (size of spinules unknown)

2. P3 endopod, apophysis on segment 2
   long - apophysis very long, extending far beyond the end of Enp-3
   medium - apophysis extends a short way beyond end of Enp-3
   short - apophysis reaches end of Enp-3 at most

3. P3 Enp-3, apical setae
   filiform - both setae filiform; at least the the outer seta very long
   stubby - outer seta long and filiform; inner seta a short stub with a fan of long fine setules at apex and along inner edge

4. P2 Exp-1
   long - about as long as broad
   short - about twice as broad as long

KG 13/1(male)

Abdomen som 2–4 distal edge	P3 Enp apophysis	P3 Enp-3 apical setae	P2 Enp-1 l/b	
A	short	filiform	long	*Elaphoidella lindbergi*
A	medium	stubby`	short	*E. cuspidata*[1]
B	long	filiform	short	*E. hellmichi*

1. Male described by Löffler (1973).

KG 13/2(male) – characters

1. Dorsal part of hyaline frill of all urosomites except the anal somite
   serrate - distal edge strongly serrated

weak - distal edge very weakly serrated; serrations are irregular and may be of low pitch and varying wavelength

smooth - simple; without serration or division into denticles

2. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

3. Caudal ramus, dorsal

none - dorsal surface without a sclerotised ridge

ridge - dorsal surface with a sclerotised ridge (weakly developed or prominent) that does not terminate in a spiniform projection

ungui - dorsal surface with a prominent sclerotised ridge that terminates in an unguiform projection

KG 13/2(male)

Hyaline frill	CR l/b	CR dorsal ridge	
serrate	≈1.5	none	*Elaphoidella bryophila*
weak	≈2	ridge	*E. intermedia*
smooth	≈3	none	*E. wilsonae*[1]
smooth	3.5	ridge	*E. reedi*[1]
smooth	≈1.5	ungui	*E. uva*

1. These North American species are very similar, but *E. reedi* is a more gracile species that may be distinguished from *E. wilsonae* by the more elongate P2–P4.

For example, in *E. reedi* segments 2–3 of P2 and P4 are very slender—about 5 times as long as broad, while in *E. wilsonae* P2 Exp-2 is only about as long as broad and P2 Exp-3 and P4 Exp-2 and Exp-3 are only about 3 times as long as broad.

KG 13/3(male) – characters

1. Dorsal part of hyaline frill of all urosomites except the anal somite

serrate - distal edge strongly serrated

weak - distal edge very weakly serrated; serrations are irregular and may be of low pitch and varying wavelength

smooth - simple; without serration or division into denticles

2. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

3. Anal somite, ornamentation (excluding rows of very small setules)

naked - without ornamentation

limited - confined to 2 strong spinules ventrally above caudal rami

complex - 2 strong spinules ventrally above caudal rami; a short row of 4–6 spinules ventrolaterally

4. P3 endopod, apophysis on segment 2

long - apophysis extends almost to the end of Exp-3 and to the end of the outer seta of Enp-3;

about twice as long as Enp-3

medium - apophysis extends halfway along Exp-3 and to the end of outer seta of Enp-3; about 1.5 times as long as Enp-3

short - apophysis extends halfway along Exp-3 and is about 1.5 times as long as Enp-3 but is much shorter than outer seta of Enp-3

5. Mandible endopod
   n - number of setae

KG 13/3(male)

Hyaline frill	CR l/b	Anal somite	P3 Enp apophysis	Mandible Enp setae	
smooth	>2	naked	medium	4	*Elaphoidella gracilis*
weak	≈1.5	complex	short	5	*E. marjoryae*
serrate	≈1.5	limited	long	4	*E. fluviusherbae*

KG 13/4(male) – characters

1. Dorsal part of hyaline frill of all urosomites except the anal somite
   serrate - distal edge serrated
   smooth - simple; without serration or division into denticles

2. Abdomen somites 2–4
   orn - distal margin ornamented with "rows of thin spinules"
   naked - apparently without surface ornamentation (not mentioned in the description)

3. Anal somite, ornamentation
   4+3 - with 4 lateral spinules and 3 spinules ventrally above the caudal rami
   1+2 - with only 1 lateral spinule and 2 spinules ventrally above the caudal rami

4. P2 Enp-2, outer edge
   4 - with 4 small, slender spinules
   2 - with 2 small but stout spinules

KG 13/4(male)

Hyaline frill	Abdomen som 2–4	Anal somite	P2 Enp-2	
smooth	orn	4+3	4	*Elaphoidella paraelaphoides*[1]
serrate	naked	1+2	2	*E. subplutonis*[1]

1. The males of these species are very difficult to differentiate by means of the published descriptions. Although they are described in the same paper, the authors (Pesce, Galassi & Apostolov 1987) make no direct comparison between them.

KG 13/5(male) – characters

The species in this key are inadequately described, in that insufficient detail is provided and the illustrations are small and difficult to interpret.

1. Dorsal part of hyaline frill of all urosomites except the anal somite
serrate - distal edge strongly serrated
weak - distal edge very weakly serrated; serrations are irregular and may be of low pitch and varying wavelength
smooth - simple; without serration or division into denticles

2. P3 Exp-3, seta VI (the proximal outer spine)
normal - a normal, slender, acutely pointed spine
spatulate - a very stout, spatulate spine of even width throughout most of the length; pronounced curvature distally

3. P3 endopod, apophysis on segment 2
long - slender, long—twice the length of Enp-3, reaching the end of Exp-3
short - stout, short—not more than 1.5 times the length of Enp-3 and reaching only the middle of Exp-3

4. P5 exopod, ratio of maximum length to maximum breadth
long - longer than broad
equal - approximately as long as broad
short - broader than long

KG 13/5(male)

Hyaline frill	P3 Exp-3 seta VI	P3 Enp apophysis	P5 Exp l/b	
smooth	normal	long	long	*Elaphoidella kieferi*
weak	modified	short	equal	*E. thienemanni* s. str.
serrate	modified	short	equal	*E. thienemanni serrulata*
serrate	modified	short	short	*E. bromeliaecola*

KG 13/6(male) – characters

1. Caudal ramus
A - inner side steeply convex; seta at inner distal corner thin and weak, though longer than caudal ramus; dorsal keel short, does not extend to the end of the caudal ramus
B - inner side convex at extreme base, then straight until just before the distal corner, which projects medially; seta at inner distal corner wide at base, tapering, needle-like, longer than caudal ramus; dorsal keel long, extending to end of caudal ramus

2. Dorsal part of hyaline frill of all urosomites except the anal somite
serrate - distal edge strongly serrated
weak - distal edge very weakly serrated; serrations are irregular and may be of low pitch and varying wavelength

KG 13/6(male)

CR	Hyaline frill	
A	serrate	*Elaphoidella elgonensis*
B	weak	*E. limnobia*

KG 14 – characters

See introduction to KG 13 (p. 259) for a note on the complexities of identifying species of *Elaphoidella.*

1. Female antennule
    n - number of segments

2. Female P2–P4 Enp-2
    n:n:n - number of setae and spines on P2, P3 and P4

3. Female P5
    n:n - number of setae and spines on endopod and exopod

4. Male P2 and P4 Enp-2
    n:n - n umber of setae and spines on P2 and P4
    uk - male unknown

5. Male P5
    n:n - number of setae and spines on endopod and exopod
    uk - male unknown

KG 14

Female A1 segs	Female P2–P4 Enp-2 setae	Female P5 setae	Male P2 & P4 Enp-2 setae	Male P5 setae	
8	5:6:4	4:5	uk	uk	*Elaphoidella uenoi*
8	5:6:4	4:2	4:4	2:2[1]	*E. claudboui*[1]
8	5:6:3	4:2	4:3	1:2	*E. boui*
7	5:6:5	6:5	5:5	3:5	*Mesochra baylyi*
6	5:5:5	5:5	5:5	2:6	*M. schmidti*
6	2:4:5	5:5	2:5	2:6	*M. anomala* [*sensu* Klie 1950]
6	3:4:5	5:5	uk	uk	*M. anomala* [*sensu* Bodin 1979a]

1. Outer seta of male P5 endopod is very small.

KG 15 – characters

1. Caudal ramus, in dorsal view
    n - ratio of maximum length to maximum breadth

2. P1 Enp-1
long - approximately as long as combined length of segments 2 and 3
short - approximately equal in length to segment 2 and slightly shorter than segment 3

3. P2–P4 Exp-2, inner edge
n:n:n - number of setae on P2, P3 and P4

KG 15

CR l/b	P1 Enp-1 inner setae	P2–P4 Enp-2	
≈1	long	0:0:0	*Nannomesochra zavodniki*[1]
≥3	short	1:1:1	*Bathycamptus minutus*[1, 2]

1. As *Nannomesochra zavodniki* is known only from the female and *Bathycamptus minutus* only from the male, this key must be treated with caution.
2. Data from the redescription by Huys & Thistle (1989).

KG 16 – characters

See introduction to KG 13 (p. 259) for a note on the complexities of identifying species of *Elaphoidella.*

1. Female P2–P4 Enp-2
n:n:n - number of setae and spines on P2, P3 and P4
na - not applicable

2. Female P2–P4 Enp-1, inner edge
n:n:n - number of setae on P2, P3 and P4
na - not applicable

3. Female P5
n:n - number of setae and spines on endopod and exopod
na - not applicable

4. Male P2 and P4 Enp-2
n:n - number of setae and spines on P2 and P4
uk - male unknown

5. Male P2 and P4 Enp-1, inner edge
n:n - number of setae on P2 and P4
uk - male unknown

6. Male P5
n:n - number of setae and spines on endopod and exopod
uk - male unknown

KG 16

Female P2–P4 Enp-2 setae	Female P2–P4 Enp-1 inner setae	Female P5 setae	Male P2 & P4 Enp-2 setae	Male P2 & P4 Enp-1 inner setae	Male P5 setae	
4:6:3	1:1:1	3:2	2:2	1:0	0:2	*Elaphoidella pyrenaica*
4:5:4	1:1:1	3:4	uk	uk	uk	*E. anatolica*
4:5:3	1:0:1	3:3	4:2	1:0	0:3	*E. leruthi meridionalis*
4:5:3	1:1:0	4:4	uk	uk	uk	*E. hallensis*
4:5:2–3	1:1:0–1	3:3	uk	uk	uk	*E. leruthi* s. str.[1]
4:5:2–3	1:0:0	3:2	3:2	0:0	0:1	*E. brehieri*
4:3:3	1:1:0	4:3	3:3	1:0	0:3	*E. mabelae*
3:5:4	1:0–1:0	4:4	uk	uk	uk	*E. silverii*
3:5:3	1:1:1	3:3	uk	uk	uk	*E. madiracensis*
3:5:3	1:0:0	4:5	3:2	1:0	0:4	*E. damasi*
3:5:3	1:0:0	3:3	3:3	0:0	0:3	*E. mauro*
3:5:2–3	0:0:0	3:2	3:2	0:0	0:1	*E. brehieri*
3:5:2	1:1:0	3:3	3:2	1:0	0:2	*E. algeriensis*
3:4:3	0:0:0	4:4	uk	uk	uk	*E. negroensis*
3:3:3	0:0:0	3:3	3:3	0:0	0:3	*E. cottarellii*
3:3:3	0:0:0	3:2	3:3	0:0	0:2	*E. longifurcata*
3:3:2	1:1:0	3:4	3:3	1:0	0:4	*E. nuragica*
2:1:1	0:0:0	4:3	2:2	0:0	0:2	*E. turgisetosa*
na	na	na	2:2	0:0	2[2]	*Antrocamptus coiffaiti* male[2]

1. Incorporates data from Apostolov (2002b).
2. P5 is a single plate with 2 setae only. For the female see KG 0 (p. 202).

KG 17 – characters

See introduction to KG 13 (p. 259) for a note on the complexities of identifying species of *Elaphoidella.*

1. Female P2–P4 Enp-2
   - n:n:n - number of setae and spines on P2, P3 and P4
   - uk - female unknown
   - na - not applicable

2. Female P2–P4 Enp-1, inner edge
   - n:n:n - number of setae on P2, P3 and P4
   - uk - female unknown
   - na - not applicable

3. Female P5
   - n:n - number of setae and spines on endopod and exopod
   - uk - female unknown
   - na - not applicable

4. Male P2 and P4 Enp-2
    n:n - number of setae and spines on P2 and P4
    uk - male unknown

5. Male P2 and P4 Enp-1, inner edge
    n:n - number of setae on P2 and P4
    uk - male unknown

6. Male P5
    n:n - number of setae and spines on endopod and exopod
    uk - male unknown

KG 17

Female P2–P4 Enp-2 setae	Female P2–P4 Enp-1 inner setae	Female P5 setae	Male P2 & P4 Enp-2 setae	Male P2 & P4 Enp-1 inner setae	Male P5 setae	
5:5:5	1:1:0	4:5	uk	uk	uk	*Elaphoidella derjugini*
5:5:4	0:0:0	3:4	5:4	0:0	0:4	*E. aioii*
3:6:4	1:0:0	4:5	3:3	1:0	0:4	*E. parvifurcata*
3:4:3	0:0:0	4:5	2:2	0:0	0:4	*E. bouilloni*
na	na	na	4:3	0:0	0:3	*E. vietnamica* male[1]
uk	uk	uk	2:3	0:0	0:3	*E. radkei*

1. For female see KG 13(female) (p. 260).

KG 18 – characters

See introduction to KG 13 (p. 259) for a note on the complexities of identifying species of *Elaphoidella.*

1. Female P2–P4 Enp-2
    n:n:n - number of setae and spines on P2, P3 and P4

2. Female P2–P4 Enp-1, inner edge
    n:n:n - number of setae on P2, P3 and P4

3. Female P5
    n:n - number of setae and spines on endopod and exopod

4. Male P2 and P4 Enp-2
    n:n - number of setae and spines on P2 and P4
    uk - male unknown

5. Male P2 and P4 Enp-1, inner edge
    n:n - number of setae on P2 and P4
    uk - male unknown

6. Male P5
  n:n - number of setae and spines on endopod and exopod
  uk - male unknown

KG 18

Female P2–P4 Enp-2 setae	Female P2–P4 Enp-1 inner setae	Female P5 setae	Male P2 & P4 Enp-2 setae	Male P2 & P4 Enp-1 inner setae	Male P5 setae	
4:4:3	1:0:0	0:3	uk	uk	uk	*Elaphoidella karamani* [1]
4–5:3–5:3[2]	0–1:0:0[2]	0:4	3:3	0:0	0:4	*E. karamani* [*sensu* Petkovski 1956][2]
4:3:3	0–1:0–1:0[3]	0:3–4[3]	2:2	0–1:0[3]	0:3	*E. karamani* [*sensu* Pesce 1981a][3]
5:5:3	0:0:0	0:3	4:3	0:0	0:3	*E. karamani*[4]
4:5:3	1:1:0	2:4	uk	uk	uk	*E. karamani latifurcata*[5]
3–4:4–5:2–4[6]	0:0:0	note 6	uk	uk	uk	*E. vasconica*[6]
3:4:3	1:1:0	4:3	2:3	1:0	0:3	*E. simplex*[7]
3:3:3	0:0:0	4:3	2:3	0:0	0:3	*E. botosaneanui*[7]
2:5[8]:2	1:0:0	2[8]	2:2	1:0	2[8]	*Antrocamptus stygius*[8]

1. Data from the original description (Chappuis 1936b).
2. Petkovski gives no information on the combinations of these variables in individuals and describes other structures as variable. His males do not vary, but he had few individuals. His material is from several locations in Macedonia.
3. Pesce gives no information on the combinations of these variables in individuals.
4. These data are from *E. eucharis* Chappuis, 1953c, which Pesce (1981a) considers a synonym of *E. karamani.*
5. Given the setation of P5 it seems unlikely that this can be conspecific with *E. karamani*, despite the variability of this species.
6. There is great variability in setation between and within individuals. Female P5 can be 4:3, 4:2 or 3:2. See Rouch (1970a).
7. P4 Exp-3 has an additional character to separate males. In *E. botosaneanui* setae III and IV are modified as dentate spines with large teeth fused to the spines. In *E. simplex* these are normal spines.
8. P5 in both sexes is a much-reduced single plate with 2 small setae. In the female P3 Enp-2, there are 2 minute spines on the outer edge that can easily be mistaken as spinules; their true nature requires confirmation.

KG 19 – characters

1. Female antennule
  n - number of segments

2. Female P5
  A - endopod completely absent; inner side of basis does not extend medially beyond articulation with exopod; exopod with 3 setae
  B - endopod well developed, with 4 setae; exopod well developed but fused to basis, with 3 setae

3. Female P2–P4 Enp-2
  n:n:n - number of setae and spines on P2, P3 and P4

4. P1 Exp-2, inner edge
n - number of setae

5. P2–P4 Exp-2, inner edge
n:n:n - number of setae on P2, P3 and P4

KG 19

Female A1 segs	Female P5	Female P2–P4 Enp-2 setae	P1 Exp-2 inner setae	P2–P4 Exp-2 inner setae	
7	A	4:5:3	1	1:1:1	*Spelaeocamptus neotropicus*[1]
6	B	3:4:3	0	0:0:0(1?)	*Psammocamptus axi*

1. Male unknown.

KG 20 – characters

See introduction to KG 13 (p. 259) for a note on the complexities of identifying species of *Elaphoidella.*

1. Female P2–P4 endopod, distal or only segment
n:n:n - number of setae and spines on P2, P3 and P4
na - not applicable

2. Female P2–P3 Enp-1, inner edge
n:n - number of setae on P2 and P3
na - not applicable

3. Female P5
n:n - number of setae and spines on endopod and exopod
na - not applicable

4. Male P2 and P4 endopod, distal or only segment
n:n - number of setae and spines on P2 and P4
uk - male unknown

5. Male P5
n:n - number of setae and spines on endopod and exopod
uk - male unknown

KG 20

Female P2–P4 Enp distal seg setae	Female P2–P3 Enp-1 inner setae	Female P5 setae	Male P2 & P4 Enp distal sseg setae	Male P5 setae	
5:5:3	1:0–1	3:3	4–5:3	0:3	KG 20/1
4:5:3	1:0	3:3	na	na	*Elaphoidella serbica* female[1]
4:4:1	1:1	4:4	uk	uk	*E. sewelli unisaetosa*
2:1:1	0:0	4:4	na	na	*E. michaelovae* female[2]
na	na	na	2:3	0:3	*E. cvetkae* male[3]
na	na	na	3–4:3	0:4	*E. valkanovi* male[4]

1. See KG 13(male) (p. 271) for the male.
2. See KG 23 (p. 286) for the male.
3. See KG 13/7(female) (p. 269) for the female.
4. See KG 13/1/1(female) (p. 265) for the female.

KG 20/1 – characters

1. Caudal ramus, in dorsal view
   - n - ratio of maximum length to maximum breadth

2. Female abdomen somites 2–4, ornamentation
   - circum - each somite with a circumsomitic row of spinules or setules
   - dlat+ventral - each somite with a row of spinules or setules continuous across venter from dorsolateral to dorsolateral
   - vlat+ventral - each somite with a row of spinules or setules continuous across venter from ventrolateral to ventrolateral
   - lateral - each somite with a row of spinules or setules on each side
   - mixed - somites 2–3 with dorsolateral spinules only; somite 4 with spinules continuous across venter from dorsolateral to dorsolateral

3. Female P3 Enp-1, inner edge
   - n - number of setae

4. Male abdomen somites 2–4
   - female - as female
   - ventral - each somite with a ventral row of spinules or setules only
   - mixed - somite 2 with dorsolateral spinules only; somites 3–4 with ventral spinules only
   - uk - male unknown

5. Male P2 Enp-2
   - n - number of setae and spines (care must be taken not to count the spinules on the outer edge proximal to outer spine)
   - uk - male unknown

6. Male P3 Enp-2, apophysis
long - extends beyond end of terminal setae of Enp-2 and beyond end of Exp-3
short - extends to about the end of Exp-3 but does not reach the end of terminal setae of Enp-2
uk - male un known

KG 20/1

CR l/b	Female abd 2–4	Female P3 Enp-1 inner setae	Male abd 2–4	Male P2 Enp-2 setae	Male P3 Enp-2 apophysis	
1.75	circum	1	female	5	long	*Elaphoidella apostoli*
1.75	lateral	1	uk	uk	uk	*E. bulbiseta*
1.75	mixed	0	mixed	4	short	*E. stygia*
1.4	dlat+ventral	1	ventral	4	short	*E. bulgarica*
≈1.2	vlat+ventral	1	female	4	short	*E. elegantula*

KG 21 – characters

1. Caudal ramus
A - approximately twice as long as maximum breadth; conical, apex symmetrical, dorsal edge does not extend beyond ventral; dorsal keel present; dorsal seta very short, only about a quarter of the length of the ramus
B - approximately twice as long as maximum breadth; conical, apex asymmetrical, dorsal edge protrudes over the ventral making the origin of the terminal setae appear to be ventral; dorsal keel absent; dorsal seta about ¾ the length of the ramus

2. Female P5
n - number of setae

3. Male P4 endopod
equal - origin of both setae on the apex
unequal - with 1 apical and 1 sub-apical inner seta

KG 21

CR	Female P5 setae	Male P4 Enp setae	
A	2	equal	*Antrocamptus chappuisi*
B	4	unequal	*A. longifurcatus*

KG 22 – characters

1. Caudal ramus
A - slight taper from base to apex; outer edge approximately straight; elongate, about 3.25 times as long as maximum breadth
B - slight taper from base to apex; outer edge approximately straight; about 2.7 times as long as maximum breadth

C - outer edge with pronounced bulge proximally; strongly tapering from this point to apex; about 1.75 times as long as maximum breadth

2. P2–P3 Exp-2, outer distal corner
ungui - with a massive unguiform projection extending to about halfway along Exp-3
simple - if present the unguiform projection is very small

3. P2 (and P3 of the female) Enp-2
n - number of setae and spines

4. Female genital double-somite
long - longer than broad
equal - about as long as broad

KG 22

CR	P2–P3 Exp-2	P2 Enp-2	Female gds	
A	ungui	3	long	*Australocamptus diversus*[1]
B	simple	2	long	*A. hamondi*[1]
C	simple	2	equal	*A. similis*[1]

1. The male is known only for *Australocamptus hamondi*.

KG 23 – characters
See introduction to KG 13 (p. 259) for a note on the complexities of identifying species of *Elaphoidella.*

1. Anal operculum
small - distal edge armed with numerous very small spinules
large - distal edge with 5 large spinules

2. Male caudal ramus, proximal seta on outer edge
middle - originates in middle of outer edge
proximal - originates within proximal half of outer edge

3. Male P3 Enp-2, apophysis
long - apophysis extends to the end of Exp-3
short - apophysis barely reaches the end of Exp-2

KG 23

Anal operculum	Male CR	Male P3 apophysis	
small	middle	long	*Elaphoidella infernalis*
large	proximal	short	*E. michaelovae* male

KG 24 – characters

1. Female caudal ramus, origin and form of innermost apical seta
   - A - origin medial to longest apical seta; filiform, straight or slightly curved
   - B - origin ventral to longest apical seta; filiform, straight or slightly curved
   - C - origin ventral to longest apical seta; filiform, coiled or serpentine in shape

2. Female P5 exopod
   - A - slender ovate; inner side semilunar
   - B - irregularly ovate; inner side markedly convex

3. Male thorax somites 3–5
   - present - with dorsal rows of spinules
   - absent - without dorsal rows of spinules

KG 24

Female CR	Female P5 Exp	Male thorax som 3–5	
A	A	absent	*Bryocamptus* (*Bryocamptus*) *zschokkei zschokkei* f. *triarticulata*
B	A	absent	*B.* (*B.*) *z. caucasicus* f. *triarticulatus*
C	B	present	*B.* (*B.*) *spinulosus* f. *triarticulatus*

KG 25

This key contains species of *Bryocamptus*, which are difficult to distinguish. To allow the maximum number of characters to operate separate keys are given for females and males (p. 287).

KG 25(female) – characters

1. P2–P4 Enp-2
   - n:n:n - number of setae and spines on P2, P3 and P4

2. P1 Enp-1, length relative to exopod
   - long - Enp-1 extends to the middle of Exp-3 at least
   - short - Enp-1 extends only to about the end of Exp-2

3. P1 Enp-2
   - n - number of well developed setae and spines

4. Caudal ramus, origin and form of innermost apical seta
   - A - origin medial to longest apical seta; filiform, straight or slightly curved
   - B - origin ventral to longest apical seta; filiform, straight or slightly curved
   - C - origin ventral to longest apical seta; filiform, coiled or serpentine in shape

5. P5
   - n:n - number of setae and spines on endopod and exopod

KG 25(female)

P2–P4 Enp-2 setae	P1 Enp1/ Exp	P1 Enp-2 setae	CR	P5 setae	
6:6:5	short	3	A	6:5	*Bryocamptus* (*Bryocamptus*) *rylovi*[1]
5:6:5	long	4	A	6:5	*B*. (*B*.) *denticulatus*[1]
5:6:5	long	3	C	6:5	*B*. (*B*.) *alosensis*
5:6:5	short	4	A	6:5	*B*. (*B*.) *zschokkei*[2], *B*. (*B*.) *cristatus*[1, 3]
5:6:5	short	4	B	6:5	*B*. (*B*.) *zschokkei caucasicus*
5:6:5	short	3	B	6:5	*B*. (*B*.) *zschokkei sinkiangensis*
5:6:5	short	3	A	6:5	*B*. (*B*.) *zschokkei yunnanensis*, *B*. (*B*.) *mirus*[4]
5:6:5	short	3	A	5:6	*B*. (*B*.) *madarensis*
5:6:5	short	3	C	5:6	*B*. (*B*.) *spinulosus*
5:6:5	short	2	A	4:4–5	*B*. (*B*.) *balcanicus* s. str.
5:6:4	short	4	A	6:5	*B*. (*B*.) *brevipes*
5:6:5	long	3	A	6:5	*B*. (*B*.) *albidus*, *littoralis*[1, 5]
5:6:4	short	4	A?	4–5:4	*B*. (*B*.) *pyrenaicus*
5:6:3	long	2	A	3:4	*B*. (*B*.) *balcanicus* f. *babunae* Petkovski, 1956
5:5:5	short	3	A	6:5	*B*. (*B*.) *saxicola*[1]
5:3:5	short	4	A	6:5	*B*. (*B*.) *crassipes*[1]

1. These species are endemic to Lake Baikal. A dichotomous key to most of the *Bryocamptus* species of Lake Baikal is given by Borutzky & Okuneva (1972).
2. *Bryocamptus zschokkei* is a most variable species with several described subspecies, varieties and forms and with intrapopulation variability in several characters. Because of this variability this key must be treated with caution.

   This codon refers to *zschokkei* s. str., *z. frigidus* and *z. alleganiensis*. The latter 2 subspecies are from North America and are not well known (but see Wilson & Yeatman 1959).

   Lang (1948) provides a table of comparison of the forms known at that time. Other useful discussions are provided by Gurney (1932), Borutzky (1952) and Apostolov & Pesce (1989).
3. *Bryocamptus cristatus* can be distinguished from *B. zschokkei* by the form of setae I–IV of P5 endopod. In *B. cristatus* these increase evenly in apparent length (i.e. discounting the different sites of origin) whereas in *B. zschokkei* seta III is smaller and disrupts this even progression.
4. *Bryocamptus mirus* is easily recognised as it is the only species in this key in which the anal operculum is naked; all others have a small number of large spinules.
5. *Bryocamptus albidus* is distinguished from *B. littoralis* by bearing circumsomitic spinule rows at the posterior edge of abdomen somites 2–4.

KG 25(male) – characters

1. Anal operculum

   spinose - distal edge with a small number (<10) of large spinules

   naked - distal edge without ornamentation

2. P1 Enp-1, length relative to exopod

   long - Enp-1 extends to the middle of Exp-3 at least

   short - Enp-1 extends only to about the end of Exp-2

3. P1 Enp-2

   n - number of well developed setae and spines

4. P2 and P4 Enp-2
   n:n - number of setae and spines on P2 and P4

5. P3 Enp-3, inner seta
   filiform - long and slender, needle-like
   thick - broad and rod-like, sometimes deformed or contorted

KG 25(male)

Anal operculum	P1 Enp-1/ Exp	P1 Enp-2 setae	P2 & P4 Enp-2 setae	P3 Enp-3 inner seta	
naked	short	3	5:4–5	filiform	*Bryocamptus* (*Bryocamptus*) *mirus*[1]
spinose	long	4	4:4	thick	*B.* (*B.*) *denticulatus*[2]
spinose	long	3	4:4	thick	*B.* (*B.*) *littoralis*[2]
spinose	long	3	4:4	filiform	*B.* (*B.*) *albidus*[2]
spinose	short	4	4:4	filiform	KG 25/1(male) (p. 289)
spinose	short	4	4:4	thick	KG 25/2(male) (p. 290)
spinose	short	3	5?:4	filiform	*Bryocamptus* (*B.*) *zschokkei sinkiangensis*
spinose	short	3	4:4	filiform	*B.* (*B.*) *spinulosus* s. str.[3]
spinose	short	3	4:4	thick	*B.* (*B.*) *saxicola*[2]
spinose	short	3	4:3	?	*B.* (*B.*) *spinulosus occidentalis*
spinose	short	3	4:3	filiform	*B.* (*B.*) *zschokkei yunnanensis*
spinose	short	2	4:4	filiform	*B.* (*B.*) *balcanicus*

1. In the single male known the P5 endopod is similar in shape and setal form to the female, with 6 setae. This may only be a developmental abnormality, but further material is required to confirm this.
2. These species are endemic to Lake Baikal.
3. Data from Apostolov & Pesce (1989).

KG 25/1(male) – characters

1. P5 exopod, seta III
   v long - very long; about 4 times as long as setae I, II, V and VI; 1.5 times as long as seta IV
   long - long; about 3 times as long as setae I, V and VI; twice as long as setae II and IV
   short - short; only about twice as long as other setae

2. P3 Enp-3, inner seta
   v long1 - very long and slender, filiform; about as long as Enp-3 but shorter than outer seta and the apophysis
   v long2 - very long and slender; filiform; about as long as Enp-3, shorter than outer seta but as long as the apophysis
   long - long and slender, filiform; about ⅔ the length of Enp-3; shorter than outer seta and about as long as the apophysis
   short1 - short, filiform; about half as long as Enp-3, much shorter than outer seta
   short2 - very small, spiniform; approximately ⅓ the length of Enp-3 and much shorter than the outer seta and the apophysis

KG 25/1(male)

P5	P3	
Exp	Enp-3	
setae	setae	
v long	v long1	*Bryocamptus* (*Bryocamptus*) *zschokkei* s. str.[1]
?	v long2	*B.* (*B.*) *z. frigidus*[1]
long	long	*B.* (*B.*) *z. caucasicus*[1]
short	long	*B.* (*B.*) *pyrenaicus*
short	short1	*B.* (*B.*) *brevipes*
short	short2	*B.* (*B.*) *cristatus*

1. *Bryocamptus zschokkei* is a most variable species with several described subspecies, varieties and forms and with intrapopulation variability in several characters. Because of this variability this key must be treated with caution.
   Lang (1948) provides a table of comparison of the forms known at that time. Other useful discussions are provided by Gurney (1932), Borutzky (1952) and Apostolov & Pesce (1989).

KG 25/2(male) – characters

1. P3 Enp-3, inner seta
   contorted - inner edge sinuous
   straight - not contorted

2. P2 Enp-2
   n - ratio of length of Enp-2 to Enp-1

3. P5 endopod
   I≈II - setae I and II approximately equal in length, and equally slender
   I>II - seta I longer and stouter than seta II

4. P5 exopod, longest seta
   III - seta III at least twice as long as any other seta
   III≈IV - setae II and IV approximately equal in length (and at least twice as long as any other seta)

KG 25/2(male)

P3	P2	P5	P5	
Enp-3	Enp-2/	Enp	Exp	
inner	Enp-1	setae	setae	
seta				
contorted	≈2.5	I>II	III	*Bryocamptus* (*Bryocamptus*) *crassipes*
straight	≈4	I≈II	III≈IV	*B.* (*B.*) *zschokkei alleganiensis*

KG 26 – characters

1. Dorsal part of hyaline frill of all somites
   smooth - without ornamentation
   serrate - serrate on all somites except cephalic shield; divisions more or less regular and of small size
   dentate - deeply divided into very large, coarse, blunt teeth with large gaps between them

2. Female P2–P4 Enp-2

n:n:n - number of setae and spines on P2, P3 and P4

na - not applicable

3. Female P5

n:n - number of setae and spines on endopod and exopod

na - not applicable

4. Male P2 and P4 Enp-2

n:n - number of setae and spines on P2 and P4

5. Male P5

n:n - number of setae and spines on endopod and exopod

6. Male P3 endopod

3apo - 3 segments; with a long, needle-like apophysis on seg 2

2mod - 2 segments; segment 2 terminating in 2 broad, spiniform projections, fused to segment edge; 1 projection barbed at tip.

2unmod - 2 segments; segment 2 with 2 simple, filiform setae

KG 26

Hyaline frill	Female P2–P4 Enp-2 setae	Female P5 setae	Male P2 & P4 Enp-2 setae	Male P5 setae	Male P3 Enp	
smooth	na	na	2:5	2:4	2mod	*Loefflerella dentata* male[1]
smooth	3:5:3	5:4	2:2	1:4	2unmod	*Pilocamptus monticola*
smooth	3:5:3	4:5	3:2	1:3	2unmod	*P. hypophyllus*
serrate	5:6:5	6:4	5:4	2:4	3apo	*Attheyella* (*Delachauxiella*) *biarticulata*
dentate	2:5:5	6:4	2:5	2:4	3apo	*A.* (*D.*) *mammillifurca*

1. In this genus the male P4 Exp-3 is extensively modified, with 1 seta forming a complex hook-like structure. The description of *L. dentata* makes it appear that this species is less modified than other species, lacking the complex hook-seta; see the introductory note to KG 28 (p. 292). See KG 29 (p. 293) for the female.

KG 27 – characters

1. P1 Exp-2, inner edge

n - number of setae

2. Female antennule

n - number of segments

3. Female P2–P4 Enp-2

n:n:n - number of setae and spines on P2, P3 and P4

4. Female P5
   n:n - number of setae and spines on endopod and exopod

5. Male P5
   n:n - number of setae and spines on endopod and exopod
   uk - male unknown

KG 27

P1 Exp-2 inner setae	Female A1 segs	Female P2–P4 Enp–2	Female P5 setae	Male P5 setae	
1	7	5:5:5	6:5	3:5	*Mesochra lilljeborgi*
1	6	5:6:5	5:5	3:6	*M. pontica*
0	6	5:6:5	5:4	uk	*M. timsae*
0	5	5:6:5	4:4	uk	*Hemimesochra clavularis*

KG 28 – characters

This key contains the species of *Loefflerella* and *Fibulacamptus* (except *L. dentata*). The P4 Exp-3 has a total of 6 setae and spines, of which 1 is extensively modified in the male, forming a pincer-like, or grapnel-like spine (terminology of Hamond 1987). The male P3 endopod also is modified in a distinctive, but not unique, fashion.

In *Loefflerella dentata*, the type species of the genus, the male P4 Exp-3 bears 7 setae and spines, none of which are grapnel-like—although the terminal spines are contorted (see KG 26, p. 290).

Hamond (1987) believed the male P4 modifications to be unique to his new genus *Fibulacamptus*, and it would appear he was not aware of Löffler's (1966) descriptions of 3 new species of *Loefflerella* which have a great resemblance to *Fibulacamptus*.

1. Female P2–P4 Enp-2
   n:n:n - number of setae and spines on P2, P3 and P4
   uk - female unknown

2. Female P5
   n:n - number of setae and spines on endopod and exopod
   uk - female unknown

3. Male P2 and P4 Enp-2
   n:n - number of setae and spines on P2 and P4

4. Male P2 and P4 Enp-1, inner edge
   n:n - number of setae on P2 and P4

5. Male P5
   n:n - number of setae and spines on endopod and exopod (exopod not fused to basis)
   n - total number of setae and spines on P5 (exopod fused to basis)

KG 28

Female P2–P4 Enp-2 setae	Female P5 setae	Male P2 & P4 Enp-2 setae	Male P2 & P4 Enp-1 inner setae	Male P5 setae	
3–4:5:5	4:6	2:5	1:0	1:4	*Fibulacamptus gracilior*
3:5:5	4:4	2:5	1:1	1:4	*F. victorianus*
3:6:5	3:4	2:5	1:1	1:4	*F. tasmanicus*
3:4:2–3	2:4	3:1	1:0	5	*F. bisetosus*
3:5:5	4:5	2:5	0:0	2:4	*Loefflerella rouchi*[1]
3:5:5	4:5	2:5	0:0	1:5	*L. chilensis*[1]
uk	uk	2:5	0:0	1:4	*L. trisaetosa*

1. Females may be distinguished by the relative length of seta IV of P5 endopod. In *L. rouchi* this is long, about ¾ the length of the other endopod setae. In *L. chilensis* it is very short—only about 1/6 the length of the other setae.

KG 29 – characters

1. Female P2–P4 Enp-2
   n:n:n - number of setae and spines on P2, P3 and P4

2. Female P2–P4 Enp-1, inner edge
   n:n:n - number of setae on P2, P3 and P4

3. Female P5
   n:n- number of setae and spines on endopod and exopod

4. Male P2 and P4 Enp-2
   n:n - number of setae and spines on P2 and P4
   na - not applicable

5. Male P5
   n:n - number of setae and spines on endopod and exopod
   na - not applicable

KG 29

Female P2–P4 Enp-2 setae	Female P2–P4 Enp-1 inner setae	Female P5 setae	Male P2 & P4 Enp-2 setae	Male P5 setae	
5:4:5	1:1:1	6:4	3:5	2:4	*Bryocamptus* (*Limocamptus*) *stouti*
3:5:4	0:0:0	4:5	na	na	*Loefflerella dentata* female[1]

1. See KG 26 (p. 290) for the male.

KG 30 – characters

1. Mandible palp, number of segments
   2 - basis and endopod present
   1 - basis only—endopod absent

2. Anal operculum
   n:n - number of spinules on distal edge in female and male

3. Female P2–P4 Enp-2
   n:n:n - number of setae and spines on P2, P3 and P4

4. Female P5
   n:n - number of setae and spines on endopod and exopod

5. Male P2 and P4 Enp-2
   n:n - number of setae and spines on P2 and P4

KG 30

Mandible palp segs	Anal operculum spinules	Female P2–P4 Enp-2 setae	Female P5 setae	Male P2 & P4 Enp-2 setae	
1	7–16:2–8	4:5:5(4)[1]	6:5	3:2(4)[1]	*Bryocamptus* (*Bryocamptus*) *pygmaeus*[1]
1	2–3:3	4:4:4	6:5	2:3(4)[2]	*B.* (*B.*) *dentatus*[2]
1	0:0	4:5:4	6:5	3:2	*B.* (*B.*) *gauthieri*
1	0:0	3:2:3	6:4	3:3	*B.* (*Limocamptus*) *parvus*[3]
2	≈18:≈18	4:5:4–5	6:6	3:3–4	*B.* (*Arcticocamptus*) *cuspidatus*[4]
2	11:uk	(4:5:5)[5]	5:6	uk	*B.* (*A.*) *unisetiger*[5]
2	6:6	(4:5:5)[5]	6:5	3:2	*B.* (*A.*) *vandouwei*[5]

1. *Bryocamptus pygmaeus* is a widespread species in lowlands and at moderate altitudes from Arctic Scandinavia through western and central Europe to northern Mediterranean countries from Spain to Turkey and in Algeria. It has also been reported from New York—and even from New Zealand, though this must be considered doubtful. There is moderate variability over this range. The number in parentheses in this codon represents a much less common state of the character.
2. The male P4 Enp-2 usually bears 3 setae but 4 have been reported.
3. *Bryocamptus parvus* is also distinguished from the other species in this key in the setation of male P5—2:4 against 2:5 or 2:6 in the other species.
4. *Bryocamptus cuspidatus* is a highly variable species widespread throughout northern and central Europe. This has been recognised in the establishment of 5 subspecies but this concept is difficult to sustain in the face of the high variability within individual populations (Galassi 1997a—who also redescribes the species). The data in this key show only a portion of the meristic variability; for example, the range of setation of male P5 is 2–5:5–6.
5. The description of these species is not comprehensive. In particular the setation of P1–P4 is not known and the numbers given here are 'best guess' data.

KG 31 – characters

1. Abdomen somites 2–4, spinule rows
   - present - at distal edge (somite 1 ventrolateral only; somite 2 almost complete and somite 4 complete across venter)
   - absent - without spinule rows

2. Anal operculum
   - n - number of spinules on distal edge
   - naked - distal edge without ornamentation though a row of small setules (female) or spinules (male) may be present just proximal to the distal edge

3. P1 Enp-1, length relative to exopod
   - long - Enp-1 extends to end of Exp-2
   - short - Enp-1 extends no further than the middle of Exp-2

4. Female P5
   - n:n - number of setae and spines on endopod and exopod

5. Female P2–P4 Enp-2
   - n:n:n - number of setae and spines on P2, P3 and P4

KG 31

Abdomen som 2–4	Anal operculum	P1 Enp1/ Exp	Female P5 setae	Female P2–P4 Enp-2 setae	
present	naked	short	6:5	4:5:4	*Bryocamptus* (*Bryocamptus*) *gauthieri*
absent	6–8	long	5:5	4:4:4	*B.* (*B.*) *pirgos*[1]

1. Male unknown.

KG 32 – characters

See introduction to KG 13 (p. 259) for a note on the complexities of identifying species of *Elaphoidella.*

1. Female anal operculum
   - fh - distal edge clothed with a large number of very fine setules (“fine hairs”)
   - smsp - distal edge set with a large number of small short spinules (usually 18–20 or more)
   - n - distal edge set with *n* large broad spinules
   - uk - female unknown

2. Female P2–P4 Enp-2
   - n:n:n - number of setae on P2, P3 and P4
   - uk - female unknown

3. Female P5

n:n - number of setae and spines on endopod and exopod

uk - female unknown

4. Male anal operculum

fh - distal edge clothed with a large number of very fine setules (“fine hairs”)

smsp - distal edge set with a large number of small short spinules (usually 18–20 or more)

n - distal edge set with *n* large broad spinules

uk - male unknown

na - not applicable

5. Male P2 and P4 Enp-2

n:n - number of setae and spines on P2 and P4

uk - male unknown

na - not applicable

6. Male P5

n:n - number of setae and spines on endopod and exopod

uk - male unknown

na - not applicable

KG 32

Female anal op	Female P2–P4 Enp-2 setae	Female P5 setae	Male anal op	Male P2 & P4 Enp-2 setae	Male P5 setae	
fh	3:5:2	6:5	na	na	na	*Attheyella* (*Chappuisiella*) *ruttneri* female[1]
fh	3:4:3	5:5	uk	uk	uk	*Elaphoidella aberrans*
fh	2:5:2	5:3	fh	2:2	2:3	*Afrocamptus uncinatus*
smsp	4:3:3	4:4(5?)[2]	13–17	3:2	0:3	*Elaphoidella dispersa*[2]
smsp	3:5:3	4:4	uk	uk	uk	*E. elegans*
smsp	3:5:3	4:3	smsp	3:2	0:2	*E. javaensis* [*sensu* Borutzky 1967]
smsp	3:5:3	4:3	smsp	2:2	0:2	*E. javaensis* [*sensu* Chappuis 1928b][3]
smsp	3:5:3	3:3	smsp	2:2	0:2	*E. pseudocornuta*[3]
smsp	2:5:2	4–5:5	smsp	2:1	2:3	*Attheyella* (*Chappuisiella*) *minuta*
≈20	?:?:3	4:3	uk	uk	uk	*Elaphoidella unidens*
≈16	3:5:3	4:3	uk	uk	uk	*E. cornuta*[3]
10–15	3:4:3	4:4	8–10	2:2	0:3	*E. crassicauda*
10–14	5:6:4	4:5	10–14	uk?	uk?	*E. bidens* s. str.[4]
≈15	4:5:2	6:5	na	na	na	*Attheyella* (*Chappuisiella*) *inopinata* female[1, 5]
10–12	4:5:2	6:5	10–12	4:2	2:3	*A.* (*Ch.*) *ilami*[5]
7–10	2:2:1	6:5	7–10	1:1	2:4	*A.* (*Canthosella*) *muscicola*
8	3–4:3–4:1	6:5	na	na	na	*A.* (*Ca.*) *antillica* female[1]
8	1:1:1	6:5	5	3:1	2:4	*A.* (*Ca.*) *fluviatilis*
7	2:3:1	6:5	uk	uk	uk	*A.* (*Ca.*) *lacustris*
4–6	4:4:2	6:5	4–6	4:2	0:4	*A.* (*Ca.*) *vera*
6	3:5:3	4:4–5	5	2:3	0–1:3–4	*Elaphoidella cliffordae*

6	2:2:1	6:5	6	1:2	2:4	*A.* (*Canthosella*) *silvicola*
5	3:4:5	6:5	uk	uk	uk	*A.* (*Ca.*) *pilagaensis*
3	4:4:2	6:5	3	3:2	0:4	*A.* (*Ca.*) *mervini*
uk	uk	uk	4	4:2	0:4	*A.* (*Ca.*) *striblingi*

1. See KG 56 (p. 323) for the male.
2. The outer edge of the female P5 exopod has a minute spine (spinule?) in the proximal half.
3. The male of *E. cornuta* is unknown. Unfortunately, Dumont & Maas (1988) do not compare *E. pseudocornuta* with *E. javaensis* and males cannot be separated on the basis of their published descriptions. Females of *E. cornuta* and *E. javaensis* are readily separated on the form of the caudal ramus, which has a large thorn-like seta on its inner edge in *E. cornuta* and a filiform seta in this location in *E. pseudocornuta*
4. The male of *E. bidens* may not exist as this species is known to reproduce parthenogenetically. Lowndes (1950) described a male and attributed it to this species, but doubts have been cast on its validity; see Hamond (1987: p. 1081) for a discussion.
5. Females of these species may be distinguished on (a) the form of the dorsal part of the hyaline frill, which is smooth (without ornamentation) in *A.* (*Ch.*) *ilami* and weakly serrated in *A.* (*Ch.*) *inopinata* and (b) in that seta IV of the caudal ramus is filiform in *inopinata* and has a bulbous base in *ilami.*

KG 33– characters

1. Anal operculum

naked - distal edge unornamented
fh - distal edge clothed with a large number of very fine setules or spinules ("fine hairs")
smsp - distal edge set with a large number of small short spinules (usually 18–20 or more)
lfsp:n - distal edge set with a number (*n*) of long fine spinules
lbsp:n - distal edge set with a number (*n*) of large broad spinules

2. Female antennule

n - number of segments

3. Female P2–P4 Enp-2

n:n:n - number of setae and spines on P2, P3 and P4

4. Female P5

d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod

5. Male P5

d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod
uk - male unknown

Fiers & Rutledge (1990) provide a dichotomous key to *Mesochra.*

KG 33

Anal operculum	Female A1 segs	Female P2–P4 Enp-2 setae	Female P5 setae	Male P5 setae	
naked	7	(5:5:5)	d:5:5	uk	*Mesochra sewelli*
naked	7	5:5:5	d:5:4	d:2:6	*M. meridionalis*[1]
naked	6	5:5:5	d:5:5	d:2:6	*M. pseudoparva*[1]
naked	6	5:5:5	d:5:5	f:2:5	*M. parva*[1]
naked	6	5:5:5	f:5:4	f:2:6	*M. wolskii*
naked	6	4:5:5	f:5:4	f:2:3	*M. lindbergi*
fh	7	4:5:5	f:5:3	f:2:4	*M. rostrata*
smsp	6	5:5:5	d:5:5	d:2:5	KG 33/2 (p. 299)
lfsp:11–13	6	5:5:5	f:5:6	f:2:5	*Ligulocamptus loffleri*
lbsp:6–11	7	4–5:5:5	d:6:5	d:3:6	*Mesochra aestuarii*

1. See also KG 33/1.

KG 33/1 – characters

1. P1 Enp-2, inner seta
   - long - approximately half the length of middle seta
   - short - much reduced, small and weak, much less than a quarter of the length of middle seta

2. P4, relative length of endopod and exopod
   - long - endopod extends to end of Exp-2
   - short - endopod extends only to about the middle of Exp-2

3. Female P3, relative length of endopod and exopod
   - long - endopod extends to halfway along Exp-3
   - medium - endopod extends to about a quarter of the way along Exp-3
   - short - endopod extends only to the end of Exp-2

4. Male P3 endopod
   - unmod - apparently unmodified—the species description states that male P1–P4 are as the female
   - apo - segment 2 apophysis not reaching middle of segment 3; segment 3 with 2 terminal setae only
   - apo+ - segment 2 apophysis reaches almost to end of segment 3; segment 3 with 2 terminal setae and with 2 claw-like spines that originate together in the distal half of the inner side (note that these are rather transparent and may be difficult to see in bright field microscopy)

5. Male P5 exopod, seta III
   - spiniform - a long stout spine
   - filiform - a very slender filiform seta

KG 33/1

P1 Enp-2 inner seta	P4 Enp/Exp	Female P3 Enp/Exp	Male P3 Enp	Male P5 seta III	
long	short	short	apo+	filiform	*Mesochra pseudoparva*[1]
short	short	medium	unmod	spiniform	*M. meridionalis*[1]
short	long	long	apo	filiform	*M. parva*[1]

1. The female of *Mesochra meridionalis* and the male of *M. parva* separate out in KG 33 (p. 297). This key serves to distinguish between females of *M. parva* and *M. pseudoparva* and males of *M. pseudoparva* and *M. meridionalis.*

KG 33/2 – characters

1. Caudal ramus, seta IV
   long - more than 3 times the length of caudal ramus; filiform, bipinnate
   short - less then 3 times the length of caudal ramus; incurved medially, dentate at apex

2. P2–P4 Enp-1, inner edge
   n:n:n - number of setae on P2, P3 and P4

3. Female P5 endopod, seta V
   long - well developed, bipinnate; longer than seta III and more than half the length of seta IV
   short - small, plain; shorter than seta III, only about a quarter of the length of seta IV

4. Male P3 Enp-2, apophysis
   present *or* absent

KG 33/2

CR seta IV	P2–P4 Enp-1 inner setae	Female P5 Enp seta V	Male P3 Enp-2 apophysis	
long	1:1:1	long	present	*Mesochra pacifica*
short	0:0:1	short	absent	*M. suifunensis*

KG 34 – characters

1. P1 Enp-2
   n - number of setae

2. P2–P4 Enp-2
   n:n:n - number of setae

3. Female antennule, pinnate setae
   present *or* absent

4. Female P5

d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod

KG 34

P1 Enp-2 setae	P2–P4 Enp-2 setae	Female A1 spines	Female P5	
4	5:5:4	absent	d:4:5	*Pusillargillus nixe*
3	5:5:5	present	f:4:4	*Boreolimella nympha*[1]

1. Male unknown.

KG 35 – characters

1. Anal operculum

n:n - number of large, broad spinules on distal edge in female and male

2. Female P2–P4 Enp-2

n:n:n - number of setae and spines on P2, P3 and P4

3. Female P5

n:n - number of setae and spines on endopod and exopod

4. Male P2 and P4 Enp-2

A - terminal setae P2 short, spiniform; outer edge of P4 with a small spinule on a definite break in the contour of the edge

B - terminal setae P2 slender, outer seta thin, filiform, inner seta stouter and bispinose; outer edge of P4 straight, smooth, asetose

C - terminal setae P2 very long (extending beyond end of Exp-3); 1 terminal seta is finger-like and appears to be fused to segment edge; outer edge of P4 convex distally and with a group of 3 spinules

KG 35

Anal operculum	Female P2–P4 Enp-2 setae	Female P5 setae	Male P2 & P4 Enp2 setae	Male P2 & P4 Enp-2	
3–8:3–5	3:3:2–3	3:3	3:2	A	*Gulcamptus alaskaensis*[1]
3–6:3–5	2:4:3	3:3	3:2	B	*G. laurentiacus*[1]
2–3:2	3:3:2	3:3	3:2	B	*G. yoichiensis*[1]
2:2[1]	3:3:2	2:3	4:2	C	*G. uenoi*[1, 2]

1. The species of *Gulcamptus*, and especially the males, are difficult to separate. Consult Reid & Ishida (1996) for a discussion and comparison of the species.
2. Anal operculum has a fused spine (or unguiform projection ?) at each end, giving the structure a concave contour. In all other species the spinules are located centrally.

KG 36 – characters

See introduction to KG 13 (p. 259) for a note on the complexities of identifying species of *Elaphoidella*.

1. Female P2–P4 Enp-2
   n:n:n - number of setae and spines on P2, P3 and P4

2. Female P5
   d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod

3. Male P2 and P4 Enp-2
   n:n - number of setae and spines on P2 and P4

4. Male P5
   d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod
   na - not applicable

5. Male P4 Exp-3
   unmod - without pronounced modifications; setae and spines all normal in shape and form
   III - seta III (the internal terminal spine) modified—heavily sclerotised, with long and often contorted teeth
   III–IV - both setae III and IV (the outer terminal spine) modified
   na - not applicable

KG 36

Female P2–P4 Enp-2 setae	Female P5 setae	Male P2 & P4 Enp-2 setae	Male P5 setae	Male P4 Exp-3 setae	
4:5:2	f:4:5	4:2	f:3:4–5	unmod	*Cletocamptus retrogressus*
3:4:4	d:4:5	2:2	d:0:4	unmod	*Elaphoidella hirsuta*
3:3:3	d:4:5	2:2	d:0:4	III–IV	*E. insularis*
3:3:3	d:3:3	3:3	d:0:3	unmod	*E. cottarellii*
3:3:2	f:6:5	3:2	d:3:5	unmod	*Cletocamptus deitersi* [*sensu* Richard 1897][1]
2–3:2–3:2	d:4:5	2:2	d:0:4	III	*Elaphoidella spinosa*
1:2:1	d:4:5	3:2	d:0:4	III–IV	*E. crenobia*
na	na	1:2	d:0:2	III–IV	*Paramorariopsis anae* male[2]

1. *Cletocamptus deitersi* is included in this key only because of a difficulty in interpreting Richard's description. His illustration of A2 exopod shows it to have 2 segments, with 1 seta on segment 1 and 3 on segment 2. His text is confusing in that he states it has only 1 segment, but his description of the location of the exopodal setae is more consistent with the illustration. See introduction to KG 37 (p. 302) for further discussion of this species.
2. See KG 0 (p. 202) for female.

KG 37 – characters

It is very difficult to derive a key to these species of *Cletocamptus.* They are very similar morphologically and the situation is complicated by the large amount of variability described under the name of *C. deitersi*.

Until recently *C. deitersi* has been regarded as a variable species, widespread in inland saline habitats and in coastal estuaries and mangroves, especially within the Americas (Patagonia to Mexico, Bermuda and within the USA from Louisiana, Alabama, South Carolina and New England) but also from Ethiopia, Iran, India, Malaysia, China, Australia and Hawaii.

Variability in several morphological characters within a small locality has often been reported, as has occasional variation within an individual. But Rocha-Olivares, Fleeger & Foltz (2001) present an irrefutable case for regarding "*C. deitersi*" as a collection of groups of closely related species. Some of these are now being defined and described as new species (Gómez, Fleeger, Rocha-Olivares & Foltz 2004). Gómez *et al*. (2004) suggest *C. deitersi* cannot be defined on the basis of the totally inadequate original description and that all current synonyms and records of the species are dubiously included in *C. deitersi* [see Checklist Note 297 (p. 94)]. However, they also acknowledge that many of the records may be of new species closely morphologically similar to *C. deitersi.* For that reason I continue to include them in this key as a guide to users.

1. Female P2–P4 Enp-2
   n:n:n - number of setae and spines on P2, P3 and P4

2. Female P5*
   n - total number of setae and spines on P5

* Exopod is never distinct from a baseoendopod whose outer lobe usually is indistinguishable.

3. Male P2 and P4 Enp-2
   n:n - number of setae and spines on P2 and P4
   uk - male unknown

4. Male P5*
   n - total number of setae and spines on P5
   uk - male unknown

* Exopod is never distinct from a baseoendopod whose outer lobe usually is indistinguishable.

5. Antenna exopod
   n:n - number of segments: number of setae (it is essential to distinguish between setae and setules)

KG 37

Female P2–P4 Enp-2 setae	Female P5 setae	Male P2 & P4 Enp2 setae	Male P5 setae	A2 Exp	
4:4:4	9	uk	uk	1:2	*Boreolimella dubia*
4:5:2	12	4:2	8	1:3	*Cletocamptus ecuadorianus*
4:5:2	12(11?)	4:2	8	?	*C. deitersi* [*sensu* Daday 1902]
4:5:2	11	4:2	8–9	1:2	*C. retrogressus*[1]

3–4:5:2	12	3:2	8	1:3	*C. stimpsoni*
3:5:2	12	3:2	8	1:3	*C. deitersi* [*sensu* Herbst 1960]
3:5:2	12	uk	uk	1:3	*C. gabrieli*
3:5:2	11	3:2	8	1:3	*C. deitersi* [*sensu* Kiefer 1936]
3:5:2	11	3:2	8	1:2	*C. bermudae*
3:5:2	11	3:2	8	?	*C. brehmi*
3:5:2	11	uk	uk	1:2	*C. deitersi* [*sensu* Hamond 1973c]
3:5:2	10	3:2	7	1:2	*C. deitersi* [*sensu* Dussart 1974]
3:3:2	12	3:2	8	1:2	*C. schmidti, C. deitersi* [*sensu* Suárez Morales, Reid, Iliffe, & Fiers 1996]
3:3:2	11–12	3:2	7	1:2–3	*C. bicolor*[2]
3:3:2	12	uk	uk	1:2	*C. nudus*

1. Data mostly from the redescription by Mielke (2001a). *C. retrogressus* is also distinguished by the caudal rami in which setae IV and V are fused at their base (note this is easily seen in females but is less noticeable in males).
2. Data from the redescription by Yeatman (1963).

KG 38 – characters

1. Female anal operculum
   - n - number of spinules on distal edge
   - 0 - operculum naked, without ornamentation

2. Female P2–P4 Enp-2
   - n:n:n - number of setae and spines on P2, P3 and P4

3. Male anal operculum
   - n - number of spinules on distal edge
   - 0 - operculum naked, without ornamentation

4. Male P2 and P4 Enp-2
   - n:n - number of setae and spines on P2 and P4

5. Male P2 and P4 Enp-1, inner edge
   - n:n - number of setae on P2 and P4

KG 38

Female anal operculum spines	Female P2–P4 Enp-2 setae	Male anal operculum spines	Male P2 & P4 Enp-2 setae	Male P2 & P4 Enp-1 inner setae	
14–15	4:5:5	14–15	3:3	1:0	*Bryocamptus* (*Arcticocamptus*) *abnobensis*
13	4:5:4	8	3:4	1:0	*B.* (*A.*) *arndti bogomilis*
13	4:4:5	11	3:4	1:0	*B.* (*A.*) *arndti* s. str.
12	4:5:5	7–12	3:4	1:0	*B.* (*A.*) *macedonicus*[1]
5–10	4:5:5	5–10	3:3	0:0	*B.* (*A.*) *rhaeticus* s. str.
7–10	4:5:4	≈8	2:3	0:0	*B.* (*A.*) *laccophilus*[1]

5–10	3:3:5	5–10	3:3	1:0	*B.* (*A.*) *rhaeticus bavaricus*[2]
8	3:5:5	6	3:4	1:0	*B.* (*A.*) *krochini*
9	4:5:4	6–8	3:4	1:0	*B.* (*Bryocamptus*) *subarcticus*[3]
0	3:2:3	0	3:3	1:0	*B.* (*Limocamptus*) *parvus*[3]

1. These species may also be distinguished by the ornamentation of the abdomen somites. In *B. macedonicus* the spinule row at the distal edge of each somite is complete across the dorsum; in *B. laccophilus* it is incomplete.
2. The male P5 exopod bears 6 setae and spines. All other species in this key, except possibly *B. krochini*, have only 5.
3. These species may be distinguished from all others in this key by the 1-segmented palp of the mandible—in the other species there are 2 segments.

KG 39 – characters

1. Anal operculum, ornamentation of distal edge
   - fh - a large number of very fine setules ("fine hairs")
   - smsp - a large number of very small spinules
   - losp - 13–20 long spinules

2. Female P2–P4 Enp-2
   - n:n:n - number of setae and spines on P2, P3 and P4
   - uk - female unknown

3. Female P5
   - n:n - number of setae and spines on endopod and exopod
   - uk - female unknown

4. Male P2 and P4 Enp-2
   - n:n - number of setae and spines on P2 and P4

5. Male P5
   - n:n - number of setae and spines on endopod and exopod

KG 39

Anal operculum	Female P2–P4 Enp-2 setae	Female P5 setae	Male P2 & P4 Enp-2 setae	Male P5 setae	
losp	4:5:5	5–6:6–7	3:4	2:5–6	*Bryocamptus* (*Arcticocamptus*) *arcticus*
losp	4:5:4	6:5	1:0	2:5	*B.* (*A.*) *arndti bogomolis*
losp	4:4:5	6:5	1:0	2:5	*B.* (*A.*) *arndti* s. str.
smsp	2:3:2	4:4	2:3	0:3	*Elaphoidella einslei*
fh	4:5:5	6:6	3:4	2:5	*Bryocamptus* (*A.*) *tikchikensis*
fh	uk	uk	1:2	?	*Elaphoidella dubia*
?	5:5:3	5:4	5:3	1:3	*Leimia vaga*

KG 40 – characters

1. Female P2–P4 Enp-2
   - n:n:n - number of setae and spines on P2, P3 and P4
   - uk - female unknown

2. Female P2–P4 Enp-1, inner edge
   - n:n:n - number of setae on P2, P3 and P4
   - uk - female unknown

3. Female P5
   - n:n - number of setae and spines on endopod and exopod
   - uk - female unknown

4. Male P2–P4 Enp-2
   - n:n:n - number of setae and spines on P2, P3 and P4
   - uk - male unknown

5. Male P2 and P4 Enp-1, inner edge
   - n:n - number of setae on P2 and P4
   - uk - male unknown

6. Male P5
   - n:n - number of setae and spines on endopod and exopod
   - uk - male unknown

KG 40

Female P2–P4 Enp-2 setae	Female P2–P4 Enp-1 inner setae	Female P5 setae	Male P2 & P4 Enp-2 setae	Male P2 & P4 Enp-1 inner setae	Male P5 setae	
5:5:5	1:1:1	5:4	uk	uk	uk	*Mesochra dulcicula*
2:2:2	1:1:1?	2:4	1:2	1:0	2:4	*Ceuthonectes chappuisi*[1]
2:2:2	0:0:0	2:4	2:2	0:0	2:4	*C. rouchi*[1]
uk	uk	uk	1:2	1:1	2:5	*C. pescei*[1]

1. Apostolov (2002b) provides a dichotomous key to *Ceuthonectes.*

KG 41 – characters

1. Anal operculum, ornamentation of distal edge
   - fh - a large number of very fine setules (“fine hairs”)
   - n - number of long stout spinules
   - naked - without ornamentation

2. P1 Enp-1, inner edge
   - n - number of setae

3. Female P5*

n:n:(n) - number of setae and spines on endopod and exopod: (total number of setae and spines)

uk - female unknown

* The pair of P5 form a single plate—though each P5 is still recognisable—in which endopod and exopod portions are recognisable but where the outer lobe of the basis often is unrecognisably fused with the exopod.

4. Male P5

character states as for female

5. Male P2 Enp-1

A - approximately square, length approximately equal to breadth; about twice as long and twice as broad as Enp-2; distal outer corner with 3 stout spinules

B - as A but outer distal corner with only 2 spinules

C - rectangular, long, slender, nearly twice as long as broad; about 1.5 times as long and twice as broad as Enp-2; distal outer corner with 2 spinules

D - sub-ovoid with distal edge narrower than base, slightly broader than long; slightly less than twice as long as Enp-2 and twice as broad; outer distal corner with 3 spinules

E - parallel sided but sinuously curved so that proximal part is more medial than distal part, long and broad, about 1.5 times as long as broad; 4 times as long and more than twice as broad as Enp-2; outer distal corner with 2 spinules

uk - male unknown

Apostolov (2002b) provides a dichotomous key to *Ceuthonectes.*

KG 41

Anal operculum	P1 Enp-1 inner setae	Female P5 setae	Male P5 setae	Male P2 Enp-1	
naked	1	3:5(9)	uk	uk	*Ceuthonectes boui*
naked	1	2–3:4:(7–8)	2:4:(7)	D	*C. gallicus*[1]
naked	0	2–3:5:(8–9)	2:5:(8)	A	*C. petkovskii*
naked	?	uk	2:4:(7)	E	*C. hungaricus*
2	0	2:4:(7)	2:4:(7)	C	*C. vievilleae*
fh	1	note 2	2:4–5:(7–8)	B	*C. serbicus*[2]
fh	1	5:4:(10)	2:4:(7)	A	*C. haemusi*

1. Data from the redescription by Rouch (1980).
2. Includes *Morariodes colchidiana*, which is considered a synonym by Borutzky (1952). Female P5 has been recorded with a variety of setation patterns—3:5:(9), 5:4:(10) and 5:5:(11) (see Borutzky 1952 and Lang 1948).

KG 42 – characters

1. Abdomen somites 3–4, ornamentation at distal edge

A - female and male—spinules continuous ventrolateral to ventrolateral across dorsum; no spinules midventral (female and male alike)

B - female (male unknown)—somite 3 with spinules continuous from ventrolateral to ventrolateral across venter; no spinules dorsally; somite 4 similar but the row is not quite complete across venter

C - circumsomitic in both somites of female and on male somite 3; male somite 4 with a dorsal gap

D - circumsomitic in both somites of female and male

2. Female caudal ramus, setae IV and V*

filiform - both setae long and filiform

bulb - both setae reduced to small bulb-shaped structures

* Male setae always long and filiform

3. Female P5

n:n - number of setae and spines on endopod and exopod

4. Male P2 and P4 Enp-2

n:n - number of setae and spines on P2 and P4

uk - male unknown

KG 42

Abdomen som 3–4	Female CR setae	Female P5 setae	Male P2 & P4 Enp-2 setae	
A	filiform	6:5	3:4	*Bryocamptus* (*Arcticocamptus*) *caucasicus*
B	filiform	6:5	uk	*B.* (*A.*) *modernus*
C	bulb	5:5	3:5	*B.* (*A.*) *alpestris*
D	filiform	6:5	3:2	*Cletocamptus deitersi* [*sensu* Richard 1897][1]

1. *Cletocamptus deitersi* is included in this key only because of a difficulty in interpreting Richard's description. His illustration of A2 exopod shows it to have 2 segments, with 1 seta on segment 1 and 3 on segment 2. His text is confusing in that he states that it has only 1 segment, but his description of the location of the exopodal setae is more consistent with the illustration. See introduction to KG 37 (p. 302) for further discussion of this species.

KG 43 – characters

1. Female P2–P4 Enp-2

n:n:n - number of setae and spines on P2, P3 and P4

na - not applicable

2. Female P5 exopod

A - all setae very long; approximately equal in length

B - setae II–V very long and approximately equal in length; seta I about half the length of other setae

C - seta III much shorter than all others

na - not applicable

3. Male P2 and P4 Enp-2

n:n - number of setae and spines on P2 and P4

4. Male P5
   d - exopod distinct from basis
   f - exopod fused to basis

5. Male P5
   n:n - number of setae and spines on endopod and exopod where these parts these can be distinguished
   n - total number of setae and spines on P5 where exopod and endopod cannot be distinguished

KG 43

Female P2–P4 Enp-2 setae	Female P5 Exp setae	Male P2 & P4 Enp-2 setae	Male P5	Male P5 setae	
2:2:2	B	3:3	d	2:5	*Paracamptus reggiae*
2[1]:1:1	C	2:2	d	2:5	*P. gasparoi*[1]
1:1:1	A	2:3	d	2:4	*P. baikalensis*
1:1:1	C	2:2	d	2–3:5	*P. schmeili, P. gasparoi*[2]
na	na	3:2	f	8	*Cletocamptus feei* male[3]

1. According to Stoch (1998b) P2 Enp-2 bears "one terminal pinnate spine … and one short and curved inner subdistal spinule", but this "spinule" is very stout and confirmation is required that it is not a true seta or spine.
2. According to Stoch (1998b) female *P. gasparoi* differ from *P. schmeili* in the "shape and unusual ornamentation of the furcal rami" while the male rami are "quite similar in both species". *Paracamptus schmeili* is noted for its variability but Stoch (1998b) considers it more probable that it respresents "a complex of closely related species".
3. See KG 0 (p. 202) for the female.

KG 44 – characters

1. Caudal ramus, setae IV and V
   distinct *or* fused at their base

2. Female P2–P4 Enp-2
   n:n:n - number of setae and spines on P2, P3 and P4
   na - not applicable

3. Female P5
   n - total number of setae on P5
   na - not applicable

4. Male P5*
   A - exopod distinct from basis
   B - exopod fused to basis but demarcated from endopod by a cleft
   C - P5 a single plate; exopod and endopod are barely distinguishable

* P5 always has 3 setae and spines on endopod and 4 on exopod, within a total of 8.

5. Male P3 endopod
   A - 2 segments; outer apical seta of Enp-2 extends to about end of Exp-3
   B - 3 segments; outer apical seta of Enp-3 does not reach end of Exp-2

C - 3 segments; outer apical seta of Enp-3 extends beyond Exp-2 but does not reach end of Exp-3
D - 3 segments; outer apical seta of Enp-3 extends far beyond end of Exp-3

KG 44

CR setae	Female P2–P4 Enp-2	Female P5 setae	Male P5	Male P3 Enp	
fused	3:5:2	12	C	A	*Cletocamptus albuquerquensis*[1]
fused	na	na	B	D	*C. feei* male[2]
distinct	4:5:2	12	C	B	*C. trichotus*
distinct	3:5:2	12	B	C–D	KG 44/1
distinct	3:3:2	12	B	D	KG 44/2
distinct	3:3:2	11	A	D	*Cletocamptus bicolor*

1. Data from the redescription by Pallares (1962).
2. See KG 0 (p. 202) for the female.

KG 44/1 – characters

1. P.1 Enp-2, inner edge
   n - number of setae

2. P3 Enp-2, middle seta on inner edge
   wd - well developed
   rud - rudimentary

3. Male P3 endopod
   short - outer apical seta of Enp-3 extends beyond Exp-2 but does not reach end of Exp-3
   long - outer apical seta of Enp-3 extends far beyond end of Exp-3

KG 44/1

P1 Enp-2 inner seta	P3 Enp-3 seta	Male P3 Enp	
1	wd	long	*Cletocamptus gravihiatus*[1]
1	wd	short	*C. affinis*[1]
0	rud	short	*C. mongolicus*

1. The descriptions of these species are not complete enough to enable separation of the females with any confidence.

KG 44/2 – characters

This key does not adequately separate these species, which are distinguished on very small, but consistent, differences. Consult Gómez, Fleeger, Rocha-Olivares & Foltz (2004) and Gómez (2005) to confirm identification.

1. Anal operculum, distal edge
spinulose - with well developed, relatively long spinules; there may be 1 or 2 rows of spinules at or very close to the distal edge
naked - without ornamentation or with minute spinules

2. Female P2–P4 Enp-2
n:n:n - approximate ratios of maximum length to maximum breadth

3. Male P2 and P4 Enp-2
n:n - approximate ratios of maximum length to maximum breadth

4. P1, relative length of exopod and endopod
long - endpod extends to approximately the end of exopod
short - endopod extends only to approximately halfway along Exp-3

5. Female P5, relative length of exopod and endopod lobe of baseoendopod
long - exopod extends approximately to the origin of endopod seta VI
short - apex of exopod well proximal to origin of endopod seta VI

KG 44/2

Anal operculum	Female P2–P4 Enp-2 l/b	Male P2 & P4 Enp-2 l/b	P1 Exp/Enp	Female P5 Exp/Enp	
spinulose	3:3:3.5	3:?	short	short	*Cletocamptus axi*
spinulose	2.5:2:2	3:3	long	short	*C. deborahdexterae*
spinulose	2.5:2:2	2.5:2.5	long	short	*C. sinaloensis*
spinulose	2.5:2:2	2.5:2.5	short	long	*C. levis*
naked	2.5:2:2	2.5:3	long	short	*C. fourchensis*

KG 45 – characters

1. Caudal ramus, in dorsal or ventral view
n:n - ratio of maximum length to maximum breadth in female and male
uk - male or female unknown

2. Anal operculum, shape
arcuate - rounded or semilunar
triang - triangular, with rounded apex

3. Female P2–P4 Exp-2, inner edge
n:n:n - number of setae and spines on P2, P3 and P4

4. Female P2–P4 Enp-2
n:n:n - number of setae and spines on P2, P3 and P4

5. Male P2 and P4 Enp-2
n:n - number of setae and spines on P2 and P4
uk - male unknown

Lewis (1972b) provides a dichotomous key to *Antarctobiotus* that excludes only *A. bahamondei.*

KG 45

CR l/b	Anal operculum shape	Female P2–P4 Exp-2 inner setae	Female P2–P4 Enp-2 setae	Male P2 & P4 Enp-2 setae	
4:4	arcuate	0:0:0	4:3:4	3:5	*Antarctobiotus longifurcatus*
3.5:4	arcuate	0:0:0	3:3:4	3:4	*A. muscicolus*
2:6	arcuate	0:0:0	4:3:4	3:4	*A. sphagnicola*[1]
2.5:uk	arcuate	0:0:1	3:3:4	uk	*A. kummerworum*
2:2	arcuate	1:1:1	4:3:4	3:3	*A. neotropica*[2]
1.4:1.4	arcuate	1:1:1	3:2:3	2:4	*A. ringueleti*
1.3:1.3	arcuate	0:0:0	4:3:3	3:3	*A. robustus*[3]
4:5–6	triang	0:0:0	4:3:4	3:4	*A. adocetus*
1.7:1.7	triang	1:1:1	3:2:3	2:3	*A. koenigi*

1. The caudal ramus of the female *A. sphagnicola* is a broad pyriform lamella, narrowest at its base. In the male and in all other species in this key the ramus is almost cylindrical or conical, and widest at the base.
2. Data from Rouch (1962) as *A. rapoporti.*
3. Data from the redescription by Chappuis (1940a).

KG 46 – characters

1. P1, relative length of endopod and exopod
long - endopod extends beyond end of Exp-3
short - endopod does not reach end of Exp-3

2. Female P2–P4 Enp-2
n:n:n - number of setae and spines on P2, P3 and P4

3. Female P5, relative length of exopod and endopod
long - exopod extends beyond end of endopod
short - exopod does not reach end of endopod

4. Male P2 and P4 Enp-2
n:n - number of setae and spines on P2 and P4

Lewis (1972b) provides a dichotomous key to *Antarctobiotus* that excludes only *A. bahamondei.*

KG 46

P1 Enp/ Exp	Female P2–P4 Enp-2 setae	Female P5 Exp/Enp	Male P2 & P4 Enp-2 setae	
long	4:3:3	short	2:3	*Antarctobiotus ignobilis*
short	3:4:4	short	2:3	*A. exiguus*
short	3:4:3	long	3:3	*A. australis*

KG 47 – characters

1. Female P2–P4 Enp-2
   n:n:n - number of setae and spines on P2, P3 and P4
   na - not applicable

2. Female P5
   n:n - number of setae and spines on endopod and exopod
   na - not applicable

3. Male P2 and P4 Enp-2*
   n:n(+n) - number of setae and spines on P2 and P4(+ the number of spinules on outer edge of P4)
   na - not applicable

* I have assumed that all structures on the outer edge of P4 proximal to the immediate sub-apical position are spinules and not true spines. Descriptions usually describe them as spines but it is not always clear from illustrations that this is the case and the presence of true spines in this location is most unusual in harpacticoids.

4. Male P5
   n:n - number of setae and spines on endopod and exopod
   na - not applicable

KG 47

Female P2–P4 Enp-2 setae	Female P5 setae	Male P2 & P4 Enp-2 setae	Male P5 setae	
4:5:4	6:5	3:5(+3)	2:5	*Moraria duthiei*
4:4:4	6:5	2:5(+2)	2:5	*M. tsukubaensis*[1]
4:4:4	6:5	2:5(+0)	2:5	*M. bureschi*[1]
3:4:4	6:5	?:2(3?)(+0)	2:5	*M. laurentiaca*
3:3:4	6:5	2:?	2:4	*M. similis*
3:3:3	6:5	2:4(+0)	2:5	*M. affinis*
2:2:2	6:5	1:4(+2)	2:5	*M. stankovitchi*
1:2:1	2:4	na	na	*Elaphoidella crenobia* female[2]
na	na	2:4(+2)	2:4–5	*Morariopsis dumonti* male[3]

1. These species are extremely similar and comparisons are made more difficult by the difference in quality of the descriptions by Bassamacov & Apostolov (1976) and Kikuchi (1991b). It is essential a final determination is made by direct comparison with both descriptions.
2. See also KG 36 (p. 301).
3. See KG 0 (p. 202) for the female.

KG 48 – characters

1. Female P2–P4 Enp-2
   n:n:n - number of setae and spines on P2, P3 and P4

2. Male P2 and P4 Enp-2
   n:n - number of setae and spines on P2 and P4

3. Male P5
   n:n - number of setae and spines on endopod and exopod

KG 48

Female P2–P4 Enp-2 setae	Male P2 & P4 Enp-2 setae	Male P5	
3:2:3	2:3	2:4	*Antarctobiotus elongatus*
2:2:2	2:4	3:5	*A. triplex*

KG 49 – characters

1. Female P2–P4 Enp-2
   n:n:n - number of setae and spines on P2, P3 and P4

2. Female P5
   n:n - number of setae and spines on endopod and exopod

3. Male P2 Enp-2, form of terminal setae
   normal - 2 plumose filiform setae that extend to just beyond the distal edge of Exp-3
   modified - 1 plumose filiform seta and 1 contorted finger-like structure that appears to be fused to the segment edge; both elements very long, extending almost to the end of the terminal setae of Exp-3

4. Male P3 Enp-3, form of terminal setae
   normal - 1 naked filiform seta and 1 blunt ending tubular seta
   modified - 1 blunt ending tubular seta and 1 heavily chitinised contorted spine

KG 49

Female P2–P4 Enp-2 setae	Female P5 setae	Male P2 Enp-2 setae	Male P3 Enp-3 setae	
3:4:3	3:3	normal	normal	*Gulcamptus jesoanus*
3:3:2	2:3	modified	modified	*G. uenoi*

KG 50 – characters

1. Female antennule
   n - number of segments

2. Female P2–P4 Enp-2
   n:n:n - number of setae and spines on P2, P3 and P4

3. Female P5
   n:n - number of setae and spines on endopod and exopod

KG 50

Female A1 segs	Female P2–P4 Enp-2 setae	Female P5 setae	
7	2:2:2	5:5	*Moraria stankovitchi*
6	3:3:3	6:5	*M. ilami*[1]

1. Male unknown.

KG 51 – characters

1. Dorsal part of hyaline frill of abdominal somites
   serrate *or* smooth

2. Anal operculum, shape
   lunar - shallow semilunar; operculum extends to the end of the anal somite at most
   round - operculum long, extending to middle of caudal ramus at least; parallel sides and a shallow rounded distal edge
   triang - triangular, extending to beyond the end of the anal somite

3. Female P2–P4 Enp-2
   n:n:n - number of setae and spines on P2, P3 and P4
   uk - female unknown

4. Male P5
   n:n - number of setae and spines on endopod and exopod
   uk - male unknown

5. Male P2 Enp-1, outer edge
   extrusion - with a massive, heavily sclerotised extrusion that terminates in a conical projection from the outer distal corner
   dentate:n - with *n* large, broad, blunt teeth; small spinules may also be present
   spinulose - with 1 or more small spinules only
   uk - male unknown

KG 51

Hyaline frill	Anal operculum shape	Female P2–P4 Enp-2 setae	Male P5 setae	Male P2 Enp-1	
serrate	lunar	4:4:4	2:5	dentate:1	*Moraria subterranea*
serrate	lunar	3:4:3	2:4-5	dentate:1	*M. mrazeki macedonica*
serrate	lunar	3:3:3	2:5	dentate:2	*M. cristata*[1]
serrate	lunar	2:3:3	2:5	dentate:2	*M. hudsoni*[1]
serrate	triang	3:3:3	2:5	extrusion	*M. poppei* [*sensu* Donner 1928, Kiefer 1928][2]
serrate	triang	3:3:3	2:5	spinulose	*M. poppei* [*sensu* Chappuis 1929][2]
smooth	lunar	4:4:4	2:6	extrusion	*M. terrula*
smooth	triang	4:3:3	uk	uk	*M. virginiana*
smooth	triang	uk	2:5	dentate:2	*M.valkanovi*
smooth	round	3:4:4	2:5	?	*M. laurentiaca*
smooth	lunar	3:3–4:3–4[3]	2:5	spinulose	*M. mrazeki* s. str.[3]

1. In *M. hudsoni* the spinule rows on the abdomen somites are circumsomitic; in *M. cristata* they are ventral only.
2. A high degree of variability is reported for *M. poppei* in many characteristics, but the variations in male P2 are severe and probably indicate this is a species complex. In addition to the variations given here the setation of P4 Enp-2 and the form of the setae on P2 Enp-2 differs radically between these authors. See Gurney (1932) and Lang (1948) for discussions.
3. All combinations have been recorded.

KG 52 – characters

1. Dorsal part of hyaline frill of abdominal somites
   serrate *or* smooth

2. Anal operculum, shape
   lunar - shallow semilunar; operculum extends to the end of the anal somite at most
   triang - triangular, extending to beyond the end of the anal somite

3. Female antennule
   n - number of segments

4. Female P5
   n:n - number of setae and spines on endopod and exopod

KG 52

Hyaline frill	Anal operculum	Female A1 segs	Female P5 setae	
smooth	lunar[1]	7	6:5	*Moraria arctica*[1, 2]
smooth	triang	7	6:5	*M. brevipes*
serrate	triang	7	6:4	*M. poppei*
smooth	triang	8	5:4	*Antarctobiotus bahamondei*[2]

1. Anal operculum also bears 7–8 spinules.
2. Male unknown.

KG 53 – characters

1. Caudal ramus
   - A - cylindrical or tapering, distal portion may be rounded but apex always truncate; with 2 well developed, terminal setae always at least approximately as long as the ramus
   - B - straight sided, rounded distally, apex rounded; terminal setae very small, much shorter than the ramus

2. Anal operculum
   - lunar 1 - shallow semilunar, not extending to end of anal somite; distal edge with about 10 spinules
   - lunar 2 - shallow semilunar, extending to end of anal somite; distal edge naked
   - hyaline - shallow semilunar, not extending to end of anal somite but with an underlying hyaline extension that extends to about a quarter of the length of the caudal ramus; distal edge of true operculum may have fine setules
   - triang - triangular, extending beyond end of anal somite; naked

3. Female P2–P4 Enp-2
   - n:n:n - number of setae and spines on P2, P3 and P4

4. Female P5
   - n:n - number of setae and spines on endopod and exopod

5. Male P5
   - n:n - number of setae and spines on endopod and exopod
   - uk - male unknown
   - na - not applicable

6. Male P4 Enp-2
   - pigtail - with a seta that is permanently bent or twisted into a hook, or like a corkscrew or pigtail
   - tooth - with a dentiform seta at outer distal corner that is directed across the segment towards the inner edge
   - normal - without such a seta, all setae normal, filiform or spiniform
   - uk - male unknown
   - na - not applicable

KG 53

CR	Anal operculum	Female P2–P4 Enp-2 setae	Female P5 setae	Male P5 setae	Male P4 Enp-2	
A	lunar 2	3:4:2	6:4	2:4	tooth	*Moraria michielettoae*
A	hyaline	3:3:3	6:6	na	na	*M. jana* female[1]
A	hyaline	3:3:3	6[2]:5	2:5	pigtail	*M. varica*[2]
A	triang	4:4–5:4	6:5	2:5	normal	*M. bureschi*
A	triang	3:4:4	note 3	2:5(6?)[3]	pigtail	*M. radnovae*[3]
A	triang	3:3:3–4	6:5	2:5	pigtail	*M. pectinata*[4]
A	triang	2:4:4	6:5	2:5	pigtail	*M. alpina*
A	triang	1:2:2	5:4	2:4	pigtail	*M. operculata*
B	lunar 1	3:3:3	6:5	uk	uk	*M. coronata*

1. Data from 1 female out of 23 found. See KG 54 (p. 317) for the male and for more data on the female.
2. P5 endopod may bear spinules in addition to the 6 well developed, long setae. For example, Gurney (1932) describes a spinule at the base of setae III and IV and at the outer distal corner and Pesce (1984b) has 1 rather large spinule at the outer distal corner. It is unlikely that these are true setae or spines as the P5 endopod seldom bears more than 6 setae in harpacticoids.

   Ishida (1987) assigns Japanese material to *M. varica* but there are considerable differences in the P5 and other characters that probably exclude this material form this species. It seems most likely that *M. varica* is confined to Europe—from Germany and Switzerland in the north to Spain and Italy in the south and Bulgaria in the east.
3. (a) The female P5 setae are short and spiniform and difficult to distinguish from accessory spinules. Brancelj (1988) gives the setation as 9:6–7 and Stoch (1998) as 7:4.

   (b) Brancelj (2001) states there are "5 spines" while Stoch (1998) states there are "6 setae of different length". In both descriptions setae I–III occupy similar positions but Stoch describes a small, weak seta (which could actually be a long setule or spinule) between setae IV and VI, which themselves are widely separated. Brancelj's illustration shows 2 spines (IV and V) originating close to each other at a site similar to that of seta VI of Stoch and no setae or setules between these and the origin of seta III.
4. Data from the original description and the redescription by Apostolov (2001c).

KG 54

Because a large number of characters is required to separate the species, separate keys are provided for females and males (p. 319).

KG 54(female) – characters

1. Caudal ramus, terminal setae

2wd	-	with 2 well developed, terminal setae, each longer than the ramus
1wd	-	with only 1 terminal seta that is longer than the ramus
2short	-	with 2 short, spiniform setae, equal in length and much shorter than the ramus
reduced	-	middle terminal seta reduced to a small, wide based, filiform setae not much longer than the other setae and very much shorter than the ramus
bulb	-	middle (or only) terminal seta transformed to a small bulb no longer than the other setae and very much shorter than the ramus

2. Anal operculum

lunar +0	-	shallow semilunar shape, not reaching the end of anal somite; without ornamentation
lunar +fh	-	shallow semilunar shape, not reaching the end of anal somite; distal edge with numerous fine setules ("fine hairs")
lunar +sp	-	shallow semilunar shape, not reaching the end of anal somite; distal edge with small or moderate sized spinules
hyaline	-	shallow semilunar shape, not reaching end of anal somite but with a hyaline extension that can extend to halfway along the ramus
crenulate	-	extends beyond end of anal somite; semilunar, crenulate
spike	-	extends beyond end of anal somite; semilunar but drawn out medially into a sharply pointed spike
triang	-	triangular, extending beyond end of anal somite; naked
straight	-	operculum rectangular, distal edge straight or weakly concave, usually with very small spinules

3. Dorsal part of hyaline frill of abdomen somites

serrate - coarsely serrate; easily observed at relatively low magnficiations, the serrations may consist of regularly spaced, blunt denticles of uniform height or a more random pattern of sharp teeth

smooth - frill either completely smooth or so weakly denticulate that the form is difficult to observe, even under high magnification

4. P2–P4 Enp-2

n:n:n - number of setae and spines on P2, P3 and P4

5. P5

n:n - number of setae and spines on endopod and exopod

KG 54(female)

CR setae	Anal operculum	Hyaline frill	P2–P4 Enp-2 setae	P5 setae	
2wd	?	?	2:3:2	6:4	*Moraria frondicola*
2wd	triang	serrate	3:3:3–4	6:5	*M. pectinata*[1]
2wd	hyaline	serrate	3:4:4	6:5	*M. jana*
2wd	hyaline	smooth	3:4:4	6:4	*M. catalana*
2wd	hyaline	smooth	3:3:3	6:5	*M. sphagnicola*
2wd	hyaline	smooth	3:3:2–3	6:4	*M. arboricola*
2wd	hyaline	smooth	2:2:2	6:5	*M. fontinalis*
2wd	lunar +0	smooth	1:2:2	5:4	*M. cornuta*
2wd	lunar +sp	smooth	3:3:3	6:4	*M. litoralis*
2wd	lunar +sp	smooth	2:2:2	6:4	*M. denticulata*
2wd	crenulate	smooth	[3:3:3–4][2]	4:4	*Pindamoraria boraceiae*[2]
2wd	spike	smooth	3:2:2	6:5	*Moraria pseudobrevipes*
2short	lunar +sp	serrate	3:4:3	6:4	*M. linevitchi*
1wd	lunar +0	serrate	3:3:3	6:5	*M. magna*
1wd	lunar +0	smooth	3:3:3	6:5	*M. baikalensis*
1wd	lunar +sp	serrate	3:4:3	6:5	*M. dentata*
1wd	lunar +sp	serrate	3:3:3	6:5	*M. tomilovi*
1wd	lunar +sp	smooth	3:3:3	6:5	KG 54/1(female)
reduced	lunar +0	smooth	3:4:4–5	6:5	*Moraria laticauda*
reduced	straight	smooth	3:3:3	6:5	*M. phyllura*
bulb	lunar +0	serrate	4:4:4	6:5	*M. mazepovi*
bulb	lunar +0	serrate	3:5:3	6:5	*M. utulikensis*
bulb	lunar +0	smooth	3:3:3	4:5	*M. gracilipes*
bulb	lunar +fh	smooth	3:5:4	6:5	*M. minor*
bulb	lunar +fh	smooth	3:3:3	6:5	*M. arenosa*
bulb	lunar +sp	serrate	3:3:3	6:4	*M. stylata*, *M. werestschagini*[3]
bulb	lunar +sp	smooth	3:3:3	6:5	*M. acuta*, *M. ovicauda*[4]
bulb	straight	smooth	3:3:3	6:5	*M. brevicauda*

1. Data from the original description and the redescription by Apostolov (2001c) .
2. These numbers include only the setae and exclude the stout spinules that also are present. Reid & Rocha (2003) call the structures “spines” but it is not clear from their illustrations that they are true spines and their location indicates that some, at least, may only be spinules.

3. The dorsal keel on the caudal ramus of *M. werestschagini* terminates in a pointed spur. *Moraria stylata* does not have a spur.
4. *Moraria ovicauda* retains 3 terminal setae on the caudal ramus, though the inner seta is hardly longer than the spinules that surround it. There is only 1 terminal seta in *M. acuta* and this is transformed into a broad shallow bulb.

KG 54/1(female) – characters

1. Caudal ramus
   - A - dorsal keel terminates in a distinct spur; keel oriented nearly parallel to longitudinal axis of ramus; longitudinal rows of spinules present dorsally, ventrally and laterally on the inner side
   - B - dorsal keel terminates in a distinct spur; keel oriented parallel to longitudinal axis of ramus; without spinule rows
   - C - terminal spur of dorsal keel very weak; keel oblique; without spinule rows

KG 54/1(female)

CR

A *Moraria spinulosa*
B *M. longicauda*
C *M. sinuata*

KG 54(male) – characters

1. Caudal ramus, terminal setae
   - A - with outer and middle terminal setae well developed, each longer than the ramus; inner seta small and weak
   - B - with outer and middle terminal setae well developed, each longer than the ramus; inner seta stout and about as long as the ramus
   - C - with outer and middle terminal setae well developed; middle seta as long as the ramus, outer slightly shorter; inner seta small and weak
   - D - only the middle terminal seta well developed, longer than the ramus; outer and inner setae small and weak
   - E - middle seta small, filiform, about half as long as the ramus; outer and inner setae very small

2. Anal operculum
   - lunar +0 - shallow, semilunar shape, not reaching the end of anal somite; without ornamentation
   - lunar +fh - shallow, semilunar shape, not reaching the end of anal somite; distal edge with numerous fine setules (“fine hairs”)
   - lunar +sp - shallow, semilunar shape, not reaching the end of anal somite; distal edge with 7–10 small or moderate sized spinules
   - crenulate - extends beyond end of anal somite; semilunar, crenulate
   - hyaline - shallow, semilunar shape, not reaching the end of anal somite but with a hyaline extension that reaches up to halfway along ramus
   - triang - triangular, extending beyond end of anal somite; naked
   - straight - operculum rectangular, distal edge straight or weakly concave, usually with very small spinules

3. Dorsal part of hyaline frill of abdomen somites

serrate - coarsely serrate; easily observed at relatively low magnifications, the serrations may consist of regularly spaced blunt denticles of uniform height or a more random pattern of sharp teeth

smooth - frill either completely smooth or so weakly denticulate that the form is difficult to observe, even under high magnification

4. P5

n:n - number of setae and spines on endopod and exopod

5. P4 Enp-2

pigtail - with a seta that is permanently bent or twisted into a hook, or like a corkscrew or pigtail

bulb - with a bulb or flame-shaped seta

arrow - with an arrow-headed seta

normal - without any of the above; all setae normal—filiform or spiniform

KG 54(male)

CR setae	Anal operculum	Hyaline frill	P5 setae	P4 Enp2	
A	?	?	2:4	normal	*Moraria frondicola*
A	hyaline	serrate	2:5	pigtail	*M. jana*
A	hyaline	serrate	2:5	normal	*M. pectinata*
A	hyaline	smooth	2:5	pigtail	*M. catalana*, *M. fontinalis*[1]
A	hyaline	smooth	2:5	bulb	*M. sphagnicola*
A	hyaline	smooth	2:4	pigtail?[2]	*M. arboricola*[2]
A	lunar +0	serrate	2:5	normal	KG 54/1(male) (p. 321)
A	lunar +0	smooth	2:5	normal	*Moraria cornuta*
A	lunar +sp	serrate	2:5	normal	*M. dentata*, *M. werestachagini*[3]
A	lunar +sp	serrate	2:4	normal	*M. tomilovi*
A	lunar +sp	smooth	2:5	pigtail	KG 54/2(male) (p. 321)
A	lunar +sp	smooth	2:5	normal	*Moraria acuta*
A	lunar +sp	smooth	2:4	normal	*M. denticulata*
A	crenulate	smooth	1:5	normal	*Pindamoraria boraceiae*[4]
A	triang	serrate	2:5	pigtail	*Moraria pectinata*[5]
A	straight	smooth	2:5	normal	*Moraria brevicauda*
A	straight	smooth	2:4	pigtail	*M. phyllura*
B	lunar +sp	smooth	2:5	normal	*M. linevitchi*
C	lunar +fh	smooth	2:5	normal	*M. arenosa*[6]
D	lunar +0	smooth	2:6	normal	*M. gracilipes*
D	lunar +0	smooth	2:5	pigtail	*M. baikalensis*
D	lunar +fh	smooth	2:6	normal	*M. minor*
D	lunar +sp	smooth	2:6	arrow	*M. spinulosa*
D	lunar +sp	smooth	2:4	pigtail	*M. sinuata*
E	lunar +sp	serrate	2:4–5	normal	*M. stylata*

1. P4 Enp-2 bears 1 long plumose seta on the inner edge in *M. catalana* and 2 in *M. fontinalis*.
2. The setae of P4 Enp-2 are much reduced but in the best description (Gurney 1932) there appears to be vestigial pigtail seta and a vestigial bulb seta.
3. In *M. werestschagini* the inner side of P2 Enp-1 has a heavily sclerotised outgrowth that extends distally as a tooth shaped structure alongside Enp-2. In *M. dentata* this is represented by a distinct, very broad, tooth-like spine.

4. The diagnostic character of this genus is the modified terminal claw of the maxilliped, which is "enormously enlarged and sclerotised, recurved, with rounded inner subterminal expansion and blunt recurved tip" (Reid & Rocha 2003).
5. Data from the original description and the redescription by Apostolov (2001c).
6. *Moraria arenosa* differs from all other species in this key in its elongate caudal ramus—about 4 times as long as broad.

KG 54/1(male) – characters

1. P4 Enp-2
    n - number of setae and spines

2. P2 Enp-1, sclerotised outgrowth of inner edge
    +seta - outgrowth accompanied by a seta
    alone - inner edge with outgrowth only: without a seta

KG 54/1(male)

P4 Enp-2 setae	P2 Enp-1 outgrowth	
4	+seta	*Moraria mazepovi*
4	alone	*M. utulikensis*
5	alone	*M. magna*

KG 54/2(male) – characters

As the descriptions of the species in this key are not comprehensive, are not written in a comparative manner and mostly lack illustrations of the characters required to separate males, it is very difficult to be confident that this key will adequately identify the species. Thus it is essential that any determination be checked against these descriptions. All of these species are endemic to Lake Baikal.

1. Caudal ramus
    wd - dorsal keel terminates in a well developed pointed spur
    rud - dorsal keel exhibits a rudimentary terminal spur

2. P5 endopod
    2+1 - with 2 setae and 1 small spinule at outer distal corner
    2 - with 2 setae only

KG 54/2(male)

CR dorsal keel	P5 Enp setae	
wd	2+1	*Moraria longicauda*
rud	2+1	*M. litoralis*
rud	2	*M. ovicauda*

KG 55 – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. Anal operculum
   long - triangular, acutely pointed; extends well beyond end of anal somite
   short - semilunar or straight; does not reach end of anal somite

3. Female P2–P4 Enp-2
   n:n:n - number of setae and spines on P2, P3 and P4
   na - not applicable

4. Female P5
   n:n - number of setae and spines on endopod and exopod
   na - not applicable

5. Male P2 and P4 Enp-2
   n:n - number of setae and spines on P2 and P4

6. Male P5
   n:n - number of setae and spines on endopod and exopod

KG 55

CR l/b	Anal op	Female P2–P4 Enp-2 setae	Female P5 setae	Male P2 & P4 Enp-2 setae	Male P5 setae	
2	short	3:2:3	6:4	2:2	2:5	*Antarctobiotus diversus*
2	short	3:3:3	6:5	2:4	2:5	*Moraria tenuicauda*
1.5	long	3:2:2	5:4	2:3	2:4	*Moraria hostensis*
3	short	na	na	2:4	2:5	*Morariopsis baicalensis* male[1]

1. The cylindrical shape of the caudal rami also distinguish *M. baicalensis* from the other species in this key, where they are tapered towards the apex. See KG 0 (p. 202) for female.

KG 56 – characters

See introduction to KG 13 (p. 259) for a note on the complexities of identifying species of *Elaphoidella.*

1. Female P2–P4 endopod, distal, or only, segment
   n:n:n - number of setae and spines on P2, P3 and P4
   uk - female unknown
   na - not applicable

2. Female P2–P3 Enp-1, inner edge
   n:n - number of setae on P2 and P3
   uk - female unknown
   na - not applicable

3. Female P5
   n - number of setae and spines on endopod and exopod
   uk - female unknown
   na - not applicable

4. Male P2 and P4 endopod, distal, or only, segment
   n:n - number of setae and spines on P2 and P4
   uk - male unknown

5. Male P5
   n - number of setae and spines on endopod and exopod
   uk - male unknown

KG 56

Female P2–P4 Enp distal seg setae	Female P2–P3 Enp-1 inner setae	Female P5 setae	Male P2 & P4 Enp distal seg setae	Male P5 setae	
4:5:3	0:0	4:5	3:2	0:4	*Elaphoidella rodrigensis,* *Attheyella* (*Canthosella*) *siolii*[1]
4:5:2	1:0	6:5	uk	uk	*A.* (*Ca.*) *kalima*
4:5:2	0:0	6:5	4:2	0:4	*A.* (*Ca.*) *aliena*
3:4:3	0:0	4:3	3:2	0:3	KG 56/1 (p. 324)
3:3:3	0:0	4:3	uk	uk	*Elaphoidella jakobii*
3:3:1	0:0	4:3	3:1	0:3	*E. neoarmata*
2:3:2	0:0	6:5	1:2	2:4	*Attheyella* (*Canthosella*) *vietnamica*[2]
na	na	na	1:2	2:4	*A.* (*Ca.*) *silvicola* male[2]
na	na	na	4:2	2:2	*A.* (*Chappuisiella*) *inopinata* male[3]
na	na	na	3:1	2:2	*A.* (*Ch.*) *ruttneri* male[3]
na	na	na	3:1	0:4	*A.* (*Canthosella*) *antillica* male[3]
uk	uk	uk	3:3	0:3	*Elaphoidella slovenica*

1. These species are readily distinguished by their anal operculum, which is smooth (or with small setules) in *E. rodrigensis* but has 3–4 large spinules in *A. siolii.*

2. From the published descriptions I find it impossible to separate the males of these species. See KG 30 (p. 294) for female *A. silvicola*
3. See KG 31 (p. 295) for the female.

KG 56/1 – characters

1. Caudal ramus, in dorsal view
   n:n - ratio of maximum length to maximum breadth in female and male
   uk - male unknown

2. Female antennule
   n - number of segments

3. Female P5
   long - endopod extends beyond the end of exopod
   equal - endopod extends to about the end of exopod
   short - endopod does not reach the end of the exopod

4. Female P3 Enp-2
   4 - with 4 large setae
   3+ - with 3 large setae, 1 minute seta (and 1 spinule)

KG 56/1

CR l/b	Female A1 segs	Female P5 Enp/Exp	Female P3 Enp-2 setae	
3:1.6	7	long	4?[1]	*Elaphoidella karllangi*[1]
1:1.3	8	short	3+	*E. synjakobii*
1:uk	8	equal	4	*E. parajakobii*

1. The description gives no information on the size of these setae.

KG 57 – characters

1. Anal operculum
   n - number of spinules on distal edge

2. Female P2–P4 endopod, distal, or only, segment
   n:n:n - number of setae and spines on P2, P3 and P4

3. Female P5
   n:n - number of setae and spines on endopod and exopod

4. Male P5
   n:n - number of setae and spines on endopod and exopod
   uk - male unknown

KG 57

Anal operculum	Female P2–P4 Enp distal seg setae	Female P5 setae	Male P5 setae	
6–8	3:3:2	6:5	2:5	*Bryocamptus* (*Bryocamptus*) *tauricus*
2–4	3–4:3:2	5:4–5	2:6	*B.* (*B.*) *typhlops*[1]
3	3:3:4	6:5	2:5	*B.* (*B.*) *aquaeductus* s. str.
2	5:5:2	4:5	2:6	*B.* (*B.*) *innominatus*
2	3:3:2	6:5	uk	*B.* (*B.*) *bispinosus*[1]

1. From the published descriptions there seems to be little difference between *B. typhlops* and *B. bispinosus*, especially as the male of the latter is unknown and its author did not make a comparison with *B. typhlops*.

KG 58 – characters

See introduction to KG 13 (p. 259) for a note on the complexities of identifying species of *Elaphoidella.*

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. Anal operculum, distal edge
   naked - without ornamentation
   spinules - with small spinules

3. Female P3 Enp-2
   n - number of setae and spines
   na - not applicable

KG 58

CR l/b	Anal operculum	Female P3 Enp-2 setae	
2.25	naked	2	*Elaphoidella parapostolovi*
≈1.5	naked	na	*E. apostolovi* male[1]
>1[2]	spinules	3	*E. winkleri*[2]

1. See KG 0 (p. 202) for the female.
2. Description is imprecise.

KG 59 – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. P2 endopod
   n - number of setae and spines

3. Female P3 endopod

n - number of segments

4. Female P5

n:n - number of setae and spines on endopod and exopod

KG 59

CR l/b	P2 Enp setae	Female P3 segs	Female P5 setae	
3	2–3	2	3:3–4	*Lessinocamptus caoduroi*
2	1	1	4:4	*L. insoletus*

KG 60 – characters

1. Female caudal ramus

rounded - sides almost parallel, apex rounded

droplet - droplet shaped; sides curving away from a narrow base, widest part just before apex; apex rounded

2. Female P5 endopod

short - endopod does not extend to the end of exopod

long - endopod extends beyond the end of exopod

3. Female P5

n:n - number of setae and spines on endopod and exopod

4. Female P2–P4 Enp-2

n:n:n - number of setae and spines on P2, P3 and P4

KG 60

Female CR shape	Female P5 Enp/Exp	Female P5 setae	Female P2–P4 Enp-2 setae	
rounded	short	6:3	2:2:2	*Morariopsis typica*[1]
droplet	long	6:4	5:3:2	*M. latifurcata*[1]

1. Males are unknown in the genus *Morariopsis.*

KG 61 – characters

1. P1 Enp-2, terminal setae

long - very long—about twice as long as the entire endopod

short - only slightly longer than Enp-1

2. Female P2 endopod

setae - endopod represented by 2 setae only

tooth - endopod represented by a short broad tooth only

3. Female P3 endopod

seg - endopod of 1 small segment with 2 terminal setae

setae - endopod represented by 2 setae only, without trace of a segment

4. Male P2 and P4 endopod

present - P2 endopod represented by a minute knob-like segment bearing 1 seta; P4 endopod represented by a short broad tooth only

absent - without trace of an endopod or representative setae

KG 61

P1 Enp-2 setae	Female P2 Enp	Female P3 Enp	Male P2 & P4 Enp	
short	tooth	seg	present	*Paracamptus nakamurai*
long	setae	setae	absent	*P. reductus* [*sensu* Wilson 1956b]
long	setae	seg	absent	*P. reductus* [*sensu* Ishida 1987]

KG 62

Maraenobiotus contains several species notable for variability in several morphological characters displayed in many different combinations.

In the widespread species *M. vejdovskyi*, *M. brucei* and *M. insignipes* this has been recognised at subspecific level and usually can be taken into account in the construction of keys.

But *M. kinabaluensis* is restricted to Mount Kinabalu, Borneo and the subspecies concept is deemed inappropriate by the author (Löffler 1973). Löffler analyses variability in character states as proportions in the population sample and combinations in individuals are not known and thus not available for use in this key. This makes it extremely difficult to distinguish *M. kinabaluensis* from other species in the key.

Dussart (1967) and Löffler (1973) provide dichotomous keys to the highly variable species of the genus.

KG 62 – characters

1. Female caudal ramus, origin of terminal setae

A - all 3 setae originate side-by-side on distal edge; setae filiform or with only a slight bulbous swelling at their base

B - the 2 principal terminal setae (the outer and middle setae) originate side-by-side; inner seta originates ventral to these and is partially obscured in dorsal view; setae usually filiform

C - as B but with the inner seta asymmetrically bulbous at its base

D - all 3 setae originate side-by-side; the longest seta possibly slightly dorsal so that in dorsal view the base of the inner two setae is partially obscured

E - outer and middle setae reduced to small knobs; inner seta rudimentary

F - origins of the two longest setae overlap in the dorsoventral plane, with the longest setae dorsal to shorter seta

na - not applicable

2. Female abdomen somites 2–4, form of spinule rows at posterior edge

A - somites 2–4 with a continuous spinule row from ventrolateral to ventrolateral across venter

B - somites 2–4 with a spinule row each side from dorsolateral to ventrolateral

C - somites 2–3 with a spinule row each side from dorsolateral to ventrolateral; somite 4 with a continuous row from lateral to lateral across venter

D - somite 2 naked; somite 3 with a small row each side, ventrolateral; somite 4 with a continuous row from dorsolateral to dorsolateral across venter

E - somite 2 naked; somite 3 with a middorsal row and a row each side from dorsolateral to beyond ventrolateral; somite 4 circumsomitic, perhaps with a very small break midventrally

F - somites 2–4 with circumsomitic spinule row, with perhaps a very small midventral break on somite 4

G - circumsomitic on all somites

H - somite 4 with spinule row possibly complete across venter; dorsum naked. No further information available

na - not applicable

3. Anal operculum, ornamentation of distal edge

fh - with numerous, very fine setules ("fine hairs")

smsp - with a large number (at least 50) of very small spinules

n - with *n* spinules

naked - without ornamentation

4. Mandible palp

n:n - number of segments: total number of setae

5. Male caudal ramus

character states as in character 1

uk - male unknown

6. Male abdomen segments 2–4

character states as in character 2

uk - male unknown

KG 62

Female CR terminal setae	Female abd som 2–4	Anal op	Md palp segs setae	Male CR terminal setae	Male abd segs 2–4	
A	B	≈10	1:3	A	B	*Maraenobiotus brucei* [*sensu* Richard 1897]
A	B	10–30	2:?	A	B	*M. kenyensis*
A	D	16	1:3	A	A	*M. vejdovskyi* s. str.
A	D	smsp	1:3	A	A	*M. v. tenuispina*
A	D	naked	1:3	A	A	*M. v. anglicus*
A	F	6–11	2:5	A	G	*M. kinabaluensis*
B	E	20	1:3	uk	uk	*M. veris*
F	H	note 1[1]	?	A	H	*M. natichoensis*[1]
C	C	10–25	2:5	B	C	*M. cuspidatus*
D	B	≥20	1:4	uk	uk	*M. fontinalis*
E	D	fh *or* 12–20	1:2–3	A	A	*M. vejdovskyi truncatus*[2]
na	na	≈15	1:4	B	C	*M. fontinaloides* male[3]

1. Anal operculum is naked in the female but has 16 spinules in the male.
2. See Apostolov (2001b) for a discussion of variability.
3. See KG 0 (p. 202) for the female.

KG 63 – characters

See introduction to KG 62 (p. 327) for comments on the difficulties of identifying species of *Maraenobiotus.*

1. Caudal ramus
   - A - terminal setae originate side-by-side, inner seta well developed or rudimentary, filiform or with a slightly swollen base; middle and outer setae elongate, outer seta 1.5–2 times as long as the caudal ramus, middle seta 3–6 times as long as the ramus
   - B - as A but inner seta broad and bulbous at base and with a 90° bend halfway along length directing the filiform distal part dorsalwards
   - C - terminal setae originate side-by-side, inner seta rudimentary;
     female—middle and outer setae short, broad, dagger-like, not more than 1.5 times as long as caudal ramus;
     male—middle terminal seta elongate, proximal part thick, tapering rapidly to a whiplash distal half
   - D - female—origin of middle seta ventral to outer seta; inner seta well developed, bulbous at its base;
     male—similar but with origin of setae side-by-side

2. Abdomen somites 2–4, form of spinule row at posterior edge
   - A - somites 2–4 in both sexes—spinule row complete dorsally, extending to ventrolateral
   - B - somites 2–4 in both sexes—spinule row complete ventrally, extending to dorsolateral
   - C - somites 2–4 in both sexes without dorsal spinules; spinule rows ventrolateral only in female, usually complete ventrally in male
   - D - female as B but with somites 2–3 naked, somite 4 with spinules ventrolaterally only; male as B
   - E - female with somite 2 naked (or ventrolateral only); somites 3–4 almost circumsomitic, with a small, midventral break; male somites 2–4 almost circumsomitic, with a dorsal break

3. Mandible palp
   - n:n - number of segments: total number of setae

4. Female P2–P4 Enp-2
   - n:n:n - number of setae and spines on P2, P3 and P4

5. Female P5
   - n:n - number of setae and spines on endopod and exopod

6. Male P2 and P4 Enp-2
   - n:n - number of setae and spines on P2 and P4
   - uk - male unknown

KG 63

CR	Abd som 2–4	Md palp segs setae	Female P2–P4 Enp-2 setae	Female P5 setae	Male P2 & P4 Enp-2 setae	
A	A	1:5	4:5:5	5:3	3:3	*Maraenobiotus insignipes* s. str.
A	A	2:5	4:5:5	5:3	3:3	*M. i. elgonensis*
A	A	1:4	4:5:5	5:3	2:3	*M. i. indicus*
A	A	1:3	4:5:5	5:3	2:3	*M. i. alpinus*
A	A	1:3	4:5:4	4:3–4	uk	*M. parainsignipes*
A	B	1:4	3:5:4	5:3	3:2	*M. australis*
A	C	2:5	4:5:5	5:4	3:3	*M. insignipes altissimus*
A	D	1:3	4:4:4	4:3	3:2	*M. canadensis*
B	A?	2:4	4:5:5	5:4–5	uk	*M. insignipes kzyzlkumicus*
C	E	1:3	4:5:4	4:3	3:2	*M. vejdovskyi zschokkei*
D	A	2:5	4:5:4	5:3–4	3:3	*M. insignipes nepalensis*

KG 64 – characters

See introduction to KG 62 (p. 327) for comments on the difficulties of identifying species of *Maraenobiotus.*

1. Anal operculum, distal edge
   - fh - with numerous fine setules (“fine hairs”)
   - smsp - with numerous very small spinules
   - n - with *n* spinules
   - naked - without ornamentation

2. Mandible palp
   - n:n - number of segments: total number of setae

3. Female P5
   - n:n - number of setae and spines on endopod and exopod

4. Female abdomen somites 2–4, form of spinule row at posterior edge
   - A - spinule row almost circumsomitic, small gaps middorsal and midventral
   - B - spinule rows lateral and midventral
   - C - spinules dorsolateral (but it is not known how far these extend towards venter)
   - D - naked at posterior edge, somites with several rows and groups of small spinules elsewhere

5. Male P2 and P4 Enp-2
   - n:n - number of setae and spines on P2 and P4
   - uk - male unknown

KG 64

Anal op	Md palp segs setae	Female P5 setae	Female Abdomen som 2–4	Male P2 & P4 Enp-2 setae	
fh	1:5	5:3	C	4:3	*Maraenobiotus affinis*
smsp	?	4:3	B	uk	*M. brucei carpathicus* [*sensu* Kulhavy 1969]
10–15	2:4	5:3	A	3:3	*M. husmanni*
naked	1:4	2–5:4	D	2:3	*Glaciella yalensis*

KG 65 – characters

See introduction to KG 62 (p. 327) for comments on the difficulties of identifying species of *Maraenobiotus.*

1. Anal operculum, distal edge
   - x:x - for female and male, where x represents one of the following states
   - smsp - female and male with numerous small spinules
   - n - with *n* spinules
   - na - not applicable

2. P2 exopod
   - n - number of segments

3. Mandible palp
   - n:n - number of segments: number of setae

4. Female P5
   - n:n - number of setae and spines on endopod and exopod

5. Male P2 and P4 Enp-2
   - n:n:n - number of setae and spines on P2 and P4
   - na - not applicable

6. Male P5
   - n:n - number of setae and spines on endopod and exopod
   - na - not applicable

KG 65

Anal operculum	P2 Exp segs	Md palp segs setae	Female P5 setae	Male P2 & P4 Enp-2 setae	Male P5 setae	
6–10:4–7	3	1:5	3–4:4–5	3:2	2:4	*Maraenobiotus brucei* s. str. [*sensu* Olofsson 1917)
≈15:≈15	3	1:3	4–5:3	3:2	2:3	*M. b. carpathicus*
7–11:4–8	3	1:4	5:3	4:2	2:4	*M. subterraneus*
6:4	3	?	6:3	4:?	2:4	*M. danmarki*
smsp:na	2	2:4	6:5	na	na	*Pseudomoraria triglavensis* female
smsp:smsp	2	0:3[1]	6:6	3:2	2:4	*Hypocamptus hrabei*[1]

1. The setae of the mandible palp originate on a small knob that represents the basis.

KG 66 – characters

1. P1 Exp-2
   n - number of setae and spines

2. P2 exopod
   n - number of segments

3. Anal operculum, distal edge
   many - with at least 20 very small fine spinules
   few - with a maximum of about 16 spinules

KG 66

P1 Exp-2 setae	P2 Exp segs	Anal operculum spinules	
5	3	few	KG 66/1
4	2	many	KG 66/2

KG 66/1 – characters

See introduction to KG 62 (p. 327) for comments on the difficulties of identifying species of *Maraenobiotus.*

1. Anal operculum
   n:n - number of spinules on distal edge

2. Mandible palp
   n:n - number of segments: number of setae

3. Female P2–P4 Enp-2
   n:n:n - number of setae and spines on P2, P3 and P4

4. Female P5
   n:n - number of setae and spines on endopod and exopod

5. Male P2–P4 Enp-2
   n:n - number of setae and spines on P2 and P4
   uk - male unknown

6. Male P5
   n:n - number of setae and spines on endopod and exopod
   uk - male unknown

KG 66/1

Anal op spinules	Md palp segs setae	Female P2–P4 Enp-2 setae	Female P5 setae	Male P2 & P4 Enp-2 setae	Male P5 setae	
11	2:5	4:5:5	4:3	3:5	2:4	*Maraenobiotus brucei africanus*
12	1:4	4:5:5	4:3	uk	uk	*M. b. caucasicus*
6–10	2:5	4:5:5	4:3	3:2	2:4	*M. b. himalayensis*
16	1:4	4:5:5	5:3	3:2	2:3	*M. b. carpathicus* [*sensu* Damian 1957]
7–8	2:5	3:5:5	4:3	3:2	2:4	*M. b. malayicus*
11	1:5	4:5:4	4–5:3	uk	uk	*M. mongolicus*
4–6	?	4:5:5	6:3	4:5	2:4	*M. danmarki*

KG 66/2 – characters

Flössner (1976) and Apostolov (2001b) discuss variability in *Hypocamptus brehmi*. They include characters additional to those used in this key.

1. Female P2 endopod
   n:n - number of setae and spines on inner edge of segment 1: total number on segment 2

2. Female P3 endopod
   n:n - number of setae and spines on inner edge of segment 1: total number on segment 2

3. Female P5
   n:n - number of setae and spines on endopod and exopod

4. Male P2 endopod
   n:n - number of setae and spines on inner edge of segment 1: total number on segment 2

5. Male P3 exopod
   n:n:n - number of setae and spines on inner edge of segment 1: inner edge of segment 2: total number on segment 3

6. Male P5
   n:n - number of setae and spines on endopod and exopod

KG 66/2

Female P2 Enp setae	Female P3 Enp setae	Female P5 setae	Male P2 Enp setae	Male P3 Exp setae	Male P5 setae	
0:4	1:4	7:6	0:3	0:0:4	2:4	*Hypocamptus brehmi* [*sensu* Douwe 1922]
0:4	1:4	6:6	0:3	0:0:5	2:5	*H. brehmi* [*sensu* Sterba 1969]
0:4	1:4	6:6	0:3	0:0:5	2:4	*H. brehmi* [*sensu* Flössner 1976]
0:4	1:4	6:6	0:3	0:0:4	2:4	*H. brehmi* [*sensu* Kiefer 1976]
0:3	1:4	6:6	0:3	0:0:5	2:4	*H. brehmi* [*sensu* Basamacov 1973b]
1:4	1:5	6:6	1:3	0:0:5	2:5	*H. brehmi* [*sensu* Apostolov 2001b]

KG 67 – characters

1. Caudal ramus
   - n - ratio of maximum length to maximum brreadth

2. Male P3 Enp-3
   - n - number of setae and spines

3. Male P5
   - wd - well developed; exopod with 3 setae and distinct from baseoendopod; endopod without setae
   - rud - rudimentary; a much reduced lobe with 2 setae

4. Male P6
   - 2s - represented by 2 setae
   - 0 - absent

KG 67

CR l/b	Male P3 Exp-3 setae	Male P5	Male P6	
≈1	2	wd	2s	*Elaphoidella humphreysi*
2.5	1	rud	0	*Spelaeocamptus incertus*

Family Canuellidae

KG 0 – characters

1. P1–P4 exopod
   n:n:n:n - number of segments in P1, P2, P3 and P4

2. P1–P4 endopod
   n:n:n:n - number of segments in P1, P2, P3 and P4

3. P1–P4 exopod, distal segment
   n:n:n:n - number of setae and/or spines on P1, P2, P3 and P4

4. P1–P4 endopod, distal segment
   n:n:n:n - number of setae and/or spines on P1, P2, P3 and P4

KG 0

P1–P4 Exp segs	P1–P4 Enp segs	P1–P4 Exp distal seg setae	P1–P4 Enp distal seg setae	
3:3:3:3	3:3:3:3	8:6:5:5	6:6:5:4	*Canuella pontica*[1]
3:3:3:3	3:3:3:3	7:7:5:5	5–6:6:4:4	KG 1 (p. 336)
3:3:3:3	3:3:3:3	7:7:5:4	6:5:4:4	KG 2 (p. 336)
3:3:3:3	3:3:3:3	7:7:5:4	6:5:3:3	KG 3 (p. 338)
3:3:3:3	3:3:3:3	7:7:4:4	6:5:4:4	*Intercanuella lima*
3:3:3:3	3:3:3:3	7:6:4:4	6:5:4:3	*Canuellina onchophora*
3:3:3:3	3:3:3:3	7:6:4:4	6:5:4:3	KG 4 (p. 339)
3:3:3:3	3:3:3:3	6:5:4:4	4:4:4:3	*Galapacanuella beckeri*
3:3:3:3	3:3:3:3	5–6:4:4:4	6:5:4:4	KG 5 (p. 340)
3:3:3:3	3:3:3:3	5:6:4:4	5:5:4:4	*Ifanella chacei*
3:3:3:3	3:3:3:3	5:5:4:2	4:3:3:2	*Microcanuella bisetosa*
3:3:3:3	3:3:3:3	5:4:4:4	4:5:4:4	*Brianola stebleri*
3:3:3:3	3:3:3:3	4[2]:4:4:4	6:5:4:4	*B. hamondi*[2]
3:3:3:3	3:3:3:3	4:5[3]:4:4	5:4:4:4	*Nathaniella reichi*[3]
3:3:3:3	3:3:3:3	4:4:4:4	5:4:4:5	*Brianola exigua*
3:3:3:3	3:3:3:3	4:3:4:3	4:4:4:4	*Canuella indica*[1]
3:3:3:3	3:3:3:2	7:7:5:4	6:5:3:3	KG 6 (p. 340)
3:3:3:3	3:3:3:2	7:6:5:4	6:5:3:3	*Intersunaristes curticaudata*
3:3:3:3	3:3:3:2	7:6:4:4	6:5:4:4	KG 7 (p. 341)
3:3:3:3	3:3:3:2	7:6:4:4	6:4–5[4]:4:3	*Canuellina nicobaris*[4]
2:3:3:3	3:3:3:3	9:4:4:4	6:5:4:4	*Canuellopsis typica*
2:3:3:3	3:3:3:3	8:5:4:4	5:5:4:4	*C. swedmarki*
2:3:3:3	2:3:3:3	8:5:4:4	5:5:4:4	*C. mediterranea*

1. The descriptions of these species are of very poor quality and these codons must be treated with caution.
2. The text of the only description (Wells & Rao 1987) states that setation of P1 Exp-3 of *B. hamondi* is identical with that of *B. sydneyensis* but the illustration shows only four setae and spines. See also KG 5 (p. 340).
3. Huys (1995a) shows there are five setae rather than four.
4. P2 Enp-3 has five setae and spines in the female and four in the male.

KG 1 – characters

1. P1 Enp-3
   n - number of setae and spines

2. P1–P4 coxa, inner edge
   n:n:n:n - number of setae

3. P4 Enp-2, inner edge
   n - number of setae

4. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

KG 1

P1 Enp-3 setae	P1–P4 coxa inner seta	P1–P4 Enp-2 inner setae	CR l/b	
6	1:1:1:1	1	≈3.2	*Canuella furcigera*
6	1:1:1:1	1	≈2.5	*C. perplexa*
6	1:1:1:0	1	≈2	*Elanella paenelanitica*
6	1:1:0:0	0	≈1/≈2[1]	*Echinosunaristes bathyalis*[1]
5	1:1:1:1	1	≈2	*Elanella elanitica*
5	(1:1:1:1)?	0	≈1.5	*Scottolana bulbosa*

KG 2 – characters

1. P4 Exp-2, inner edge
   n - number of setae

2. P1–P4 Enp-1, inner edge
   n:n:n:n - number of setae on P1, P2, P3 and P4

3. Caudal ramus
   hook - basal part of inner edge expanded medially, with inner part forming a pronounced unguiform projection
   simple - basal part either not expanded medially, or with a simple, convex, bulbous expansion

4. Caudal ramus
   n - ratio of maximum length to maximum breadth

5. P4, relative length of exopod to endopod
   long - exopod extends to about the end of Exp-3
   medium - exopod extends to about halfway along Exp-3
   short - exopod extends only to about the end of Exp-2

KG 2

P4 Exp-2 inner setae	P1–P4 Enp-1 inner setae	CR basal part	CR l/b	P4 Exp/Enp	
1	1:1:1:1	simple	≈2	long	KG 2/1 (p. 337)
1	1:1:1?:1	simple	≈2	medium	*Scottolana inopinata*
1	1:1:1:1	simple	˜2	short	*S. brevifurca*
1	1:1:1:1	simple	≈1.5	long	*S. rostrata*
1	1:1:1:1	simple	≈1.5	medium	*S. antillensis*
1	1:1:1:1	simple	≈1	long	*S. glabra*
1	1:1:1:1	hook	≈2	short	KG 2/2 (p. 337)
1	1:1:1:1	hook	≈1.25	long	*S. uxoris*
1	1:0:1:1	hook	≈2	short	*S. dissimilis*
1	0:1:1:1	simple	?	long	*S. scotti*
0	1:1:1:1	simple	2–3	medium	KG 2/3 (p. 338)

KG 2/1 – characters

1. Caudal ramus, form of setae
   - filiform - all setae slender and filiform; at least 1 seta originates quite distant from the apex—about ⅓ of the length of the outer edge proximal to apex
   - mixed - setae may all be slender and filiform or at least 1 may have a pronounced, bulbous base but the bulbous setae are never reduced to the bulb only; all setae originate at or very close to the apex
   - bulb - 2 setae reduced to a small bulb, with or without terminal whiplash portion; at least these setae originate quite distant from the apex

2. Antenna exopod
   - n - number of segments

KG 2/1

CR setae	A2 Exp segs	
filiform	7	*Scottolana oleosa*
mixed	8	*S. bulbifera*
bulb	7	*S. tumidiseta*

KG 2/2 – characters

1. Rostrum, relative length
   - n - ratio of length of rostrum to mid-dorsum length of cephalic shield

2. Antenna exopod
   - n - number of segments

3. P1 basis, outer seta or spine
   - long - extends beyond the end of Exp-3
   - short - extends only to end of Exp-1

4. P3–P4 basis, inner edge

hook	- P3 and P4 with a recurved unguiform projection near inner distal corner
multi	- P4 with a multi-pronged outgrowth in middle; P3 not described
naked?	- P4 naked; P3 not described
naked	- P3 and P4 naked

KG 2/2

Rostrum length	A2 Exp segs	P1 basis outer spine	P3–P4 basis inner edge	
0.7	9	long	naked	*Scottolana geei*
0.35	8	?	naked?	*S. longipes* [*sensu* Thompson & A. Scott 1903][1]
?	8	?	multi	*S. longipes* [*sensu* Por 1964a][1]
?	8	short	naked	*S. longipes* [*sensu* Wells 1967][1]
0.45	8	short	hook	*S. longipes* [*sensu* Wells & Rao 1987][1]

1. Mu & Huys (2003) consider it probable that each of these is a distinct species.

KG 2/3 – characters

1. P2 Enp-1, unguiform projection of distal outer corner

long	- extends to approximately halfway along Enp-2
short	- barely reaches a quarter of the way along Enp-2

2. P2 Enp-3, spines on outer edge

long	- both spines approximately as long as the entire Enp-3
short	- neither spine is longer than approximately half the length of Enp-3

3. P3 Enp-1, unguiform projection of distal outer corner
present *or* absent

KG 2/3

P2 Enp-1	P2 Enp-3	P3 Enp-1	
long	long	present	*Coullana canadensis*[1]
short	short	absent	*C. pori*

1. Data from the redescription by Coull (1972). *Coullana canadensis* has been reported (usually as *Scottolana*) from the east coast of north America (Novia Scotia to Florida), the Gulf of Mexico (Florida to Texas) and the Pacific coast of north America (California to British Columbia). However, as it is now known (Dr J.W. Fleeger, pers. comm.) that the records from Louisiana are of an as yet undescribed species of *Coullana*, all records from the Gulf of Mexico must be suspect and it would be wise to treat material from any location other than the north American east coast with the suspicion that they may not be *C. canadensis*.

KG 3 – characters

1. P2–P4 Exp-3

spinulose	- outer part of segment with multiple rows of spinules
naked	- outer part of segment naked or with a few spinules only

2. P3 Enp-1

spinulose - outer part of segment with multiple rows of spinules

naked - outer part of segment naked or with a few spinules only

3. Antenna Exp-2, seta

plumose *or* naked

KG 3

Unfortunately, it is not as easy to distinguish between these species as this key implies. Any determination arrived at should be checked against the information provided by Hamond (1973a) and Ho (1986).

P2–P4 Exp-3	P3 Enp-1	A2 Exp-2 seta	
spinulose	spinulose	naked	*Sunaristes tranteri*
spinulose	naked	naked	*S. inaequalis*
spinulose	naked	plumose	*S. japonicus*
naked	naked	plumose	*S. paguri*

KG 4 – characters

1. P1–P4 coxa, inner edge

n:n:n:n - number of setae or spines on P1, P2, P3 and P4

2. P2 Enp-3, form of seta III

serrate - serrated spine

plumose - plumose spine or seta

3. Male P4 Exp-3, inner distal corner

finger - produced as a long curved, finger-like process

bifid- produced as a short bifid process

simple- not as above

4. Female P4, relative length of exopod and endopod

3 - endopod extends to approximately the end of Exp-3

2 - endopod extends to approximately the end of Exp-2

1.5 - endopod extends only to about halfway along Exp-2

1 - endopod extends to approximately the end of Exp-1

uk - female unknown

5. Male P4, relative length of exopod and endopod

3 - endopod extends to approximately the end of Exp-3

2 - endopod extends to approximately the end of Exp-2

1.5 - endopod extends only to about halfway along Exp-2

1 - endopod extends to approximately the end of Exp-1

KG 4

P1–P4 coxa inner seta	P2 Enp-3 seta III	Male P4 Exp-3	Female P4 Exp/Enp	Male P4 Exp/Enp	
1:1:1:1	serrate	bifid	?	2	*Canuellina onchophora*
1:1:1:0	serrate	simple	3	3	*C. femur*
1:1:1:0	serrate	simple	uk	2	*C. tuba*
1:1:1:0	serrate	finger	2	2	*C. insignis*
0:1:1:?	plumose	finger	1.5	1	*C. canalis*

KG 5 – characters

1. P1 Exp-3
   n - number of setae and spines

2. P1–P4 coxa, inner edge
   n:n:n:n - number of setae and spines on P1, P2, P3 and P4

3. P1–P4 Exp-2, inner edge
   n:n:n:n - number of setae on P1, P2, P3 and P4

4. P1–P4 Enp-1, inner edge
   n:n:n:n - number of setae on P1, P2, P3 and P4

5. Pseudoperculum
   convex - convex shape, with the longest spinules in the middle
   concave - concave shape, with longest spinules at each side

KG 5

P1 Exp-3 setae	P1–P4 coxa inner setae	P1–P4 Exp-2 inner setae	P1–P4 Enp-1 inner setae	Pseudoperculum shape	
6	0:0:0:0	1:1:1:1	1:1:1:1	convex	*Brianola curvirostris*
6	0:0:0:0	1:1:1:0	1:1:1:1	convex	*B. elegans*
5?[1]	1:0:0:0	1:1:1:0	1:1:1:1	convex	*B. hamondi*[1]
5	1:0:0:0	1:1:1:0	1:1:1:1	concave	*B. sydneyensis*
5	0:0:0:0	1:1:1:0	1:1:1:0	convex	*B. vangoethemi*

1. The text of the only description (Wells & Rao 1987) states that setation of P1 Exp-3 of *B. hamondi* is identical with that of *B. sydneyensis* but the illustration shows only 4 setae and spines.

KG 6 – characters

1. Female P2 Enp-3, setae IV–V
   long - at least half as long as Enp-3
   short - less than ⅓ the length of Enp-3

2. Male P2 endopod

A - apophysis of segment 2 long, extending to the end of Enp-3; Enp-3 setae IV–V spiniform, very short , barely reaching the end of Enp-3

B - apophysis of segment 2 short, extending less than halfway along Enp-3; Enp-3 setae IV–V very long, filiform

C - segment 2 without pronounced apophysis; Enp-3 setae IV–V very long, filiform

3. Male cephalic shield, posterior edge

ornate - mid-dorsum with a posteriorly directed truncate projection; ventrolateral corners unguiform

simple - posterior edge simple, without a mid-dorsal projection; ventrolateral corners rounded

KG 6

Female P2 Enp-3 setae	Male P2 Enp	Male Cph	
long	B	ornate	*Parasunaristes cucullaris*[1]
long	C	simple	*P. chelicerata*[1]
short	A	simple	*Intersunaristes dardani*

1. The differing quality of the descriptions makes it difficult to separate females; carefully compare Fiers (1982) and Por & Marcus (1972).

KG 7 – characters

1. P2 endopod

long - apophysis of segment 1 extends to the distal edge of segment 2; Enp-2 either without apophysis or it lies beneath that of segment 1 (the description is not clear on this point)

short - segment 1 with a short apophysis that does not extend to the end of Enp-2; Enp-2 with a short apophysis that extends to the middle of Enp-3

2. P2 Enp-1, inner edge

n - number of setae

3. P4 Exp-3, seta I

long - filiform, much longer than Exp-3

short - spiniform, much shorter than Exp-3

KG 7

P2 Enp	P2 Enp-1 inner setae	P4 Exp-3 seta I	
long	0	long	*Ellucana secunda*
short	1	short	*E. longicauda*

Family Chappuisiidae

This family contains one genus and two species. It appears to be confined to groundwater linked to a few major river systems in Europe. The two species are redescribed and compared by Glatzel (1989).

KG 0 – characters

1. Antenna endopod
   n - number of setae

2. P1 Enp-2
   n - number of setae

3. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

4. Male P5
   n - number of segments

5. Female genital field
   n:n - number of openings:number of genital setae

KG 0

A2 Enp setae	P1 Enp-2 setae	P2–P4 Exp-3 setae	Male P5 segs	Genital field female	
9	3	4:4:4	3	1:2	*Chappuisius inopinus*
10	4	3:3:3	4	2:0	*C. singeri*

Family Cletodidae

KG 0 – characters

1. P1
   n:n - number of segments in exopod and endopod

2. P2–P4 exopod
   n:n:n - number of segments in P2, P3 and P4

3. P2 and P4 endopod
   n:n - number of segments in P2 and P4

4. P2–P4 exopod, distal segment
   n:n:n - number of setae and spines on P2, P3 and P4

5. P2 and P4 endopod, distal (or only) segment
   n:n - number of setae and spines on P2 and P4
   na - not applicable (endopod absent)

KG 0

P1 segs	P2–P4 Exp segs	P2 & P4 Enp segs	P2–P4 Exp distal seg setae	P2 & P4 Enp distal seg setae	
3:2	3:3:3	2:2	6:7:7	4:4	*Actinocletodes woutersi*
3:2	3:3:3	2:2	5:6:6	4:5	*Barbaracletodes carola*
3:2	3:3:3	2:2	5:6:6	4:4	*B. barbara*
3:2	3:3:3	2:2	5:6:6	3:2	*Nannopodella denisi*
3:2	3:3:3	2:2	5:5:6	3:3	*Pontocletodes ponticus*
3:2	3:3:3	2:2	4:6:6	2:3	KG 1 (p. 343)
3:2	3:3:3	2:2	4:6:6	2:2	*Stylicletodes reductus*
3:2	3:3:3	2:2	4:5:5	2:2–4	KG 2 (p. 344)
3:2	3:3:3	2:2	4:4:4	1–4:1–4	KG 3 (p. 350)
3:2	3:3:3	2:1	4:5:5	2:2	KG 4 (p. 354)
3:2	3:3:3	2:0	4:5:4–5	2:na	*Australonannopus aestuarinus*
3:2	3:3:3	0:0	5:5:5	na:na	KG 5 (p. 355)
3:2	3:3:3	0:0	4:4:4	na:na	*Intercletodes interita*
3:2	2:2:2	2:2	4:5:5	2:2	KG 6 (p. 355)
3:0	3:3:3	2:2	6:7:7	3:2	*Scintis variifurca*
3:0	3:3:3	0:0	4:4:4	na:na	*Monocletodes varians*

KG 1 – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. Caudal ramus, length relative to abdomen
   n - ratio of maximum length to length of abdomen somites 1–5

3. Caudal ramus, setae at proximal end of outer edge

small - both setae small and thin; extending only to about the middle of the ramus

long - one seta long and stout; extending to about the end of the ramus

KG 1

CR lxb	CR cf abd	CR setae	
7–11	≈1	small	*Stylicletodes longicaudatus*
4–5	≈0.6	long	*S. verisimilis*

KG 2 – characters

Note to characters 3 and 4: In *Acrenhydrosoma*, *Paracrenhydrosoma* and *Dyacrenhydrosoma* the outer proximal corner of the P5 has been modified so the long tubular pedestal that carries the outer seta of the basis appears to originate on top of, or immediately adjacent to the exopod. The pedestal is still clearly visible but care must be taken to exclude this seta when counting the number of setae on the exopod.

1. P5 endopod

mucro - terminal part of P5 a long mucroniform process

not - terminal part of P5 never mucroniform, even if elongate

2. P2 and P4 Enp-2

n:n - number of setae on P2 and P4

3. Female P5

n:n - number of setae on endopod and exopod

uk - female unknown

4. Male P5

n:n - number of setae on endopod and exopod

uk - male unknown

5. Male P3 endopod

3 - with 3 segments; segment 1 short; segment 2 elongate and with an apophysis at inner distal corner; segment 3 short and sometimes not well defined from segment 2, with 1–2 setae

2 - with 2 segments only; without an apophysis, although the outer spine may be fused to the segment and appear as an unguiform process

uk - male unknown

KG 2[1]

P5 Enp	P2 & P4 Enp-2 setae	Female P5 setae	Male P5 setae	Male P3 Enp	
mucro	2:3	2:2–3	1:2	2	KG 2/1 (p. 345)
mucro	2:2	1:2	1:2	2	*Dyacrenhydrosoma breviseta*
not	2:4	3:4	uk	uk	*Enhydrosoma micrurum*
not	2:3	5:5	uk	uk	*Stylicletodes oligochaeta*

not	2:3	4:3	0:4	2	*Enhydrosoma migoti*
not	2:3	3:2–4	2–3:2–4	2–3	KG 2/2 (p. 346)
not	2:3	uk	(2:2)?	2?	*Enhydrosoma nicobaricum*[2]
not	2:2	3:6	1:4	3	*E. baruchi*
not	2:2	3:5	2:2	2	*E. rosae*
not	2:2	2–3:5	uk	uk	*Stylicletodes minutus*[3]
not	2:2	3:3	2:3	2	*Enhydrosoma longicauda*
not	2:2	3:3	0:3	3	*Schizacron bifurcarostratus*[4]
not	2:?	3:3	uk	uk	*Enhydrosoma pontica*

1. The inadequate descriptions of *Enhydrosoma cananeiae*, *guaratubae*, *ivitteae* and *minimum* prevent their inclusion in this key. For some discussion of these species see Lang (1965a) and Fiers (1996b).
2. Known only from a male stage V copepodid. Gee & Burgess (1997) place it *incertae sedis* in *Triathrix*.
3. This species is distinguishable from the other species in this key by the very long caudal rami (about as long as abdomenal somites 1–5).
4. This species is readily distinguishable by the T-shaped apex to the rostrum, when viewed in dorsal aspect (Fig. 113).

KG 2/1 – characters

1. Caudal ramus, in dorsal view
    n - ratio of maximum length to maximum breadth

2. Abdomenal somite 4
    pseudop - with a large, irregularly dentate pseudoperculum, flanked each side by a tube pore
    spinules - with a row of long spinules, flanked by a tube pore

3. P5 baseoendopod, spinules on inner edge
    strong - 2 transverse rows of strong spinules—proximal row close to base of baseoendopod (in female this row is just below origin of proximal spine); distal row above origin of distal (female) or only (male) spine
    weak - proximal spinule row as in "strong" state; distal row very weak, only visible under very high magnification
    vest - spinule rows as above not present; a row of very small setules crosses the baseoendopod above origin of distal (or only) seta
    absent - without transverse spinule rows

4. Female P5
    n:n - number of setae and spines on endopod and exopod

KG 2/1

CR l/b	Abdomen somite 4	P5 spinule rows	Female P5 setae	
9	pseudop	absent	2:3	*Acrenhydrosoma perplexa*
>11	spinules	strong	2:2	*Paracrenhydrosoma maccalli*
≈8	spinules	weak	2:2	*P. normani*
4–5	spinules	vest	2:2	*P. karlingi*

KG 2/2 – characters

1. Rostrum

convex	- apical portion between sensilla convex or with a small median tubercle (Fig. 109)
concave	- apical portion between sensilla a smooth shallow concave curve; sensilla originate internal to the edges of this curve (Fig. 110)
triangular	- apical portion between sensilla acutely pointed, triangular (Fig. 111)
bifid	- apical portion bifid, with 2 shallow convex lobes (Fig. 112)
T	- T-shaped in dorsal view; apical portion anterior to sensilla produced as a pair of stout horns, almost without a groove between them (Figs 113, 116)
U	- shallow U- or V-shaped in dorsal view; apical portion anterior to sensilla produced as a pair of stout horns, with a shallow groove between them (Figs 114, 116)
Y	- Y-shaped in dorsal view; apical portion anterior to sensilla produced as a pair of stout horns, with a deep cleft between them (Figs 115, 116)

2. Antenna exopod

n - number of setae

3. Female P5

d *or* f:n:n	- exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod
uk	- female unknown

4. Male P5

d *or* f:n:n	- exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod
uk	- male unknown

KG 2/2

Rostrum	A2 Exp setae	Female P5	Male P5	
convex	2	d:3:4	d:3:4	*Enhydrosoma sarsi*[1]
convex	2	d:3:4	uk	*E. intermedia*[1]
convex	2	d:3:2–4	d:2:2	KG 2/2/1 (p. 347)
convex	2	f:3:2–4	f:2:2	KG 2/2/2 (p. 348)
convex	2	uk	d:2:4	*Stylicletodes stylicaudatus*
convex	1	d:3:3	f:2:3	*Strongylacron buccholzi*
bifid	2	d:3:4	d:2:2	*Enhydrosoma propinquum*, *E. parapropinquum*[1]
bifid	2	d:3:3	uk	*E. casoae*, *E. solitarum*[2]
concave	2	d:3:4	d:2:3	*E. curticauda*
triangular	3	d:3:3	d:2:2	KG 2/2/3 (p. 349)
T	1	uk	f:2:3	*Schizacron intermedius*
Y	1	uk	f:2:3	*Schizacron vervoorti*
U	1	f:3:3	f:2:2	*Schizacron barnishi*

1. In *E. propinquum* the caudal ramus is ovoid in dorsal or ventral view; in *E. parapropinquum* it is cylindrical.
2. These species can only be distinguished on the form of the ornamentation of the urosome and the P5—consult Gómez (2003).

KG 2/2/1 – characters

1. P4, relative length of endopod and exopod

short - endopod extends to about a quarter of the way along Exp-2 at most

long - endopod extends at least to about the end of Exp-2

2. Female caudal ramus

n - ratio of maximum length to maximum breadth (in dorsal view)

3. Female P5 exopod

(n = ratio of maximum length to maximum breadth—in dorsal view)

rect:n - approximately rectangular in shape

semiov:n - semiovoid in shape—inner edge almost straight, outer edge convex

ovoid:n - approximately ovoid in shape

circ:n - approximately circular in shape

4. Male caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

5. Male P5 exopod

(n = ratio of maximum length to maximum breadth—in dorsal view)

rect:n - approximately rectangular in shape

semiov:n - semiovoid in shape—inner edge almost straight, outer edge convex

KG 2/2/1

P4 Enp/Exp	Female CR l/b	Female P5 Exp	Male CR l/b	Male P5 Exp	
short	8	rect:≈8	8	rect:≈8	*Enhydrosoma sarsi*
short	≈3	rect:≈3	4.5	rect:2.2	*E. littorale*
short	2.2	semiov:≈2.5	2.2	semiov:≈2.5	*E. hopkinsi*
short	1.25	rect:3.5	1.25	rect:3.5	*E. pericoense*[1]
long	8	rect:2.5	6.5	rect:3	*E. lacunae*[2, 3]
long	≈6	rect:2.5	≈6	rect:2.5	*E. variabile*[3]
long	5–6	circ: ≈1	5–6	rect:2.5	*E. latipes*[3]
long	5.5	semiov:≈3	5.5	semiov:≈2.5	*E. herrerai*
long	≈5	ovoid:˜1.5	uk	uk	*E. intermedia*
long	3–4	rect:2.5	6.5	rect:3	*E. lacunae*[2, 3]
?	6	semiov:3	6	[fused][4]	*E. longifurcatum*[4]

1. *Enhydrosoma pericoense* is peculiar in the form of the caudal ramus, which is flask-shaped with the proximal part approximately circular and the distal part a short cylinder.
2. Data from the redescription by Fiers (1996b). The female caudal ramus is variable in shape as well as in length/breadth ratio. Note also that the exopod of P5 may be fully demarcated from, or fully fused with the basis without trace of a suture, or it may have a suture on the anterior or posterior side; hence this species also keys out in KG 2/2/2 (p. 348).
3. While females of these three species are easily differentiated [see KG 2/2 (p. 346) also], males are difficult to separate, especially as *E. latipes* is not well described. They differ in details of the caudal ramus and P3. Consult the descriptions (Fiers 1996b, for *E. lacunae*; Wells 1967, for *E. latipes*; Wells, Hicks & Coull 1982, for *E. variabile*) to confirm the identification made with this key.

4. Data from the original description (Sars 1909a) which clearly states that the male P5 exopod is fused to the basis while in the female it is distinct. All subsequent descriptions show the female P5 exopod to be fused to the basis (see KG 2/2/2). However, all of these later descriptions also differ from Sars in details of the caudal ramus and may represent at least one other species.

KG 2/2/2 – characters

1. Female P5
   - n:n - number of setae on endopod and exopod portions of the fused P5

2. Female P5
   - cleft - exopod portion separated from endopod portion by a cleft
   - seamless - exopod and endopod without a cleft separating them, outer seta (or spine) of endopod originates in angle between distal edge of endopod and inner edge of exopod; exopod recognizable because it projects beyond the distal edge of endopod
   - gap - exopod portion separated from endopod by a small gap between origin of outer seta of endopod and inner edge of exopod.

3. Female caudal ramus

   (n = ratio of maximum length to maximum breadth in dorsal view; take care in making this meaurement as the base of the ramus often is deeply embedded within the anal somite)

   - ovoid:n - approximately ovoid in shape
   - semiov:n - semiovoid in shape—outer edge almost straight, inner edge convex
   - triang:n - extreme basal part of outer edge drawn out so that the ramus resembles a triangle
   - cyl:n - cylindrical or slight tapered in shape

4. Male caudal ramus (shape always cylindrical or slightly tapered)
   - n - ratio of maximum length to maximum breadth in dorsal view (take care in making this meaurement as the base of the ramus often is deeply embedded within the anal somite)
   - uk - male unknown

5. Male P3 Enp-2, outer spine
   - long - normal, extends beyond end of Exp-3
   - medium - normal, extends to the end of Exp-3
   - short - normal, extends to about the middle of Exp-3
   - unguiform - fused to segment edge and modified as an unguiform projection
   - uk - male unknown

KG 2/2/2

Female P5 setae	Female P5	Female CR	Male CR	Male P3 Enp-2 spine	
3:4	cleft	cyl: ≈6[1]	cyl: ≈6[1]	medium	*Enhydrosoma brevipodum*[1]
3:4	cleft	cyl: ≈5.5	uk	uk	*E. sordidum*[2]
3:4	cleft	semiov:≈2.5	uk	uk	*E. sordidum*[3]

3:4	cleft	ovoid:1.75	uk	uk	*E. sordidum* [*sensu* Monard 1926a, 1928]
3:4	cleft	triang:1.5	cyl:4.4	short	*E. garienis*
3:4	seamless	cyl:4.8	cyl:4.8	medium	*E. pectinatum*
3:3	cleft	cyl:≈4	cyl:≈4	long	*E. caeni*[4]
3:3	cleft	cyl:≈4	cyl:≈4	short	*E. longifurcatum*[4, 5]
3:2	seamless	cyl:≈4	cyl:≈4	?	*E. tunisensis*
3:2	gap	cyl:≈8	cyl:6.5	unguiform	*E. lacunae*[6]
3:2	gap	cyl:≈4	cyl:6.5	unguiform	*E. lacunae*[6]
3:2	gap	semiov:≈3	cyl:6.5	unguiform	*E. lacunae*[6]

1. Text states 8.3 but measurements from the illustrations yield ≈6.
2. Por (1959b), Wells (1965) and Marinov (1971).
3. Por (1959b) and Marinov (1971).
4. The female P5 endopod is a plumose filiform seta in *E. caeni* and a broad, blunt, dentate spine in *E. longifurcatum.*
5. Data from descriptions by Roe (1960), Bodin (1970), Marinov & Apostolov (1981) and Arlt (1983). See also note 4 of KG 2/2/1 (p. 347).
6. Data from the redescription by Fiers (1996b). The female caudal ramus is variable in shape as well as in length/breadth ratio. Note also that the exopod of P5 may be fully demarcated from, or fully fused with the basis without trace of a suture, or it may have a suture on the anterior or posterior side; hence this species also keys out in KG 2/2/1 (p. 347).

KG 2/2/3 – characters

1. Cephalic shield, anterior lateral extensions
   present *or* absent

2. Caudal ramus, shape in dorsal or ventral view
   elongate - long and thin, approximately circular in cross section
   foliaceous - foliaceous in dorsal view, with distal "stem"

3. Caudal ramus, in dorsal view
   n - ratio of length from border with anal somite to apex to maximum breadth

4. P1 Enp-2
   n - number of setae and spines

5. P1, terminal setae on Exp-3 and Enp-2
   flexible - apex with a tuft of closely set long fine setules on outer side only
   rigid - limited flexibility; bipinnate throughout length; without apical asymmetrical tuft

KG 2/2/3[1]

Cph lateral horns	CR shape	CR l/b	P1 Enp-2 setae	P1 terminal setae	
present	elongate	4	3	flexible	*Triathrix montagni*
absent	foliaceous	3	2	flexible	*T. mayae*
absent	elongate	≈4.5	3	rigid	*Sphingothrix goldi*
absent	elongate	9	3	rigid	*S. kalki*

1. *Triathrix nicobarica* should also appear in this key but it is known only from a stage V female copepodid.

KG 3 – characters

1. P2 and P4 Enp-2
   n:n - number of setae on P2 and P4

2. P2–P4 Exp-2, inner edge
   n:n:n - number of setae on P2 and P4

3. Female P5
   d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod

4. Male P5
   d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod
   uk - male unknown

5. Male P3 endopod, number and form of segments
   3 - with 3 segments; segment 1 short; segment 2 elongate and with an apophysis at inner distal; segment 3 short and sometimes not well defined from segment 2, with 1–2 setae
   2 - with 2 segments; without an apophysis, although the outer spine may be fused to the segment and appear as an unguiform process
   uk - male unknown

KG 3

P2–P4 Enp-2 setae	P2–P4 Exp-2 inner setae	P5 female	P5 male	P3 male Enp	
4:4	1:1:1	d:3:5	d:0:5	3	*Cletodes latirostris*
2:4	1:1:1	d:5:5	uk	uk	*C. dissimilis*
2:4	1:1:1	d:4:5	d:0:3	3	*C. yotabis*
2:4	1:1:1	d:3:6	uk	uk	*C. millerorum*
2:4	1:1:1	d:3:5	d:2:4–5	3	KG 3/1 (p. 351)
2:4	1:1:1	d:3:5	d:0:3	2	KG 3/1 (p. 351)
2:3	1:1:1	d:3:5	d:0–1:3	2	*Cletodes limicola*[1]
2:3	1:1:1	d:2–3:5	d:0:2	2	*C. longicaudatus*[1]
2:3	1:1:1	d:2:5	d:0:5	3	*C. reyssi*[1]
2:3	1:1:1	f:2:4	uk	uk	*C. carthaginiensis*
2:3	1:1:1	d:3–4:2–3	f:2:2–3	3	KG 3/3 (p. 352)
2:3	0:0:0	d:2:3	d:1:2	2	*Paracrenhydrosoma oceaniae*[2]
2:3	1:0:0	d:4:2	f:2:2	3	*Limnocletodes wellsi*
2:2	1:1:1	d:3:2	na	na	*L. mucronatus* female[3]
2:2	1:1:1	d:2:5–6	d:0:3	3	*Cletodes longifurca*
2:2	0:0:0	d:3:5	d:0:3	2	*C. hartmannae*

2:1	0:0:1	d:2:5	d:0:3	3	*C. reductus*
2:1	0:0:1	d:1:5	d:0:2(3?)[3]	3	*C. smirnovi*[4]
1:2–3	0:0:0	d:3:5	d:0:2	2	*C. dorae*
1:2	1:0:0	d:2:5	d:0:2	3	*C. pusillus*
1:2	0:0:0	d:1:5	d:0:4	3	*C. endopodita*[5]
1:1	0:0:1	d:1:5	d:0:4	3	KG 3/4 (p. 353)
1:1	0:0:0	d:1:5	d:0:4	3	KG 3/5 (p. 353)

1. See KG 3/2 (p. 352) for further information on the female.
2. Distinguished also by the development of distal part of P5 endopod as a massive unguiform projection extending to middle of the penultimate somite.
3. See KG 3/3 (p. 352) for the male.
4. The male P5 exopod bears 2 setae on the distal edge and a very fine seta (or setule?) on the outer edge. The inner edge has a large tube pore in the middle, which must not be confused for a seta.
5. There is some doubt about whether P4 Enp-2 bears 2 setae or a seta and a spinule. See also KG 3/5 (p. 353).

KG 3/1 – characters

1. Female caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. Female P5 exopod
   n - ratio of maximum length to maximum breadth

3. Male caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth
   uk - male unknown

4. Male P5
   n:n - number of setae and spines on endopod and exopod
   uk - male unknown

KG 3/1

Female CR l/b	Female P5 Exp l/b	Male CR l/b	Male P5 setae	
≈6	≈3	uk	uk	*Enhydrosoma wellsi*
≈4	≥6	6	2:4	*Cletodes macrura*
≈2.5	≈5	uk	uk	*C. millerorum*
≈2.5	≈5	≈2.5	0:3	*C. dentatus*[1]
≈2.5	3.5	≈3	0:3	*C. spinulipes*[2]
1.7	≥6	≈3	0:3	*C. pseudodissimiloris*[2, 3]
1.2	≈5	≈3	0:3	*C. pseudodissimilis*[2, 3]
≈3.5	≈2.5	4.5	2:5	*Spinapecruris curvirostris*

1. *Cletodes dentatus* is unique in this key in having the posterior face of P4 exopod segments set with diagonal rows of short, very broad spinules.

2. The male caudal ramus in *C. spinulipes* is subconical in dorsal aspect, with the inner side weakly convex and the apex much narrower than the base. In *C. pseudodissimilis* and *C. pseudodissimiloris* it is semirectangular, with the apex only slightly narrower than the base.
3. These species "are very closely related, and can easily be mistaken for each other" (Gómez 2000b), especially the males; consult Gómez before making a decision.

KG 3/2 – characters

This key deals with females only; the males are separated in KG 3 (p. 350).

1. Female P5
   n:n - number of setae on endopod and exopod

2. Female P5
   n - ratio of maximum length to maximum breadth

3. Female caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

KG 3/2

Female P5 setae	Female CR l/b	Female P5 Exp l/b	
3:5	≈2	≈4.5	*Cletodes limicola*[1]
3:5	≈5	≈4.5	*C. longicaudatus* [*sensu* Sars 1909a]
3:5	≈7	≈6	*C. longicaudatus* [*sensu* Soyer 1964d]
2:5	≈6	≈5	*C. reyssi*

1. *Cletodes limicola* is distinguished from the other species in this key by the shape of the female caudal ramus, which is subpyriform and possesses a distinct elevated dorsal shelf proximally.

KG 3/3 – characters

Gee (1998) revises *Limnocletodes* and provides a dichotomous key to females. His paper should be consulted to confirm an identification. In this genus males are much more uniform than females and the following key does not accurately identify all males. The remaining species of the genus key out in KG 3 (p. 350).

1. Female P3 Enp-2
   n - number of setae and spines
   na - not applicable

2. Female P5 endopod
   elongate:4 - endopod with 4 seta and spines; seta III is very small or minute (note that probably there is always a tube pore alongside the origin of seta III—this must not be mistaken for a seta); elongate, a slender triangle with seta IV at the apex and setae I–III on the inner edge
   elongate:3 - endopod with only 3 setae and spines, with the subapical seta minute (it is probable that this is accompanied by a tube pore); elongate, a slender triangle with an apical seta

truncate:4 - endopod with 4 equally well developed setae or spines; rectangular, all setae originate on distal edge

na - not appllicable

3. Male P3 Exp-3, relative lengths of setae

I>II>III - seta I ≈1.4 times as long as seta II, which is ≈1.4 times as long as seta III

I≈II>>III - setae I–II subequal and at least twice as long as seta III

I≈II>III - setae I–II subequal and ≈1.5 times as long as seta III

KG 3/3

Female P3 Enp-2 setae	Female P5 Enp	Male P3 Exp3 setae	
3	elongate:4	I≈II>III	*Limnocletodes behningi*
3	elongate:4	I≈II>III	*L. secundus*
2	elongate:3	I≈II>III	*L. angustodes*
2	truncate:4	I≈II>III	*L. oblongatus*
na	na	I≈II>>III	*L. mucronatus* male[1]

1. See KG 3 (p. 350) for the female.

KG 3/4 – characters

1. Caudal ramus

short - approximately as long as the anal somite; about 2.5 times as long as broad

long - approximately twice as long as the anal somite; about 5.5 times as long as broad

2. P3 endopod, male

simple - apophysis a simple curve

spiral - apophysis a spiral curve

KG 3/4

CR length	P3 Enp male	
short	spiral	*Cletodes setosus*
long	simple	*C. tuberculatus*

KG 3/5 – characters

1. Caudal ramus

curved - proximal third (from base to origin of setae I, II and VII) much wider than remainder; from this level the distal portion tapers to apex in a shallow curve, concave to outer side

straight - inner edge convex proximally; ramus widest at about the origin of setae I, II and VII; from this point the distal portion tapers to apex with straight sides

2. Antenna exopod

seg - a long segment (≈5 times as long as broad) with a terminal plumose seta

seta - represented by a long plumose seta only

3. P4 endopod, length relative to exopod

long - endopod extends almost to end of Exp-3

medium - endopod extends almost to halfway along Exp-3

short - endopod barely reaches end of Exp-1

4. Female P5 exopod

II–III - setae II and III apical

II - only seta II apical

KG 3/5

CR shape	A2 Exp	P4 Enp/Exp	Female P5 apex	
curved	seta	long	II	*Cletodes tenuipes*[1]
straight	seg	medium	II–III	*C. confusum*[1]
straight	seg	short	II–III	*C. endopodita*[1]

1. Gómez (2000b) provides a detailed comparison of these closely similar species.

KG 4 - characters

1. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

2. P1 Enp-2

n:n - number of setae in female and male

2. Female P3 Enp-2

n - number of setae

3. Female P5

d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod

4. Male P5 (Male P5 exopod is always fused to the basis)

n - total number of setae

uk - male unknown

KG 4

CR l/b	P1 Enp-2 setae	Female P3 Enp-2 setae	Female P5	Male P5 setae	
2–3[1]	2:2	2	f:7[2]	5	*Kollerua radhakrishnai*[1, 2]

≈1	2:2	2	d:3:3	5	*K. longum*
≈1.8	2:2	2	d:3:3	uk	*K. uniarticulatum*
≈2.5	2:2	2	d:3:2	5	*K. breviarticulatum*
≈4	3:2	3	d:2:5	4	*K. birsteini*

1. Male ≈2; female ≈3.
2. There may be only 6 setae (of which one is minute), one being a tube pore.

KG 5 – characters

1. P1 Exp-3
   n - total number of setae

2. P5 female
   n - total number of setae on each of the pair of fused P5

KG 5

P1 Exp-3 setae	P5 female setae	
3	3	*Pyrocletodes coulli*
4	4	*P. desuramus*

KG 6 - characters

1. P5
   A - exopod distinct from basis
   B - exopod not recognisable; P5 a small , simple rectangular plate
   C - exopod not recognisable; P5 a large, elongate, narrow plate with dentate outer edge

2. Female P5 (when exopod is distinct from basis)
   na - not applicable (character 1 is state B or C)
   A - endopod terminates in a long seta; inner edge with a curved spine that extends at least to the end of exopod; outer edge with a mucroniform process; exopod elongate, slender, with 3 terminal and sub-terminal setae; outer edge sinuous and with a continuous row of long setules, but without prominent lobes
   B - endopod as A; exopod with 3 short terminal and sub-terminal setae; outer edge sinuous, with 3 small setose lobes and with a continuous hyaline lamellar extension
   C - endopod similar to A but outer edge with an articulated spine that extends to just beyond endopod; exopod with only 1 well developed seta; outer edge smoothly convex and setose along its length
   D - endopod terminates in a short mucroniform projection with a long seta, sub-terminal on inner edge; outer edge apparently simple but there is a long mucroniform process arising from the anterior surface of the endopod; outer edge of exopod with 2 small, rounded asetose lobes proximally
   E - endopod similar to A but spine on inner edge is short, thick and digitiform—neither this nor the dentiform process on outer edge reaches the end of the endopod; exopod slender, of uniform breadth, outer edge without lobes
   uk - female unknown

3. Male P5 (when exopod is distinct from basis)

na - not applicable (character 1 is state B or C)

A - endopod terminates in a long mucroniform process that may have small spinules or teeth on one or both edges; exopod terminally with 1 long and 1 short seta and with 1 long seta sub-terminal on outer edge; outer edge with 2 rounded spinulose lobes

B - endopod as A; exopod with setae as A but setae all of similar length and outer edge with 2 pointed digitate processes

C - endopod as A; exopod rounded at apex and with only 1 short terminal seta and 1 short sub-terminal seta on outer edge; outer edge with 2 setose rounded lobes

D - endopod not expanded; origin of endopod setae considerably proximal to origin of exopod; exopod with 3 setae terminal and subterminal; outer edge without lobes

uk - male unknown

4. Caudal ramus

A - elongate, slender, tapering evenly, approximately 3.5 times as long as maximum breadth

B - subovoid; rounded at base and apex, both edges straight; approximately twice as long as maximum breadth

C - similar to B but with outer edge serrated by the points of origin of 2 setae; distal outer corner a small mucroniform projection

D - broad and squat in dorsal view with distal part of inner edge with an hyaline lamella; terminal seta very short; approximately 1.6 times as long as maximum breadth

E - weakly triangular or pyriform; outer edge convex, distal half of inner edge concave; approximately 1.6 times as long as maximum breadth

KG 6

P5	Female P5	Male P5	CR	
A	A	A	B	*Enhydrosomella setiensis*
A	B	C	D	*E. monardi*
A	D	B	E	*E. franklini*
A	E	D	E	*E. kuehnemanni*
A	C	uk	C	*E. staufferi* [*sensu* Monard 1935]
A	uk	A	C	*E. staufferi* [*sensu* Marinov & Apostolov 1981b]
B	uk	na	C	*E. staufferi* [*sensu* Monard 1937b]
C	na	na	A	*Neoacrenhydrosoma zhangi*

Family Cletopsyllidae

The genus *Pseudocletopsyllus* is omitted from these keys as it is founded on what is probably a copepodid stage of a possibly unknown species of *Cletopsyllus*.

KG 0 – characters

1. P1 Exp-3
   n - number of setae and spines

2. P4 Exp-3, inner edge
   n - number of setae

3. Female antennule
   n - number of segments

4. Female P5 exopod
   n - number of setae

5. Male P5 exopod
   n - number of setae
   uk - male unknown

KG 0

P1 Exp-3 setae	P4 Exp-3 inner setae	Female A1 segs	Female P5 Exp setae	Male P5 Exp setae	
5	2	4	6	4	*Cletopsyllus rotundifera*
4	3	4	7	uk	*C. papillifer*
4	2	6	6	5	*Bathycletopsyllus hexarthra*
4	2	4	6	4–5	KG 1

KG 1 – characters

1. Female antennule segment 3, posterior edge
   smooth - mainly smooth; without pronounced excresences
   crenulate - crenulate; with small irregular crenulations

2. Female caudal ramus, shape as seen in dorsal view
   cyl A - approximately cylindrical; without pronounced basal swelling
   cyl B - cylindrical over most of the length, but with pronounced basal swelling, mainly on outer side, so that the basal portion is about twice the breadth of the main part of the ramus
   mod cyl - modified cylinder (the chitinous wall of the true inner edge can still be seen) but with a lamellar expansion of the inner edge
   dv - broad, dorsoventrally depressed

3. Female caudal ramus
   n - ratio of the total length to the breadth at the distal end

4. Male caudal ramus

n - ratio of the total length to the breadth at the distal end

uk - male unknown

5. Male P5 exopod

n - number of setae

uk - male unknown

KG 1

Female A1 seg 3	Female CR shape	Female CR l/b	Male CR l/b	Male P5 Exp setae	
smooth	cyl A	9	21	5	*Isocletopsyllus tertius*
smooth	cyl B	12	uk	uk	*I. quartus*
smooth	cyl B	10	9	5	*Retrocalcar brattstroemi*
smooth	cyl B	14	15	5	*R. sagamiensis*
smooth	mod cyl	6	uk	uk	*R. secundus*
crenulate	dv	6	6	4	*Cletopsyllus bacescui*

Family Cristacoxidae

KG 0 – characters

1. P1 exopod
   n - number of segments

2. P2–P4 exopod
   n:n:n - number of segments in P2, P3 and P4

3. Antenna exopod
   n:n - number of segments: number of setae

KG 0

P1 Exp segs	P2–P4 Exp segs	A2 Exp segs/setae	
3	3:3:3	0:0	KG 1
2	2:2:2	0:1	*Laophontisochra maryamae*
2	2:2:1	1:1[1]	*Laophontisochra* sp. George, 2002[1]

1. The single segment of antenna exopod is very small.

KG 1 – characters

1. P1 Enp-1, inner edge
   n - number of setae

2. Female P2–P4 endopod
   n:n:n - number of segments in P2, P3 and P4
   uk - female unknown

3. Female P2–P4 endopod, distal segment
   n:n:n - number of setae and spines on P2, P3 and P4
   uk - female unknown

4. Male P2 and P4 endopod
   n:n - number of segments in P2 and P4

5. Male P2 Enp-1, inner edge
   n - number of setae
   na - not applicable (endopod less than 2 segments)

KG 1

P1 Enp-1 inner setae	Female P2–P4 Enp segs	Female P2–P4 Enp distal seg setae	Male P2 & P4 Enp segs	Male P2 Enp-1 inner setae	
0	uk	uk	2:1	1	*Cristacoxa petkovskii*
0	1:1:1	4:5:4	1:1	na	*Cubanocleta noodti*
1	2:1:1	3:4:4	2:1	0	*Noodtorthopsyllus psammophilus*

Family Cylindropsyllidae

KG 0 – characters

1. Caudal ramus

spur	- dorsal side with an upwardly directed horn-like spur
simple	- without such a structure

2. P1 Exp-2, spine at outer distal corner

present *or* absent

3. Maxilliped

wd	- well developed; subchelate
vest	- vestigial or absent

4. P2–P4 Exp-3

n:n:n	- number of setae and spines on P2, P3 and P4
mod	- modified (see note 2)

KG 0

CR	P1 Exp-2 outer spine	Maxilliped	P2–P4 Exp-3 setae	
spur	absent	wd	3:4:4	*Boreopontia heipi*
spur	present	wd	4:5:5	KG 1 (p. 360)
spur	present	wd	3:?:3	*Stenocaris arenicola*[1]
simple	present	vest	4:5:5	KG 2 (p. 361)
simple	present	vest	3:4:4	KG 3 (p. 361)
simple	present	wd	4:5:5	KG 4 (p. 362)
simple	present	wd	4:5:4	KG 5 (p. 363)
simple	present	wd	4:5:3	*Stenocaris intermedia*
simple	present	wd	4:4:5	KG 6 (p 363)
simple	present	wd	3:4:4	KG 7 (p 364)
simple	present	wd	3:3:4	*Willemsia calceola* female
simple	present	wd	mod[2]:3:4	*W. calceola* male[2]
simple	present	wd	mod[2]:5:5	*Navalonia kerguelensis* male[2]

1. See Huys & Conroy-Dalton (1993: p. 295) for further information on the caudal ramus.
2. Segments 1 and 2 of P2 exopod are fused (as is shown by the presence of 2 outer spines). Segment 3 has a highly modified terminal spine that is fused to the segment and projects medially and bears 2 (*Willemsia*) or 3 (*Navalonia*) slender setae. See KG 4 (p. 362) for the female.

KG 1 – characters

1. Antenna exopod

seg+1	- 1 small segment bearing 1 seta
seg+2	- 1 small segment bearing 2 setae
1 seta	- represented by a single seta only

2. Female P2 and P4 endopod

n:n - number of segments in P2 and P4

3. Male P2 and P4 Endopod
n:n - number of segments in P2 and P4

4. P2 and P4 endopod, distal segment
n:n:n - number of setae on P2, P3 and P4

KG 1

A2 Exp	Female P2 & P4 Enp segs	Male P2 & P4 Enp segs	P2 & P4 Endopod distal seg setae	
seg+2	1:2	1:1	1:1	*Stenocaris kliei*
seg+2	1:1	1:1	2:4	*Evansula spinosa*
seg+1	2:2	2:2	3:2	*Stenocaropsis similis*
seg+1	2:2	2:2	2:1	*Stenocaropsis pristina*
1 seta	2:2	2:2	2:2	*Stenocaropsis valkanovi*

KG 2 – characters

1. P1 endopod, length relative to exopod
long - Enp-1 extends to end of Exp-3
short - entire endopod extends only as far as end of Exp-2 at most

2. Antenna exopod
n - number of setae

KG 2

P1 Enp/Exp	A2 Exp setae	
long	2	*Cylinula proxima*
short	2	*Cylindropsyllus ibericus*
short	1	*Cylindropsyllus laevis*

KG 3 – characters

1. P1 endopod, length relative to exopod
long - Enp-1 extends to end of Exp-3
short - entire endopod extends only as far as end of Exp-2 at most

2. P1 Enp-2, setation
1g+1c+1s - 1 geniculate seta + 1 claw + 1 setule
2g+1s - 2 geniculate setae + 1 setule
2g - 2 geniculate setae only

3. P4 Enp-2, setation
2wd - 2 well developed setae
1wd+1red - 1 well developed seta + 1 very small and weak seta

KG 3

P1 Enp/Exp	P1 Enp-2	P4 Enp-2	
long	1g+1c+1s	1wd+1red	*Cylinula arganoi*[1]
short	2g+1s	2wd	*Cylindropsyllus kunzi*
short	2g+1s	1wd+1red	*Cylindropsyllus govaerei*
short	2g	1wd+1red	*Cylindropsyllus remanei*[2]

1. Data from the redescription by Huys & Willems (1993).
2. Data from the redescription by Huys (1988a).

KG 4 – characters

1. Female P2–P4 endopod
    n:n:n - number of segments in P2, P3 and P4
    uk - female unknown

2. Female P2–P4 endopod, distal (or only) segment
    n:n:n - number of setae and spines on P2, P3 and P4
    uk - female unknown

3. Female P5
    n - number of setae and spines
    uk - female unknown

4. Male P2–P4 endopod, distal (or only) segment
    n:n:n - number of setae and spines on P2, P3 and P4
    uk - male unknown

5. Male P5
    n - number of setae and spines
    uk - male unknown
    na - not applicable

KG 4

Female P2–P4 Enp segs	Female P2–P4 Enp distal seg setae	Female P5 setae	Male P2–P4 Enp distal seg setae	Male P5 setae	
2:2:2	2:2:2	6	uk	uk	*Selenopsyllus antarcticus*[1]
2:2:2	2:2:2	5	uk	uk	*S. profundus*[1]
uk	uk	uk	2:2:2	5–6	*S. abyssalis*[1]
2:2:2	1:2:2	7	1:2:2	4	*S. dahmsi*[1]
1:1:2	1:2:2	8	na	na	*Navalonia kerguelenensis* female[2]

1. See Moura & Pottek (1998) for descriptions of *Selenopsyllus* species.
2. See KG 0 (p. 360) for the male.

KG 5 – characters

1. Caudal ramus, terminal setae

filiform - female and male: all terminal setae slender, filiform

modified - female: middle and outer setae (IV–V) fused at their base; seta V dagger-shaped and relatively short—about as long as the ramus
male: setae IV–V not fused, seta IV minute; seta V like an elongate candle, with a short filiform apical part

2. Female antennule

n - number of segments

3. Female P2–P4, distal, or only, segment

n:n:n - number of setae and spines on P2, P3 and P4

4. Female P5

n - number of setae and spines

5. Male P2 Exp-3, length relative to segments 1–2

long - Exp-3 as long as combined length of Exp-1 and Exp-2

short - Exp-3 only as long as Exp-1 or Exp-2

KG 5

CR terminal setae	Female A1 segs	Female P2–P4 Enp setae distal seg setae	Female P5 Exp-3/ Exp-1+2	Male P2
modified	7	2:1:18	short	*Stenocaris minor*
filiform	6	2:2:17	long	*S. gracilis*

KG 6 – characters

The data in this key are from redescriptions by Huys & Conroy-Dalton (2006a), who provide a table of features that discriminate between species of *Evansula.*

1. Caudal ramus, dorsal surface, spinule row proximal to origin of articulated seta

present *or* absent

2. Caudal ramus

n – ratio of maximum length to maximum breadth

3. Female anal somite, ventral

post - spinule row present in posterior part of somite

a+p - spinule row present in posterior and anterior parts of somite

uk - female unknown

4. Male anal somite, ventral, spinule row

present *or* absent

5. Male P4 endopod

n – number of segments

KG 6

CR spinules	CR l/b	Female Anal somite spinules	Male Anal somite spinules	Male P4 Enp	
present	1.9	post	absent	1	*Evansula incerta*
present	2.8	a+p	absent	2	*E. arenicola*
absent	2.8	a+p	?	?	*E. pygmaea*
absent	2.5	post	absent	1	*E. cumbraensis*
absent	2.5	uk	present	1	*E. polaris*

KG 7 – characters

1. Female P2–P4 endopod
   - n:n:n - number of segments in P2, P3 and P4
   - uk - female unknown

1. Male P2–P4 endopod
   - n:n:n - number of segments in P2, P3 and P4
   - uk - male unknown

3. P2–P4 endopod, distal segment
   - n:n:n - number of setae on P2, P3 and P4

4. Female P5
   - n - number of setae and spines
   - uk - female unknown

5. Male P5
   - n - number of setae and spines
   - uk - male unknown

KG 7

Female P2–P4 Enp segs	Male P2–P4 Enp segs	P2–P4 Enp distal seg setae	Female P5 setae	Male P5 setae	
2:1:2	uk	1:0:1	2	uk	*Stenocaris pygmaea*
1:1:2	1:1:2	2:1–2:1	3	2	*S. minuta*
1:1:2	1:2:2	2:0:1	3	2	*S. pontica*
1:1:2	1:2:2	2:0:1	2	1	*S. pontica* [*sensu* Marinov 1971][1]
uk	2:1:2	0:2:1	uk	?[2]	*S. baltica*[2]
1:1:2	2:2:2	1:1[3]:1	7	4	*Boreovermis bilobatus*
1:1:2	uk	1:1:1	4[4]	uk	*Bolbotelos longisetosus*

1. Described as *Stenocaris pygmaea*, this form is declared by Huys & Conroy-Dalton (1993) definitely not to be *S. pygmaea* but possibly is *S. pontica*.
2. The P5 of the only known specimen is damaged but seems to indicate that there is a distinct exopod, bearing several setae and articulated with a baseoendopod, the endopodal portion of which also probably bears several setae.
3. The male P2–P4 are extensively modified. P3 Enp-2 is a massive acuminate structure without trace of setae or spines.
4. Female P5 bears 4 setae and 2 setules between setae III and IV.

Family Dactylopusiidae

KG 0 – characters

1. P1
   n:n - number of segments in exopod and endopod

2. P2–P4 Exp-3
   n:n:n - number of setae and/or spines on P2, P3 and P4

3. P3–P4 Enp-2, inner edge
   n:n - number of setae on P3 and P4

4. Antenna exopod
   n - number of segments

KG 0

P1 segs	P2–P4 Exp-3 setae	P3–P4 Enp-2 inner setae	A2 Exp segs	
3:3	8:8:8	2:1	3	*Dactylopusia wrangeli*[1]
3:3	7:8:8	2:2	3	KG 1 (p. 366)
3:3	7:8:8	2:2	1	*Dactylopusioides fodiens*
3:3	7:8:8	2:1	3	KG 2 (p. 371)
3:3	7:8:8	1:1	3	*Dactylopusia brevicornis insolita*[2]
3:3	7:8:7	2:2	3	*Paradactylopodia oculata*
3:3	6–7:7:7	2:2	1	*Dactylopusioides macrolabris*
3:2	7:8:8	2:2	3	*Dactylopodopsis dilatata*
3:2	7:8:8	2:2	2	KG 3 (p. 371)
3:2	7:8:8	2:2	1	*Sewellia tropica*
3:2	7:8:8	1:2	2	*Rhynchothalestris agigensis*[2]
3:2	7:8:8	1:1	3	*Paradactylopodia incerta*
3:2	5:6:5–6	1:1	2	*Marionobiotus jeanneli*
2:3	7:8:8	2:2	3	KG 4 (p. 372)
2:3	7:8:8	2:2	2	*Diarthrodes major*
2:3	7:8:8	2:2	1	*D. aegideus*
2:3	7:8:8	2:1	3	KG 5 (p. 372)
2:3	7:8:8	2:1	2	KG 6 (p. 375)
2:3	7:8:8	2:1	1	KG 7 (p. 376)
2:3	7:8:8	1:1	2	*Diarthrodes imbricatus*
2:3	7:7:7	1:1	1	*D. gurneyi*
2:3	6:6:6	2:1	1	*D. parvulus*
2:3	?	?	2	*D. pusillus*
2:3	?	?	1	*D. novaezealandiae*
2:2	7:8:8	2:1	1	KG 8 (p. 376)
2:2	7:8:8	1:1	1	*Diarthrodes unisetosus*
2:2	?:8:?	1:?	?	*D. intermedius*
2:2	7:7:7	2:1	1	*Diarthrodes hirami*
2:2	6:7:7	2:2	3	*D. zavodniki*

2:2	?	?	1	KG 9 (p. 377)
1:3	7:8:8	2:1	3	*Diarthrodes nobilis*
1:3	7:8:8	2:1	2	*D. purpureus*
1:3	?	?	3	*D. fahrenbachi*

1. There must be some doubt as to the accuracy of the description of this species as a total of 8 setae and spines on P2 Exp-3 is very unusual in Harpacticoida. For this reason it is also included in KG 2 (p. 371).
2. Placed *incertae sedis* in *Paradactylopodia* in the Checklist.
3. Considered *incertae sedis* in the family Dactylopusiidae by Huys (1990a).

KG 1 – characters

This key contains almost all of the species of *Dactylopusia* and *Paradactylopodia*. Lang (1948) considered *Dactylopodia* (now known as *Dactylopusia*) to be heterogeneous and separated some species as a new genus, *Paradactylopodia*, relying on the form of the female genitalia as the primary indicator. As this is not described for most species (it is inherently difficult to describe and illustrate) it is not easy to compare descriptions. Lang did use other characters for correlation but it is now known that these are not absolutely reliable. Also, the published descriptions of several common species differ in characters which cannot at present be properly evaluated due to inadequate descriptions and illustrations. These keys take into account this variability, but they do rely on the available descriptions and thus must be treated with caution.

1. Female antennule
   - n - number of segments
   - uk - female unknown

2. Male P2 Enp-2
   - A - elongate, 2–2.5 times as long as broad, with either a distinct "waist" between 2 broad parts or a point where the segment abruptly narrows; with a strong spine or seta on the outer side, originating approximately at the point of narrowing—this spine or seta may be simple, or distally flagellate or laminate, or tubular and finger-like.
   - B - short, 1–1.5 times as long as broad, without immediately obvious indication of a segment fusion line; outer side without a median seta or spine—outermost spine of segment sub-terminal; outer side often with very long fine setules.
   - C - elongate, 2–2.5 times as long as broad, distal part abruptly narrows from proximal part; outermost seta or spine sub-terminal.
   - uk - male unknown

KG 1

Female A1 segs	Male P2 Enp2	
9	A	KG 1/1 (p. 367)
9	uk	KG 1/1 (p. 367)
8	A	KG 1/2 (p. 368)
8	uk	KG 1/2 (p. 368)
6	A	*Dactylopusia pauciarticulata*, *D. falcifera* [*sensu* Candeias 1959][1]
uk	A	*D. longyearbyenensis* (see also KG 1/1 and 1/2)
6	B	KG 1/3 (p. 369)
6	C	*Paradactylopodia trioculata*
6	uk	KG 1/3 (p. 369)
5	B	KG 1/4 (p. 370)

5	C	*Paradactylopodia striata*
5	uk	KG 1/4 (p. 370)

1. Candeias does not completely describe his material. This makes it difficult to compare with *D. pauciarticulata*, especially for the females. It is possible that Candeias' *falcifera* is characterised by having relatively short setae on P2–P4. His illustrations indicate that these are always shorter than the ramus on which they are borne, while the illustrations of *pauciarticulata* indicate that they are always longer—usually by as much as 50%. Males can be distinguished by the setation of P5 exopod (5 in *falcifera*, 6 in *pauciarticulata*).

KG 1/1 – characters

1. P1 Enp-1
    n - ratio of length (in midline of anterior surface) to maximum breadth

2. Caudal ramus, terminal setae
    n - number of setae with a bulbous or otherwise swollen basal portion

3. Female P5
    n:n - number of setae on endopod and exopod
    uk - female unknown

4. Female P5
    present - inner edge of baseoendopod and exopod thickened and with transverse striae extending medially
    absent - inner edge normal; transverse striae absent
    uk - female unknown

5. Male P2 Enp-2, form of outer spine
    simple - simple pointed spine, approximately straight
    complex - stout, cylindrical, with or without a laminate or scroll-like portion terminally
    uk - male unknown

KG 1/1

P1 Enp-1 l/b	CR terminal setae	Female P5 setae	Female P5 striae	Male P2 Enp-2	
≥6	1	5:6	present	complex	*Dactylopusia vulgaris dissimilis*
≈5	0	5:7	absent	complex	*D. neglecta*
≈5	0	5:6	present	complex	*D. vulgaris* s. str.[1]
≈5	0	5:6	present	uk	*D. vulgaris inornata*[1]
≈5	1	5:6	absent	uk	*D. frigida*
≈4	0	5:7	absent	simple	*D. micronyx*
≈4	0	5:6	absent	simple	*D. glacialis*
≈4	0	uk	uk	simple	*D. longyearbyenensis*[2]
3.5–4	2	5:7	present[3]	simple	*D. euryhalina*[3]

1. Females are distinguished by the presence (*vulgaris* s. str.) or absence (*v. inornata*) of 4 groups of spinules on the ventral distal edge of the penultimate segment.
2. *Dactylopusia longyearbyenensis* differs from others in this key by having a total of only 4 setae and spines on P1 Exp-3 and only 6 setae on the male P5 exopod.
3. The inner edge is thickened but transverse striae are only weakly developed.

KG 1/2 – characters

1. Female P5, transverse striae
   - B+E - inner edge of baseoendopod and exopod thickened and with transverse striae extending medially
   - B - inner edge of baseoendopod thickened and with transverse striae extending medially; exopod normal, transverse striae absent
   - absent - inner edge of baseoendopod and exopod normal; transverse striae absent
   - uk - female unknown

2. Female P2 Enp-2, inner edge
   - n - number of setae
   - uk - female unknown

3. Male P5
   - n - number of setae on endopod and exopod
   - uk - male unknown

4. Male P2 Enp-2
   - A1 - spine in middle of outer edge simple, approximately straight; both terminal setae (or spines) normal, simple.
   - A2 - spine in middle of outer edge simple, approximately straight; both terminal spines curved, blunt, finger-like.
   - A3 - spine in middle of outer edge simple, approximately straight; outer terminal spine short and curved.
   - A4 - spine in middle of outer edge simple, approximately straight; outer terminal spine sickle-shaped.
   - A5 - spine in middle of outer edge simple, approximately straight; outer terminal spine sickle-shaped; inner terminal spine arrow-shaped.
   - B - spine in middle of outer edge simple, strongly curved; both terminal setae (or spines) normal, simple.
   - C - spine in middle of outer edge thick, tapering rapidly to a flagellate tip; both terminal setae (or spines) normal, simple.
   - uk - male unknown

KG 1/2

Female P5 striae	Female P2 Enp-2 inner setae	Male P5 setae	Male P2 Enp2	
B+E	2	3:5	A2	*Dactylopusia paratisboides*
B	2	uk	uk	*D. spinipes*
B	2	3:5	C	*D. tisboides*[1, 2]
B	2	3:7?	B	*D. tisboides*[1, 3]
B	1	3:5–6	?	*D. tisboides*[1, 4]
absent	2	3:7	A1	*D. crassipes*
absent	2	3:6	A1	*D. decostata*
absent	2?	3:7	A4	*D. falcifera* s. str.[5]

absent	1	3:7	A5	*D. falcifera violacea*[5]
absent	1	uk	uk	*D. falcifera pallida*[5]
absent	1	uk	uk	*D. brozkiae*[6]
uk	uk	3.6	A3	*D. longyearbyenensis*[7]

1. *Dactylopusia tisboides* is either a variable cosmopolitan species or an as yet unresolved species complex. It has been recorded in all the worlds oceans but descriptions are available only for material from northwest Europe, the Mediterranean Sea, Black Sea, Argentina, Kerguelen and the Caroline Islands. Considerable variability has been recorded but has not been formally recognised taxonomically. This key attempts to take account of the variability but in doing so relies on some rather poor quality descriptions and illustrations and thus must be treated with caution.
2. This is the majority condition in descriptions from the Mediterranean Sea and northwest European shallow waters; see Lang (1948) but take into account note 4 below.
3. Pallares (1968a) from Argentina.
4. Sars (1905) states that P2 Enp-2 of female *Dactylopusia* has 2 inner setae, but his illustration of *D. tisboides* shows only 1, although it can be interpreted that 1 has been lost in preparation as there appears to be a socle-like structure at the appropriate location. Gurney (1927b) records the species in the Suez Canal but compounds the dilemma by stating that his specimens "agree so closely with Prof. Sars' description and figures that there can be no doubt of their identity". Gurney notes variability in setation of P5 exopod within a single male.
5. Two inner setae on female P2 Enp-2 is the most probable situation in *D. falcifera* s. str. as Willey (1935) states "leg formula as in *D. tisboides*" but Sewell's (1940) illustration of his new form *violacea* shows only 1—there is no textual description. Perhaps more importantly, Sewell makes a categorical statement that P2 Exp-1 lacks an inner seta in *violacea* (and by implication also in form *pallida*). This is a unique condition in the genus.

   Dactylopusia f. violacea and *D. f. pallida* are primarily distinguished on colour of the living specimens, but there also are differences in P1 and P5. Song, Kim & Chang (2001) provide a description of material from Korea (in which P2 Enp-2 has 2 inner setae) and make a comparison with Willey's and Sewell's descriptions.
6. I can find no good reason to distinguish *D. brozkiae* from those specimens of *D. tisboides* that have been described as having only 1 seta on the female P2 Enp-2 (see note 4 above) except that Chislenko's (1967) illustration does not show traces of an appropriate socle. It must be noted that in several species of *Dactylopusia*, including *D. tisboides*, the proximal inner seta has been recorded as originating on the posterior surface. In either situation it could easily be overlooked.
7. P1 Exp-3 with a total of only 4 setae and spines distinguishes this species from all others in this key.

KG 1/3 – characters

1. Caudal ramus
   - l>b - maximum length greater than maximum breadth
   - b>l - maximum length less than maximum breadth

2. P1 Exp-3
   - n - number of setae and spines

3. Female P2 Enp-2, inner edge
   - n - number of setae

4. Male P2 Enp-2
   - plain - outermost spine normal, filiform
   - hook - outermost spine massive, hook-shaped
   - uk - male unknown

KG 1/3

CR l/b	P1 Exp-3 setae	Female P2 Enp-2	Male P2 Enp-2	
l>b	5	2	plain	*Paradactylopodia simillima*
b>l	5	2	hook	*P. brevicornis*
b>l	4	1	uk	*P. hexarticulata*

KG 1/4 – characters

1. Caudal ramus, seta V
   - plain - filiform
   - bulbous - inner side swollen at base

2. P1 Enp-1
   - n - ratio of length (in midline of anterior surface) to maximum breadth

3. Female P5
   - n:n - number of setae on endopod and exopod

4. Male P5
   - n - number of setae on endopod and exopod
   - uk - male unknown

5. Male P2 Enp-2
   - A - with 3 slender filiform setae
   - B - inner edge with 1 very small and 1 very long seta; terminally with 2 stout, plumose setae; outer edge with a stout, sharp, slightly inwardly recurved spine, apparently fused to segment edge
   - C - with 2 setae internal to a stout, spatulate finger bent through about 90°
   - D - as C but with 1 spine and 2 setae internal to spatulate finger
   - E - as C but with bent finger pointed and with inner side deeply serrate with recurved teeth
   - F - as C but with the bent finger fused to the segment and with its distal arm very short and seemingly complexly divided at its tip

KG 1/4

CR terminal seta	P1 Enp-1 l/b	Female P5 setae	Male P5 setae	Male P2 Enp-2	
plain	3	5:6	3:5	C	*Paradactylopodia brevicornis* [sensu Sars 1905][1]
plain	2.3	5:6	3:5	C	*P. brevicornis* [*sensu* Sewell 1940][1]
plain	3.5	5:6	3:4?	F	*P. brevicornis* [*sensu* Monard 1928][1, 2]
bulbous	2.3	5:6	3:5 or 7	C	*P. brevicornis* [*sensu* Pallares 1975][1]
?	2.7	5:7	3:7	D	*P. brevicornis* [*sensu* Chislenko 1967][1]
?	?	5:5	3:5	C	*P. brevicornis* [*sensu* Wells & Rao 1987][1]
?	?	5:5–6	uk	uk	*P. brevicornis* [*sensu* Willey 1935][1, 3]
plain	2.7	5:6	uk	uk	*P. bathybates*
plain	$\geq$3	5:6	3:6	E	*P. serrata*
bulbous	3.5	5:6	3:6	A	*P. latipes*
bulbous	3.25	5:6	3:7	B	*P. koreana*

1. *Paradactylopodia brevicornis* is either a variable cosmopolitan species or an as yet unresolved species complex. It has been recorded in all the worlds oceans but descriptions are available only for material from the Arctic, northwest Europe, Mediterranean Sea, Black Sea, Bay of Bengal and Tierra del Fuego. Considerable variability has been recorded but has not been formally recognised taxonomically. It is also difficult to separate the females from those of *P. latipes*. This key [together with KG 1/3 (p. 369) and KG 2 (p. 371)] attempts to take account of the variability but in doing so relies on some rather poor quality descriptions and illustrations and thus must be treated with caution.
2. Monard (1928) states that male P5 exopod has 4 well developed setae and 2 spinules.
3. Willey (1935) records variation in the female P5 both between and within individuals.

KG 2 – characters

1. Caudal ramus, seta V
   - plain - filiform
   - bulbous - inner side swollen at base

2. Female antennule
   - n - number of segments

KG 2

CR terminal seta	Female A1 segs	
plain	5	*Dactylopusia fragilis*[1, 3]
plain(?)	8	*D. incerta*[3]
bulbous	9	*D. signata*, *D. wrangeli*[2, 3]

1. Placed *incertae sedis* in *Paradactylopodia* in the Checklist.
2. These species may be distinguished on the relative lengths of segments 7–8 of the female antennule. In *D. wrangeli* segments 7 and 8 are of equal length. In *D. signata* segment 7 is twice as long as the minute segment 8.
3. Male unknown.

KG 3 – characters

1. Female antennule
   - n - number of segments

2. Antenna exopod
   - n - total number of setae

3. P1 Exp-2
   - n - ratio of length (in mid line of anterior surface) to maximum breadth

4. Female P5 endopod
   - A - inner seta very small (all others at least twice as long); origin of outermost seta about halfway along outer edge
   - B - inner seta of moderate length (only 1 other seta is more than 1.5 times as long); origin of outermost seta almost terminal

5. Male P5
   - n:n - number of setae on endopod and exopod
   - uk - male unknown

KG 3

Female A1 segs	A2 Exp setae	P1 Exp-2 l/b	Female P5 Enp	Male P5 setae	
7	5	≈2	A	uk	*Dactylopusia pontica*
8	7	≈2.5	B	3:6	*D. pectenis*

KG 4 – characters

1. P1 Exp-2
   n - number of setae and spines

2. P1 Enp-3
   n - ratio of length of inner claw to outer claw

3. Female antennule
   n - number of segments

4. Female P5
   n:n - number of setae on endopod and exopod

5. Male P5
   n:n - number of setae on endopod and exopod
   uk - male unknown

KG 4

P1 Exp-2 setae	P1 Enp-3 inner/outer claw	Female A1 segs	Female P5 setae	Male P5 setae	
6	1.5	6	5:5	uk	*Diarthrodes brevipes*
5	≥2	8	5:5	3:5	*D. lilacinus*
5	≥2	7	4:4	3:4	*D. tetrastachyus*

KG 5 – characters

1. P1 Exp-2
   n:n:n - number of setae or spines on inner, distal and outer edges

2. P1 Enp-3
   n - ratio of length of inner to outer claws

3. Caudal ramus, seta V
   normal - without an expanded basal part
   bulbous - with an expanded, or bulbous, basal part

4. Female P5
   n:n - number of setae on endopod and exopod

5. Male P5
   n:n - number of setae on endopod and exopod
   uk - male unknown
   na - not applicable

KG 5

P1 Exp-2 setae	P1 Enp-3 claws	CR setae	Female P5 setae	Male P5 setae	
1:2:4[1]	≈2	normal	5:6	3:6	*Diarthrodes assimilis*[1]
1:2:4[1]	≈2	normal	5:6	3:5	*D. assimilis* [*sensu* Apostolov 1973a][1]
1:2:3	≈3	normal	5:5	3:5	KG 5/1 (p. 373)
1:2:3	≈3	normal	5:5	3:4	KG 5/2 (p. 374)
1:2:3	≈3	normal	5:5	uk	KG 5/1 (p. 373)
1:2:3	≈3	bulbous	5:5	uk	*Diarthrodes ponticus orientalis*[2]
1:2:3	≈2	normal	5:5	3:5	*D. cystoecus* [*sensu* Wells & Rao 1987][2, 3]
1:2:2	≈3	bulbous	5:5	uk	*D. ponticus* [*sensu* Thompson & A. Scott 1903][2, 4]
0:2:4[5]	≈2	normal	na	3:5	*D. ponticus* male [*sensu* Brian 1928][2, 5]
0:2:3	<2	normal(?)	5:6	uk	*D. roscoffensis*
0:2:3	≈3	normal	5:5	3:4	KG 5/2 (p. 374)
0:2:3	≈3	normal	5:5	uk	KG 5/2 (p. 374)
0:2:3	≈2	normal	5:5	3:5	*Diarthrodes minutus*
0:2:3[5]	≈2	normal	5:5	na	*D. ponticus* female [*sensu* Brian 1921, 1928][2, 5]
0:2:2	≈3	normal	5:5	?	*D. ponticus* [*sensu* Pesta 1959]

1. Middle two of the four setae on the outer edge are minute.
2. There are considerable differences between the several descriptions of *D. cystoecus* and *D. ponticus.* While some of this may be due to inadequacies in some descriptions it is probable authors have described real variation, but whether this is due to the species being highly variable or whether the genus contains suites of very similar, closely related species is not yet clear. See Wells & Rao (1987) for a discussion of *D. cystoecus.*
3. Type A and B females only; see KG 6 (p. 375) for the male and for type C and D females.
4. As *Pseudothalestris imbricatus*; synonymised with *D. ponticus* by Lang (1948).
5. In the male the middle two setae, of the four on the outer edge, are minute. Brian (1921) describes the outer edge of the female P2 Exp-2 as bearing only three well developed setae.

KG 5/1 – characters

1. Female P5 exopod setae I and III compared to longest seta of exopod
   - vs - very short; <20% of length of longest seta
   - s - short; 20–40% of length of longest seta
   - l - long; 40–60% of length of longest seta
   - vl - very long; >60% of length of longest seta

2. Male P5, endopod seta III and exopod seta I compared to longest seta on P5
   - vs - very short; <20% of length of longest seta
   - s - short; 20–40% of length of longest seta
   - l - long; 40–60% of length of longest seta
   - vl - very long; >60% of length of longest seta
   - uk - male unknown

KG 5/1

Female P5 Exp setae I:III	Male P5 setae Enp III: Exp I	
s:s	s:vs	*Diarthrodes cystoecus* [*sensu* Fahrenbach 1962][1]
l:vs	vl:l	*D. cystoecus* [*sensu* Pallares 1977][1]
vs:vl	uk	*D. cystoecus* [*sensu* Sewell 1940][1, 2]
vs:vs	l:s	*D. feldmanni*[3]
l:s	uk	*D. ponticus* [*sensu* Apostolov 1973b][1]

1. There are considerable differences between the several descriptions of *D. cystoecus* and *D. ponticus.* While some of this may be due to inadequacies in some descriptions it is probable that authors have described real variation, but whether this is due to the species being highly variable or whether the genus contains suites of very similar, closely related species is not yet clear. See Wells & Rao (1987) for a discusion of *D. cystoecus.*
2. As *Pseudothalestris imbricatus.*
3. Considered by Pallares (1977) as synonymous with *D. cystoecus.*

KG 5/2 – characters

1. Female antennule
   n - number of segments

2. Female P5 endopod, distal edge between setae 2 and 3
   crescent - smoothly curved and clothed with short fine setules
   not - not as above

3. Female P5 exopod, setae I and III compared to longest seta of exopod
   vs - very short; <20% of length of longest seta
   s - short; 20–40% of length of longest seta
   l - long; 40–60% of length of longest seta
   vl - very long; >60% of length of longest seta

4. Male P5, endopod seta III and exopod seta I compared to longest seta on P5
   vs - very short; <20% of length of longest seta
   s - short; 20–40% of length of longest seta
   l - long; 40–60% of length of longest seta
   vl - very long; >60% of length of longest seta
   uk - male unknown

KG 5/2

Female A1 segs	Female P5 Enp	Female P5 Exp setae I:III	Male P5 setae Enp III: Exp I	
5	not	s:s	s:s	*Diarthrodes ponticus* [*sensu* Monard][1, 2]
6	crescent	s:s	uk	*D. ponticus* [*sensu* Farran and Brian][1, 3]

1. There are considerable differences between the several descriptions of *D. ponticus.* While some of this may be due to inadequacies in some descriptions it is probable that authors have described real variation, but whether this is due to the species being highly variable or whether the genus contains suites of very similar, closely related species is not yet clear (Wells & Rao 1987).
2. As *D. mediterranea*; synonymised with *D. ponticus* by Lang (1948).
3. As *D. saturni*; synonymised with *D. ponticus* by Lang (1948).

KG 6– characters

1. P1 Enp-3
   - n - ratio of length of inner claw to outer claw

2. Female antennule
   - n - number of segments

3. Female P5 exopod, setae I and III compared to longest seta of exopod
   - vs - very short; <20% of length of longest seta
   - s - short; 20–40% of length of longest seta
   - l - long; 40–60% of length of longest seta
   - vl - very long; >60% of length of longest seta

4. Male P5, endopod seta III and exopod seta I compared to longest seta on P5
   - vs - very short; <20% of length of longest seta
   - s - short; 20–40% of length of longest seta
   - l - long; 40–60% of length of longest seta
   - vl - very long; >60% of length of longest seta
   - uk - male unknown

5. Male P2 Enp-2
   - A - distal edge plain, with 1 sickle-shaped (falciform) spine and 1 blunt, finger-like spine; outer edge with a movable spine; segment with a total of 6 free setae and spines.
   - B - distal edge plain, with 1 falciform and 1 plain spine; outer edge with a broad sharp spine fused to segment edge; segment with a total of 6 setae and spines (including the fused outer spine).
   - C - distal edge with a short mucroniform projection, 1 thin, weak seta and 1 stout curved spine; outer edge with a short mucroniform projection; segment with a total of 4 free setae and spines.
   - uk - male unknown

KG 6

P1 Enp-3 claws	Female A1 segs	Female P5 Exp setae I:III	Male P5 setae Enp III: Exp I	Male P2 Enp-2	
≈3	6	l:vs	vs:vs	A	*Diarthrodes campbelliensis*
≈3	6	vs:s	vs:vs	B	*D. cystoecus* [*sensu* Wells & Rao 1987][1, 2]
≈2	7	l:vl	l:l	C	*D. pygmaeus*
≈4	6	s:l	uk	uk	*D. sarsi*

1. The male and type C and D females only; see KG 5 (p. 372) for type A and B females.
2. There are considerable differences between the several descriptions of *D. cystoecus.* While some of this may be due to inadequacies in some descriptions it is probable that the various authors described real variation, but whether this is due to the species being highly variable or whether the genus contains suites of very similar, closely related species is not yet clear. See Wells & Rao (1987) for a discussion of *D. cystoecus*.

KG 7 – characters

1. Caudal ramus, setae at outer distal corner
   - filiform - 2 filiform setae, outer much shorter than inner
   - spiniform - 2 spiniform setae, outer more than half as long as inner

2. Female P5 exopod
   - filiform - all setae filiform
   - spiniform 3 - seta 3 very stout, spiniform, plain
   - spiniform 4 - seta 4 stout, spiniform, unispinulose

3. Male P5 endopod
   - all - all setae spiniform, bispinulose, short, approximately the same length
   - inner - inner seta spiniform, middle and outer setae filiform; all setae approximately the same length, plain
   - outer - outer seta short (about half the length of others), spiniform, bispinulose; middle and outer setae filiform, plain

4. Male P2 Enp-2
   - A - inner and outer distal corners unguiform; inner terminal seta a stout, curved spine; segment with a total of 5 setae and spines
   - B - outer distal corner unguiform; outermost seta weakly falciform; segment with a total of 4 setae and spines
   - C - without unguiform projections or modified setae; segment with a total of 4 setae and spines

KG 7

CR setae	Female P5 Exp	Male P5 Enp	Male P2 Enp-2	
filiform	spiniform 4	all	A	*Diarthrodes drachi*
filiform	filiform	outer	B	*D. nanus*[1]
spiniform	spiniform 3	inner	C	*D. latisetosus*

1. Data from Pallares (1977).

KG 8 – characters

1. Caudal ramus, form of setae or spines at outer distal corner
   - seta - filiform seta
   - spine - slender spine
   - bulbous - short, bulbous spine

2. Female antennule
   - n - number of segments

3. Female P5 exopod
   - A - approximately 1.8 times as long as broad; all setae and spines slender
   - B - approximately 1.5 times as long as broad at most; all setae and spines slender
   - C - approximately 1.4 times as long as broad; with 4 stout, spiniform setae (1 short and bulbous) and 1 filiform seta

4. Male P5 exopod
n - ratio of maximum length to maximum breadth
uk - male unknown

5. Male P2 Enp-2
A - with 4 free setae and spines; outer edge with a fused spine; 1 terminal spine weakly falciform, 1 spatulate spine
B - as A but with 5 free setae and spines
uk - male unknown

KG 8

CR setae	Female A1 segs	Female P5 Exp	Male P5 Exp	Male P2 Enp-2	
seta	7	A	2	B	*Diarthrodes dissimilis*
spine	7	B	≈1	B	*D. falcipes*
spine	6	B	1	A	*D. glaber*
bulbous	6	C	uk	uk	*D. gravellicola*

KG 9 – characters

The species in this key are incompletely described and the males unknown. Some features appear to have been described inaccurately—for example, antennule and P1 Enp-2 in *D. tumidus*—or, if they are accurate, make it likely that the species does not belong to *Diarthrodes.* Because of the lack of information any determination arrived at with this key must be treated with extreme caution.

1. Female antennule
n - number of segments

2. Female P5, form of the setae
filiform - all setae long and filiform
spiniform - endopod seta 5 and exopod setae 3–5 short, broad, spiniform

3. P1 Enp-2, setation
2+1 - 2 long claws and 1 minute seta
1+3 - 1 long claw + 3 setae

4. P1 Enp-1, origin of inner seta
middle - origin approximately in the middle of the inner edge
proximal - origin clearly in the proximal half of the inner edge

KG 9

Female A1 segs	Female P5 setae	P1 Enp-2 setae	P1 Enp-1 inner seta	
8	filiform	1+3	middle	*Diarthrodes tumidus*
7	spiniform	2+1	proximal	*D. andrewi*

Family Darcythompsoniidae

KG 0 – characters

1. Antenna exopod
   n:n - number of segments and setae
   absent - exopod absent

2. P5
   n:n - number of setae in female and male
   a - P5 absent
   uk - male or female unknown

3. P1–P4 Enp-1, inner edge
   n:n:n:n - number of setae on P1, P2, P3 and P4
   na - not applicable (endopod only 1 segment)

4. P1–P4 endopod, distal (or only) segment
   n:n:n:n - number of setae and/or spines on P1, P2, P3 and P4

5. P1–P4 Exp-3
   n:n:n:n - number of setae and/or spines on P1, P2, P3 and P4

KG 0

A2 Exp	P5 setae	P1–P4 Enp-1 setae	P1–P4 Enp-2 setae	P1–P4 Exp-3 setae	
1(0?):2	3–4:5	1:1:0:0	3:3–4:3(4?)	4:4:4:4	*Leptocaris minutus*
1(0?):2	3:6	1:1:0:0	2:4:4:4	4:4:4:4	*L. insularis*
1:1	4:4	0:0:0:1	3:4:4:4	4:5:6:6	*Darcythompsonia fairliensis*
1:1	3:3	0:0:0:1	3:4:4:4	4:5:6:6	*D. inopinata*
1:1	?[1]:3[1]	0:0:0:0	3:3:4:4	4:4:5:5	*Kristensenia* spp.[1]
1:1	a:a	0:0:1:1	3:4:3:4	4:4:4:4	*Pabellonia olganoguerae*
0:2	4:5	0:0:0:1	3:4:4:4	4:4:5:5	*Leptocaris vermiculata*
0:2	3:6	1:1:0:0	3:4:4:4	4:4:5:6	KG 1 (p. 379)
0:2	3:5	1:1:0:0	3:4:4:3	4:4:4:4	*Leptocaris pori*
0:2	3:5	1:1:0:0	3:3:3:3	4:4:4:4	*L. biscayensis*
0:2	3:5	1:0:0:0	3:3:4:4	4:4:4:4	*L. ignavus*
0:2	3:4	1:1:0:0	3:3:3:2	4:4:4:4	*L. doughertyi*
0:2	3:4	1:0:0:0	2:5:3:3	4:4:4:4	*L. kunzi*
0:2	3:4	na:1:0:0	3:4:4:4	4:4:4:5	*L. stromatolicolus*
0:2	3:?	1:0:0:0	3:4:4:4	4:4:4:4	*L. glaber*
0:2	2:3–4	1:0:0:0	3:4:4:4	4:4:5:5	*L. brevicornis*
0:2	2:uk	na:0:0:0	4:4:4:4	3:5:5:5	*L. noodti*
0:2	2:na	na:0:0:0	3:?:4:4	3:?:5:5	*L. mangalis* female
0:2	na:4	na:0:0:0	3:2–3:2–3:3	3:4:4:4	*L. mangalis* male
0:1	4:4	0:0:0:1	3:4:4:4	4:4:5:5	*Darcythompsonia neglecta*
0:1	4:4	0:0:0:0	2:4:4:4	4:4:4:5	*D. parva*
0:1	2:uk	0:0:0:0	2:4:4:4	4:4:5:5	*Leptocaris sibiricus*
absent	3:na	0:0:0:0	3:4:4:4	4:4:5:5	*L. echinatus* s. str. female[2]

absent	3:na	0:0:0:0	2:4:4:4	4:4:5:5	*L. echinatus nudus* female
absent	na:4	0:0:0:0	2:4:4:4	4:4:4:4	*L. echinatus nudus* male
absent	3:uk	1:0:0:0	1:3:3:3	4:4:4:4	*L. igneus*
absent	uk:4	1:0:0:0	2:2:2:2	4:4:4:4	*L. canariensis*
absent	6:uk	1:0:0:0	2:3:3:3	4:3:3:3	*L. armatus*
absent	4:?uk	1:0:0:1	3:3:3:2	3:3:3:4	*L. marinus*
absent	4:4	0:0:0:0	3:3:3:2	4:3:3:3	*L. minimus*
absent	4:4	0:0:0:0	3:3:3:3	3:3:3:3	*L. minimus*[3]
absent	a:uk	1:0:0:0	2:4:4:3	4:4:5:6	*L. gurneyi*
?	4:uk	1:0:0:0	3:4:4:4	4:4:5:5	*L. itoi*

1. The number of setae and spines on P5 is unclear. In *K. secunda* there are said to be 8 in the female and 5 in the male but there must be some suspicion that the innermost 4 in the female and 2 in the male are spinules or tube pores. In *K. pallida* the female, which is known only from an immature specimen, bears 4 and the male 3 true setae only.
   The species are distinguished on the form of the longest apical seta of P5 in both sexes. This is a very long (4 times the length of the P5) sparsely plumose seta in *K. pallida* but in *K. secunda* it is a shorter (<twice the length of the P5) stout heavily dentate spine.
2. Male unknown.
3. Data from Kunz (1994a).

KG 1 – characters

1. Antenna allobasis, spine on abexopodal edge
   barbed - with a multi-barbed apex
   plain - simple, pointed spine

2. Caudal ramus
   n - number of setae

3. Caudal ramus, seta V
   normal - normal filiform shape
   bulb+fili - basal portion broad and flattened and tapering to a long filiform portion
   bulbous - reduced to a broad flat bale, with only a minute terminal filiform portion

KG 1

A2 basis	CR setae	CR seta V	
barbed	6	normal	*Leptocaris mucronatus*
plain	5	bulb+fili	*L. trisetosus* s. str.
plain	5	bulbous	*L. trisetosus breviseta*
plain	5	normal	*L. trisetosus* [*sensu* Bodin 1972b]

Family Ectinosomatidae

Cautionary Note on the genera *Ectinosoma*, *Halectinosoma*, *Bradya* and *Pseudobradya*. Great care must be taken in using the keys that involve these genera. All are in urgent need of a revision that is hindered by the lack of type material and by the fact that some unverifiable descriptions undoubtedly contain important errors.

These genera have become less well differentiated as the number of species has increased and it is highly probable that some species have been assigned to the wrong genus, and that a few will require new genera to be erected to accommodate them. Huys, Gee, Moore & Hamond (1996) go so far as to state that "identification of many species within the genera *Pseudobradya*, *Halectinosoma* and *Ectinosoma* is just not possible at present".

I have no doubt they are correct, but believe that the following key at least will assist users to associate their material with a published description, or set of descriptions, that seem to most resemble their material—but I do plead that a definite identification to a known species is recorded only if authors are totally convinced they are correct.

KG 0 – characters

1. Body shape in dorsal view*

fus - fusiform, cephalic shield always attenuated anteriorly; greatest breadth usually at distal edge of cephalic shield but this may be spread over the prosome; urosome always tapering, if only slightly, towards the posterior (Figs 18–19)

d-v - dorsoventrally depressed (Fig. 50)

cyl - cylindrical; cephalic shield rectangular, body approximately the same breadth throughout its length (Fig. 20)

* This character must be determined while taking care not to depress the body.

2. Antenna exopod

n - number of segments

3. Maxilla

geniculate - geniculate between syncoxa and allobasis

straight - with at most a slight angle between syncoxa and allobasis

4. Dorsal surface of last somite*

orn - ornamented with setae, spines or claws

unorn - nude; without ornamentation

* This character is concerned only with the paired structures (or groups of spines or setae) that occur on either side of the median cleft. It is not concerned with the one or more transverse rows of setules, which may be present and may extend on to the dorsal surface.

5. P1 endopod

3:n - 3 segments; non-prehensile

3:p - 3 segments; prehensile

2:n - 2 segments; non-prehensile

2:p - 2 segments; prehensile

KG 0

Body shape segs	A2 Exp	maxilla	last somite	P1 Enp	
fus	3	straight	unorn	3:n	KG 1 (p. 381)
fus	3	geniculate	unorn	3:n	KG 2 (p. 389)
fus	3	geniculate	unorn	3:p	KG 3 (p. 394)
fus	2–3	geniculate	unorn	2:n	KG 4 (p. 394)
fus	2–3	geniculate	unorn	2:p	KG 5 (p. 395)
fus	2	geniculate	unorn	3:n	KG 6 (p. 396)
fus	1	geniculate	unorn	2:p	KG 7 (p. 397)
d-v	3	geniculate	unorn	2:n	*Peltobradya bryozoophila*
cyl	3	straight	orn	3:n	KG 8 (p. 398)
cyl	1	straight	unorn	3:n	KG 9 (p. 399)
cyl	2–3	straight	unorn	3:n	KG 10 (p. 400)
cyl	2	geniculate	unorn	2–3:n	KG 11 (p. 402)
cyl	2	geniculate	orn	2:n	KG 12 (p. 403)
cyl	0	straight	unorn	2:n	*Ectinosomoides longipes*

KG 1 – characters

Caution: Please read the Cautionary Note (p. 380) before using this key.

1. Female antennule segment 3
   short - less than 3 times as long as broad
   long - equal to or greater than 3 times as long as broad

2. Caudal ramus, seta V
   extreme - about twice as long as the entire body
   long - about as long as the entire body
   short - considerably shorter than the entire body

3. P1–P4 Exp-3, outer edge
   n:n:n:n - number of spines on P1, P2, P3 and P4

4. P5
   n(n) - total number of setae on the edges of all parts of P5 (number of accessory seta on anterior face of exopod)

5. Body surface*
   rect - with distinctive subrectangular pores (or tubercles)—the U-pores* of Seifried (1997)
   not - not as above; body surface may have simple pit-like pores* or small circular raised tubercles*

* See Seifried (1997) for an explanation of the these terms.

KG 1

Female A1 seg 3 l/b	CR setae	P1–P4 Exp-3 outer spines	P5 setae	Body surface	
long	extreme	2:2:2:2	6(1)	not	*Microsetella norvegica*
long	long	2:2:2:2	6(1)	not	*Microsetella rosea*
long	short	3:2:2:2	6(1)	not	*Halectinosoma unicum*
short	short	3:3:3:3	7(0)	rect	KG 1/1 (p. 382)
short	short	3:3:2:2	7(0)	rect	KG 1/2 (p. 384)
short	short	2:2:2:2	7(0)	rect	KG 1/3 (p. 385)
short	short	3:3:3:3	6(1)	not	KG 1/4 (p. 385)
short	short	3:3:2:2	6(1)	not	*Halectinosoma gothiceps*
short	short	3:2:2:2	6(1)	not	*H. erythrops*
short	short	2:2:2:3	6(1)	not	*H. littorale*
short	short	2:2:2:2	6(1)	not	KG 1/5 (p. 387)
short	short	?:?:?:2	6(1)	not	*Halectinosoma concinnum*
short	short	2:2:2:2	6(0)	not	*Rangabradya indica* female[1]
short	short	2:2:2:2	5(0)	not	KG 1/6 (p. 388)

1. See KG 1/6 (p. 388) for the male.

KG 1/1 – characters

Results obtained with this key must be treated with extreme caution and checked against the best description available.

While identification to the genus *Ectinosoma* is made reasonably straightforward by the characteristic form of the P5 and the presence of subrectangular or U-shaped tubercles, the species often are differentiated by small, subtle and difficult to observe characteristics of the body ornamentation and of the mouthparts (e.g. see Seifried 1997).

In addition to this and to the problems caused by the incomplete or inadequate descriptions of many of the older species, the situation is made worse by the undoubted presence of many more morphospecies than have yet been described (e.g. see Mielke 1979).

1. Cephalic shield
   - A - more or less uniformly dark brown to black pigmented (which is not destroyed by alcohol or formalin preservative)
   - B - without dark colouration but with a pair of prominent deep red patches between the bases of antennule and antenna (the colour is destroyed by alcohol, but the location of the patches can still be seen; formalin tends to reduce the intensity of the colour)
   - C - without dark colouration; without coloured patches

2. Antenna exopod, relative length of segments 1 and 2
   - ≈1 - approximately equal
   - ≈2 - significantly greater than 1, but not much greater than 2
   - ≈3 - significantly greater than 2, but not much greater than 3

3. Maxilliped basis, ratio of length to breadth

≤4 - less than or equal to 4

≥5 - equal to or greater than 5

4. P1–P4, length of exopod relative to endopod

x:x:x:x - for P1, P2, P3 and P4 where x represents one of two states

S - short; exopod reaches at most to the middle of Enp-3

L - long; exopod reaches at least to the middle of Enp-3

KG 1/1

Cph colour	A2 Exp-1/ Exp-2	Maxilliped basis l/b	P1–P4 Exp/Enp	
A	≈2	≤4	S:S:L:L	*Ectinosoma melaniceps*
B	≈2	≤4	S:?:?:S	*E. normani*
C	≈1	≤4	L:S:S:L	*E. nonpectinatum*
C	≈1	≤4	S:?:?:?	*E. obtusum*
C	≈2	≤4	S:S:S?:S	*E. dentatum*
C	≈2	≤4	S:S:S:S	*E. virginensis*
C	≈2	≤4	S:S:S:L	*E. breviarticulatum*, *E. paranormani* [1]
C	≈2	≤4	S:S:L:L	*E. pectinatum*
C	≈2	≤4	S:L:L:L	*E. vervoorti*
C	≈2	≥5	S:S:?:S	*E. tenuipes*, *E. papuarum*, *E. barbararum*, *E. tegula*[2]
C	≈2	?	?:?:?:?	*E. tholophilos*[3]
C	≈3	≤4	S:S:L:L	KG 1/1/1
C	?	≥5	S:?:?:?	*Ectinosoma compressum*
C	?	?	S:?:L:?	*E. tholomiges*[3]

1. Females can be distinguished by the P5. In *E. paranormani* a long setule originates at the site of the tubercle on the inner edge of the exopod and extends to the distal edge—note that this setule is very slender and lies closely apposed to the edge of the exopod and thus often is difficult to observe. The male of *E. breviarticulatum* is not known.
2. *Ectinosoma papuarum*, *barbararum* and *tegula* are extremely similar and distinguished mainly on fine details of somitic ornamentation (Seifried 1997). *Ectinosoma tenuipes* is partially redescribed by Lang (1965a).
3. These two Brazilian species are very poorly described.

KG 1/1/1 – characters

1. P5, relationship. of exopod to basis

x:x - for female and male, where x represents one of the following states

free - basis and exopod completely demarcated from each other

fused - basis and exopod totally fused together

partial - exopod fused to basis on anterior surface only (line of demarcation visible on posterior side)

uk - male or female unknown

2. P5 endopod, seta II

x:x - for female and male, with x represents one of the following states

long - seta II extends far beyond distal edge of exopod

short - seta II extends only to the distal edge of exopod uk - male or female unknown

KG 1/1/1

P5	P5	
Benp/Exp	Enp	
seta II		
free:uk	long:uk	*Ectinosoma ghardaqense*
fused:uk	long:uk	*E. porosum*
partial:uk	long:uk	*E. mexicanum*
partial:free	short:short	*E. carnivora*

KG 1/2 – characters

Results obtained with this key must be treated with extreme caution and checked against the best description available.

While identification to the genus *Ectinosoma* is made reasonably straightforward by the characteristic form of the P5 and the presence of subrectangular or U-shaped tubercles, the species often are differentiated by small, subtle and difficult to observe characteristics of the body ornamentation and of the mouthparts (e.g. see Seifried 1997).

In addition to this and to the problems caused by the incomplete or inadequate descriptions of many of the older species, the situation is made worse by the undoubted presence of many more morphospecies than have yet been described (e.g. see Mielke 1979).

1. P1–P4 Exp-3
   n:n:n:n - number of setae and spines on P1, P2, P3 and P4

2. P1–P4, length of exopod relative to endopod
   x:x:x:x - for P1, P2, P3 and P4 where *x* represents one of two states
   S - short; exopod reaches at most to the middle of Enp-3
   L - long; exopod reaches at least to the middle of Enp-3

3. Antenna exopod, relative length of segments 1 and 2
   ≈1 - approximately equal
   ≈2 - significantly greater than 1, but not much greater than 2
   ≈3 - significantly greater than 2, but not much greater than 3

4. P5 exopod, inner edge
   A - Female with a long setule originating alongside the tubercle; male (where known) with a short broad spinule originating immediately distal to the tubercle
   B1 - Female with a minute spinule (or spiniform projection?) at the distal end and with a few small spinules at the base of the tubercle, in a row that extends on to the anterior face of the exopod; male unknown
   B2 - as B1 but apparently lacking the spinule row
   C - Female with a long spiniform projection in the distal half of the edge and a row of small spinules between the base of this and the tubercle; male with a spiniform projection as in the female but without the spinule row or tubercle
   D - without accessory setules or spinules

5. Maxilliped basis, ratio of length to breadth

≤4 - less than or equal to 4

≥5 - equal to or greater than 5

KG 1/2

P1–P4 Exp-3 setae	P1–P4 Exp/Enp	A2 Exp-1/ Exp-2	P5 Exp inner edge	Maxilliped basis l/b	
6:7:7:7	S:S:L:L	≈2	A	≥4	*Ectinosoma californicum*
6:7:7:7	S:S:S:L	≈2	B1	≥4	*E. barbicauda*
6:7:7:7	S:S:S?:S	≈2	C(D?)[1]	≥4	*E. dentatum*[1]
6:7:7:7	S:S:S:S	≈2?	B2	≥4?	*E. paradentatum*
6:7:7:7	S:S:S:S	≈3	D	?	*E. acutorostratum*
6:7:6:6	S:S:S:S	≈1	A	≥5	*E. reductum*
6:7:6:6	S:S:?:?	?	D	≥5	*E. litorale*

1. Character state C best describes the P5 of the original description and of Wells & Rao's (1987) material. Other authors illustrate P5 as state D but do not do this in the context of a description that pays due attention to the extremely fine detail that must be recorded in descriptions of *Ectinosoma* species.

KG 1/3

This KG contains four species—*Ectinosoma pruvoti*, *E. mediterraneum*, *E. soyeri* and *E. andamanica*—that are characterised by a slight reduction of setation of P1–P4 and by their general body shape being more linear than many other species of the genus. In most other respects they are extremely similar and can only be differentiated by a careful comparison of the body ornamentation and details of the appendages, though *E. mediterraneum* also has a more elongate and slender maxilliped basis (approximately 8 times as long as broad) than the other three species (not more than 5 times as long as broad).

Because it would have to rely on such fine details that are difficult to describe in a few words I would have little confidence in a key constructed from published descriptions that vary so much in quality. Thus I advise readers to consult the descriptions directly.

KG 1/4 – characters

Caution: Please read the Cautionary Note (p. 380) before using this key.

Modern descriptions of species of the genus *Halectinosoma* indicate the precise nature of the ornamentation of the body and appendages (by setules, spinules, etc. and by sculpturing of the integument, including the distal edge of somites), the distribution pattern of tubercles or cuticular pores, form of the P5, relative lengths of parts of appendages (including the major setae or spines), are all likely to provide good characters for defining morphospecies.

Unfortunately, few species descriptions provide the necessary information—even basic structures are not described for many species. This makes identification to species by means of a key a difficult and uncertain exercise. This key can do no more than guide the user towards known species that appear to resemble the material being examined.

It is absolutely essential that any identification be checked against available descriptions where the fine details may be able to be compared. For these reasons I deem it wise not to attempt to key out all species.

1. P1–P4 Exp-3

n:n:n:n - number of setae and spines on P1, P2, P3 and P4

2. Coloured patches*

A - cephalic shield with a pair of red circular patches approximately between the bases of antennule and antenna

B - cephalic shield with a large diffuse red patch anteromedially

C - antennule with a dark patch on segment 1

none - without coloured patches

* It is often reported that the general body is dark grey, brown or brown-yellow in colour; the states given above are additional to this general background colour.

3. P5, origin of accessory seta on anterior face

x:x - for female and male, where x represents one of the following states

vP - very proximal; close to the articulation (or suture) between basis and exopod

vD - very distal; close to the distal edge of the exopod

mid - neither of the above

abs - accessory seta absent

uk - male or female unknown

4. P4, length of exopod relative to endopod

vS - very short; exopod reaches to origin of Enp-3 at most

S - short; exopod reaches at most to the middle of Enp-3

L - long; exopod reaches at least to the middle of Enp-3

vL - very long; exopod reaches to end of endopod at least

5. Maxilliped basis, ratio of maximum length to maximum breadth

<2 - less than twice as long as broad

≈2–4 - approximately 2–4 times as long as broad

4–6 - 4–6 times as long as broad

n - where *n* is greater than 6

KG 1/4

P1–P4 Exp-3 setae	Colour	P5 accessory seta female:male	P4 Exp/ Enp	Maxilliped basis l/b	
6:7:7:7	A	vP:vP	L	<2	*Halectinosoma hydrofuge*
6:7:7:7	none	vP:vP	L	?	*H. distinctum*
6:7:7:7	none	vP:uk	S	≈2–4	*H. fusum*
6:7:7:7	none	mid:uk	L	<2	*H. spinicauda*
6:7:8:8	A	vD:vD	S	≈2–4	*H. winonae*
6:7:8:8	A	mid:uk	?	?	*H. diops*
6:7:8:8	B	vP:vP	L	≈2–4	*H. arenicola* [*sensu* Itô 1973]

6:7:8:8	C	mid:mid	L	<2	*H. pterinum*
6:7:8:8	none	vP:vP	S	≈2–4	*H. perforatum*
6:7:8:8	none	vP:vP	L	≈2–4	*Halectinosoma* spp.[1]
6:7:8:8	none	vP:vP	?	≈2–4	*H. arenicola* [*sensu* Rouch 1962], *H. inhacae*
6:7:8:8	none	vP:mid	S	≈2–4	*H. cooperatum*
6:7:8:8	none	vP:mid	?	≈2–4	*H. fusiforme*
6:7:8:8	none	vP:uk	vS	≈2–4	*H. valeriae*
6:7:8:8	none	vP:uk	L	≈2–4	*Halectinosoma* spp.[2]
6:7:8:8	none	vP:uk	L	4–6	*H. huysi*
6:7:8:8	none	vP:vP	?	4–6	*H. canaliculatum*
6:7:8:8	none	vP:uk	?	?	*H. clavatum*
6:7:8:8	none	vD:vD	L	≈2–4	*H. otakoua*, *H.dimorphum*
6:7:8:8	none	vD:mid	L	≈3	*H. elongatum*
6:7:8:8	none	vD:uk	L	≈2–4	*H. gascognense*
6:7:8:8	none	mid:uk	S	≈2–4	*H. longisetosum*, *H. monardi*
6:7:8:8	none	mid:uk	L	≈2–4	*Halectinosoma* spp.[3]
6:7:8:8	none	mid:uk	vL	<2	*H. paraspinicauda*
6:7:8:8	none	mid:mid	?	≈2–4	*H. abrau*[4]
6:7:8:8	none	mid:uk	?	≈2–4	*H. brevirostre*
6:7:8:8	none	mid:uk	?	8–9	*H. tenerum*
6:7:8:8	none	mid:uk	?	?	*H. inopinatum*, *H. mixtum*

1. (a) *Halectinosoma angulifrons*, *argyllensis*, *brunneum*, *chrystalli*, *crenulatum*, *denticulatum*, *neglectum*, *propinquum* (see Clément & Moore (1995) for descriptions of most of these species and a key to females).
   (b) *Halectinosoma bodotrianensis*, *herdmani*, *itoi*, *pilosum* (see Clément & Moore (2001) for descriptions of most of these species and a key to females).
2. *Halectinosoma ornatum*, *paradistinctum*, *proximum*, *pseudosarsi*, *rouchi*, *similidistinctum*,
3. *Halectinosoma armiferum*, *brittanicum*, *chislenki*, *kunzi*, *travei.*
4. See Clément & Ólafsson (2001) for material pertinent to *H. abrau* in the Baltic Sea.

KG 1/5 – characters

Caution: Please read the Cautionary Note (p. 380) before using this key.

1. P1–P4 Exp-3
   n:n:n:n - number of setae and spines on P1, P2, P3 and P4

2. P1–P4 Enp-3
   n:n:n:n - number of setae and spines on P1, P2, P3 and P4

3. P1–P4 Exp-1, inner edge
   n:n:n:n - number of setae on P1, P2, P3 and P4

4. Maxilliped basis
   n - ratio of maximum length to maximum breadth
5. P5 endopod
   x:x - for female and male, where x represents one of the following states
   o - outer seta much longer than inner
   ≈ - setae approximately equal in length

i - inner seta much long than outer
uk - male or female unknown

KG 1/5

P1–P4 Exp-3 setae	P1–P4 Enp-3 setae	P1–P4 Exp-1 inner	Maxilliped basis l/b	P5 Enp setae	
5:6:6:6[1]	5:5:5:5	0:1:1:1	≈2	i:i	*Halectinosoma curticorne*[1]
5:6:6:6	5:5:5:5	0:1:1:1	≈4	i:i	*H. langi*
5:6:6:6	5:5:5:5	0:1:1:1	≈4	i:uk	*H. abyssicola*[2]
5:6:6:6	5:5:5:5	0:1:1:1	8–9	≈:uk	*H. oblongum*
5:6:6:6	4:4:4:4	0:0:0:0	6–7	i:i	*H. tenuireme*
5:5:5:6	5:5:5:5	0:1:1:1	≈4	i:≈	*H. japonica*[3]
5:?:?:6	5:?:?:5	0:?:?:1	≈4	≈:uk	*H. longicorne*
5:?:?:5	5:?:?:5	0:?:?:1	≈4	o:uk	*H. gracile*

1. The setation of P1–P4 Exp-3 is wrongly quoted as 5:6:7:7 by Lang (1948: p. 191, Tabelle III). *H. curticorne* is also distinguished from the other species in the key in possessing a darkly pigmented patch on the first segment of the antennule.
2. *Halectinosoma abyssicola* can be distinguished from other species in this key by the extreme difference in length between the setae of the inner expansion of the P5 endopod—the outer seta is very long and approximately 4 times as long as the inner seta.
3. Described as *Ectinosoma* and now usually placed as *incertae sedis* in *Halectinosoma*.

KG 1/6 – characters

1. P1–P4 Exp-3
   n:n:n:n - number of setae and spines on P1, P2, P3 and P4

2. P1–P4 Enp-3
   n:n:n:n - number of setae and spines on P1, P2, P3 and P4

KG 1/6

P1–P4 Exp-3 setae	P1–P4 Enp-3 setae	
5:6:6:6	5:5:5:5	*Rangabradya indica* male[1]
5:5:5:4	5:5:5:3	*Halectinosoma uniarticulatum* female (male unknown)[2]

1. See KG 1 (p. 381) for the female.
2. Karanovic & Pesce (2001) argue this species cannot belong to *Halectinosoma* or any other known genus but must be placed as *incertae sedis* in the family.

KG 2 – characters

Caution: Please read the Cautionary Note (p. 380) before using this key.

1. P5
   - d - exopod distinct from basis; both exopod and endopod well developed
   - f1 - exopod fused to basis; exopod and endopod moderately well developed, separated by a deep cleft
   - f2 - P5 reduced to a simple plate; separation between endopod and exopod marked, at most, by a notch

2. P1–P4 Exp-3
   - n:n:n:n - number of setae and spines on P1, P2, P3 and P4

3. P1–P4 Enp-2
   - n:n:n:n - number of setae on P1, P2, P3 and P4

4. Antenna Exp-1
   - n - number of setae

5. Maxilliped
   - A - usually robust; syncoxa with 1 seta; basis relatively broad (usually only ≈2–3 times as long as broad); endopod distinct from basis, with only 3 large setae (it is probable that a further, small or very small seta also is present; some descriptions do not record this)
   - B - usually robust; syncoxa with 2 setae; basis relatively broad (usually only ≈2–3 times as long as broad); endopod, though recognizable, is fused to basis at an angle, with 4 large setae
   - C - reduced; syncoxa with 1 seta; endopod fused to basis without trace of suture, with 3 setae
   - D - slender; syncoxa with 2 setae; basis cylindrical (≈ 6 times as long as broad); endopod distinct from basis, with 3 large setae

KG 2

P5	P1–P4 Exp-3 setae	P1–P4 Enp-2 setae	A2 Exp-1 setae	Maxilliped	
f1	6:7:8:8	1:1:1:1	2	B	*Bradya* (*Parabradya*) *bodini*
f2	6:7:8:8	1:1:1:1	2	B	KG 2/1 (p. 390)
d	6:7:8:8	1:2:2:1	2	C	*Ectinosomella nitidula*
d	6:7:8:8	1:2:1:1	2	B	*Bradya* (*Bradya*) *furcata*
d	6:7:8:8	1:1:2:1	0	A	*Pseudobradya scabriuscula*
d	6:7:8:8	1:1:1:1	2	B	KG 2/2 (p. 390)
d	6:7:8:8	1:1:1:1	1	B	*Bradya* (*B.*) *pugiochaeta*
d	6:7:8:8	1:1:1:1	0–1	A	KG 2/3 (p. 391)
d	6:7:8:8	1:1:1:1	2	D	*Halectinosoma armiferum*
d	6:7:8:8	0:0:0:0	1	A	*Pseudobradya exilis*[1]
d	6:7:8:8	0:0:0:0	0	A	*P. digitata*
d	6:7:8:7	1:1:1:1	0	A	*P. major*
d	6:7:8:6	1:1:1:1	0	A	*P. distinctum*
d	6:7:7:8	1:1:1:1	2	B	*Bradya* (*B.*) *proxima*

d	6:7:7:7	1:1:1:1	1	A	KG 2/4 (p. 394)
d	6:7:7:7	1:1:1:1	0	A	*Pseudobradya robusta*
d	5:6:7:7	1:1:1:1	0(1?)[3]	A	*P. barroisi*[2, 3]
d	5:6:7:6	1:1:1:1	1	A	*P. oligochaeta*[2]
d	6:?:8:?	1:?:1:?	2	A	*P. ambigua*[4]

1. The absence of an inner seta on P1–P4 Enp-1 in *P. exilis* is confirmed by my re-examination of material from Scotland (Wells 1965a) which otherwise agrees with the original description, especially with regard to the P5.
2. In these species—and others in KG 2/3 (p. 391) and 2/3/1 (p. 394)—the proximal segments of the female antennule are pigmented brown or black (this pigment persists in alcohol and formaldehyde). In *P. barroisi* there is a small dark patch on segments 1 and 2. In *P. oligochaeta* the darkest patch is on segment 3, with less dense colouration extending over segments 1–3. Males of these species (where known) also have coloured patches on the antennule, but the distribution may be more widespread than in the female.
3. Antenna exopod is 3 segmented in the original description of *P. barroisi* but Por (1968a), in redescribing the female from new material, describes it as havings only 2 segments, with the first showing a medial constriction but without trace of a suture. There is little doubt that this species more closely morphologically resembles species in this key than those in KG 6 (p. 396).
4. This species has many peculiarities that distinguish it from all other ectinosomatids, including a sexually dimorphic endopod of P2—a feature which suggests that it does not belong in this family. Refer to Sars (1904).

KG 2/1 – characters

Great care must be taken in using this key. The species are not very well known and the differences between them appear to be small.

Bradya confluens is known only from an incomplete description of a single female and *B. atlantica* only from a single male. Also, although *B. dilatata* has been recorded several times from the Atlanto-Mediterranean area apparently the male remains unknown—it certainly has yet to be described—and identification rests on the good, but by modern standards, inadequate original description.

1. P5
   n - total number of setae on each of the pair of P5

2. Mandible exopod
   n - number of setae

KG 2/1

P5 setae	Mandible Exp setae	
7	6	*Bradya* (*Parabradya*) *dilatata*
7	5	*B.* (*P.*) *atlantica*
8	?	*B.* (*P.*) *confluens*

KG 2/2 – characters

Great care must be taken in using this key. Not only does it rely on relatively subtle differences between character states, but it is accepted by all authorities that the genus *Bradya* is in need of revision. Unfortunately, this is hindered by the rarity of most species and the lack of analysis of variability in populations attributed to the one or two widely distributed species. The fact that the male has been described for only two of the eleven species is also a hindrance. It is also widely recognised that many undescribed species of *Bradya* are likely to be present in marine sublittoral sediments.

1. Caudal ramus
    n - ratio of maximum length (in dorsal view from base of the ramus to the origin of the terminal setae) to maximum breadth

2. P2 Enp-3
    n - number of setae and spines

3. Female P5 endopod, outer seta
    ensiform - a broad bladed spiniform shape
    slender - evenly tapering, flexible seta

4. Female P5 exopod, absolute length of setae of distal edge
    elongate - at least 1 seta reaching as far as the caudal ramus
    short - setae seldom longer than the genital somite

5. Female P5 exopod, relative length of distal edge setae I and II

KG 2/2

CR l/b	P2 Enp-3 setae	Female P5 outer seta	Female P5 absolute length distal setae	Female P5 relative length distal setae	
≈2	5	slender	short	II>I	*Bradya* (*Bradya*) *simulans*[1]
<1	6	slender	short	I>II	*B.* (*B.*) *minutiseta*[1]
<2	5	ensi	short	I>II	*B.* (*B.*) *cladiofera*[2]
<2	5	slender	elongate	II>I	*B.* (*B.*) *macrochaeta*[1]
<2	5	slender	short	I>II	*B.* (*B.*) *typica*[2]
<2	5	slender	short	II>I	*B.* (*B.*) *scotti*[1]
≈1	5	slender	short	I>II	*B.* (*B.*) *congenera*[1]
≈1	5	slender	short	II>I	*B.* (*B.*) *theodori*[1]

1. The male is unknown in these species.
2. In *B. typica* the male P5 is similar to that of the female and thus both sexes of this species key out with these characters.
3. In *B. cladiofera* the male P5 differs considerably from that of the female. It is much reduced in size and in the degree of development of the endopod. It is the inner endopod seta that is ensiform, the outer being very small, and the relative length of the exopod setae is II>I, with the seta II ensiform.

KG 2/3 – characters

Caution: Please read the Cautionary Note (p. 380) before using this key.

The species attributed to *Pseudobradya* are often very similar in morphology to those attributed to *Ectinosoma* and *Halectinosoma* and it is highly probable some species have been assigned to the wrong genus, and that a few (e.g. *Pseudobradya ambigua*) will require new genera to be erected to accommodate them. Defining *Ectinosoma, Halectinosoma, Pseudobradya* and *Bradya* has become very difficult, though the works of Clément & Moore (1995) on *Halectinosoma* and of Seifried (1997) on *Ectinosoma* make an important advance.

Therefore, I must repeat the warning that any identification arrived at with this key must be checked against published descriptions or reference material and a positive outcome must only be specified if there is no doubt in the mind of the author that the description is accurate and the resemblance to their material is exact.

1. P1–P4 Enp-1
   n:n:n:n - number of setae on P1, P2, P3 and P4

2. Caudal ramus
   n - ratio of length (in dorsal view from base of the ramus to the origin of the terminal setae) to maximum breadth

3. Antenna Exp-1, number and length of setae
   0 - setae absent
   1 - 1 moderately sized seta, reaching the proximal part of segment 3
   1 long - 1 very long seta, reaching to at least halfway along segment 3
   1 rud - 1 very small seta, not reaching to the end of segment 2

KG 2/3

P1–P4 Enp-1 setae	CR l/b	A2 Exp-1 setae	
1:1:1:1	≈3	1	*Pseudobradya crassipes*
1:1:1:1	1.8	0	*P. acuta*[1]
1:1:1:1	≈1.5	1 rud	*P. beduina*[2]
1:1:1:1	≈1	0–1	KG 2/3/1
1:1:1:1	<1	1 long	*P. rhea*[2]
1:1:1:1	<1	1	*P. truncatiseta*
1:1:1:1	<1	1 rud	*P. peresi*
1:1:1:1	<1	0	*P. arctica*, *P. soyeri* male[3]
1:1:1:1	≈2	0	*P. soyeri* female

1. Given the knowledge of the genus at the time this species was described by Sars (1904), it is most probable that the P1–P4 setation given here is correct.
2. In these species—and others in KG 2 (p. 389) and 2/3/1 (p. 392)—the proximal segments of the female antennule are pigmented brown or black (this pigment persists in alcohol and formalin). The pigmentation may be in the form of a few small spots (*P. rhea*) or one large patch on segment 1 (*P. minor*, *P. pulchella*), sometimes with a surrounding area of less dense pigment. In *P. barroisi* there is a small dark patch on segments 1 and 2. In *P. oligochaeta* and *P. pulchera* the darkest patch is on segment 3, with less dense colouration extending over segments 1–3. Males of these species (where known) also have coloured patches on the antennule, but the distribution may be more widespread than in the female.
3. Males of these species can be distinguished on features of the P5. In *P. arctica* the baseoendopod bears a dense row of spinules at its base and endopod seta II is nearly as long as seta I. In *P. soyeri* the basal spinule row on the baseoendopod is very sparse and another short row is present at the base of the endopod portion; endopod seta II is less than half the length of seta I.

KG 2/3/1 – characters

1. Antenna Exp-1, number and length of setae
   0 - setae absent
   1 - 1 moderately sized seta, reaching the proximal part of segment 3

1 long - 1 very long seta, reaching to at least halfway along segment 3
1 rud - 1 very small seta, not reaching to the end of segment 2

2. Antennule
   - A - female segment 1 with a large dark coloured patch; male without colouration ? (only Chislenko (1967) has described the male antennule. His illustration indicates absence of a patch but there is no textual description.)
   - B - female segment 1 with a large dark coloured patch; male not known with certainty
   - C - female with a small dark patch on segment 1, a much larger patch on segment 3 and with the majority of the area of segments 1–3 darkly pigmented; male with a similar patch on segment 1, but not on segment 3, and with all segments darkly pigmented
   - D - Antennule without dark pigment

3. P5 exopod, ratio of maximum length to maximum breadth
   - ≈ - approximately as long as broad
   - > - distinctly longer than broad (length/breadth ratio ≈1.25–1.6)

4. Female P5, accessory seta
   - basis - originates on basis
   - Exp v prox - originates very proximally on exopod, close to junction with basis
   - Exp prox - originates in proximal part of exopod, but not very close to junction with basis
   - Exp middle - originates in the middle part of the exopod

5. Male P5, accessory seta
   - basis - originates on basis
   - Exp vp - originates very proximally on exopod, close to junction with basis
   - Exp prox - originates in proximal part of exopod, but not very close to junction with basis
   - Exp middle - originates in the middle part of the exopod
   - uk - male unknown

KG 2/3/1

A2 Exp-1 setae	A1	P5 Exp l/b	Female P5 accessory seta	Male P5 accessory seta	
1	A	>	Exp prox	Exp prox	*Pseudobradya minor*[1]
1	C	>	Exp middle	Exp vp	*P. pulchera*[1]
1 rud	B	>	Exp middle	uk[2]	*P. pulchella*[1, 2]
1 rud	D	>	Exp prox	uk	*P. maxima*
1 rud	D	>	basis	uk	*P. spinulosa*
0	D	≈	Exp v prox	Exp vp	*P. lanceta*
0	D	>	Exp prox	uk	*P. kusnezovi*
0	D	>	Exp v prox	uk	*P. parvula*

1. See KG 2/3 note 2 (p. 391). Note: the otherwise inadequately described *P. quoddiensis* has a dark spot similar to that of *P. minor*.
2. Wells (1965a) describes a male that he attributes to this species, but its true identity remains questionable.

KG 2/4 – characters

1. P2–P4 Exp-3

   n:n:n - number of spines on outer edge of P2, P3 and P4

2. Mandible exopod

   segment - consists of 1 segment with 2–3 setae

   seta - represented by a single seta only

3. Maxilla allobasis

   n - ratio of length (in mid line) to maximum breadth

4. Maxilliped basis

   n - ratio of length (in mid line) to maximum breadth

KG 2/4

P2–P4 Exp-3 outer spines	Mandible Exp	Maxilla allobasis l/b	Maxilliped basis l/b	
3:3:3	segment	3	≈1	*Klieosoma aberrans*
3:3:3	segment	<1	4.5	*Pseudobradya brevicaudata*
3:2:2	segment	?	?	*P. usitata*
3:2:2	seta	3	≈2	*P. banyulensis*

KG 3 – characters

1. P1 Enp-3

   n - total number of setae and spines

2. P3 Exp-3

   n - total number of setae and spines

3. P2–P4 Exp-1, inner edge

   n:n:n - number of setae on P2, P3 and P4

KG 3

P1 Enp-3 setae	P3 Exp-3 setae	P2–P4 Exp-1 inner setae	
5	7	1:1:1	*Klieosoma spinosa*
4	8	1:1:1	*K. triarticulatus*

KG 4

Gallassi, Dole-Olivier & De Laurentiis (1999) provide a phylogenetic analysis of *Sigmatidium* and *Pseudectinosoma* and make significant amendments to the knowledge of P1–P4 setation of some species. Their data are used in this key.

KG 4 – characters

1. P2–P4 endopod

   n - number of segments in P2, P3 and P4

2. P1–P4 Exp-3
n:n:n:n - total number of setae and spines on P1, P2, P3 and P4

3. P1–P4 endopod, distal segment
n:n:n:n - total number of setae and spines on P1, P2, P3 and P4

4. P1–P4 Exp-1, inner edge
n:n:n:n - total number of setae on P1, P2, P3 and P4

5. P5
n:n - total number of setae in female and male
uk - male or female is unknown

KG 4

P2–P4 Exp segs	P1–P4 Exp-3 setae	P1–P4 Enp distal seg setae	P1–P4 Exp-1 inner setae	P5 setae	
2:2:2	5:6:6:6	5:5:5:5	0:0:0:0	5:5	*Pseudectinosoma janineae*
2:2:2	5:6:6:5	4:4:4:4	0:0:0:0	2:2	*P. galassiae*
2:2:2	5:5:7:7	5:5:5:5	0:0:0:0	5:5	*P. minor*
2:2:2	5:5:5:5	4:4:4:4	0:0:0:0	2:2	*P. vandeli*
2:2:2	4:5:5:5	4:4:4:4	0:0:0:0	1:uk	*P. kunzi*
2:2:2	4:5:5:5	4:4:4:4	0:0:0:0	0:uk	*P. reductum*
3:3:3	5:6:7:7	6:5:5:5	0:1:1:1	5:5	*Sigmatidium difficile*
3:3:3	5:5:5:5	4:4:4:4	0:0:0:1	6:5	*S. parvulum*
3:3:3	5:5:5:5	5:4:4:4	1:1:0:0	6:uk	*S. noodti*
3:3:3	5:5:5:6	5:5:5:5	0:1:1:1	6:5	*S. kunzi*
?:3:3	5:?:5:5	3:?:5:4	0:?:0:0	6:uk	*S. rouchi*

KG 5 – characters

1. P3–P4 Exp-3
n:n - total number of setae and spines on P3 and P4

2. P1 Enp-2
n - total number of setae and spines

3. Antenna exopod
n - number of segments

KG 5

P3–P4 Exp-3 setae	P1 Enp-2 setae	A2 Exp segs	
8:8	4	2	*Halophytophilus spinicornis*
8:8	3	2	*H. fusiformis*
8:8	2	2	*H. similis*
7:7	3	3	*H. simplex*

KG 6 – characters

Caution: Please read the Cautionary Note (p. 380) before using this key.

1. P1–P4 Exp-3
   n:n:n:n - number of setae and spines on P1, P2, P3 and P4

2. Caudal ramus, shape
   A - approximately rectangular, with at most a slight taper from base to apex; with 2 well developed, elongate terminal setae
   B - strongly conical, with breadth at base about twice that at apex; terminal setae well developed or very reduced

3. Caudal ramus
   n- ratio of maximum length (in dorsal view from base of the ramus to the origin of the terminal setae) to maximum breadth

4. P5, accessory seta
   x:x - for female and male, where x represents one of the following states
   basis - clearly originates on basis
   exp prox - originates very proximally on exopod, close to or on junction with basis
   exp - clearly originates exopod, not very close to junction with basis
   terminal - distal edge of exopod has 4 setae, the outer possibly representing the accessory seta
   absent - accessory seta absent
   uk - this sex unknown

KG 6

P1–P4 Exp-3 setae	CR shape	CR l/b	P5 accessory seta	
5:5:5:5	A	<1	absent	*Sigmatidium triarticulatum*
5:6:7:7	A	≈1	exp:exp	*Pseudobradya barroisi*[1]
6:7:8:8	B	≈3	basis:exp prox	*P. hirsuta*[2]
6:7:8:8	B	≈2	terminal:uk	*P. elegans*[3]
6:7:8:8	A	≈3	exp prox:exp	*P. similis*
6:7:8:8	A	≈2	basis:uk	*P. fusca*
6:7:8:8	A	≈2	basis:exp prox	*P. pectinifera*[4]
6:7:8:8	A	≈2	exp:uk	*P. leptognatha*
6:7:8:8	A	≈2	absent[5]:uk	*P. brevicornis*[5]
6:7:8:8	A	≈1.5	exp prox:exp prox	*P. attenuata*
6:7:8:8	A	≈1.3	absent:absent	*P. cornuta*[6]
6:7:8:8	A	≈1	basis:uk	*P. psammophila*
6:7:8:8	A	≈1	exp prox:uk	*P. tenella*, *P. pygmaea*[7]
6:7:8:8	A	<1	exp:uk	*P. pelogonos*, *P. pelotrophos*[8]
6:7:7:8	A	<1	exp:uk	*P. pelobates*[8]

1. Antenna exopod is 3 segmented in the original description of *P. barroisi* but Por (1968a) in redescribing the female from new material describes it with only 2 segments, with the first showing a medial constriction but without trace of a suture. There is little doubt this species more closely morphologically resembles species in KG 2/3 (p. 390) than those in this key.

2. *Pseudobradya hirsuta* can be readily distinguished by two other characteristics—(a) the distal part of the caudal ramus is densely hirsute, and (b) the inner seta of the P5 exopod is a short, broad bluntly rounded spine.
3. *Pseudobradya elegans* is very characteristic in its P5 and in the large claviform antenna Exp-2.
4. *Pseudobradya pectinifera* is further characterised by the dentate pseudoperculum.
5. The only available description of *P. brevicornis* neither describes nor illustrates an accessory seta.
6. *Pseudobradya cornuta* is characterised by the large corniform projection of the inner distal corner of the P5 exopod. As there are only 2 terminal seta, it is most probable that this projection represents the fusion of the inner seta with the exopod.
7. Given the knowledge of the genus at the time these species were described by G.O. Sars, it is most probable the P1–P4 setation given here is correct. *P. tenella* is characterised by an extremely elongate antenna Exp-2, which reaches nearly to the end of the endopod. *P. pygmaea* is not easily distinguishable from other species and an identification must be checked against the original description.
8. These three Brazilian species are very poorly described and identification to them must be treated with extreme caution.

KG 7 – characters

Descriptions of all species except *Bradyellopsis foliatus* are incomplete. Watkins (1987) provides separate dichotomous keys to males and females and identifications provided by the key below should be checked against those given by Watkins' keys.

1. Body shape, in dorsal view
   - n - ratio of length to maximum breadth

2. P1 Enp-1
   - long - longer than entire exopod
   - medium - approximately as long as the entire exopod
   - short - shorter than entire exopod

3. P1 Enp-1, origin of seta on inner edge
   - proximal - extreme proximal
   - middle - approximately in the middle
   - distal - in the distal portion

4. Female P5
   - brood - broad, spatulate; terminal setae very short, spiniform; adapted as a brood pouch together with ventral part of genital segments
   - normal A - elongate, but of normal family pattern; all terminal setae of endopod and exopod slender
   - normal B - elongate, but of normal family pattern; both terminal setae of endopod and the 2 inner setae of exopod short and spiniform

KG 7

Body l/b	P1 Enp-1 length	P1 Enp-1 inner seta	Female P5	
6	long	proximal	normal A	*Bradyellopsis subniger* s. str.
6	short	middle	normal A	*B. subniger inconcinna*
≈4	?	proximal	normal B	*B. tumidus*
4.5	long	proximal	brood	*B. briani*
4	long	distal	brood	*B. arupinensis*
4	medium	proximal	brood	*B. foliatus*

KG 8 – characters

1. Anal somite, dorsal ornamentation
   - A - a pair of simple mucroniform, spiniform structures, one either side of the mid-line
   - B - a pair of simple mucroniform, spiniform structures with their origin on a common middorsal base
   - C - on either side of the mid-line there is a pair of weak sub-rectangular lappets with 2 long, fine, spiniform projections
   - D - on either side of the mid-line there is a pair of strongly built, long, straight spines arising from a very small common base
   - E - on either side of the mid-line there is a bifid plate (which may or may not have a common base); each projection is strongly built, mucroniform and more or less curved
   - F - on either side of the mid-line there is a bifid plate (which may or may not have a common base); each projection is strongly built; basal plate also bears an accessory spine or seta
   - G - on either side of the mid-line there is a bifid plate; each projection is strongly built. Medially there is a separate single bifid plate
   - H - on either side of the mid-line there is a trifid plate (which may or may not have a common base); each projection is strongly built
   - J - on either side of the mid-line there is a multidentate process bearing 5–6 long fine spiniform teeth
   - K - 5–6 long fine spines on either side of the mid-line
   - L - on either side of the mid-line there is a semicircular lappet with its edge incised into numerous long, fine, spiniform teeth; proximally there is a row of long fine setules
   - M - 4 small spinules either side of mid-line

2. P1–P4 Exp-3
   - n:n:n:n - number of setae and spines on P1, P2, P3 and P4

3. P1–P4 Exp-1, inner edge
   - n:n:n:n - number of setae on P1, P2, P3 and P4

4. P1–P4 Enp-3
   - n:n:n:n - number of setae and spines on P1, P2, P3 and P4

5. P1–P4 Enp-2*
   - n:n:n:n - total number of setae and spines on P1, P2, P3 and P4, including the spine at outer distal corner

* P2–P4 Enp-2 in all species of *Arenosetella* bears a seta that originates on the posterior face, close to the inner distal corner. Although it is a long and broad structure, usually it is hyaline and lies behind the 3rd segment when the leg is viewed from the anterior. Thus it is often difficult to see, unless great care is taken. In some species a similar seta is also present on P1 Enp-2.

KG 8

Anal somite	P1–P4 Exp-3 setae	P1–P4 Exp-1 inner setae	P1–P4 Enp-3 setae	P1–P4 Enp-2 setae	
A	5:5:5:6	0:1:1:1	4:4:4:4	1:2:2:2	*Arenosetella spinicauda*
B	5:4:4:4	0:0:0:0	4:3–4:4:3–4	1:2:2:2	*A. indica*
C	5:5:5–6:5–6	0:0:0:0	3:3:3:3	1:2:2:2	*A. tenuissima*
C	5:5:5:6	0:0:0:0	3:3:3:3	2:2:2:2	*A. monensis*[1]

D	5:5:5:6	0:1:1:1	4:4:4:4	1:2:2:2	*A. kaiseri*
D	5:5:5:6	0:0:0:0	2:3:3:3	1:2:2:2	*A. longiseta*
E	5:5:5–6:5–6	0:1:1:1	4:4:4:4	1:2:2:2	*A. germanica*
E	5:5:5:6	0:1:1:1	5:5:5:3	2:2:2:2	*A. macronychospina*
E	5:5:5:6	0:1:1:1	4:4:4:4	1:2:2:2[2]	*A. bidenta*[2]
E	5:5:5:6	0:1:1:0	3:3:3:3	1:2:2:2	*A. rouchi*
E	5:5:5:6	0:0:0:0	3:3:3:3	0:2:2:2	*A. vinadelmarensis*
E	5:5:5:6	0:0:0:0	2:3:3:3	1:2:2:2	*A. panamensis*
E	5:5:5:5	0:0:0:0	5:4:4:5	2:2:2:2	*A. bassantae*
E	?:?:5:5	?:?:1:1	?:5?:5:5	?:2:2:2	*A. madagascariensis*
F	5:5:5:6	0:0:0:0	3:3:3:3	1:2:2:2	*A. incerta*
F	?:?:?:?	0:?:?:?	4:?:?:?	1:?:?:?	*A. fissilis*
G	5:5:5:6	0:1:1:1	4:4:4:4	1:2:2:2	*A. tricornis*
H	4:5?:5?:5?	0:1:1:1	4:4:4:4	1:2:1:1[3]	*A*. sp.aff. *incerta* Noodt, 1958a[3]
J	5:6:6:6	0:1:1:1	5:5:5:5	1:2:2:2	*A. duriensis*
K	5:5:5:5	0:0:1:1	5:5:5:5	1:2:2:2	*A. littoralis*
L	5:5:5:6	0:1:1:1	4:4:4:4	1:2:2:2	*A. fimbriaticauda*
M	4:5:5:5	0:0:0:1	3:3:3:3	2:2:2:2	*A. balakrishnani*

1. According to McLachlan & Moore (1978) *A. monensis* is a synonym of *A. tenuissima.*
2. Itô (1972) states that the posterior face seta is absent from P4, but I have examined the type-material and found that it is present.
3. Noodt specifically states that the posterior face seta is absent from P3–P4.

KG 9 – characters

The genus *Tetanopsis* is not well founded. The description of the type species is incomplete and the text and illustrations often conflict (Lang 1948). It is almost certainly inaccurate with respect to the setation of P1–P4, with the possibility that the rami of P1 have been transposed in the description. Perkins' (1955b) descriptions of *T. medius* and *T. smithi* are more complete but the illustrations are very poor. This makes it difficult to be confident of the accuracy of the description of the setation of P1–P4. *T. mediterranea* is rather better described. Any identification to these species must be treated with extreme caution.

1. P1–P4 Exp-3
   n:n:n:n - number of setae and spines on P1, P2, P3 and P4

2. P1–P4 Enp-3
   n:n:n:n - number of setae and spines on P1, P2, P3 and P4

KG 9

P1–P4 Exp-3	P1–P4 Enp-3	
5?:?:2:?	3:?:1?	*Tetanopsis typicus*
5:5:5:5	4:5:5:5	*T. mediterranea*
5:5:5:5	4:2:3?:2	*T. smithi*
4:4:2:3	3:2:2:2	*T. medius*

KG 10 – characters

1. Female P5, terminal setae
   foliose - broad, with longitudinal 'veins' resembling a monocotyledonous leaf
   styl - styliform
   uk - female unknown

2. P1–P4 Exp-3
n:n:n:n - total number of setae and spines on P1, P2, P3 and P4

3. P1–P4 Enp-3
n:n:n:n - total number of setae and spines on P1, P2, P3 and P4

4. Antenna exopod
n - number of segments

5. P5 Exp
n:n - number of setae on distal edge of exopod in female and male
uk - male or female unknown

KG 10

Female P5 setae	P1–P4 Exp-3 setae	P1–P4 Enp-3 setae	A2 Exp segs	P5 Exp setae	
fol	5:6:6:6	5:5:5:5	3	3:4	*Oikopus rostrilabrus*
styl	7:7:8:8	5:5:5:5	3	3:uk	*Hastigerella soyeri*
styl	6:7:7:6	5:5:5:5	3	3:uk	*H. chappuisi*
styl	6:6:6:6	5:5:5:5	2	3:3	*H. noodti*
styl	6:6:5:5	5:5:5:5	2	3:uk	*H. monniotae*
styl	5:6:7:7	5:5:5:5	3	3:uk	*H. unisetosa*[1]
styl	5:6:6:6	5:6:6:6	2	3:3	*H. scheibeli*
styl	5:6:6:6	5:5:5:5	3	3:3	KG 10/1
styl	5:6:6:6	4:4:4:4	3	3:3	KG 10/2
styl	5:5:5:5	5:5:5:5	3	3:3	*Hastigerella leptoderma*
styl	5:5:5:5	5:5:5:5	2	4:4	*H. setosa*
styl	5:5:5:5	5:4:3:2[2]	2	3:uk	*Arenosetella limnophila*[2]
styl	5:5:5:5	4:5:5:5	3	3:3	*Hastigerella mehuinensis*
styl	5:5:5:5	4:4:4:4	3	4:4	*H. clavata*
styl	4:5:5:5	3:3:3:3	2	3:uk	*H. bengalensis*

1. Described in *Arenosetella* and usually now placed as *incertae sedis* in *Halectinosoma*.
2. This species is also distinguished by the 2-segmented P4 endopod. The original description is incomplete but it is clear it cannot be accommodated in *Arenosetella.*

KG 10/1 – characters

1. P5, relationship of basis to exopod
x:x - for female and male, where x represents one of the following states
d - basis and exopod distinct, with a clear articulation surface between them
f - basis and exopod fused together
uk - male or female unknown

2. P5 exopod, accessory seta on anterior surface
x:x - for female and male, where x represents one of the following states
p - present
a - absent
uk - male or female unknown

3. P5 exopod, origin of accessory seta on anterior surface

x:x - for female and male, where x represents one of the following states
prox - very proximal, close to junction of basis and exopod
middle - approximately midway between the base and apex of exopod
distal - very distal, close to the distal edge of exopod
na - not applicable (accessory seta absent)
uk - male or female unknown

4. P5 exopod, inner seta

x:x - for female and male, where x represents one of the following states
< - much shorter than outer seta of endopod
≈ - about as long as outer seta of endopod
> - much longer than outer seta of endopod
uk - male or female unknown

5. Mandible endopod

elbow - basal portion forms a distinct elbow; proximal inner corner rounded
straight - longitudinal axis of endopod approximately straight; proximal inner corner approximately a right angle

KG 10/1

P5	P5 acc seta	P5 acc seta origin	P5 Exp inner seta	Mandible Enp	
d:d	p:p	prox:prox	<:<	straight	*Hastigerella psammae*
d:d	p:p	≈middle:prox	≈:>	elbow	*H. bodini*
f:f	a:p	na:≈middle	≈:≈	elbow	*H. meridionalis*
uk:d	uk:p	uk:distal	uk:≈	straight	*H. antarctica*

KG 10/2 – characters

1. Abdomen, ornamentation of dorsal distal edge of female genital somite + somite 3 or male somites 1–3

naked - without ornamentation, other than a hyaline frill
spinous - with spinules, probably replacing the hyaline frill

2. P4 Exp-1, inner edge

n - number of setae

3. Female antennule

n - number of segments

4. Male P6, setation of each of the pair

A - 2 plain spines with 1 plain seta externally; origin of inner spine about ⅓ of inner edge below origin of outer spine
B - 1 very small, plain spine internal to a large, plumose spine and a sparsely setose seta; origin of inner spine only slightly proximal to the outer spine
C - inner part of distal edge transformed into 2 strong teeth; 2 plain setae externally
uk - male unknown

KG 10/2

Abdomen	P4 Exp-1 inner setae	Female A1 segs	Male P6	
naked	0	6	A	*Hastigerella abbotti* s. str.
spinous	1	6	B	*H. abbotti santacruzensis*
naked	0	7	C	*H. bozici*
spinous	0	7	uk	*H. bozici* [*sensu* Kunz 1975]

KG 11 – characters

1. P1–P4 endopod
   n:n:n:n - number of segments in P1, P2, P3 and P4

2. P1–P4 endopod, distal segment
   n:n:n:n - number of setae and spines on P1, P2, P3 and P4

3. P1–P4 Enp-1, inner edge
   n:n:n:n - number of setae on P1, P2, P3 and P4

4. P1–P4 Enp-2, inner edge
   n:n:n:n - number of setae on P1, P2, P3 and P4
   na - not applicable (endopod only 2-segs)

5. P1–P4 Exp-1, inner edge
   n:n:n:n - number of setae on P1, P2, P3 and P4

KG 11

P1–P4 Enp segs	P1–P4 Enp distal seg setae	P1–P4 Enp-1 inner setae	P1–P4 Enp-2 inner setae	P1–P4 Exp-1 inner setae	
3:3:3:3	5:6:6:6	1:2:2:2	0:0:0:0	0:1:1:1	*Lineosoma enertha*
3:3:3:3	3:3:5:5	0:0:0:0	1:1:1:1	0:0:0:0	*L. iscensis*
2:3:3:3	4:4:4:4	1:1:1:1	na:1:1:1	0:1:1:1	*L. intermedia*
2:3:3:3	3:4:4:4	1:1:1:1	na:0:0:0	0:1:1:1	*L. chilensis*
2:2:2:2	4:5:5:5	1:1:1:1	na:na:na:na	0:1:1:1	*Noodtiella wellsi*
2:2:2:2	4:5:5:5	1:1:1:1	na:na:na:na	0:0:0:0	*N. lusitanica*
2:2:2:2	4:4:4:4	1:1:1:1	na:na:na:na	0:1:1:1	*N. arenosetelloides*
2:2:2:2	3:4:4:3–4	1:1:1:1	na:na:na:na	0:1:1:1	KG 11/1
2:2:2:2	3:4:4:4	1:1:1:1	na:na:na:na	0:1:0:0	*Noodtiella coquimbensis*
2:2:2:2	3:4:4:4	1:1:1:1	na:na:na:na	0:0:0:0	*N. problematica*

KG 11/1 – characters

1. P1–P4 exopod
   n:n:n:n - number of segments in P1, P2, P3 and P4

2. P1–P4 Exp-3
   n:n:n:n - number of setae and spines on P1, P2, P3 and P4

3. P1–P4 Exp-2, inner edge
n:n:n:n - number of setae on P1, P2, P3 and P4
na - not applicable (endopod only 2-segs)

4. Female P5
d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod

5. Male P5
d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod
uk - male unknown

KG 11/1

P1–P4 Exp segs	P1–P4 Exp-3 setae	P1–P4 Exp-2 inner setae	Female P5	Male P5	
3:3:3:3	4:3:3:3	1:1:1:1	d:2:3	d:2:4	*Noodtiella hoodensis*
3:3:3:3	4:3:3:3	1:1:1:0	d:2:2	d:2:3	*N. tabogensis*
3:3:3:2	4:4:4:5	1:1:1:na	d:2:3	d:2:3	*N. mielkei*
3:3:3:2	3:3:3:4	1:1:1:na	d:2:3	uk	*N. gracile*

KG 12 – characters

1. P4 exopod
n - number of segments

2. P2–P4 Exp-3
n:n:n - number of setae and or spines on P2, P3 and P4

3. P2–P4 Exp-1, inner edge
n:n:n - number of setae on P2, P3 and P4

4. P2–P4 Enp-2
n:n:n - number of setae and or spines on P2, P3 and P4

5. P1 Exp-2, inner edge
n - number of setae

KG 12

P4 Exp segs	P2–P4 Exp-3 setae	P2–P4 Exp-1 inner setae	P2–P4 Enp-2 setae	P1 Exp-2 inner setae	
3	4:4:4	1:1:1	5:5:5	1	*Noodtiella ornamentalis*
3	4:4:3	1:1:1	6:6:6[1]	1	*N. toukae*[1]
3	3:3:3	1:1:0	4:4:4	1	*N. larinconadensis*
3	3:3:3	0:0:1	4:4:4	1	*N. pacifica*
2	3:3:3	1:1:1	4:4:4	0	*N. frequentior*

1. P2–P4 Enp-2 bears a total of 5 setae and spines on the margin plus 1 that originates on the posterior surface just distal to the notch that denotes the distal end of the now amalgamated second segment.

Family Hamondiidae

KG 0 – characters

Huys (1990a) discusses the relationship of all the species and records mentioned in this key and should be consulted before a final determination is made.

1. Body shape, in dorsal view
   - ovoid - strongly dorsoventrally compressed; a broad oval in outline
   - dv - at most only moderately dorsoventrally compressed; never ovoid in outline

2. Cephalic shield and metasome
   - A - posterior margin of cephalic shield with median mucroniform process; epimeral plates of metasomites extremely large; posterior margin of 2nd and 3rd metasomites produced laterally into posteriorly directed, paired mucroniform processes (see Geddes 1969, Figs 3A–B)
   - B - none of the above (see Huys 1990a, Figs 24A, 25B)

3. Female abdomen somites 1–3*
   - present - prominent posteriorly directed, pointed epimera present, densely clothed with spinules
   - absent - prominent epimera absent

* Prominent epimera are always absent in the male.

4. P1, relative lengths of exopod and endopod
   - long - exopod longer than endopod
   - equal - exopod and endopod approximately the same length
   - short - exopod shorter than endopod

5. Female antennule, relative lengths of segments 3 and 4
   - long - segment 3 longer than segment 4
   - short - segments 3 and 4 approximately the same length

6. Male P5, relative lengths of endopod and exopod
   - long - endopod extends to end of exopod
   - short - endopod much shorter than exopod
   - minute - endopod rudimentary

KG 0

Body shape	Cepahlic shield & metasome	Abd female som 1–3	P1 Exp/ Enp	Female A1 seg 3/4	Male P5 Enp/Exp	
ovoid	B	present	short	long	minute	*Hamondia superba*
dv	A	absent	equal	long	short	*Lucayostratiotes cornuta*
dv	B	present	long	short	long	*Ambunguipes rufocincta*
dv	B	present	long	long	short	*A. rufocincta* [*sensu* A. Scott 1909]
dv	B	present	equal	long	short	*A. similis*

Family Harpacticidae

KG 0 – characters

1. Antenna exopod
   n - number of segments

2. P2–P4 endopod
   n:n:n - number of segments in P2, P3 and P4

3. P1 Enp-1, seta of inner edge
   absent - no setae present
   proximal - originates at extreme proximal end of segment
   distal - originates in distal half of segment

4. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

5. P3–P4 endopod, distal segment
   n:n:n - number of setae on P2, P3 and P4

KG 0

A2 Exp segs	P2–P4 Enp segs	P1 Enp-1 inner seta	P2–P4 Exp-3 setae	P3–P4 Enp distal seg setae	
4	3:3:3	distal	7:7:8	4:4	*Tigriopus brevicornis*, *T. fulvus*[1]
3	3:3:3	distal	7:7:8	4:4	KG 1 (p. 406)
3	3:3:3	distal	7:7:7	4:4	KG 2 (p. 407)
3	3:3:3	proximal	7:8:8	6:5	*Perissocope adiastaltus*
3	3:3:3	proximal	7:8:7	6:5	KG 3 (p. 407)
3	3:2:2	distal	6:6:6	2:2–3	*Discoharpacticus mirabilis*
2	3:3:3	proximal	7:8:8	6:5	KG 4 (p. 408)
2	3:3:3	proximal	7:8:7	6:5	KG 5 (p. 408)
2	3:3:3	proximal	?	?	*Perissocope typicus*
2	3:3:3	distal	7:8:8	6:5	KG 6 (p. 409)
2	3:3:3	distal	7:7:8	6:5	*Harpacticus parachelifer*
2	3:3:3	distal	6:7:8	6:5	*H. compsonyx*
2	3:3:3	distal	?	?	KG 7 (p. 420)
2	3:3:3	absent	7:8:8	4:4	*Zaus ainuensis*
2	3:3:3	absent	7:8:7–8[2]	5:5	*Mucropedia kirstenae*[2]
2	3:3:2	absent	7:8:8	5:5	KG 8 (p. 421)
2	3:3:2	absent	7:8:7	5:5	*Mucropedia cookorum* male[3]
1	3:3:3	absent	7:8:8	5:4	*Zausodes arenicolus*
1	3:3:3	absent	7:8:8	4:4	*Z. cinctus*[4]
1	3:3:2	absent	7:8:8	5:5	*Z. paranaguanensis*[5]
1	3:3:2	absent	7:8:8	5:4	KG 9 (p. 421)
1	3:3:2	absent	7:8:8	5:3	*Zausodes limigenus*[5]
1	3[3]:2:2	absent	7:8:8	5:4	*Neozausodes areolatus*[6]

1. These parapatric species are very similar. *Tigriopus brevicornis* is a northern species (Atlantic coast of Spain to Scandinavia) and *T. fulvus* a southern species (Mediterranean Sea, Madeira and other eastern Atlantic locations at these latitudes). Distinguishing features are listed by Carli & Fiori (1977). *Tigriopus fulvus* is known to be variable between populations, at least in the Mediterranean Sea.
2. Female 7; male 8.
3. See KG 8 (p. 421) for female.
4. Usually placed *incertae sedis* in the family Harpacticidae.
5. Usually placed *incertae sedis* in *Neozausodes*.
6. In the male segments 2 and 3 have coalesced.

KG 1 – characters

Caution: Soyer, Thiriot-Quievreux & Colomines (1987) describe considerable variation in the setation of the mandible in *Tigriopus* and they and Itô (1977) list other examples of variability and of "abnormalities" in the structure of several appendages. Some of this may be as yet unquantified inter-population variability but it seems more likely that most is teratogenic in origin, and thus erratic in its distribution. Care must be taken to verify any identification arrived at with this key by reference to a good description and discussion of the species.

1. Antenna exopod
   n:n:n - number of setae on segments 1–3

2. Mandible
   n:n:n - number of setae on basis, exopod and endopod

3. Maxilliped claw*
   wd - prehensile, well developed; when in apposition it reaches into the proximal half of the basis
   red - reduced in length; in apposition does not reach more than about halfway along the basis

* Illustrations of these species never show the claw in apposition, but always extended out at about 90° to basis; the form of the basal part of the claw does tend to indicate that it may not be totally prehensile.

4. Female P5
   n:n - number of setae on endopod and exopod

5. Male P5
   n:n - number of setae on endopod and exopod
   uk - male unknown

KG 1

A2 Exp setae	Md setae	Mxp claw	Female P5 setae	Male P5 setae	
1:2:2	2:3:5	red	4:5	uk	*Tigriopus brachydactylus*
2:1:2	1:6:8	wd	4:5	0:4	*T. raki*
2:1:2	2:6:8	red	4:5	1:4	*T. minutus*[1]
2:1:2	2:6:8	red	4:5	0:4	*T. igai*[1]
2:1:2	2:4:8	wd	5:5	1:5	*T. kerguelenensis*, *T. crozettensis*[2]
2:1:2	2:4:8	wd	5:5	0:5	*T. angulatus* [*sensu* Grindley 1971][3]
1:1:3	1–2:3–4:7	wd	5:5	1:5	*T. angulatus* [*sensu* Bradford 1967][3]

1. It is difficult to find characters that separate the females of these species, especially as the description of *T. minutus* is not as detailed as that of *T. igai.* They can possibly be distinguished by the ornamentation of the dorsal distal edge of the anal somite. In *T. igai* this is naked or armed with very small spinules; in *T. minutus* there is a series of very large spinules.
2. Soyer, Thiriot-Quievreux & Colomines (1987) consider *T. kerguelenensis* and *T. crozettensis* to be sibling species, differentiated on very minor characteristics.
3. Soyer, Thiriot-Quievreux & Colomines (1987) discuss the records of *T. angulatus* and conclude that the differences in male P5 and mandible exopod (2 segments according to Grindley (1971) but only 1 in all others) provides a case for Grindley's material being given species status; but they neither formally propose this, nor provide a new name.

KG 2 – characters

1. Female P5
   n:n - number of setae on endopod and exopod

2. Male P5
   n:n - number of setae on endopod and exopod

3. Male P2 endopod
   mod - outer distal corner of segment 2 an apophysis
   not - P2 endopod not modified; as female

4. Maxilliped claw
   wd - prehensile, well developed; when in apposition it reaches into the proximal half of the basis
   red - reduced in length; in apposition does not reach more than about halfway along the basis

* Illustrations of these species never show the claw in apposition, but always extended out at about 90° to basis; the form of the basal part of the claw does tend to indicate that it may not be totally prehensile.

KG 2

Female P5 setae	Male P5 setae	Male P2 Enp	Maxilliped claw	
5:5	1:5	mod	wd	*Tigriopus californicus*, *T. japonicus*[1]
4:4	0:3	not	red	*Paratigriopus hoshidei*

1. It is very difficult to separate these species, given the poor quality of the descriptions of *Tigriopus californicus*. There must be some suspicion that they are conspecific. Itô (1969), in redescribing *T. japonicus*, did not compare them, probably because he was unaware that the characteristics of *T. californicus* given by Lang (1948) are incorrect (see Bradford 1967).

KG 3 – characters

1. Antenna exopod
   n:n:n - number of setae on segments 1–3

2. P4 Exp-2, inner edge
   n - number of setae

3. Female P5
   n:n - number of setae on endopod and exopod

KG 3

A2 Exp setae	P4 Exp-2 inner setae	Female P5 setae	
2:0:3	0	5:6	*Perissocope xenus*
1:0:3	1	5:5	*P. biarticulatus*

KG 4 – characters

1. Female antennule
   n - number of segments

2. Female P5
   n:n - number of setae on endopod and exopod

KG 4

Female A1 segs	Female P5 setae	
8	5:5	*Perissocope cristatus*[1]
9	5:6	*P. littoralis*[1]

1. Male unknown.

KG 5 – characters

1. Mandible
   present - exopod 1 segment, with 2 setae; basis with 3 setae
   absent - exopod absent; basis with 1 seta (or, exopod perhaps represented by 1 long seta, but this would mean that the basis is asetose)

2. P1 basis, seta at inner distal corner
   present *or* absent

3. P5 exopod
   n:n - ratio of length to maximum breadth in female and male

4. Female P5, anterior surface of baseoendopod and exopod
   setose - with rows of setules or spinules
   naked - without surface ornamentation; accessory setules and spinules confined to edges

5. P2 Enp-3, inner edge
   n - number of setae

KG 5

Mandible	P1 basis	P5 Exp	Female P5	Male P3 Enp-3	
present	absent	1.6:1.6	naked	2	*Perissocope bayeri*
absent	present	2.2:2.0	setose	3	*P. exiguus*

KG 6 – characters

1. Body shape
   normal - normal; with only slight dorsoventral compression
   dvc - markedly compressed dorsoventrally

2. Female antennule
   n - number of segments

3. P2 Enp-2, inner edge*
   n - number of setae

* This character applies to the female and to the male where P2 endopod is not modified.

4. P3–P4 Exp-3, outer spines
   A - with a broad denticulate hyaline extension of outer edge; proximal spine originates in the middle of the edge or in the proximal half
   B - with a broad denticulate or smooth hyaline extension of outer edge; proximal spine originates about the middle of the distal half of the edge
   C - simple spiniform spines, outer edge with or without accessory spinulation but without a hyaline extension; proximal spine originates approximately in the middle of the edge

5. Male P2–P3
   mod - P3 exopod modified; segments thicker and stouter than female, with stout spines. P2 endopod modified; outer distal corner of segment 2 an apophysis
   not - P3 exopod and P2 endopod not, or only very slightly modified; more or less as female
   uk - male unknown

KG 6

Body shape	Female A1 segs	P2 Enp-2 inner setae	P3–P4 Exp-3 outer spines	Male P2–P3	
dvc	9	2	A	not	KG 6/1 (p. 410)
dvc	9	2	B	uk	*Zausopsis luederitzi*
dvc	7	2	B	not *or* uk	KG 6/2 (p. 411)
normal	9	2	C	mod *or* uk	KG 6/3 (p. 411)
normal	9	1	C	mod *or* uk	KG 6/4 (p. 413)
normal	8	1	C	mod	KG 6/5 (p. 419)
normal	7	1	C	not *or* uk	KG 6/6 (p. 420)

KG 6/1 – characters

1. Body, ratio of length (from base of rostrum to base of caudal rami) to maximum breadth
   long - approximately twice as long as broad
   short - significantly less than twice as long as broad

2. P2–P4 Exp-1, outer spine
   spini - spiniform
   seti - setiform

3. Antenna endopod, relative length of plumose setae and geniculate setae

short - none of the plumose setae reach the end of the geniculate setae

medium - at least one of the plumose setae reaches to about the end of the geniculate setae

long - at least one of the plumose setae reaches to a short distance beyond the end of the geniculate setae

extreme - at least one of the plumose setae reaches well beyond the end of the geniculate setae

4. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

KG 6/1[1]

Body shape	P2–P4 Exp-1 outer spine	A2 Enp	CR l/b	
long	spini	short	≈2	*Zaus goodsiri*
long	seti	short	≈1	*Z. intermedius*[1]
long	seti	medium	≈1	*Z. hiranoi*
long	seti	long	≈1	KG 6/1/1
long	seti	extreme	≈1	*Z. unisetosus*
short	seti	short	≈1	*Z. abbreviatus*[2]
short	seti	medium	≈1	*Z. biunguiferus*
short	seti	long	≈1	*Z. sarsi*
short	seti	?	≈1	*Z. serratus*[1, 3]

1. *Zaus caeruleus*, *Z. latiremis* and *Z. schaeferi* are inadequately described and are not included in this key, but see Itô (1974, 1980b) for remarks on *Z. caeruleus* and its possible relationship to *Z. intermedius and Z. serratus*.
2. This species can be distinguished from all others in the genus by the markedly emarginate inner edge to the P5 baseoendopod in the female.
3. This species is not well described but appears to be unique in the genus through the possession of a serrate spine on the maxilla endopod.

KG 6/1/1 – characters

1. P1 Exp-1, inner edge

swollen - with a prominent proximal swelling

normal - without a swelling

2. Female P5 exopod, shape

elongate - subrectangular, approximately 2.3 times as long as broad

ovoid - inner and outer edges strongly convex proximally

3. Male P5 exopod, shape

ovoid - inner and outer edges strongly convex proximally

sub - subovoid; inner edge approximately straight, outer edge strongly convex throughout its length

KG 6/1/1

P1	Female	Male	
Exp-1	P5	P5	
	Exp	Exp	
swollen	elongate	sub	*Zaus robustus*[1]
normal	ovoid	ovoid	*Z. spinatus*
normal	elongate	sub	*Z. aurelii*[2]

1. Itô (1980b) believed the name *Z. robustus* may represent a group of sibling species distinguished on combinations of colour and size. In this species complex the P1 Exp-1 is swollen at its base—a unique feature in the genus.
2. Data from the redescription by Itô (1980b).

KG 6/2 – characters

1. Antenna endopod, the non-geniculate terminal spines and setae
   normal - plain or with accessory spinules, but lacking a broad hyaline extension
   modified - 3 of the setae with a broad hyaline extension; one of them in the shape of a ploughshare

2. Female P5
   n:n - number of setae on endopod and exopod

3. Male P5
   n:n - number of setae on endopod and exopod
   uk - male unknown

KG 6/2

A2	P5	P5	
Enp	female	male	
setae	setae	setae	
normal	4:6	uk	*Zausopsis kerguelensis*
modified	4:5	0:5	*Z. mirabilis*

KG 6/3 – characters

Caution: The genus *Harpacticus* is in need of revision. It has long been recognised that it contains groups of closely similar morphotypes, the components of which are separated on a suite of small and subtle differences. The problem has been interpreting the relative importance of these characters. Contemporary taxonomists would prefer to base their judgements on a sound phylogenetic analysis, which has yet to be undertaken.

Much of the difficulty lies in the inadequacy of many descriptions which, even when it is certain that they are accurate, do not include sufficient detail.

In addition, there are reports of variability in some characters within what are taken to be single populations, or between specimens from locations within an apparently homogeneous geographic area (e.g. Pallares (1973) for *H. obscurus* and Itô & Fukuchi (1978) for *H. furcatus*); some authors talk of sibling species.

A proper phylogenetic analysis thus would need to based on a very large number of specimens from each of a large number of localities worldwide. Until these data are available the confused situation currently pertaining in *Harpacticus clausi*, *H. obscurus*, *H. gracilis* and *H. furcatus* is inevitable.

Therefore, it is critical that any identification arrived at by use of this key (or any other) be checked against the best available descriptions and that attention be paid to the presence of small differences. At the very least, attention should be drawn to these in any publication that results.

A real problem in constructing these keys is that adequately described species have to be compared with others less well known. Thus, many characters of high taxonomic value (especially patterns of ornamentation of the body) cannot be used.

As a consequence, I have been forced to extensive use of meristic characters, whose veracity depends on the accuracy of the description, and illustrations. Both may be doubtful for some older literature.

1. Maxilliped basis, inner side
   - simple - simple, straight or weakly convex
   - complex - complexly figured; usually with an abrupt, inwardly directed step about halfway and with a bulbous projection in the distal half (but there are many variations on this pattern)

2. Antenna exopod
   - n - total number of setae on both segments

3. Caudal ramus, in dorsal view
   - n - ratio of maximum length to maximum breadth

4. P1 Exp-3
   - n - number of curved, claw-like spines

5. P1 endopod
   - n - number of segments

KG 6/3

Maxilliped basis	A2 Exp setae	CR l/b	P1 Exp-3 claws	P1 Enp segs	
simple	6	≥ 2	3	2	*Harpacticus furcifer*[1]
simple	6	≈1	3	2	*H. flexus*[1]
simple	6	1.5	3	2	*H. superflexus*[1]
simple	4	≈1	4	3	*H. purpureus*[1]
complex	6	≈0.5	4	2	*H. pallaresae* female
complex	6	≈1	4	2	KG 6/3/1
complex	6[2]	≈1	5	3	*Harpacticus uniremis*[2, 3]
complex	6[2]	≈1	4	3	*H. dezhnevi*[2]

1. The elongate maxilliped basis (4–5 times as long as broad) distinguishes *Harpacticus purpureus* from the other species in this group (approximately 3 times as long as broad).
2. One seta on the antenna Exp-2 is very small and may be easily overlooked or may be simply an accessory spinule (the descriptions are not clear enough on this latter point).
3. *Harpacticus uniremis* is also distinguished by having a row (or 2 closely set rows) of spinules on the anterior face of the female P5 baseoendopod.

KG 6/3/1 – characters

1. Body size (in mm)
   - n:n - length of female and male

2. P1, relative length of exopod and endopod
   - short - endopod extends approximately to the end of Exp-1
   - long - endopod extends beyond the end of Exp-1 (Enp-1 ≈ Exp-1)

3. Maxilliped basis
n - ratio of maximum length to maximum breadth

4. Male P2 Enp-1
n - ratio of maximum length to maximum breadth

5. Male antennule, penultimate segment
spur - with a large and distinctive keel-like spur
not - with a small protuberance only; without a spur

KG 6/3/1

Body size (mm)	P1 Enp/ Exp	Mxp basis l/b	Male P2 Enp1 l/b	Male A1 penult seg	
1.45:1.30	long	?	?	spur	*Harpacticus septentrionalis* s. str.[1]
1.05:1.15	long	≈1	≈2	spur	*H. s. yamadai*[1]
0.75:0.71	short	1.8	≈2.5	not	*H. compressus*[1]

1. These taxa are extremely similar but it is not possible to compare rigorously the detail provided by the excellent description of *Harpacticus septentrionalis yamadai* with the less good description of *H. compressus* and the almost inadequate one of *H. septentrionalis* s. str. Identifications made by using this key must be checked against the descriptions.

KG 6/4 – characters

Caution: Read introduction to KG 6/3 (p. 411) before using this key.

1. Maxilliped basis, inner side
str/conv - simple, straight or weakly convex
complex - complexly figured; usually with an abrupt, inwardly directed step about halfway and with a bulbous projection in the distal half (but there are many variations on this pattern)

2. Maxilliped basis
n - ratio of maximum length to maximum breadth

3. Caudal ramus
n - ratio of maximum length to maximum breadth (in dorsal view)

4. Female P5
n:n - number of setae on endopod and exopod
na - not applicable

5. Male P5
n:n - number of setae on endopod and exopod

KG 6/4[1]

Maxilliped basis segs	Maxilliped basis l/b	CR l/b	Female P5 setae	Male P5 setae	
str/conv	≈2	≈1	4:5	0:5	*Harpacticus flexulosus*
complex	2–2.5	≈1	4:5	0:5	KG 6/4/1 (p. 412)
complex	2–2.5	≈0.5	3–4:5	0:4–5	KG 6/4/2 (p. 416)
complex	<2	≈1.5	4:5	0:5	*Harpacticus pulex*
complex	<2	≈1	4:5	0:5	KG 6/4/3 (p. 417)
complex	<2	≈0.5	na	0:5	*Harpacticus pallaresae* male

1. According to Lang (1948) *Harpacticus gracilis* Claus is a common species and should be included in this key but Huys & Song (2004) argue that the very inadequate original description makes it unrecognisable. They declare that all records of the species are doubtful with most being unable to be reassigned to other species.

KG 6/4/1

Because of the large number of characters that would be required for a single key, separate keys are provided for females and males (p. 415).

KG 6/4/1(female) – characters

1. P2 Enp-2, inner edge
   - n - number of setae

2. P5 endopod, relative length of seta IV
   - A - very long; at least 1.5 times as long as any other seta
   - B - very short; only 10–25% the length of any other seta
   - C - at least 1.4 times as long as seta I
   - D - approximately equal to seta I
   - E - significantly shorter than seta I (about 0.7 times seta IV)

3. P5 exopod, longest seta
   - A - seta II is longest seta; at least 3.5 times as long as seta V
   - B - seta II is longest seta; 2–3 times as long as seta V
   - C - seta II is longest seta; at most twice as long as seta V
   - D - setae I and II approximately equal; approximately 4 times as long as seta V

4. P5 exopod, shape
   - ovoid - inner and outer edges convex; greatest breadth at approximately the middle
   - triangular - base wider than apex with both sides sloping from base to apex; greatest breadth at or close to the base
   - delta - reverse triangular; base wider than apex with both sides sloping from base to apex; greatest breadth close to apex
   - rectangular - inner and outer edges approximately straight and approximately parallel

5. P5 exopod
   - n - ratio of maximum length to maximum breadth

KG 6/4/1(female)

P2 Enp-2 inner setae	P5 Enp seta IV	P5 Exp longest seta	P5 Exp shape	P5 Exp l/b	
2	A	C	ovoid	≈2	*Harpacticus furcatus* [*sensu* Pallares 1975b]
2	C	A	rectangular	2.7	*H. furcatus* [*sensu* Itô & Fukuchi 1978]
2	D	A	ovoid	≈2	*H. furcatus* [*sensu* Giesbrecht 1902]
2	D	A	ovoid	≈1.5	*H. furcatus patagonicus*
2	D	A	rectangular	2.5	*H. furcatus* [*sensu* Itô & Fukuchi 1978]
2	D	B	ovoid	≈2	*H. furcatus* [*sensu* Itô & Fukuchi 1978]
2	D	B	rectangular	2	*H. furcatus* [*sensu* Itô & Fukuchi 1978]
2	E	B	ovoid	≈2	*H. furcatus* [*sensu* Lang 1936b]
1	B	B	ovoid	≈2	*H. islandicus*
1	C	B	ovoid	≈2	*H. ponticus*
1	C	B	rectangular	2.7	*H. tenellus*
1	C	B	rectangular	2.2	*H. obscurus* [*sensu* Sars 1911, as *H. gracilis*]
1	C	B	triangular	≈2	*H. obscurus* [*sensu* T. Scott 1895]
1	C	B	triangular	1.5	*H. pacificus*
1	C	B	delta	≈2	*H. obscurus* [*sensu* Candeias 1959]
1	C	D	ovoid	≈2	*H. dubitabilis*

KG 6/4/1(male) – characters

1. P2 Enp-3
   n - number of setae

2. P2 endopod
   n - ratio of length of outer edge of Enp-2 (including the apophysis) to the length of Enp-3

3. P2 Enp-1
   n - ratio of maximum length to maximum breadth

4. P5 exopod, shape
   ≈ovoid - semi-ovoid; one of the inner or outer edges convex, the other approximately straight; greatest breadth at the middle
   delta - reverse triangular; base wider than apex with both sides sloping from base to apex; greatest breadth close to apex

5. P5 exopod
   n - ratio of maximum length to maximum breadth

KG 6/4/1(male)

P2 Enp-3 setae	P2 Enp-2/ Enp-3	P2 Enp-1 l/b	P5 Exp shape	P5 Exp l/b	
5	3.4	≈2	delta	1.5	*Harpacticus obscurus* [*sensu* Candeias 1959]
5	2	≈2	≈ovoid	2	*H. furcatus patagonicus*
4(+1)[1]	1.8	≈2	≈ovoid	2	*H. furcatus* [*sensu* Itô & Fukuchi 1978][1]
4	3.6	3.5	delta	1.4	*H. pacificus*

4	3.4	2.7	delta	2	*H. obscurus* [*sensu* Sars 1911, as *H. gracilis*]
4	2.6	1.75	delta	1.4	*H. pacificus*
4	2.1	≈2	≈ovoid	2	*H. furcatus* [*sensu* Giesbrecht 1902]
4	2	≈2	≈ovoid	2.6	*H. dubitabilis*
4	1.8	≈2	≈ovoid	1.6	*H. islandicus*
4	1.7	≈1.5	≈ovoid	2.5	*H. furcatus* [*sensu* Pallares, 1975b]
4	1.7	≈1.5	≈ovoid	2	*H. furcatus* [*sensu* Lang 1936b]

1. P2 Enp-3 bears 4 well developed and 1 rudimentary seta.

KG 6/4/2

Because of the large number of characters that would be required for a single key, separate keys are provided for females and males (p. 417).

KG 6/4/2(female) – characters

1. P5
   n:n - number of setae and spines on endopod and exopod

2. P5 exopod, shape
   ovoid - inner and outer edges convex; greatest breadth at the middle
   ≈ovoid - semi-ovoid; one of the inner or outer edges convex, the other approximately straight; greatest breadth at the middle
   rectangular - inner and outer edges approximately straight and approximately parallel

3. P5 exopod
   n - ratio of maximum length to maximum breadth

4. P5 endopod
   n - ratio of length of seta IV to length of seta I
   na - not applicable (endopod with only 3 setae)

5. P5 exopod, longest seta
   A - seta II is longest seta; more than 3 times as long as seta V
   B - seta II is longest seta; more than 2.5 times as long as seta V
   C - seta II is longest seta; 2–2.5 times as long as seta V
   D - seta II is longest seta; at most twice as long as seta V
   E - seta III is longest seta; approximately 1.5 times as long as seta V
   F - setae II and III approximately equal; approximately twice as long as seta V

KG 6/4/2(female)

P5 setae	P5 Exp shape	P5 Exp l/b	P5 Enp seta IV/ seta I	P5 Exp longest seta	
4:5	ovoid	≈1.5	1.8	A	*Harpacticus littoralis*[1]
4:5	≈ovoid	≈1.5	2.4	B	*H. obscurus* [*sensu* Pallares 1973]
4:5	≈ovoid	≈1.5	1	B	*H. falklandi* [*sensu* Lang 1936b]
4:5	≈ovoid	≈1.5	1	E	*H. falklandi* [*sensu* T. Scott 1912]
4:5	rectangular	≈2.5	1	D	*H. clausi* [*sensu* A. Scott 1909]

4:5	rectangular	3.2	1.5	C	*H. clausi* [*sensu* Sewell 1940]
4.5	rectangular	2.2	≈1	C	*H. poppei*
4:5	rectangular	2	1.7	C	*H. giesbrechti*[1]
3:5	≈ovoid	2	na	C	*H. confusus*
3:5	≈ovoid	2	na	E	*H. gurneyi* [*sensu* Jakubisiak 1933]
3:5	ovoid	≈1.5	na	F	*H. gurneyi* [*sensu* Yeatman 1962]

1. These species are extremely difficult to distinguish. An alternative key is provided by Huys, Gee, Moore & Hamond (1996 p. 282).

KG 6/4/2(male) – characters

1. P5 exopod
   n - number of setae and spines

2. P5 exopod, shape
   ≈ovoid - semi-ovoid; one of the inner or outer edges convex, the other approximately straight; greatest breadth at the middle
   rectangular - inner and outer edges approximately straight and approximately parallel
   delta - reverse triangular; base wider than apex with both sides sloping from base to apex; greatest breadth close to apex

3. P5 exopod
   n - ratio of maximum length to maximum breadth

4. P5 exopod, relative length of setae I and V
   I>V - seta I 1.5–2 times longer than seta V
   V>I - seta V longer than seta I
   I=V - seta I approximately as long as seta V
   na - not applicable (exopod with only 4 setae)

5. P2 endopod
   n - ratio of length of outer edge of Enp-2 (including the apophysis) to the length of Enp-3

KG 6/4/2(male)

P5 Exp setae	P5 Exp shape	P5 Exp l/b	P5 Exp seta I/V	P2 Enp-2/ Enp-3	
5	≈ovoid	<2	I>V	1.6–3.3	*Harpacticus obscurus* [*sensu* Pallares 1973]
5	≈ovoid	<2	I>V	3.6	*H. spartacus*[1]
5	≈ovoid	<2	V>I	2	*H. falklandi* [*sensu* T. Scott 1912]
5	rectangular	≈3	V>I	2.6	*H. clausi* [*sensu* Vervoort 1964]
5	rectangular	≈3	V>I	2	*H. clausi* [*sensu* Sewell 1940]
5	delta	2	I>V	≈2	*H. littoralis*[2]
5	rectangular	2	I>V	4.6	*H. giesbrechti*[2]
5	delta	2	I>V	4.4	*H. gurneyi* [*sensu* Yeatman 1962]
5	delta	2	I=V	?	*H. gurneyi* [*sensu* Jakubisiak 1933]
4	rectangular	2	na	3	*H. confusus*

1. Redescribed from a male by Huys & Song (2004). Most aspects of the female anatomy remain poorly known.
2. These species are extremely difficult to distinguish. An alternative key is provided by Huys, Gee, Moore & Hamond (1996 p. 282).

KG 6/4/3

Because of the large number of characters that would be required for a single key, separate keys are provided for females and males (p. 418).

KG 6/4/3(female) – characters

1. P5 exopod
    n - ratio of maximum length to maximum breadth

2. P5 exopod, shortest seta
    relationships as indicated

3. P5 exopod, relative length of setae II and V
    n - ratio of length of seta II to seta V

4. P5 endopod, shortest seta
    relationships as indicated

5. P5 endopod, relative length of setae III and I
    n - ratio of length of seta III to seta I

KG 6/4/3(female)

P5 Exp l/b	P5 Exp shortest seta	P5 Exp seta II/V	P5 Enp shortest seta	P5 Enp seta III/I	
≈3	I≈V	2.8	I=IV	1.9	*Harpacticus longiantennata*
2.5	IV=V	3.7	I	3.3	*H. nipponicus*
2.1	V	3.6	I	2.8	*H. nicaeensis* [*sensu* Monard 1926a, as *H. aegialobates*][1]
≈2	IV	2.3	I	3.4	*H. pulvinatus* [*sensu* Brady 1910]
≈2	IV	1.5	I	3.8	*H. pulvinatus* [*sensu* Lang 1934]
1.7	IV	1.2	I	1.6	*H. pulvinatus* [*sensu* Pallares 1968a]
1.6	I=IV=V	2.1	IV	3.7	*H. alevtinae*
1.3	V	4.6	I=IV	1.4	*H. nicaeensis* [*sensu* Steuer 1937]

1. *Harpacticus nicaeensis* is reviewed by Huys & Song (2004). This species also is distinguished by the presence of a small unguiform projection from the outer edge of P1 Enp-2. Most species of the genus have a small row of spinules at this location.

KG 6/4/3(male) – characters

1. P5 exopod
    n - ratio of maximum length to maximum breadth

2. P5 exopod, relative length of setae II and V
    n - ratio of length of seta II to seta V

3. P2 endopod

n - ratio of length of outer edge of Enp-2 (including the apophysis) to the length of Enp-3

4. P2 Enp-1

n - ratio of maximum length to maximum breadth

KG 6/4/3(male)

P5 Exp l/b	P5 Exp seta II/V	P2 Enp-2/ Enp-3	P2 Enp-1 l/b	
3.2	2.5	≈5	3.3	*Harpacticus nicaeensis* [*sensu* Monard 1926a, as *H.aegialobates*][1]
≈3	1.7	?	?	*H. alevtinae*
≈2	3.5	2.1	2.3	*H. nipponicus*
2.2	1.9	≈5	2.5	*H. nicaeensis* [*sensu* Steuer 1937][1]
2.3	2.3	4.6	2.3	*H. nicaeensis* [*sensu* Petkovski 1964a][1]
2	2.1	3.25	2.5	*H. longiantennata*
2.4	1.6	≈2.5	≈2	*H. pulvinatus* [*sensu* Lang 1934]
2	1.2	2.2	1.8	*H. pulvinatus* [*sensu* Pallares 1968a]

1. *Harpacticus nicaeensis* is reviewed by Huys & Song (2004). This species also is distinguished by the presence of a small unguiform projection from the outer edge of P1 Enp-2. Most species of the genus have a small row of spinules at this location.

KG 6/5 – characters

Caution: Read introduction of KG 6/3 (p. 411). before using this key.

1. Maxilliped basis, inner side

str/conv - simple, straight or weakly convex

not - complexly figured; usually with an abrupt, inwardly directed step about halfway and with a bulbous projection in the distal half (but there are many variations on this pattern)

2. Antenna Exp-2, setation

A - with 2 well developed setae (the median 2) and 2 small, weak and thin setae (the proximal inner and outer terminal setae)

B - with 3 well developed setae; only the outer terminal seta is small, thin and weak

3. Female P5

n:n - number of setae on endopod and exopod

4. Male P2 endopod

n - ratio of length of apophysis on segment 2 to the length of segment 3

5. Male P3

n - ratio of length of Exp-1 to Enp-1

KG 6/5

Maxilliped basis	A2 Exp-2 setae	Female P5 setae	Male P2 Enp apophysis	Male P3 Exp-1/ Enp-1	
str/conv	A	4:5	≈1.75	0.75	*Harpacticus spinulosus*
not	B	3:5	≈1.75	0.33	*H. chelifer*
not	B	4:5	1 *or* 3	1	*H. pacificus*[1]

KG 6/6 – characters

1. Antenna exopod
   n:n - number of setae on 1st and 2nd segments

2. Antenna allobasis
   n - number of setae on inner edge (there may also be some setules and spinules)

3. P1, length of Exp-1 relative to endopod
   short - Exp-1 extends approximately to the end of Enp-1
   long - Exp-1 extends beyond the end of Enp-2

4. Female P5
   n:n - number of setae on endopod and exopod

5. Male P5
   n:n - number of setae on endopod and exopod
   uk - male unknown

KG 6/6

A2 Exp setae	A2 allobasis inner setae	P1 Exp-1/ Enp	Female P5 setae	Male P5 setae	
1:2	1	short	5:5	0:3	*Harpacticella lacustris*
1:2	0	short	5:5	0:1–3	*H. paradoxa*
1:2	0	long	5:5	0:3	*H. inopinata*
1:3	0	short	5:5	0:4	*H. oceanica*[1]
1:3	0	short	5:7	0:4	*H. itoi*[1]
1:3	0	short	6:4	uk	*H. amurensis*

1. The males of these species may be distinguished by the surface ornamentation of the ventral urosome by rows of spinules, which is confined to the distal edge in *H. itoi* but consists of several rows in *H. oceanica.*

KG 7 – characters

Caution: Read introduction to KG 6/3 (p. 411) before using this key.

1. Antenna Exp-1
   n - number of setae

2. Female antennule
n - number of segments

3. Female P5
n:n - number of setae on endopod and exopod

KG 7

A2 Exp-1 setae	Female A1 segs	Female P5 setae	
8	?	3:4	*Harpacticus glaber*
9	1	3:4	*H. trisetosus*
9	2	5:5	*H. meridionalis*

KG 8 – characters

1. P1 Exp-1
n - ratio of maximum length to maximum breadth

2. P4 endopod
short - extends approximately to the end of Exp-2
long - extends into the distal half of Exp-3

3. Female P5
n - number of well developed setae on endopod

4. P3 Enp-2, inner edge
n - number of setae

KG 8

P1 Exp-1 l/b	P4 Enp length	Female P5 Enp setae	P3 Enp-2 inner setae	
≈1	short	4	0	*Mucropedia cookorum* female[1]
≈3	long	2	1	*Archizausodes biarticulatus*

1. See KG 0 (p. 405) for male.

KG 9 – characters

1. Female antennule
n - number of segments

2. Female P5
n:n - number of setae on endopod and exopod

3. Female P5
A - anterior surface of baseoendopod with several rows of spinules; endopod extends to about ¾ the length of the exopod; exopod approximately as long as broad
B - anterior surface of baseoendopod naked; endopod only extends to about a quarter of the length of the exopod; exopod approximately twice as long as broad

4. Male P5 exopod, ratio of maximum length to maximum breadth

≈1 - approximately as long as broad

l>b - significantly longer than broad

<1 - significantly broader than long

5. P2 Enp-3

n:n - number of setae and spines in female and male

KG 9

A1 female segs	Female P5 setae	Female female P5	Male P5 Exp l/b	P2 Enp-3 setae	
7	5:5	A	≈1	5:4	*Neozausodes sextus*
7	5:5	A	<1	5:3	*N. shulenbergeri*
7	5:5	A	≈1	4:4	*Zausodes stammeri*[1]
8	4[2]:5	B	l>b	5:4	*Z. septimus*[2]

1. *Zausodes stammeri* (usually placed *incertae sedis* in *Neozausodes*) seems to be very similar to *Z. sextus* but the description (Jakobi 1954a) is very poor and it is impossible to be certain of the accuracy of either of the similarities or differences.
2. The seta immediately proximal to the apical seta is very small and easily mistaken for a spinule.

Family Huntemanniidae

KG 0 – characters

1. P1
   n:n - number of segments in exopod and endopod*

* bs = endopod is reduced to a large blunt spiniform process, with or without other setae or spines

2. P2–P4 exopod
   n:n:n - number of segments in P2, P3 and P4

3. P2 and P4 endopod
   n:n - number of segments in P2 and P4

4. P2–P4 exopod, distal segment
   n:n:n - number of setae and spines on P2, P3 and P4

5. P2 and P4 endopod, distal (or only) segment
   n:n - number of setae and spines on P2 and P4
   na - not applicable (endopod absent)

KG 0

P1 segs	P2–P4 Exp segs	P2 & P4 Enp segs	P2–P4 Exp distal seg setae	P2 & P4 Enp distal seg setae	
3:2	3:3:3	3:2	5:6:6	3:4	*Talpina peruana* male
3:2	3:3:3	3:2	5:5:6	3:5	*T. talpa* male
3:2	3:3:3	2:2	5:6:6	5:5	*T. pectinata* male[1]
3:2	3:3:3	2:2	4:6:6	4:3	*Metahuntemannia pseudomagniceps* male[2]
3:2	3:3:3	2:1	6–7:7–8:6–8	3:2	*Nannopus palustris*[3]
3:2	3:3:3	2:1	6:6:6	3:1	*N. perplexus*
3:2	3:3:3	1:1	5:5:6	1:1	*Pontopolites typicus*
3:2	2:2:2	1:1	4:7:7	1:1	*Huntemannia biarticulatus* male
3:2	2:2:2	1:1	4:6:5	1:1	*H. biarticulatus* female
3:1	3:3:3	2:1	5:6:6	2:2	*Nannopus unisegmentatus*
3:1	3:3:3	0:0	4:4:4	na:na	*Talpina bifida*
3:1	3:3:3	0:0	3:3:3	na:na	*T. curticauda*
3:bs	3:3:3	2:2	5:6:6	4:5	*Metahuntemannia smirnovi*
3:bs	3:3:3	2:2	5:6:6	4:3	*M. spinipes* female[4]
3:bs	3:3:3	2:2	5:6:6	3:4	*M. triarticulata*
3:bs	3:3:3	2:2	5:6:6	2:3(2?)[5]	*M. dovpori* female[5]
3:bs	3:3:3	2:2	5:6:6	2:2	KG 1 (p. 424)
3:bs	3:3:3	2:2	5:6:6	1:2	*Metahuntemannia triarticulata* female
3:bs	3:3:3	2:2	4:5:5	4:2	*M. iberica*
3:bs	3:3:3	2:0	4:4:4	1:na	*M. beckeri* female[4]
3:bs	3:3:3	0:0	5:5:5	na:na	*Talpina talpa* female
3:bs	3:3:3	0:0	4:4:4	na:na	KG 2 (p. 425)

3:bs	3:3:3	0:0	3:3:3	na:na	*Metahuntemannia drzycimskii*, *M. texturata*[6]
3:0	3:3:3	2:2	?:?:6	?:5	*Pseudocletodes vararensis*
2–3:1	2:2:2	1:1	5:8:7	2:1	*Huntemannia lacustris* male
2–3:1	2:2:2	1:1	5:8:6	2:2	*H. jadensis* male
2–3:1	2:2:2	1:1	5:6:6	2:1	*H. jadensis* female
2–3:1	2:2:2	1:1	5:5–6:6	1–2:1	*H. lacustris* female
2:2	3:3:3	2:2	5:6:6	3:4	*Talpina pacifica*
2:2	2:3:2	0:0	4:4:5	1:1	*Rosacletodes kuehnemanni* male
2:1	2:2:2	1:1	3:6:5	1:1	*Huntemannia micropus* male
2:1	2:2:2	1:1	3:3:4	1:1	*H. micropus* female
2:1	2:1:1	0:0	4:4:4	1:1	*Rosacletodes kuehnemanni* female
1:1	3:3:3	3:2	6:7:7	4:4	*Talpina micracantha*
1:1	3:3:3	2:2	5:6:6	3:3	*T. furcispina* female[4]
1:1	3:3:3	0:0	5:6:6	na:na	KG 3 (p. 426)
1:1	3:3:3	0:0	4:4:4	na:na	*Talpina bathyalis* female[4]
1:0	3:3:3	3:2	5:6:6	4:4	*T. peruana* female
1:0	3:3:3	2:2	5:6:6	4:4	*T. pacifica* female

1. Female unknown.
2. See KG 1 for the female.
3. *Nannopus palustris* "is a cosmopolitan eurythermal and euryhaline species, found from the Arctic to the tropics and in conditions as widely varying as shallow water marine and brackish water communities, fresh waters of all kinds from lakes and streams to domestic water supplies and garden pools, and in the peculiar hydrographic conditions of inland seas and mineral rich springs and lakes" (Wells 1971). It displays wide morphological variation but Staton, Wickliffe, Garlitska, Villanueva & Coull (2005) show that at least one variant (the 'notched' caudal seta form of Coull & Fleeger 1977) is genetically isolated from sympatric 'non-notched' forms. *N. palustris* almost certainly is a complex of species.
4. Male unknown.
5. The distal edge of the distal segment of P3–P4 endopod bears two setae and a spiniform process. It is not clear from Bodin's (1968) illustration whether this process is fused to the segment edge or is an articulated spine. The text states that there are "deux soies et une épine", but the setal formula is given as "0.2.0". Male unknown; see KG 1 for more information on the female.
6. The differences between these species are small and subtle and identification is best achieved through a comparison of the descriptions by Drzycimski (1968a) and Dahms & Pottek (1992).

KG 1 – characters

1. Anal operculum, ornamentation
   - few - with 6 large spinules
   - many - fringed with spinules
   - naked - without ornamentation

2. Female antennule
   - n - number of segments

3. Female P1 Exp-3
   - n:n - number of setae and large, blunt spines

4. Female P3 endopod
   - n - number of segments

5. Female P5
n - total number of setae* on each side of the medially fused pair of P5

* Some setae may be minute and easily overlooked.

KG 1

Anal operculum	Female A1 segs	Female P1 Exp-3 setae	Female P3 Enp segs	Female P5 setae	
naked	0:3	2	6	6	*Metahuntemannia crassa* female[1]
naked	0:3	2	6	5	*M. pseudomagniceps* female[2]
naked	0:2	2	6	5	*M. magniceps* female[1]
few	1:2	3	6	6	*M. dovpori* female[1]
many	0:2	2	8	6	*M. mediterranea* female[1]

1. Male unknown.
2. See KG 0 (p. 423) for male.

KG 2 – characters

1. Female antennule
n - number of segments

2. Antenna exopod
1 - 1 segment
absent - exopod absent

3. Mandible palp
n - number of segments

4. P1 Exp-3
n - number of setae

5. Female P5
n - total number of setae

KG 2

Female A1 segs	A2 Exp segs	Mandible palp segs	P1 Exp-3 setae	Female P5 setae	
6	1	1	2	7	*Metahuntemannia gorbunovi*[1]
6	1	2	2	7	*M. atlantica*[1]
6	absent	1	2	6	*M. spinosa*[1]
5	1	1	3	6	*M. arctica*[1]
6	absent	2	2	6	*M. indica*[1]

1. Male unknown.

KG 3 – characters

1. P5

   n - total number of setae on each side of the medially fused pair of P5

2. P2–P4 basis, inner distal corner

   present - row of stout spinules present

   absent - spinules absent

KG 3

P5 setae	P2–P4 basis	
5	present	*Talpina noodti*[1]
1	absent	*T. fodens*[1]

1. Male unknown.

Family Idyanthidae

KG 0 – characters

1. Antenna exopod
    n - number of segments

2. P3–P4 endopod
    n:n - number of segments in P3 and P4

3. P2–P4 exopod, distal segment
    n:n:n - number of setae and spines on P2, P3 and P4

4. P3–P4 endopod, distal segment
    n:n: - number of setae and spines on P3 and P4

5. P3–P4 Enp-2, inner edge
    n:n - number of setae on P3 and P4
    na - not applicable (endopod less than 3-segments)

KG 0

A2 Exp segs	P3–P4 Enp segs	P2–P4 Exp distal seg setae	P3–P4 Enp distal seg setae	P3–P4 Enp-2 inner setae	
4	3:3	7:8:8	6:5	2:1	*Idyanthe pusilla*, *I. australis*[1]
3	3:3	7:8:8	6:5	2:1	*Idyanthe dilatata*
3	3:3	7:8:8	6:5	1:1	*Idyellopsis typica*
3	3:3	7:8:8	4:4	1:1	*Nematovorax gebkelinae*
3	3:3	7:6:6	3:2	1:0	*Dactylopia peruana*[2]
3	2:2	7:6:6	2 *or* 4:3	na:na	*Dactylopia peruana*[2]
2	3:3	7:8:8	6:5	2:1	KG 1 (p. 427)
2	3:3	7:8:8	5–6:5	1:1	KG 2 (p. 428)
1	3:3	7:8:8	4:4	1:1	KG 3 (p. 429)
1	2:1	7:7(8)[3]:6	4:3	na:na	*Aspinothorax insolentis*[3]

1. According to Pallares (1970) the P5 exopod of the female *I. australis* is 2-segmented, with a total of 6 setae—a most unusual combination. In *I. pusilla* there is 1 segment with 4 setae. There are no other remarkable differences between the females; the male of *I. pusilla* is unknown.
2. *Dactylopia peruana* is known from a few specimens only and there is variability between individuals and between the setation of right and left P2–P4 within an individual.
3. Moura & Martinez Arbizu (2003) do not provide a full description of P3. The setal formula is given in a table and lists P3 Exp3 with a total of 7 setae and spines. However, the illustration shows the outer edge of P3 Exp3 to have 3 'steps'. The distal two each support the origin of a spine but the most proximal is vacant—as though a spine is missing. There is no comment on this feature in the text.

KG 1 – characters

1. P1 endopod
    n - number of segments

2. P2 endopod, distal segment
  n - number of setae and spines

3. Female P5 endopod
  wd - well developed; extends to at least ¼ the length of the exopod
  rud - rudimentary; forming only a very small peduncle for the setae

4. Female P5 exopod setae
  edge - all setae originate on the segment edge
  1 face - 1 seta originates on the anterior face

5. Female, epimera of abdomen somites 1–3, in dorsal view
  A - all somites have prominent wing-shaped (alate) epimera with acurved leading (anterior) edge and an approximately straight trailing (posterior) edge that angles acutely from the distal edge of the somite.
  B - prominent alate epimera exist on somites 1–2 only; somite 3 with slight lateral swelling that gives a shallow convex shape to the somite.
  C - prominent alate epimera exist on somite 1 only; somite 2 is convex; somite 3 is without epimera
  D - as C but trailing edge of epimera is at a right angle to the segment.
  E - prominent alate epimera exist on somite 1 only; somites 2–3 without epimera.

KG 1

P1 Enp segs	P2 Enp distal seg setae	Female P5 Enp	Female P5 Exp setae	Female abdomen epimera	
3	3	wd	edge	A	*Idyanthe tenella*[1]
2	6	wd	1 face	A	*Idyella exigua*
2	5	rud	1 face	E?	*Idyella kunzi*[1]
2	5	rud	edge	A	*Idyella australis*[1]
2	5	rud	edge	B	*Idyella tenuis*[1]
2	5	rud	edge	D	*Idyella major*[1]
2	5	rud	edge	E	*Idyella pallidula*[1]

1. Male unknown.

KG 2 – characters

1. Female P5 endopod
  wd 1 - well developed, extending beyond the end of the exopod; with 3 setae (exopod with 4 setae)
  wd 2 - well developed but not extending beyond the end of the exopod; with 3 setae (exopod with 4 setae)
  rud - rudimentary, with 1 seta (exopod with 3 setae)

2. P3 Enp-3
  n - number of setae

3. Caudal ramus, setae IV and V

sw:sw - both setae swollen proximally

not:sw - IV not swollen: V swollen

not:not - both setae without proximal swelling

KG 2

Female P5 Enp	P2–3 Enp-3 setae	CR setae IV–V	
wd 1	6	not:not	*Tachidiella minuta*
wd 2	6	not:not	*T. parva*
wd 2	6	sw:sw	*T. patagonica*
wd 2	5	not:not	*T. kimi*
wd 2	5	not:sw	*T. reducta*

KG 3 – characters

1. Cephalic shield and thorax

post - spinous processes primarily directed posteriorly

lat - spinous processes primarily directed laterally

2. Rostrum

long - about half as long as cephalic shield

short - about $^{1}/_{5}$ the length of cephalic shield

3. Caudal ramus

n - ratio of maximum length to maximum breadth

4. P1 endopod

n - number of segments

5. P1 Enp-1, length relative to exopod

long - extends beyond end of entire exopod

short - extends only to about the end of Exp-1

KG 3

Cephalic shield & thorax	Rostrum	CR l/b	P1 Enp segs	P1 Enp-1/ Exp	
post	short	1.4	2	short	*Styracothorax gladiator*[1]
lat	long	≈5	3	long	*Meteorina magnifica*[1]

1. George (2004b) provides a comprehensive comparison of these species.

Family Laophontidae

Sexual dimorphism is highly developed in this family. Separate keys are given for males and females.

Caution: P2–P4 setation is variable in many species. Variation is known to occur between populations, within a population, between the sexes and even between the right and left members of a pair of legs in a single individual. While these keys take present knowledge of variation into account, its very existence means that any identification must be checked against a good description.

KEYS TO FEMALES
(for keys to males, see p. 453)

KG 0(female) – characters

1. P2–P4 exopod
   n:n:n - number of segments in P2, P3 and P4

2. P2–P4 endopod
   n:n:n - number of segments in P2, P3 and P4

3. P5
   n:n - number of setae on endopod and exopod

4. P1 Exp
   n - number of segments

5. Antennule
   n - number of segments

KG 0(female)

P2–P4 Exp segs	P2–P4 Enp segs	P5 setae	P1 Exp segs	A1 segs	
3:3:3	2:2:2	6:6	3	7	KG 1(female) (p. 433)
3:3:3	2:2:2	6:6	1	6	*Microlaophonte trisetosa*
3:3:3	2:2:2	5:7	3	7	*Laophonte parvula*
3:3:3	2:2:2	5:7	2	7	*Heterolaophonte phycobates*
3:3:3	2:2:2	5:6	3	7	KG 2(female) (p. 433)
3:3:3	2:2:2	5:6	3	6	*Laophonte lignosa*
3:3:3	2:2:2	5:6	2	7	KG 3(female) (p. 434)
3:3:3	2:2:2	5:6	2	6	KG 4(female) (p. 434)
3:3:3	2:2:2	5:6	2	4	KG 20(female) (p. 438)
3:3:3	2:2:2	5:5	3	7	KG 5(female) (p. 435)
3:3:3	2:2:2	5:6	3	6	KG 44(female) (p 452)
3:3:3	2:2:2	5:5	3	6	KG 6(female) (p. 435)
3:3:3	2:2:2	5:5	3	5	*Laophonte farrani*
3:3:3	2:2:2	5:5	2	5	*Quinquelaophonte candelabrum*

3:3:3	2:2:2	5:4	3	7	KG 7(female) (p. 435)
3:3:3	2:2:2	5:4	2	6	*Psammoplatypus discipes*
3:3:3	2:2:2	5:3[1]	3	5	KG 21(female) (p. 439)[1]
3:3:3	2:2:2	4:6	3	7	KG 8(female) (p. 436)
3:3:3	2:2:2	4:6	2	7	*Heterolaophonte exigua*
3:3:3	2:2:2	4:6	2	6	KG 9(female) (p. 436)
3:3:3	2:2:2	4:5	3	7	KG 10(female) (p. 436)
3:3:3	2:2:2	4:5	3	6	KG 11(female) (p. 436)
3:3:3	2:2:2	4:5	2	7	KG 12(female) (p. 437)
3:3:3	2:2:2	4:5	2	6	KG 13(female) (p. 437)
3:3:3	2:2:2	4:5	2	5	KG 14(female) (p. 437)
3:3:3	2:2:2	4:5	1	5	*Tapholeon uniarticulatus*
3:3:3	2:2:2	4:4	3	7	*Paralaophonte septemarticulata*
3:3:3	2:2:2	4:4	3	6	*P. ormieresi*, *P. brevirostris* [*sensu* Marinov 1971][2]
3:3:3	2:2:2	4:4	2	7	*P. karmensis*
3:3:3	2:2:2	4:3	3	5	*Platylaophonte delamarei*
3:3:3	2:2:2	4:3	2	6	KG 15(female) (p. 437)
3:3:3	2:2:2	4:3	1	6	KG 16(female) (p. 438)
3:3:3	2:2:2	3:6	3	7	KG 22(female) (p. 439)
3:3:3	2:2:2	3:5	3	6	*Lipomelum adriaticum*
3:3:3	2:2:2	3:5	2	7	*Paralaophonte longipes*
3:3:3	2:2:2	3:5	2	6	*P. aenigmaticum*
3:3:3	2:2:2	3:4	3	6	*Klieonychocamptus kliei*[3]
3:3:3	2:2:2	3:4	2	6	*K. kliei confluens*
3:3:3	2:2:2	3:4	2	5	KG 17(female) (p. 438)
3:3:3	2:2:2	3:3	3	6	KG 18(female) (p. 438)
3:3:3	2:2:2	3:3	2	5	KG 23(female) (p. 440)
3:3:3	2:2:2	3:2	2	5	*Folioquinpes chathamensis*
3:3:3	2:2:2	2:5	3	7	*Paralaophonte quaterspinata*
3:3:3	2:2:2	2:4	2	4	*Folioquinpes mangalis*
3:3:3	2:2:2	2:3	2	6	*Echinolaophonte minuta*, *E. veniliae*[4]
3:3:3	2:2:1	5:6	3	7	*Heterolaophonte longisetigera*
3:3:3	2:2:1	5:5	3	6	*Laophonte hirsutus*
3:3:3	2:2:1	5:3	3	7	*Chilaophonte maiquillahuensis*, *C. concepcionensis*[5]
3:3:3	2:2:1	5:3	2	6	*Mielkiella spinulosa*
3:3:3	2:2:1	4:5	2	6	KG 19(female) (p. 438)
3:3:3	2:2:1	4:4	2	6	*Loureirophonte subterranea*
3:3:3	2:2:1	3:5	3	6	*Laophonte acutirostris*
3:3:3	2:2:1	3:5	2	6	*Loureirophonte majacola*
3:3:3	2:2:1	3:4	2	6	*Laophonte longistylata*
3:3:3	2:1:1	5:6	3	6	*Heterolaophonte denticulata*
3:3:3	1–2:1:1	5:6	2	7	*Laophonte foxi*
3:3:3	1:1:1	5:6	3	6	*Pseudocleta corbula*[6]
3:3:3	1:1:1	5:6	2	7	*Laophonte trilobata*
3:3:3	1:1:1	4:6	2	6	*Robustunguis ungulatus*
3:3:3	1:1:1	3:6	2	6	*Coullia heteropus*

3:3:3	0:2:2	5:6	2	4	*Pseudolaophonte proteus*
3:3:3	0:1:1	4:6	2	6	*Coullia clysmae*
3:3:2	2:2:2	4:6	3	7	*Heterolaophonte norvegica*
3:3:2	2:2:2	4:6	2	6	*Hemilaophonte janinae*
3:3:2	2:2:1	5:6	2	7	*Heterolaophonte serratula*
3:3:2	2:2:1	4:3	3	6	*Klieonychocamptus ponticus diarticulatus*
3:3:2	2:2:1	4:2	2	7	*Stygolaophonte arenophila*
3:3:2	2:2:1	3:5	3	6	*Harrietella simulans*
3:3:2	1:2:1	4:4	3	7	*Maquilaophonte uachi*
3:3:1	2:1:0	5:5	2	7	*Lobitella apoda*
3:3:0	2:2:0	6[7]	2	6	*Mictyricola typica*[7]
3:3:0	0:0:0	2:5	2	6	*Raptolaophonte ardua*
2:3:3	2:2:2	4:3	2	6	*Xanthilaophonte carcinicola*
2:3:3	0:1:1	4:5	2	5	*Langia maculata*
2:2:2	1:2:1	1:5	2	6	*Robustunguis minor*
2:2:2	0:2:2	5:5	1	6	*Mexicolaophonte arganoi*
2:2:2	0:1:1	5:5	2	5	*Pseudolaophonte glemareci*
2:1:0	0:0:0	4:3	1	5	*Novolaophonte viatorum*
1:3:3	0:2:1	4:4	1	6	*Afrolaophonte pori*
1:3:3	0:1:1	3–4:4–5	1	5–6	KG 24(female)(p. 441)
1:2:3	1:1–2:1	4:5	1	6	*Galapalaophonte variabilis*
1:2:3	0:2:2	5–6:5	2	4–5	*Pseudolaophonte spinosa*
1:2:3	0:1:1	4:6	2	6	*Indolaophonte gemmarum*
1:2:3	0:1:1	4:4	1	5	*Afrolaophonte stocki*
1:2:3	0:0:1	4:5	2	6	*Indolaophonte ramai*
1:2:3	0:0:1	4:4	1	5–6	*Afrolaophonte monodi*
1:2:2	0:1:1	4:4	1	5	*A. michae*
1:2:2	0:0:1	4:4	1	6	*A. brevipes*
1:1:3	0:1:1	4:4	1	6	*A. renaudi*
1:1:3	0:0:1	4:5	1	6	*Wellsiphontina striata*
1:1:2	0:1:1	4:4	1	5	*Afrolaophonte brignolii*
1:1:2	0:1:1	3:4	1	6	*A. michaelae*
1:1:2	0:0:1	4:5	1	6	*Wellsiphontina distincta*
1:1:1	0:1:1	4:5	1	6	*Afrolaophonte aequatorialis*, *A. ensiger*[8]
1:1:1	0:0:1	4:4–5	1	6	*A. ensiger*
1:1:1	0:0:0	3:4	1	7	*Klieonychocamptoides remanei*
1:1:1	0:0:0	3:4	1	6	*K. arganoi* , *K. itoi*[9]
1:1:1	0:0:0	3:4	1	5	*K. arenicola*
1:1:0	0:0:0	4[7]	1	4	*Namakosiramia koreensis*[7]
1:0:0	0:0:0	4[7]	1	4	*N. californiensis*[7]
0:3:3	2:2:1	4:5	1	6	KG 25(female) (p. 441)
0:3:3	2:2:1	4:5	1	5	*Galapalaophonte chilensis*
0:2:3	2:2:1	3–4:5	1	6	*G. biarticulata*
0:2:3	1:1–2:1	4:5	1	6	*G. variabilis*
0:2:3	0:1:1	5:5	1	6	*Mexicolaophonte osellai*
0:1:3	0:0:0	3–4:5	1	5	*Amerolaophontina reducta*
0:1:2–3	0:0:1	4:5	1	6	*Laophontina dubia*

0:1:2	0:1:1	3:5	1	6	*L. noodti*
0:1:2	0:0:1	3:5	1	6	*L. acantha*
0:1:2	0:0:0	2–3:3	1	6	*L. sensillata*
0:1:1	1:1:1	4:5	1	6	*L. posidoniae*

1. P5 Exopod may be fused to basis but components are recognisable; a total of 9 setae and spines.
2. It is not possible to distinguish these species using the published descriptions.
3. *Klieonychocamptus kliei* s. str. [*sensu* Noodt 1955d], *K. k. adriaticus* [*sensu* Kunz 1974a], *K. k. marcusae*.
4. The females of these species are extremely similar and can be distinguished only on very fine points of detail; consult the original descriptions (Cottarelli & Forniz 1991; Cottarelli, Forniz & Bascherini 1992).
5. P3 Enp-2 has 4 setae and spines in *C. maiquillahuensis* but only 3 in *C. concepcionensis*.
6. *Pseudocleta* is included in the key to the family Laophontidae for convenience. It is now considered a genus *incertae sedis* in the superfamily Laophontoidea.
7. P5 rami fused to form a single plate.
8. In *A. aequatorialis* P1 exopod has 6 setae and spines; *A. ensiger* has only 4.
9. In *K. arganoi* P1 exopod has 6 setae and spines; *K. itoi* has only 5.

KG 1(female) to 19(female) – characters

The same four characters are used throughout

1. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Exp-2, inner edge
   n:n:n - number of setae on P2, P3 and P4

3. P2–P4 endopod, distal (or only) segment
   n:n:n - number of setae on P2, P3 and P4

4. P2–P4 Enp-1, inner edge
   n:n:n - number of setae on P2, P3 and P4
   na - not applicable (endopod less than 2 segments)

KG 1(female) to 19(female)

P2–P4 Exp-3 setae	P2–P4 Exp-2 inner setae	P2–P4 Enp distal seg setae	P2–P4 Enp-1 inner setae	
KG 1(female)				
6:?:?	1:?:?	4:?:?	0:?:?	*Heterolaophonte australis*
5:5:5	1:1:1	3:5:4	0:0:0	*Laophonte euxiniphila*
KG 2(female)[1]				
6:7:7	1:1:1	5:6:5	1:1:1	KG 26(female) (p. 442)
6:7:7	1:1:1	4:6:5	0:0:0	KG 27(female) (p. 443)
6:7:7	1:1:1	4:6:4	0:0:0	*Heterolaophonte campbelliensis*

6:7:7	1:1:1	4:5?:5	0:0:1?	*Laophonte dominicalis*
6:7:7	1:1:1	4:?:?	0:1:?	*Heterolaophonte oculata*
6:7:6	1:1:1	4:5:4	0:0:0	*H. longisetigera*
6:6:6	1:1:1	5:6:5	1:0:0	*Bathyesola compacta*
6:6:6	1:1:1	4:6:4	0:0:0	*Heterolaophonte* spp.[2]
6:7:7	1:1:1	4:6:4	0:1:1	*Pseudonychocamptus carthyi*
6:6:6	1:1:1	4:5:4	0:1:1	KG 28(female) (p. 443)
6:6:6	1:1:1	2:5:4	0:0:0	*Heteralaophonte letovae*
6:6:6	1:1:1	4:4:4	0:1:1	*Pseudonychocamptus spinifer*
6:6:5	1:1:1	4:6:4	0:0:0	KG 29(female) (p. 443)
6:6:5	1:1:1	4:5:4	0:0:0	*Heterolaophonte littoralis*
6:6:4	1:1:1	4:6:4	0:0:0	KG 30(female) (p. 444)
6:6:4	1:1:1	4:5:4	0:0:0	*Heterolaophonte variabilis*
6:6:4	1:1:0	4:6:4	0:0:0	*H. minuta*
6:5:6	1:1:1	4:6:4	0:0:0	*H. tenuispina*
5:5:5	1:1:1	2:5:4	0:0:0	KG 31(female) (p. 444)
5:5:5	?	4:5:4	?	*Heterolaophonte mendax*
5:5:4	1:1:0	3:3–4:2–3	0:0:0–1	*Laophonte danversae*

1. *Heterolaophonte insignis* and *H. rottenbergi* should be included in this key but are insufficiently described.
2. This codon identifies *Heterolaophonte manifera*, *H. stroemi* and *H. uncinata*; they may be distinguished on the antenna exopod, which bears 4 small setae in *H. stroemi*, 2 in *H. manifera* but at most has only 1 seta in *H. uncinata* (some accounts describe the exopod as entirely absent).

KG 3(female)

6:6:6	1:1:1	4:6:4	0:0:0	*Heterolaophonte pauciseta*
6:5:6	1:1:1	4:4:4	1:1:1	*H. livingstoni*
?:?:6	?:?:1	?:?:3	?:?:0	*H. pygmaea*
5:5:4	1:1:1	4:5:2	0:0:0	*H. curvata*
5:5:4	1:1:1	3:4:3–4	0:1:1	*H. furcata*
5:5:4	1:1:0	3:4:3	0:0:1	*H. brevipes*
4:4:3	0:0:0	2:1?:2	0:0:0	*Coullia platychelipusoides*

KG 4(female)

6:7:6	1:1:1	3:5:4	0:0:0	*Quinquelaophonte koreana*[1]
6:7:6	1:1:0–1	3:5:3–4	0:0:0	*Q. wellsi*[1]
6:7:6–7	1:1:1	3:5:3–4	0:0:0	*Q. quinquespinosa*[1]
6:7:6	1:1:1	3:4:3	0:0:0	*Q. bunakensis*
6:6:6	1:1:1	3:6:3	0:0:0	*Q. parasigmoides*[1]
6:6:6	1:1:1	3:5:3	0:0:0	*Q. capillata*
6:6:5	1:1:1	3:5:3	0:0:0	*Q. prolixasetae*
6:5–6:5	1:1:1	3:5:4	0:0:0	*Q. longifurcata*
5:5:5–6	0:0:0	2:3(4):3(4)[2]	0:0:0	*Phycolaophonte insularis*[2]
4:6:5–6	1:1:1	2–3:3–4:3–4	0:0:0	*Hoplolaophonte aculeata*

1. Confusion surrounds the question of whether these species are synonymous. Wells & McKenzie (1973) widened the definition of *Q. quinquespinosa* by including *Q. sigmoides* as a synonym, and Fiers (1986b) added *Q. parasigmoides.*

Hamond (1973c), in describing *Q. wellsi*, was aware of the work by Wells & McKenzie but chose to compare *Q. wellsi* with *Q. sigmoides*. It is not yet fully established whether the characteristics of *Q. wellsi* fall within the range of *Q. quinquespinosa.* Lee (2003) distinguishes *Q. koreana* on the basis of a short caudal ramus (1.5 times as long as broad compared with twice as long as broad in the other species) and the ovoid shape of the female P5 exopod, which is unique in the genus. Consult the above authors before making a final determination.

2. P3 and P4 Enp-2 have 3 setae and 1 fused spine.

KG 5(female)

6:7:7	1:1:1	4:6:5	0:0:0	*Laophonte inornata*, *L. sima*[1]
6:7:7	1:1:1	4:6:3	0:0:1	*L. longicaudata* s. str.
6:7:6	1:1:1	4:5:4	0:0:0	*Paralaophonte taurina*
6:6:6	1:1:1	4:5:4	0:1:1	*Pseudonychocamptus abbreviatus*
6:6:6	1:1:1	4:4:4	0:1:1	*Pseudonychocamptus koreni*
6:6:6	1:1:1	3:5:4	0:1:1	*Heteronychocamptus connexus*
6:6:4–5	0–l:1:1	3–4:4:4	0:1:1	*Pilifera gracilis*
5:5:5[2]	1:1:1	3:5:3	0:1:1	*Cornylaophonte pleisteri* [2]

1. Both species are incompletely described and lack the detail required to make a distinction between them.
2. The inner apical seta on P2, P3 and P4 is very small and can be overlooked or mistaken for a spinule.

KG 6(female)

6:7:7	1:1:1	4:6:5	0:0:0	*Laophonte dinocerata*
6:7:7	1:1:1	4:6:4	0:0:1	*Laophonte galapagoensis*
6:7:7	1:1:1	4:6:4	0:0:0	*Paralaophonte majae*
6:7:7	1:1:1	4:6:3	0:0:0	*Laophonte confusa*
6:7:7	1:1:1	4:5:4	0:0:0	*Laophonte spinicauda*
6:7:7	1:1:1	2:4:3	0:1:1	*Weddellaophonte anyae*
6:6–7:5–6	0:0:0	3:3:3	0:0:0	*Lipomelum variabile*
6:6:6	1:1:0	4:3:3	0:0:0	*Lipomelum adriaticum*
5:5:4	0:0:0	3:3:3	0:0:0	*Lipomelum heteromelum*

KG 7(female)

6:7:7	1:1:1	4:6:5	0:0:0	*Laophonte inornata, L. sporadiensis*[1]
6:6:5	1:1:1	3:5:4	1:1:1	*Heteronychocamptus exiguus*

1. See Checklist Note 355 (p. 98).

KG 8(female)

6:7:7	1:1:1	4:6:4	0:0:0	*Paralaophonte gurneyi*
6:6:7	1:1:1	5:5:5	1:1:1	*Troglophonte spelaea*
6:6:6	1:1:1	4:6:4	0:0:0	*Heterolaophonte uncinata*
6:6:4–5	1:1:1	4:6:4	0:0:0	*H. discophora*[1]
4:6:4	1:1:0	4:5:3	0:0:0	*H. tupitskyi*

1. P4 exopod is extremely variable, in shape and setation; see Lang (1965a).

KG 9(female)

6:7:7	1:1:1	5:6:5	1:1:0–1	KG 32(female)
6:7:7	1:1:1	5:5:5	0:0:0	*Esola vervoorti*
6:7:7	1:1:1	4:6:5	1:1:1	KG 33(female)
6:7:7	1:1:1	4:6:5	1:1:0	*Corbulaseta bulligera* [*sensu* Vervoort 1962]
5:5:3	0:0:0	3:3:3	0:0:0	*Laophonte drachi*

KG 10(female)

6:7:7	1:1:1	4:6:5	0:0:0	KG 34(female) (p. 446)
6:7:7	1:1:1	4:5–6:4	0:0:0	KG 35(female) (p. 447)
6:7:7	1:1:1	4:6:3	0:0:0	*Laophonte longicaudata reducta*
6:7:7	1:1:1	4:3:3	0:0:0	*Peltidiphonte rostrata*[1]
6:7:7	1:1:1	3:3:3	0:0:0	*Peltidiphonte furcata*[1]
6:7:5	1:1:1	3:6:3	0:0:0	*Paronychocamptus curticaudatus*
6:6:7	1:1:1	5:5:5	1:1:1	*Troglophonte spelaea*
6:6:6	1:1:1	4:5:3	0:0:0	*Pontophonte leuke*
6:6:6	1:1:1	4:4:3	0:0:0	*Paralaophonte livingstoni*
6:6:?	1:1:1	4:5:4	0:0:0	*Paralaophonte obscura*
5:5:5	1:1:1	3:3:3	0:0:0	*Laophonte baltica*

1. Gheerardyn, Fiers, Vincx & De Troch (2006) provide a dichotomous key to *Peltidiphonte.*

KG 11(female)

6:7:7	1:1:1	4:6:4	0:0:0	KG 36(female) (p. 448)
6:7:7	1:1:1	4:5:4	0:0:0	KG 37(female) (p. 449)
6:7:7	1:1:1	4:6:3	0:0:0	KG 38(female) (p. 449)
6:7:7	1:1:1	4–5:4:3	0:0:0	*Laophonte ifalukensis*
6:7:7	1:1:1	4:4:4	0:0:0	KG 39(female) (p. 449)
6:7:7	1:1:1	3:4:4	0:0:0	*Peltidiphonte major*[1]
6:7:7	1:1:1	3:3:3	0:0:0	*Peltidiphonte morovoensis*[1]
6:7:7	1:1:1	3:2:2	0:0:0	*Peltidiphonte andamanica*[1]
6:7:5	1:1:1	4:6:3	0:0:0	*Paronychocamptus wilsoni*
6:6:6	1:1:1	4:6:4	0:0:0	*Paralaophonte brevirostris* [*sensu* Yeatman 1970]
6:6:6	1:1:1	4:6:3	0:0:0	*Laophonte thoracica*, *L. elongata barbata* [*sensu* Pallares 1970][3]
6:6:6	1:1:1	4:5:4	0:0:0	*Paralaophonte zimmeri*
6:6:6	1:1:1	4:5:4	0:0:1	*Laophonte pseudoculata*
6:6:6	1:1:1	4:5:3	0:0:0	*Pontophonte grigae*
6:6:6	1:1:1	3:6:3	0:0:0	*Laophonte recticaudata*
6:6:6	1:1:1	3:3:3	0:0:0	*L. brevifurca*
6:6:6	1:1:0	3:5:3	0:0:0	*L. nordgaardi*
5:5:5	1:1:1	4:5:2	0:0:0	*L. commensalis*

1. Gheerardyn, Fiers, Vincx & De Troch (2006) provide a dichotomous key to *Peltidiphonte.*
2. Data from Coull (1976b).
3. In *L. elongata barbata* the anal operculum is fringed with a large number of very long and very fine setules. In *L. thoracica* it is naked or with very small spinules.

KG 12(female)

6:7:7	1:1:1	4:6:4	0:0:0	KG 40(female) (p. 450)
6:7:7	1:1:1	4:5:4	0:0:0	*Paralaophonte innae*
6:6:6	1:1:1	4:6:4	0:0:0	KG 41(female) (p. 450)
5:6:6	1:1:1	4:4:3	0:0:0	*Laophonte lamellipes*[1]
5:6:5	1:1:0	2:3:3	0:0:0	*Platychelipus laophontoides*
4:4:4	0:1:0	2:4–5:3	0:0:0	*Asellopsis littoralis*

1. This species currently is considered *incertae sedis* in *Paralaophonte.*

KG 13(female)

6:7:7	1:1:1	4:6:3	0:0:0	*Laophonte setosa*, *L. elongata* s. str.[1]
6:7:7	1:0:0	2:3:3	0:0:0	*Asellopsis arenicola*
6:7:6	1:1:1	4:6:4	0:0:0	*Paralaophonte panamensis*
6:7:5	1:1:1	4:6:3	0:0:0	*Paronychocamptus nanus*
6:5–6:4	1:1:1	4:5:3	0:0:0	*Paralaophonte aenigmaticum*
5:6:6	1:1:1	3:4:5	0:0:0	*Microlaophonte spongicola*
5:6:6	1:1:1	3–4:6:3	0:0:0	*Asellopsis duboscqui*
5:6:6	1:1:1	3:5:3	0:0:0	*A. bacescui*
5:6:6	1:1:1	2:4:3	0:0:0	*A. sarmatica*
5:6:5	1:1:0	2:3:3	0:0:0	*Platychelipus laophontoides*
5:5:5	1:1:0	3:2:1	0:0:0	*Loureirophonte mediterranea*
5:5:5	0:1:1	2–3:3:3	0:0:0	*Laophonte denticornis*
4–5:4–5:4	1:1:0	1–2:3:2	0:0:1	*Arenolaophonte stygia*

1. In *L. setosa* the caudal ramus and P5 exopod are about 2.5 times as long as broad. In *L. elongata* they are at least 5 times as long as broad.

KG 14(female)

6:7:7	1:1:1	3–4:6:3–5[1]	0:0:0–1[1]	*Asellopsis hispida*[1]
6:6:5	1:1:1	2:2:2	0:0:0	*A. chappuisius*
5:6:6	1:1:1	3:4:3	0:0:0	*A. intermedia*
?	?	3:6:3	0:0:0	*A. penicillata*[2]
6:7:6	1:1:0	3:4:3	0:0:0	*Tapholeon ornatus*

1. All combinations of this formula are known. Also, if P4 Enp-2 has 5 setae then P4 Enp-1 may have 1 seta.
2. *Asellopsis penicillata* is unique in the genus in the apical setae of P1 Exp-2, which are very long and have brush-like apical tufts of setules.

KG 15(female)

5–6:7:6	1:1:1	3:4:3	0:0:0	KG 42(female) (p. 451)
5:6:7	1:1:1	3:4:3	0:0:0	*Echinolaophonte gladiator*
5:6:6	1:1:1	3:4:3	0:0:0	*E. tropica*, *E. armiger* [*sensu* Nicholls 1945a, Vervoort 1964][1]

1. P1 Enp-1 is about 3–4 times as long as the exopod in *E. armiger* but only about 1.5:1 in *E. tropica*. See Wells & Rao (1987) for an amended description of *E. tropica* and Lee, Soh & Montagna (2006) for a discussion of *E. armiger.*

KG 16(female)

6:7:6	1:1:1	3:4:3	0:0:0	*Echinolaophonte mirabilis*
4:5:5	0:0:0	3:4:4	0:0:0–1	*Xanthilaophonte trispinosa*

KG 17(female)

6:6:5	1:1:1	4:6:3	0:0:0	*Onychocamptus anomalus*
4:4:4	0:0:0	2:3:2	0:0:0	*Psammolaophonte spinicauda*

KG 18(female)

5:5:5	0:0:0	3:4:4	0:0:0	*Klieonychocamptus kliei* s. str., *K. k. adriaticus*
4:5:5	0:0:0	3:4:4	0:0:0	*Klieonychocamptus kliei* s. str. [*sensu* Marinov 1971]
?:?:5	?:?:1	?:?:3	?:?:1	*Paronychocamptus huntsmani*
6:6:5	1:1:1	2:3:2	0:0:na	*Laophonte inopinata*
5:5:5	1:1:0	3:2:1	0:0:na	*Loureirophonte cesareae*[1, 2]
5:5:5	1:1:0	3:2:1	0:0:na–0	*Loureirophonte mediterranea*[1, 2]
5:5:5	0:0:0	3:2:1	0:0:na	*Loureirophonte majacola*[1]
5:5:4	0:0:0	3:3:3	0:0:na	*Loureirophonte paranaensis*[1]
5:5:4	0:0:0	3:3:2	0:0:na	KG 43(female) (p. 452)

KG 19(female)

5:5:4	1:1:0	3:3:2	0:0:na	*Loureirophonte isabelensis*[1]
4:4:4	1:1:0	3:3:1	0:0:na	*Loureirophonte psammophila*[1]
4–5:4–5:4	1:1:0	1–2:3:2	0:0:na	*Arenolaophonte stygia*
4:4:4	0:0:0	1:1:1	0:0:na	*Platychelipus littoralis*

1. See Fiers (1993) for a comprehensive review of *Loureirophonte*.
2. The caudal ramus is three times as long as broad in *L. cesareae* and only twice as long as broad in *L. mediterranea.*

KG 20(female) – characters

1. Antennule segment 2
   - present - with a massive unguiform projection
   - absent - without a massive projection

2. Antennule segment 4
   - long - segment 4 almost as long as other segments
   - short - segment 4 at most half as long as other segments

3. Antennule segment 3
   - simple - outer edge smooth or with a continuous row of small setules
   - complex - small setules along edge plus 6 transverse rows of setules
   - digitate - outer edge with 4 finger-like projections

4. P1 Enp-2, terminal spine
   - long - approximately 3 times as long as Enp-2
   - medium - approximately twice as long as Enp-2
   - short - only about as long as Enp-2

5. P2–P4 Exp-3
n:n:n - number of setae and spines on P2, P3 and P4

KG 20(female)

A1	A1	A1	P1	P2–P4	
seg 2	seg 4	seg 3	Enp-2	Exp-3	
			spine	setae	
present	long	simple	long	6:7:7	*Laophonte cornuta*
present	long	simple	short	5:6:6	*L. ciliata*
present	short	complex	short	6:7:7	*L. plana*
present	short	digitate	short	6:7:7	*L. expansa*
absent	long	simple	medium	5:7:7	*L. adduensis*

KG 21(female) – characters

1. P5
ornamented - with a triangular expansion at junction of exopod and endopod
plain - without such ornamentation

2. P5 exopod
wd - well developed, about twice as long as broad
red - reduced, about as long as broad
vest - vestigial, much broader than long

3. P5 endopod
A - setae III–IV small and weak, only about half as long as any other seta; seta V much longer than any other seta
B - seta III small and weak, seta IV about as long as seta II and not much shorter than seta V
C - setae III–IV well developed, longer than setae I–II and about half as long as seta V

KG 21(female)

P5	P5	P5	
	Exp	Enp	
ornamented	red	A	*Apolethon trigonus*[1]
plain	wd	B	*A. bilobatus*[1]
plain	vest	C	*A. fumator*[1]

1. *Apolethon* is included in the key to the family Laophontidae for users convenience. It is now considered a genus *incertae sedis* in the superfamily Laophontoidea.

KG 22(female) – characters

1. Rostrum, in dorsal view
triang - triangular in outline; apex weakly bifid, asetulose, with a seta at each side
anemone - concave sides flow into a broad apex consisting of 2 large setulose lobes, giving the appearance of a large sea anemone

2. P2–P4 Enp-2
n:n:n - number of setae and spines on P2, P3 and P4

3. P3 Enp-2

n - ratio of maximum length to maximum breadth

KG 22(female)

Rostrum	P2–P4 Enp-2 setae	P3 Enp-2 l/b	
triang	4:4:4	≈3	*Laophonte depressa*, *L. aldonae*[1]
anemone	4:5:4	≈7	*L. applanata*

1. It appears that the females of these species are identical.

KG 23(female) – characters

1. P2–P4 Exp-3

n:n:n - number of setae and spines on P2, P3 and P4

2. P5

d:wd - exopod distinct from basis; all setae well developed

f:wd - exopod fused to basis; all setae well developed

d:red - exopod distinct from basis; all setae very small—exopod seta III a small spine fused to exopod

3. P5 endopod

n - number of setae and spines

4. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

See Lee & Huys (1999c) for a review of *Onychocamptus.*

KG 23(female)

P2–P4 Exp3 setae	P5	P5 Enp setae	CR l/b	
6:6:6	d:wd	3	≈3	*Onychocamptus mohammed*
6:6:6	d:wd	3	≈2	*O. taifensis*, *Folioquinpes chathamensis*[1]
6:6:6	d:wd	2	≈2	*O. vitiospinulosa*
6:6:6	d:red	3	≈2	*O. talipes*
6:6:6	f:wd	3	≈3	*O. bengalensis*
6:6:5	d:wd	3	≈3	*O. mohammed*, *O. fratriaustralis*[2]
6:6:5	d:wd	3	≈2	*O. krusensterni*
6:6:4	d:wd	3	≈2	*O. besnardi*

1. In *F. chathamensis* the P5 exopod is elongate (about 3 times as long as broad), ovoid, with 2–3 setae on outer edge and with a spiniform terminal process. In *O. taifensis* it is short (slightly longer than broad), vase-shaped and with 3 terminal setae. The primary difference between the genera is that in *Folioquinpes* there is no sexual dimorphism in P1–P4.
2. It is difficult, if not impossible, to differentiate *O. fratiaustralis* from those variants of *O. mohammed* in which the

female P4 Exp-3 has only 3 spines in a total of 5 setae and spines (e.g. see Gurney 1932). Neither Lee & Huys (1999c) in their review of the genus, nor Gómez (2001b) in his description of *O. fratiaustralis*, mention this widespread variant and Gómez compares his species only with *O. krusensterni.*

KG 24(female) – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. P1 exopod
   n - number of setae and spines

3. P2 exopod
   distinct - distinct from basis
   fused - fused to basis

4. P3 endopod
   distinct - distinct from basis
   fused - fused to basis

5. P4 endopod
   distinct - distinct from basis
   fused - fused to basis

KG 24(female)

CR l/b	P1 Exp setae	P2 Exp	P3 Exp	P4 Exp	
≈2	6	fused	fused	fused	*Afrolaophonte leonis*
≈2	4	distinct	fused	distinct	*A. chilensis*
≈1	4	distinct	distinct [1]	distinct	*A. schmidti*[1]

1. *Afrolaophonte schmidti* has been recorded from the Galapagos Islands (Mielke, 1981a) and the Pacific Ocean coast of Panama (Mielke 1982b) and Costa Rica (Mielke 1997d). Some aspects of the morphology are variable between these sites. This includes P3 endopod, which is fused to the basis in the Costa Rican material.

KG 25(female) – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. Caudal ramus, seta V*
   long - proximal portion longer the caudal ramus
   short - proximal portion approximately as long as caudal ramus

* This seta consists of a broad, often non-linear, proximal portion that terminates in a flattened platform from which springs the filiform distal portion.

3. Abdomen, ventral

striated	- surface with delicate striations
pitted	- surface pitted
smooth	- surface smooth

4. P2 basis, outer edge

n - number of spinules proximal to origin of large plumose spine or seta

Fiers (1991b) provides a dichotomous key to *Galapalaophonte.*

KG 25(female)

CR l/b seta	CR terminal surface	Abdomen ventral spinules	P2 basis	
≈2	long	smooth	3	*Galapalaophonte carolinensis*
≈2	long	smooth	2	*G. triarticulata*
≈2	short	striated	3	*G. pacifica*
≈1.5	long	pitted	3	*G. antillensis*

KG 26(female) – characters

1. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

2. P5 endopod, seta III

long	- extends beyond end of exopod, well developed, plumose
short	- extends to end of exopod at most, thin and weak, naked or with a few scattered accessory plumes

3. P5 endopod, length relative to exopod

long	- extends to about halfway along the exopod
short	- extends to about ⅓ of the length of the exopod at most

KG 26(female)

CR l/b	P5 Enp seta III	P5 Enp/Exp	
≈4	long	short	*Archesola typhlops*[1]
≈3	short	long	*A. hamondi*[1]
≈2	long	short	*A. longiremis*[1]

1. The species of *Archesola* are differentiated on fine points of detail. Any identification made must be checked against the descriptions provided by Huys & Lee (2000).

KG 27(female) – characters

1. Caudal ramus, in dorsal or ventral view

cyl- approximately cylindrical, inner and outer edges straight
subcyl - outer edge straight, inner edge convex

2. P5 exopod
A - about 2.5 times as long as broad; ovoid, but with a truncate apex that bears 3 of the 6–7 setae
B - about 2.5 times as long as broad; ovoid, with only 1 seta terminal
C - about 1.8 times as long as broad; rectangular, with all 6 setae on the distal edge

KG 27(female)

CR	P5	
cyl	A	*Laophonte parvula*
cyl	B	*L. serrata*
subcyl	C	*L. parvuloides*

KG 28(female) – characters

1. Caudal ramus, in dorsal view
n - number of spinule rows visible

2. P5 exopod setae
6p - 6 plain setae
1p+5s - 1 plain and 5 setulose setae

3. P5 exopod
n - ratio of maximum length to maximum breadth

4. P5 baseoendopod
n - ratio of maximum breadth to maximum length

5. P4 Exp-3
n - ratio of maximum length to maximum breadth

KG 28(female)

CR spinule rows	P5 Exp setae	P5 Exp l/b	P5 Benp b/l	P4 Exp-3 l/b	
1	1p+5s	1.6	≈1.5	≈3	*Pseudonychocamptus proximus*
2	1p+5s	1.6	≈2	≈2	*P. paraproximus*
2	6p	2	≈1	≈2	*P. colomboi*
2	6p[1]	2	≈1	≈3.5	*P. marinovi*[1]

1. Seta V is minute.

KG 29(female) – characters

1. P5 exopod
ovoid - ovoid shape, about 1.3 times as long as broad
subcirc - subcircular shape, about 1.2 times as broad as long

2. P4 exopod

long - segments much longer than broad, approximately cylindrical

short - Exp-1 discoid in shape with rounded outer distal corner; Exp-2 short, only about as long as broad; only Exp-3 is cylindrical and much longer than broad

3. P2–P3 Enp-2

long - setae long, the distal 3 extend far beyond end of Exp-3

short - setae short, none extend beyond halfway along Exp-3

KG 29(female)

P5	P4	P2–P3	
Exp	Exp	Enp-2	
ovoid	long	long	*Heterolaophonte stroemi*
subcirc	short	short	*H. discophora*[1]

1. Data from the redescription by Lang (1965a).

KG 30(female) – characters

1. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

2. P5 exopod

subcirc - subcircular, about 1.2 times as broad as long

vase - vase-shaped, with apex wider than base, inner and outer edge straight, divergent

3. P4 exopod

long - segments much longer than broad, approximately cylindrical

short - Exp-1 discoid in shape with rounded outer distal corner; Exp-2 short, only about as long as broad; only Exp-3 is cylindrical and much longer than broad

KG 30(female)

CR	P5	P4	
l/b	Exp	Exp	
≈1	vase	long	*Heterolaophonte hamatus*[1]
≈1	subcirc	long	*H. variabilis*
1.6	subcirc	short	*H. discophora*[2]
2.5	subcirc	long	*H. murmanica*

1. Data from the redescription by Yeatman (1975).
2. Data from the redescription by Lang (1965a).

KG 31(female) – characters

1. P5 exopod

n - ratio of maximum length to maximum breadth

2. P4 exopod

elongate - segments elongate; overall length of exopod about 4.5 times the maximum breadth broad - segments broad; overall length of exopod about 3 times as long as maximum breadth

3. P4 Exp-1
n - number of transverse rows of small spinules in proximal half of segment

KG 31(female)

P5 Exp l/b	P4 Exp l/b	P4 Exp-1 spinules	
≈1	elongate	2	*Heterolaophonte bisetosa*[1]
1.4	broad	1	*H. hamondi*[1]

1. Bodin (1997) believes these species are synonymous, but gives no reasons.

KG 32(female) – characters

1. P4 Enp-2, distal inner seta
basket - a fringe of long stout setules on the swollen proximal portion form a basket to which typically is attached a mucoid bolus
filiform - normal, filiform, plumose

2. P1 Exp-2
n - number of setae and spines

3. P4 Enp-1, inner edge
1wd - with 1 well developed seta
minute - with 1 minute seta
0 - without seta

4. P1 Enp-2, length of terminal claw relative to length of Enp-2
long - very long; 7–9 times as long as the maximum length of Exp-2
medium - about 3–3.5 times as long as Enp-2
short - less than 2.5 times as long as Enp-2

5. P5 endopod, length relative to exopod
long - extends about halfway along exopod
short - extends to about ⅓ the length of the exopod at most

KG 32(female)

P4 Enp-2 distal inner seta	P1 Exp-2 setae	P4 Enp-1 inner setae	P1 Enp-2 claw	P5 Enp/Exp	
basket	5	0	medium	long	*Corbulaseta bulligera*
filiform	5	0	medium	short	*Esola profunda*
filiform	5	0	short	long	*E. lobata*
filiform	5	minute	short	short	*E. bulbifera*

filiform	5	minute	medium	short	*E. canalis*[1]
filiform	4	1wd	long	short	*E. longicauda*
filiform	4	0	short	short	*E. galapagoensis*[2]

1. In *E. canalis* the outermost seta on P5 endopod is well developed, but short—extending only to about halfway along the exopod.
2. In *E. galapagoensis* the outermost seta on P5 endopod is weak and minute.

KG 33(female) – characters

1. Antennule, segment 2
   - complex - anterior edge with a large spinous process
   - simple - segment without a spinous process

2. Caudal ramus, in dorsal view
   - n - ratio of maximum length to maximum breadth

3. P1 endopod
   - slender - elongate (Enp-1 about 10 times as long as broad, Enp-2 about 4 times as long as broad), with a long slender terminal claw
   - stout - short and broad (Enp-1 about 4 times as long as broad, Enp-2 only about as long as broad); terminal claw short and stout

4. P5 endopod, origin of proximal inner seta
   - basal - origin close to proximal inner corner
   - middle - origin about halfway along inner edge

5. P2 Enp-2, inner edge
   - n - number of setae and spines

KG 33(female)

A1 seg 2	CR l/b	P1 Enp	P5 Enp proximal inner seta	P2 Enp-2 inner setae	
complex	≈6	slender	middle	1	*Archilaophonte maxima*
simple	≈1	stout	basal	2	*Applanola hirsuta*

KG 34(female) – characters

1. Body shape, in dorsal view
   - A - thorax and abdomen somites very clearly demarcated—anterior end of somites much narrower than posterior end
   - B - somites less clearly demarcated—anterior end only slightly narrower than posterior end

2. P1 Enp-1, length relative to exopod
   - long - exopod extends only to halfway along Enp-1
   - short - exopod extends to beyond halfway along Enp-1

3. P4 Exp-3

long - slender and elongate, about 2.5 times as long as broad; approximately rectangular

short - broad and stout; outer edge convex; approximately 1.5 times as long as broad

4. P5 exopod

long - approximately 2.2–2.6 times aas long as broad

short - approximately 1.6 times as long as broad

KG 34(female)

Body shape	P1 Enp-1/ Exp	P4 Exp-3	P5 Exp	
A	short	short	short	*Bathylaophonte pacifica*[1]
B	short	long	long	*B. faroensis*[1]
B	long	long	long	*B. azorica*[1]

1. Lee & Huys (1999c) provide a detailed comparison of the species of *Bathylaophonte.*

KG 35(female) – characters

1. P3 Enp-2

n - number of setae and spines

2. Antennule segment 2

hook - with a very large recurved unguiform projection

spike - with a prominent sharp conical projection that has a narrow base and is not recurved

cone - with a small rounded conical projection that has a very broad base

absent - without such projections

3. P4 Exp-3

n - ratio of maximum length to maximum breadth

4. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

5. P5, length of endopod relative to exopod

long - endopod extends to about the end of exopod

short - endopod extends at most to about halfway along exopod

KG 35(female)

P3 Enp-2 setae	A1 seg 2	P4 Exp-3 l/b	CR l/b	P5 Enp/ Exp	
6	hook	?	2	short	*Paralaophonte dieuzeidei*
6	spike[1]	3–4	1.5–2	long	*P. meinerti*[1]
6	absent[1]	?	2	long	*P. meinerti* [*sensu* Brady 1899[1]

6	cone	≈6	1.5	?	*P. brevirostris* [*sensu* Hamond 1972][2]
6	absent	?	2	short	*P. brevirostris* [*sensu* Wells & Rao 1987][2]
6	absent	≈4	3	short	*P. octavia*
6	absent	2.5–3	1.5–2.5	short	*P. congenera*[3]
6	absent	2	2	short	*P. lacerdai*
5	absent	≈4	1.5–2	short	*P. gracilipes*
5	absent	6.5	3	short	*P. sculpta*

1. Lang (1948), Pallares (1968b) and Sewell (1940) describe an antennule with a moderate spiniform projection, but Brady's (1899) illustration is unequivocal.
2. *Paralaophonte brevirostris* is highly variable, widespread and common, but in many characteristics it is very similar to *P. congenera* and is difficult to separate on characters other than the antennule, which usually has only 6 segments. Wells & Rao (1987) provide the latest discussion on this species.
3. *Paralaophonte congenera* is a widespread and common species with some variability, especially in the caudal ramus and P5. Consult Yoo & Lee (1995) for literature not considered by Lang (1948), but note that Yoo & Lee appear to have illustrated P2 rather than P4.

KG 36(female) – characters

1. Caudal ramus

broad - rami broad, lamellar, rounded at their apex, their inner edges almost touching; seta V only slightly longer than the ramus

narrow - rami narrow, cylindrical, apex truncate; seta V much longer than the ramus

2. Caudal ramus

n - ratio of maximum length to maximum breadth

3. Antennule segment 2

hook - with prominent recurved hook-shaped or spiniform projection

cone - with at most a small rounded conical projection that has a very broad base

4. P5 exopod

n - ratio of maximum length to maximum breadth

KG 36(female)

CR shape	CR l/b	A1 seg 2	P5 Exp l/b	
broad	1.2	hook	≈1	*Paralaophonte asellopsiformis*
narrow	1.2	hook	1.2	*P. pacifica* s. str.
narrow	1.5	cone	≈1	*P. brevirostris*, *P. pacifica galapagoensis*[1]
narrow	2	hook	1.6	*P. dieuzeidei*

1. According to published descriptions, the differences between the females of these species are very small, although it is possible that there are quite large differences in body ornamentation. While Sars' (1908) description of *P. brevirostris* is excellent for its time it is not sufficiently detailed for a true comparison to be made. Later, partial, descriptions of this variable species are not helpful. See Mielke (1981a).

KG 37(female) – characters

1. Antennule segment 2
   spike - with prominent spiniform projection
   absent - without projections

2. Caudal ramus
   n - ratio of maximum length to maximum breadth

3. P1 Enp-2
   n - ratio of maximum length to maximum breadth

KG 37(female)

A1 seg 2	CR l/b	P1 Enp-2 l/b	
spike	1.5	≈2	*Paralaophonte problematica*
absent	2	≈1	*P. echinata*

KG 38(female) – characters

1. Caudal ramus
   n - ratio of maximum length to maximum breadth

2. P5 exopod
   n - ratio of maximum length to maximum breadth

3. Anal operculum
   hairy - fringed with very long, very fine setules
   naked - naked or with very small setules or spinules

KG 38(female)

CR l/b	P5 l/b	Anal operculum	
≥5	≥5	hairy	*Laophonte elongata barbata*
≥5	≥5	naked	*L. elongata triarticulata*
≈2.5	≈4	naked	*L. adamsiae*
≤2	1.8	naked	*L. macani*

KG 39(female)

1. Body shape in dorsal view
   ovoid - even curve from antenterior to posterior; greatest width at free thoracic segments 2–3
   nonovoid - greatest width at about the posterior edge of cephalothorax

2. Caudal ramus, inner edge in dorsal view
   straight *or* undulating *or* convex

3. Anal operculum

long - extends beyond the end of the anal somite

short - does not reach the end of the anal somite

4. Genital double somite, in dorsal view

equal - the 2 segments are of equal width

1<2 - segment 1 distinctly narrower than segment 2

5. A1, unguiform projection on segment 1

large - long and sharp; about as long as width of segment 1

small - small and blunt; only about as long as ⅓ the width of segment 1

Gheeerardyn, Fiers, Vincx & De Troch (2006) provide a dichotomous key to *Peltidiphonte.*

KG 39(female)

Body shape	CR inner	Anal op	Gds width	A1 seg 1	
ovoid	convex	long	equal	large	*Peltidiphonte ovata*
nonovoid	undulating	short	1<2	small	*P. cristata*
nonovoid	straight	short	1<2	small	*P. paracristata*, *P. major*[1]

1. The differences between these species are slight and subtle; consult Gheerardyn, Fiers, Vincx & De Troch (2006).

KG 40(female) – characters

1. Caudal ramus

n - ratio of maximum length to maximum breadth

2. P5 exopod, seta II

n - ratio of length of seta II to maximum length of exopod

3. P5 exopod, setae III and IV

long - seta III at least twice as long as seta IV

short - setae III and IV about the same length

KG 40(female)

CR l/b	P5 seta II	P5 setae III–IV	
1.5	≥3	long	*Paralaophonte perplexa*
2.5	≈1.5	short	*P. hyperborea*
3.5	≈2	long	*P. macera*

KG 41(female) – characters

1. Abdomen somites 2–3, dorsal , distal edge

lobed - with 2 crescentic, spinulose lobes

simple - a simple straight edge, with spinules

2. P5 exopod, origin of seta II

edge - seta II originates on a very short peduncle and at about the same level as at least seta III

peduncle - seta II originates on a very long peduncle and far beyond origin of other setae

3. P1, length of exopod relative to Enp-1

long - exopod extends to about halfway along Enp-1

short - exopod extends to approximately ⅓ the length of Enp-1

KG 41(female)

Abdomen som 2–3	P5 Exp seta II	P1 Exp/ Enp-1	
lobed	edge	?	*Paralaophonte lunata*
simple	edge	short	*P. spitzbergensis*
simple	peduncle	long	*P. tenera*

KG 42(female) – characters

1. Abdomen somite 4, dorsal, distal edge

A - with 3 large, bifid projections

B - with 4 large, bifid projections

C - with 4 multifid projections (usually with 5 or 6 divisions)

D - with 2 median, bifid projections flanked on each side by 3 large spiniform projections

E - with 2 median, bifid projections flanked on each side by 2–4 large spiniform projections

2. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

3. Rostrum

dome - broad at the level of the lateral setae; between the setae is a wide, rounded lamella that projects far anterior to the origin of the lateral setae

split - as *dome* but with the apex bifid

truncate - broad at the level of the lateral setae; between the setae the rostrum is straight, truncate

notch - narrow at the level of the lateral setae; between the setae is a small, bifid projection

4. P1

n - ratio of length of Enp-1 to entire exopod

5. P2 Exp-3

n - number of setae and spines

KG 42(female)

Abdomen som 4	CR l/b	Rostrum	P1 Enp-1/ Exp	P3 Enp-2 setae	
A–B	≈3	dome	2.75	6	*Echinolaophonte horrida*
B	≈2	dome	≈3	5	*E. oshoroensis*

C	≈4	notch	≈4	6	*E. tetracheir*
D	≈3	split	1.75	6	*E. brevispinosa*
E	≈2	truncate	3.5	5	*E. hystrix, E. armiger* [*sensu* Lang 1948, 1965a][1]

1. *Echinolaophonte armiger* f. *briani* Lang, 1965a differs from the nominate form in the shape of the cephalic shield. In dorsal view the sides of the cephalic shield have very large rounded lobes in *briani*, while in *armiger* s. str. the sides bear a narrow spiniform projection. See Lee, Soh & Montagna (2006) for a discussion of the status of the various forms of *E. armiger*, including that which they regard as *E. hystrix.*

KG 43(female) – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. P1
   n - ratio of length of Enp-1 to entire exopod

3. P2 endopod, length relative to exopod
   long - endopod extends approximately to the end of Exp-2
   short - endopod extends approximately to the end of Exp-1

4. P3 Enp, length relative to exopod
   long - endopod extends approximately to the end of Exp-2
   short - endopod extends approximately to the middle of Exp -2

5. P5 exopod
   n - ratio of maximum length to maximum breadth

KG 43(female)

CR l/b	P1 Enp-1/ Exp	P2 Enp/ Exp	P3 Enp/ Exp	P5 l/b	
3	6	long	short	1.5	*Loureirophonte laingensis*[1]
2.5	5	long	long	2	*L. catharinensis*[1, 2]
2.5	5	short	short	2	*L. majahualensis*[1]

1. See Fiers (1993) for a comprehensive review of *Loureirophonte*.
2. The original description is very poor but Fiers (1993) has reassessed it in the light of information from the descriptions of several new species that can be attributed to the genus.

KG 44(female) – characters

1. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-2
   n:n:n - number of setae and spines on P2, P3 and P4

3. Caudal ramus
n - ration of maximum lexngth to maximum breadth

4. Antennule
hirsute - at least segments 1–4 densely clothed with very small setules
smooth - segments mostly without very small setules; small rows of larger setules may be present on the edge of some segments

KG 44(female)

P2–P4	P2–P4	CR	A1	
Exp-3	Enp-2	l/b		
6:7:7	4:6:4	≈1.3	hirsute	*Laophonte lignosa*
5:6:6	1:4:4	≈3	smooth	*Carraroenia ruthae*

KEYS TO MALES
(for keys to females, see p. 430)

Caution: The male P3 endopod is modified extensively in most species. Any, or all, of the other rami of P2–P4 may also be sexually dimorphic. There are slight to considerable differences in the proportion of the segments and setae may be replaced by spines or be very reduced in size, or even totally suppressed**.** Because of this identifications must be treated with caution.

KG 0(male) – characters
1. P2–P4 exopod
n:n:n - number of segments in P2, P3 and P4

2. P2 and P4 endopod
n:n - number of segments in P2 and P4

3. P5
n:n - number of setae and/or spines on endopod and exopod (baseoendopod may be fused to exopod, but endopod and exopod portions always recognisable)
n - total number of setae on P5 (baseoendopod and exopod fused into a single plate; endopod and exopod portions not recognisable)
na - not applicable (P5 absent)

4. P1 exopod
n - number of segments

5. P3 endopod
n - number of segments

KG 0(male)

P2–P4 Exp segs	P2 & P4 Enp segs	P5 setae	P1 Exp segs	P3 Enp segs	
3:3:3	2:2	9	3	2	*Heterolaophonte murmanica*
3:3:3	2:2	8	3	2	*Heterolaophonte* sp. Wells, 1961[1]
3:3:3	2:2	7	3	3	KG 24(male) (p. 461)
3:3:3	2:2	7	3	2	*Heterolaophonte minuta*
3:3:3	2:2	7	2	2	*H. curvata*
3:3:3	2:2	6	3	3	KG 41(male) (p. 473)
3:3:3	2:2	6	3	2	KG 25(male) (p. 462)
3:3:3	2:2	5	3	3	KG 26(male) (p. 462)
3:3:3	2:2	5	3	2	*Heterolaophonte hamondi*
3:3:3	2:2	5	2	2	KG 1(male) (p. 456)
3:3:3	2:2	4	3	2	*Heterolaophonte stroemi*, *H. uncinata*[2]
3:3:3	2:2	4	2	3	*H. livingstoni*
3:3:3	2:2	4	2	2	KG 2(male) (p. 457)
3:3:3	2:2	4:5	2	3	*Platychelipus laophontoides*, *P. littoralis*[3]
3:3:3	2:2	3:5	3	3	*Paralaophonte brevirostris*
3:3:3	2:2	3:4	3	3	*Pontophonte grigae*[4]
3:3:3	2:2	2:5	3	3	KG 3(male) (p. 457)
3:3:3	2:2	2:5	3	2	*Laophonte danversae*
3:3:3	2:2	2:5	2	3	*L. adduensis*, *L. denticornis*[5]
3:3:3	2:2	2:5	2	2	KG 4(male) (p. 458)
3:3:3	2:2	2:4	3	3	KG 5(male) (p. 458)
3:3:3	2:2	2:4	3	2	KG 6(male) (p. 458)
3:3:3	2:2	2:4	2	3	KG 7(male) (p. 458)
3:3:3	2:2	2:4	2	2	*Laophonte laurentica*[6]
3:3:3	2:2	2:3	3	3	*L. euxiniphila*
3:3:3	2:2	1:5	3	3	KG 8(male) (p. 458)
3:3:3	2:2	1:5	3	2	KG 40(male) (p. 472)
3:3:3	2:2	1:5	2	3	KG 9(male) (p. 459)
3:3:3	2:2	1:5	2	2	*Loureirophonte subterranea*
3:3:3	2:2	1:4	3	3	KG 10(male) (p. 459)
3:3:3	2:2	1:4	2	3	KG 11(male) (p. 459)
3:3:3	2:2	1:4	2	2	*Arenolaophonte stygia*[7]*, Paralaophonte aenigmaticum*[7]
3:3:3	2:2	1:3	3	2	*Klieonychocamptus kliei* s. str., *K. k. marcusi*[8]
3:3:3	2:2	1:3	2	3	KG 27(male) (p. 463)
3:3:3	2:2	1:3	2	2	KG 12(male) (p. 459)
3:3:3	2:2	0:5	3	3	KG 13(male) (p. 459)
3:3:3	2:2	0:5	3	2	*Archesola typhlops*[9]
3:3:3	2:2	0:5	2	3	KG 14(male) (p. 460)
3:3:3	2:2	0:5	2	2	KG 15(male) (p. 460)
3:3:3	2:2	0:4	3	3	KG 16(male) (p. 460)
3:3:3	2:2	0:4	3	2	*Lipomelum heteromelum*
3:3:3	2:2	0:4	2	3	KG 17(male) (p. 460)
3:3:3	2:2	0:4	1	3	*Microlaophonte trisetosa*

3:3:3	2:2	0:4	1	2	*Tapholeon uniarticulatus*
3:3:3	2:2	0:3	3	3	*Laophonte commensalis*
3:3:3	2:2	0:3	3	2	KG 18(male) (p. 460)
3:3:3	2:2	0:3	2	3	KG 19(male) (p. 460)
3:3:3	2:2	0:3	2	2	KG 20(male) (p. 461)
3:3:3	2:2	0:2	2	3	KG 28(male) (p. 464)
3:3:3	2:1	5	3	2–3	KG 29(male) (p. 464)
3:3:3	2:1	2:4	3	2	KG 30(male) (p. 465)
3:3:3	2:1	2:3	3	2	*Pseudonychocamptus colomboi*
3:3:3	2:1	1:5	2	3	*Laophonte inopinata*
3:3:3	2:1	1:5	2	2	KG 22(male) (p. 461)
3:3:3	2:1	1:4	3	2	KG 23(male) (p. 461)
3:3:3	2:1	0:5	2	3(2?)	*Loureirophonte cesareae*
3:3:3	2:1	0:3	2	3	*Laophonte longistylata*
3:3:3	2:1	0:3	3	2	*Chilaophonte concepcionensis*
3:3:3	2:0	0:3	3	2	KG 31(male) (p. 466)
3:3:3	2:1	2:4	2	1	*Laophonte foxi*
3:3:3	1:1	2:4	2	1	*Laophonte trilobata*, *L. foxi*[10]
3:3:3	1:1	2:3	2	3	*Mielkiella spinulosa*
3:3:3	1:1	1:4	3	3	*Maquilaophonte uachi*
3:3:3	1:1	1:3	1	3	*Novolaophonte viatorum*
3:3:3	0:2	0:5	2	3	*Mourephonte longiseta*
3:3:3	0:2	2:4	2	3	*Pseudolaophonte proteus*
3:3:2	2:2	5	3	2	*Heterolaophonte norvegica*
3:3:2	2:2	2:4	2	2	*Hemilaophonte janinae*
3:3:2	2:1	5	2	2	*Heterolaophonte serratula*
3:3:2	2:1	2:3	2	3	*Stygolaophonte arenophila*
3:3:2	2:1	1:4	3	2	*Harrietella simulans*
3:3:1	0:0	1	2	0	*Raptolaophonte ardua*
3:3:0	2:0	na	2	2	*Mictyricola typica*, *M. proxima*[11]
2:3:3	2:2	0:3	2	2	*Xanthilaophonte carcinicola*
2:3:3	0:1	1:5	2	1	*Langia maculata*
2:2:2	1:1	2	2	2	*Robustunguis minor*
2:2:2	0:1	2:3	2	2	*Pseudolaophonte glemareci*
1:3:3	0:1	0:3	1	2	*Afrolaophonte michaelae*, *A. brevipes*[12]
1:3:3	0:1	0:3	1	1[13]	*A. monodi*[13]
1:3:3	0:0	0:4	1	2	*A. chilensis*
1:3:3	0:0	0:3	1	2	KG 32(male) (p. 466)
1:3:3	0:0	0:3	1	1	*Afrolaophonte brignolii*
1:2:3	0:2	2:3	2	2	*Pseudolaophonte spinosa*
1:2:3	0:2	0:5	1	2	*Mexicolaophonte mielkei*
1:2:3	0:1	1:5	2	1	*Indolaophonte gemmarum*
1:2:3	0:1	1:5	2	0	*I. ramai*
1:1:3	0:0	0:3	1	0	*Wellsiphontina striata*
1:1:2	0:0	0:3	1	0	*W. distincta*
1:1:1	0:0	6–7	1	1	KG 33(male) (p. 467)

1:1:0	0:0	3	1	0	*Namakosiramia koreensis*
0:3:3	2:0	0:3	1	2	KG 34(male) (p 467)
0:1:3	1:1	0:3	1	1	*Laophontina posidoniae*
0:1:3	0:1	0:3	1	0	*L. dubia*
0:1:3	0:0	0:3	1	0	*Amerolaophontina reducta*
0:1:2	0:0	0–1:3	1	0	*Laophontina sensillata*
0:1:2	0:0	0:3	1	0	*L. acantha*
0:0:2	0:1	0:4	1	2	*Mexicolaophonte arganoi, M. creola*[14]

1. According to Letova (1982) this is the male of *H. wellsi* (renamed *H. letovae* by Huys 1990b), but Mielke (1975) believes it is the male of either *H. hamondi* or *H. bisetosa*. Letova does not discuss Mielke's views.
2. Antenna exopod is said to be absent in *H. uncinata* and represented by 4 very small setae in *H. stroemi* but the species are more reliably distinguished on the form of the inner proximal seta of P2 Enp-2. In *H. stroemi* this is shaped like a crochet needle—with a sharply recurved apical hook—and is directed medially. In *H. uncinata* it is bulbous proximally and filiform distally, and is directed distad.
3. In *P. laophontoides* P3 Exp-3 bears 4 strong spines plus a smaller spine at the inner distal corner and another in the middle of the inner edge. *Platychelipus littoralis* differs in that the inner distal corner bears a weak seta and the inner edge is naked. There are several other more subtle differences; see Lang, 1948.
4. See also KG 3(male) note 2 (p. 458).
5. The only reliable character distinguishing males of these species is the P5 endopod. In *L. adduensis* it is well developed, extending beyond the middle of the exopod. In *L. denticornis* it is vestigial. The male of *L. denticornis* is very inadequately described.
6. Usually considered *incertae sedis* in *Heterolaophonte.* Note that the female described by Nicholls (1942a) is either "malformed" (Lang 1965a) or a copepodid and is unlikely to be of the same species as the male.
7. These species may be distinguished on the number of setae on P2–P4 Enp-2. In *A. stygia* the setation is 1:3:1 and in *P. aenigmaticum* it is 4:4:3.
8. The only described difference between males of these subspecies is in the form of the outermost seta of P3 Enp-2. In *K. kliei* s. str. this is a normal filiform seta. In *K. kliei marcusae* it is deformed.
9. See Huys & Lee (2000) for a discussion of this species.
10. *Laophonte trilobata* is incompletely described but it appears it may be distinguished from *L. foxi* by the P3 endopod, which bears 2 setae while *L. trilobata* bears 1.
11. In *M. typica* the caudal ramus is conical in dorsal or ventral view and about 1.5 times as long as the maximum breadth. In *M. proxima* it is approximately rectangular and about 3 times as long as broad.
12. P1 exopod bears 4 setae and spines in *A. michaelae* but only 1 in *A. brevipes.*
13. P3 endopod fused to basis.
14. These species are distinguished on the number of segments in the antennule (7 in *M. arganoi*, 8 in *M. creola*) and the number of setae on P1 exopod (5 in *M. arganoi* and 6 in *M. creola*).

KG 1(male) to 23(male) – characters

The same five characters are used throughout

1. P2–P4 Exp-3*

    n:n:n - number of setae and/or spines on P2, P3 and P4

* P3 exopod may be modified compared to the female. Setae, especially on the distal and outer edges, may be replaced by heavy spines, often recurved and sometimes not originating on the edge but apparently arising from the anterior or posterior surface of the segment. Elsewhere setae may be very thin and small or weak. P4 sometimes, and P2 occasionally, are similarly modified. Although the setation of P2–P4 exopod is used as a character in these keys it must be checked carefully. Some of the earlier literature used to compile the keys is suspect in this respect.

2. P2–P4 Exp-2, inner edge
n:n:n - number of setae on P2, P3 and P4

3. P2–P4 endopod, distal (or only) segment
n:n:n - number of setae and spines on P2, P3 and P4

4. P2 and P4 Enp-1, inner edge
n:n - number of setae on P2, P3 and P4
na - not applicable (endopod of 1 segment or absent)

5. P3 Enp, apophysis present
present *or* absent

KG 1(male) to 23(male)

P2–P4 Exp-3 setae	P2–P4 Exp-2 inner setae	P2–P4 Enp distal seg setae	P2 & P4 Enp-1 inner setae	P3 Enp apophysis	
KG 1(male)					
7:6:6	1:1:1	4:5:3	0:0	absent	*Quinquelaophonte wellsi*[1]
6–7:7:6	1:1:1	3:4:3–4	0:0	absent	*Q. quinquespinosa*[1]
6:7:6	1:1:1	3:5:4	0:0	absent	*Q. koreana*[1]
6:6:6	1:1:1	3:5:3	0:0	absent	*Q. capillata*
6:6:6	1:1:1	3:3:3	0:0	absent	*Q. parasigmoides*[1]
6:6:5	1:1:0	3:5:4	0:0	absent	*Q. longifurcata*
6:6:5	1:1:1	3:5:3	0:0	absent	*Q. prolixasetae*
5:5:5–6	1:1:1	4:4:4	0:0	absent	*Heterolaophonte pauciseta*
5:4:5	1:1:0	3:4:3	0:1	absent	*H. brevipes*

1. Confusion surrounds the question of whether these species are synonymous. Wells & McKenzie (1973) widened the definition of *Q. quinquespinosa* by including *Q. sigmoides* as a synonym, and Fiers (1986b) added *Q. parasigmoides.* Hamond (1973c), in describing *Q. wellsi*, was aware of the work by Wells & McKenzie but chose to compare *Q. wellsi* with *Q. sigmoides*. It is not yet fully established whether the characteristics of *Q. wellsi* fall within the range of *Q. quinquespinosa.* Lee (2003) distinguishes *Q. koreana* on the basis of a short caudal ramus (1.5 times as long as broad compared with twice as long as broad in the other species) and the ovoid shape of the female P5 exopod, which is unique in the genus. Consult the above authors before making a final determination.

KG 2(male)

6:7:6	1:1:1	3:5:3–4	0:0	absent	*Quinquelaophonte candelabrum*
6:7:6	1:1:1	3:4:3	0:0	absent	*Q. bunakenensis*

KG 3(male)

6:7:7	1:1:1	4:4:5	0:0	present	*Laophonte serrata*
6:7:7	1:1:1	4:4:4	0:0	present	*Paralaophonte brevirostris*, *P. congenera*[1]
6:6:6	1:1:1	4:4:4	0:1	present	*Laophonte applanata*
6:6:6	1:1:1	4:4:4	0:0–1	present	*L. depressa*
6:6:6	1:1:1	4:4:3	0:0	present	*Pontophonte leuke*
6:6:6	1:1:1	4:3:3	0:0	present	*P. grigae*[2]
6:6:6	1:1:0	4:3:3	0:0	absent?	*Lipomelum adriaticum*

6:6:5	1:1:1	2:3:3	0:0	present	*Laophonte farrani*
6:6:5	1:1:0	3:3:3	0:0	present	*L. nordgaardi*
5:6:6	1:1:1	1:2:3	0:0	present	*Carraroenia ruthae*

1. These highly variable, widespread and common species are very similar. According to the classic descriptions of Sars (1908) the males differ mainly in the form of the distal inner seta of P2 endopod.

   In *P. brevirostris* the thick proximal portion grades almost imperceptibly into the whiplash distal portion and accessory spinules are present on both inner and outer sides of the proximal portion.

   In *P. congenera* the proximal portion is relatively thicker and there is an abrupt decrease in diameter at the junction with the distal portion; accessory spinules are present only on the inner side of the proximal portion.

   Unfortunately, other descriptions are not as precise and a review of the two species is urgently required. See Wells & Rao (1987) and Yoo & Lee (1995) for the latest discussion and literature.
2. *Pontophonte grigae* appears in this key because Lee & Huys (1999c) believe the species description is in error when it describes the male P5 with 3 setae on the endopod and 4 on the exopod. They think it more probable the setation is 2:5, as in *P. leuke.*

KG 4(male)

5:5:4–5	0:0:0	2:2:3	0:0	present	*Phycolaophonte insularis*
4–5:4:4	0–1:0:0	1:2:3	0:0	present	*Robustunguis ungulatus*

KG 5(male)

6:7:7	1:1:1	4:4:5	0:0	present	KG 35(male) (p. 468)
6:7:7	1:1:1	4:4:4	0:0	present	*Laophonte lignosa*
6:7:7	1:1:1	4:4:3	0:0	present	*L. confusa*
6:7:7	1:1:1	2:3:3	0:1	present	*Weddellaophonte anyae*
4:4:4	1:1:0	3:2:3–4	0:0	present	*Psammoplatypus proprius*

KG 6(male)

5:5:3	0:0:0	3:3:3	0:0	absent	*Laophonte drachi*
4–5:4–5:4	0:0–1:0	3:3:2	0:0	absent	*Pilifera gracilis*

KG 7(male)

6:7:7	1:1:1	4:4:5	1:1	present	*Laophonte cornuta*, *Archilaophonte maxima*[1]
6:7:7	1:1:1	4:4:3	0:0	present	*Elapholaophonte decaceros*
5:6:6	1:1:1	4:4:5	1:1	present	*Laophonte ciliata*
5:4:4	0:1:1	2:3:4	0:0	present	*Psammoplatypus discipes*

1. The caudal ramus in *A. maxima* is about 8 times as long as the maximum breadth; in *L. cornuta* it is only about twice as long as broad.

KG 8(male)

6:7:7	1:1:1	4:4:4	0:0	present	KG 36(male) (p. 469)
6:7:7	1:1:1	4:?:3	0:0	?	*Laophonte elongata triarticulata*
6:7:7	1:1:1	3:3:3	0:0	absent	*L. ifalukensis*
6:6:7	1:1:1	4:4:4	0:0	present	*Paralaophonte meinerti*, *P. asellopsiformis*[1]
6:?:7	1:1:1	4:4:4	0:0	present	*P. dieuzeidei*
6:6:6	1:1:1	4:4:4	0:0	present	*P. brevirostris* [*sensu* Yeatman 1970]
6:6:6	1:1:1	4:4:3	0:0	present	*Laophonte thoracica*
6:5:5	1:1:1	4:?:3	0:0	?	*Paralaophonte quaterspinata*
6:5:?	1:1:1	4:4:?	0:0	present	*P. gurneyi*

6:4:6	1:0:1	4:4:4	0:0	present	*P. zimmeri*
5:5:5	1:1:1	3:1:3	0:0	present	*Laophonte baltica*

1. In *P. meinerti* the caudal ramus is squarely truncated distally. In *P. asellopsiformis* it is rounded distally.

KG 9(male)

6:7:7	1:1:1	4:?:3	0:0	?	*Laophonte elongata* s. str.
6:7:6	1:1:1	4:4:4	0:0	present	*Paralaophonte karmensis*, *P. pilosoma*[1]
6:6:6	1:1:1	3:3:3	0:0	present	*Laophonte arenicola*
6:5:6	1:1:1	4:4:4	0:0	present	*Paralaophonte lunata*
6:5:5	1:1:1	4:4:4	0:0	present	*P. panamensis*

1. In *P. karmemsis* A1 segment 2 bears a short, pointed, conical projection. In *P. pilosoma* the segment bears a long, recurved, hook-shaped projection.

KG 10(male)

6:7:7	1:1:1	4:4:4–5	0:0	present	KG 37(male) (p. 470)
6:7:7	1:1:1	4:4:3	0:1	present	*Laophonte longicaudata*
6:7:7	1:1:1	4:4:3	0:0	present	*L. adamsiae*
6:7:6	1:1:1	3:4:3	0:0	present	*Paronychocamptus curticaudatus*
6:5:6	1:1:1	4:4:4	0:0	present	*Paralaophonte obscura*
5:5:5[1]	1:1:1	3:4:3	0:1	present	*Cornylaophonte pleisteri* [1]

1. On each of P2, P3 and P4 the inner apical seta is very small and could easily be overlooked or mistaken for a spinule.

KG 11(male)

6:7:7	1:1:1	4:4:3	0:0	present	*Laophonte setosa*
6:6:6	1:1:1	4:3:4	0:0	present	*Paralaophonte tenera*
5:6:6	1:1:1	3:4:3	0:0	present	*Asellopsis intermedia*
5:5:4	1:1:0	2:4:3	0:0	present	*A. littoralis*

KG 12(male)

5:5:5	0:0:0	3:4:4	0:0	absent	*Klieonychocamptus kliei confluens*
4:4:4	0:0:0	2:3:2	0:0	absent	*Psammolaophonte spinicauda*

KG 13(male)

6:7:7	1:1:1	4:4:4	0:0	present	*Laophonte spinicauda*, *Paralaophonte gracilipes*[1]
6:6:7	1:1:1	5:3:5	1:1	present	*Troglophonte spelaea*
6:6:6	1:1:1	4:4:4	0:1	present	*Laophonte aldonae*, *L. pseudoculata*[2]

1. These genera are distinguished on whether the P2 Enp-2 distal inner seta is filiform and sparsely plumose (*Laophonte*) or has a thickened proximal half sharply demarcated from a filiform distal half and with accessory spinules usually present only on the inner side of the proximal half (*Paralaophonte*).
2. In *L. pseudoculata* the P5 exopod is about 3 times as long as broad and the origins of setae I and II are proximal to that of seta V. In *L. aldonae* P5 exopod is about twice as long as broad and the origin of seta I is opposite that of seta V, and that of seta II opposite that of seta IV.

KG 14(male)

6:7:7	1:1:1	5:4:5	1:0–1	present	KG 38(male) (p. 471)
6:7:7	1:1:1	4:4:5	1:1	present	*Applanola hirsuta*
6:7:7	1:1:1	4:4:4	0:0	present	*Paralaophonte hyperborea*
6:7:7	1:1:1	4:3:4	0:0	absent	*P. macera*
6:6:6	1:1:1	4:4:4	0:0	present	*P. spitzbergensis*

KG 15(male)

6:7:7	1:1:1	4:5:4	0:0	absent	*Paralaophonte perplexa*, *P. innae*[1]
5:5:6	1:1:1	4:4:3	0:0	absent	*Laophonte lamellipes*[2]

1. In *P. perplexa* the P5 exopod is slightly longer than broad and the inner and outer sides are divergent; P2 Enp-1 is about twice as long as broad. In *P. innae* P5 exopod is twice as long as broad, with parallel sides; P2 Enp-1 is only as long as broad.
2. This species currently is considered *incertae sedis* in *Paralaophonte.*

KG 16(male)

6:7:7	1:1:1	4:4:4	0:1	present	*Laophonte galapagoensis*
6:7:5	1:1:1	4:4:3	0:0	present	*Paronychocamptus wilsoni*
6:6:6	1:1:1	3:4:4	1:1	present	*Heteronychocamptus connexus*
6:6:5	1:1:1	3:4:4	1:1	present	*H. exiguus*
?:?:5	?:?:1	?:?:3	?:0	present	*Paronychocamptus huntsmani*

KG 17(male)

6:6:5	1:1:1	2:2:2	0:0	absent?	*Asellopsis chappuisius*
5:6:6	1:1:1	3–4:4:3	0:0	present	*A. duboscqui*[1]
5:6:6	1:1:1	3:4:3	0:0	present	*A. intermedia*[1]
4:6:6	1:1:1	2:3:4	0:0	present	*Hoplolaophonte aculeata*

1. These species can be distinguished by the caudal ramus, which is about 1.6 times as long as broad in *A. intermedia* and only as long as broad in *A. duboscqui.*

KG 18(male)

4:4:4	0:0:0	3:4:4	0:0	absent	*Klieonycamptus ponticus* s. str.
4:4:5	0:0:0	3:4[1]:4	0:0	absent	*K ponticus diarticulatus*[1]
5:5:4–5	0:0:0	3:4:3	0:0	absent	*K. kliei adriaticus*
5:5:5	1:1:0	3:3:3	0:0	absent	*Platylaophonte delamarei*

1. The innermost “seta” is a curved process fused to the segment.

KG 19(male)

6:7:7	1:1:1	3–4:4:3–5[1]	0:0–1[1]	present	*Asellopsis hispida*[1]
6:7:7	1:1:1	2:4:3	0:0	present	*A. arenicola*
6:7:6	1:1:1	3:4:3	0:0	present	*Echinolaophonte horrida*, *E. brevispinosa*[2]
6:7:5	1:1:1	3:4:3	0:0	present	*Paronychocamptus nanus*
6:6:6	1:1:1	4:6:3	0:0	absent	*Folioquinpes chathamensis*
6:6:6	1:0–1:1	4:5:3	0:0	absent	*F. mangalis*
6:6:5	1:1:1	4:4:3	0:0	present	*Onychocamptus anomalus*
5:7:6	0:1:1	3:4:3	0:0	present	*Echinolaophonte oshoroensis*
5:6:6	1:1:1	3:4–5:3	0:0	present	*Asellopsis intermedia*

4:5:4	1:1:1	3:4:2	0:0	present	*Echinolaophonte veniliae*
4:5:4	0:1:1	3:4:3	0:0	present	*E. minuta*

1. All combinations of this formula are known. Also, if P4 Enp-2 has 5 setae then P4 Enp-1 may have 1 seta.
2. In *E. horrida* P3–P4 exopod is broad and curved; the "setae" on Exp-3 are all spines. In *E. brevispinosa* P3–P4 exopod is long and slender (as in the female); setae I–III of Exp-3 are filiform setae. Sars (1908) provides a detailed comparison.

KG 20(male)

6:7:6	1:1:1	3:4:3	0:0	absent	*Echinolaophonte tetracheir*
6:7:6	1:1:0	3:4:3	0:0	absent	*Tapholeon ornatus*
5:6–7:5–7	1:1:1	3:4:3	0:0	absent	*Echinolaophonte armiger*[1]
5:6:6	1:1:1	3:4:3	0:0	present	*E. tropica*
4:4:4	0:0:0	3:4:4	0:0	absent	*Klieonychocamptus ponticus* s. str.

1. Lee, Soh & Montagna (2006) provide a discussion of the various forms attributed to *E. armiger*, including that which they regard as *E. hystrix.*

KG 21(male)

6:7:6	1:1:1	3:4:3	0:0	absent	*Echinolaophonte mirabilis*
4:5:5	0:0:0	3:4:4	0:0–1	absent	*Xanthilaophonte trispinosa*

KG 22(male)[1]

5:5:5	1:1:0	3:2:1	0:na	absent	*Loureirophonte cesareae*, *L. mediterranea*[2]
5:5:5	0:0:0	3:2:1	0:na	absent	*L. majacola*
5:5:4	1:1:0	3:3:2	0:na	absent	*L. isabelensis*, *L. furcata*[3]
5:5:4	0:0:0	3:3:2	0:na	absent	KG 39(male) (p. 471)
4:4:4	1:1:0	3:3:1	0:na	absent	*Loureirophonte psammophila*

1. Fiers (1993) provides a dichotomous key to *Loureirophonte.*
2. In *L. cesareae* the caudal ramus is 3 times as long as broad; in *L. mediterranea* it is only twice as long as broad. The species also differ characteristically in the P2 endopod. See Fiers (1993).
3. In *L. isabelensis* the caudal ramus is about twice as long as broad and in *L. furcata* it is nearly 4 times as long as broad.

KG 23(male)

6:6:6	1:1:1	4:2:2	0:na	absent	*Pseudonychocamptus proximus*
5:5:5	1:1:0	2:2:1	0:na	present	*Laophonte hirsutus*

KG 24(male) – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. P5
   lobe - exopod represented by a prominent rounded lobe bearing 4 setae
   vestigial - exopod vestigial

3. P2 Exp-3
   A - with a total of 6 setae and spines; all setae and spines well developed; setae of inner edge extending at least as far as the end of the Exp

B - with a total of 5 setae and spines; all setae and spines well developed
C - with a total of 5 setae and spines; inner edge without setae; seta at inner distal corner small and weak, much shorter than its adjacent spine
D - with a total of 5 setae and spines; seta at inner distal corner vestigial

4. P4 Exp-3
A - inner edge with 2 small, weak setae that do not extend to the end of exopod; other armature consists of 3 stout spines, 1 stout plumose seta and 1 long plumose, filiform seta
B - inner edge naked or with 1 small, weak seta; other armature consists of 3 stout spines, 1 stout plumose seta or spine and 1 long plumose, filiform seta
C - inner edge naked; 1 vestigial seta at inner distal corner; other armature consists of 4 stout spines
D - inner edge naked; armature consist of 3 stout spines only
E - condition of inner edge unknown; total armature of 5 setae and spines of which 3 are on the outer edge

KG 24(male)

CR	P5	P2	P4	
l/b	Exp	Exp-3	Exp-3	
1.7	lobe	B[1]	C	*Heterolaophmonte tenuispina*[1]
1.8	vestigial	D	E	*H. discophora*
≈1	vestigial	A	A	*H. campbelliensis* [*sensu* Pallares 1968b]
≈1	vestigial	A	B	*H. variabilis*
≈1	vestigial	C	D	*H. mendax*

1. P2 exopod is described only as being similar to that of the female.

KG 25(male) – characters

1. Antenna exopod
present - *either* a very small segment with 2–3 small setae
or represented by 2–3 setaeonly
absent - *either* absent
or represented by 1 seta only

2. P4 Exp-3
n - number of setae and spines

KG 25(male)

A2	P4	
Exp	Exp-3	
	setae	
present	6	*Heterolaophonte manifera*
present	5	*H. hamatus*
absent	6	*H. uncinata*

KG 26(male) – characters

1. P4 Exp-1
long - Exp-1 at least as long as combined length of Exp-2 and Exp-3
short - Exp-1 shorter than combined length of Exp-2 and Exp-3

2. P4 endopod

long - extends at least to middle of Exp-1; 2 clearly distinct segments; Enp-2 with 4 well developed setae

short - reduced to a small stump that may consist of 1 segment or 2 clearly or indistinctly defined segments; Enp-2 with 1 long seta and 2–3 vestigial setae

3. P2 Enp-2, proximal inner seta

filiform - a long filiform seta, usually weakly biplumose

spiniform - a short, stout, straight, naked, pointed spine

curved - a long, blunt, curved, naked spine, usually directed medially

KG 26(male)

P4 Exp-1/ Exp-2+3	P4 Enp	P2 Enp-2 proximal inner seta	
long	long	filiform	*Heterolaophonte campbelliensis* [*sensu* Lang 1948]
short	long	curved	*H. discophora* [*sensu* Lang 1965a]
long	short	spiniform	*H. littoralis*[1]
long	short	curved	*H. longisetigera*[1]

1. *Heterolaophonte longisetigera* is not well described (Klie 1950, supplemented by Boer 1971). There are no illustrations of male characters and Klie's text describes the form of the inner proximal seta of the male P2 Enp-2 as "länger schwach gebogen und abgestumpft" [relative to *H. littoralis*]. It may not be identical with the condition in *H. discophora.*

However, *H. littoralis* and *H. longisetigera* are distinguished from other species in this key by the very reduced P4 endopod, which is always a minute segment—sometimes with a trace of the ancestral 2-segmented condition—with only 1 well developed seta.

KG 27(male) – characters

1. P2–P4 Exp-3

n:n:n - number of setae and spines on P2, P3 and P4

2. P3 Enp-3

n - number of setae and spines

3. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

4. P1 Exp-2, apical setae

filiform - long, filiform setae, simple or slightly plumose; may be geniculate

penicillate - long, penicillate setae, with a dense tufts of setules at apex

5. P2 Enp-2

n - number of setae and spines

KG 27(male)

P2–P4	P3	CR	P1	P2	
Exp-3	Enp-3	l/b	Exp-2	Enp-2	
setae	setae		setae	setae	
6:7:7	4	≈1	filiform	4–5	*Asellopsis hispida*
6:7:7	4	1.5–2	penicillate	3	*A. penicillata*
5:6:6	4	1.5–2	filiform	3	*A. intermedia*
(5:6:6)?	4?	≈1	filiform	3	*A. bacescui*
5:6:6	3	1.5–2	filiform	2	*A. sarmatica*

KG 28(male) – characters

1. P4 exopod
   - mod - exopod segments broad, ovoid to circular in shape; Exp-3 with 5 stout and short spines
   - unmod - exopod segments narrow, subrectangular in shape; Exp-3 with 2–3 slender spines and at least 2 long setae

2. Caudal ramus, in dorsal view
   - n - ratio of maximum length to maximum breadth

3. P4 Exp-3
   - n - number of setae and spines

4. P3 Enp-3
   - n - number of setae and spines

See Lee & Huys (1999c) for a review of *Onychocamptus.*

KG 28(male)

P4	CR	P4	P3	
Exp	l/b	Exp-3	Enp-3	
mod	≈3	6	4	*Onychocamptus mohammed*, *O. bengalensis*[1]
mod	≈2	6	4	*O. krsuensterni*
mod	≈2	6	6?[2]	*O. talipes*[2]
unmod	2.5	6	4	*O. vitiospinulosa*
unmod	≈2	6	4	*O. taifensis*
unmod	≈2	4[3]	4	*O. besnardi*[3]

1. The males of these species are difficult, if not impossible, to distinguish. The defining difference between the species is the fused P5 of the female in *O. bengalensis.*
2. *Onychocamptus talipes* is poorly described. It is stated that the male P3 endopod is identical with that of the female, but this is highly improbable.
3. *Onychocamptus besnardi* is very poorly described and the unique setation of P4 Exp-3 requires verification.

KG 29(male) – characters

1. Caudal ramus, in dorsal view
   - n - ratio of maximum length to maximum breadth

2. P3 endopod
   - n - number of segments

3. P4 Exp-1
n - ratio of length to breadth (in midline of anterior face)

4. P2 Enp-2
n - number of setae and spines

5. P4 endopod, number and form of setae
4 - 4 well developed setae
2+ - 2 well developed apical setae + an unguiform projection from the middle of outer edge
1+ - 1 well developed seta + 2–3 vestigial setae

KG 29(male)

CR l/b	P3 Enp segs	P4 Exp-1 l/b	P2 Enp-2 setae	P4 Enp setae	
≈1.7	3	2.5	4	1+	*Heterolaophonte littoralis*, *H. longisetigera*[1]
≈2.5	2	≈4	2	2+	*H. letovae*
≈1	2	≈1	4	4	*H. denticulata*

1. It is extremely difficult to distinguish between males of these species. See KG 26(male) note 1 (p. 462).

KG 30(male) – characters

1. P3 Enp-2, number and form of setae and spines
4+2 - with 4 setae and 2 spines or spiniform projections, one of which may originate on the anterior surface
4+1 - with 4 setae and 1 spine or spiniform projection, which may originate on the anterior surface
2+2 - with 2 setae and 2 spines or spiniform projections, one of which may originate on the anterior surface
2+1 - with 2 setae and 1 spine or spiniform projection, which may originate on the anterior surface

2. P5 exopod, outer edge
straight - approximately straight; if convex, then only very weakly
convex - strongly convex

3. P5 exopod
n - ratio of maximum length to maximum breadth

KG 30(male)

P3 Enp-2 setae	P5 Exp outer edge	P5 Exp l/b	
4+2	straight	≈2	*Pseudonychocamptus abbreviatus*
4+1	straight	≈2	*P. proximus*
4+1	straight	≈3	*P. paraproximus*
2+2	convex	≈2	*P. spinifer*
2+1	straight	≈2	*P. koreni*

KG 31(male) – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. P4 Exp-1, outer spine
   long - extends far beyond the end of Exp-3 setae
   short - extends only to end of Exp-3 setae

3. P4 endopod
   knob - represented by a small hirsute knob
   finger - represented by a finger-like hyaline spine

4. P3 endopod
   slender - approximately 5 times as long (including the apical process) as maximum breadth; Enp-2 about 3 times as long as Enp-1
   stout - approximately 3 times as long (including the apical process) as maximum breadth; Enp-2 approximately twice as long as Enp-1

5. P5 exopod
   long - extends beyond end of basis outer pedestal
   short - extends only to end of basis outer pedestal at most

KG 31(male)

CR l/b	P4 Exp-1 outer spine	P4 Enp	P3 Enp	P5 Exp	
≈2	long	knob	slender	long	*Chilaophonte concepcionensis*
≈1	short	finger	stout	short	*C. maiquillahuensis*

KG 32(male) – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. P2 exopod
   distinct - distinct from basis
   fused - fused to basis

3. P2–P4 exopod, setation of distal or only segment
   4:4:4 - each with 3 stout spines + 1 weak seta at inner distal corner
   3:3:3 - each with 3 stout spines only (note that the outer spine on P2 is actually on the fused basis)
   3:4:4 - each with 1 weak seta at inner distal corner; P2 also with 2 stout spines; P3–P4 also with 3 stout spines
   2:3:3 - P2 with 2 stout spines only; P3–P4 with 3 stout spines only

KG 32(male)

CR l/b	P2 Exp	P2–P4 Exp distal seg	
≈1.8	distinct	4:4:4	*Afrolaophonte ensiger*[1]
1.5	distinct	4:4:4	*A. aequatorialis*[1]
1.5	distinct	2:3:3	*A. pori*[1]
1.5	fused	3:3:3	*A. stocki*[1]
≈1.2	distinct	3:4:4	*A. schmidti*[1]

1. The males of *Afrolaophonte* are extremely similar in morphology; it is essential that any identification is verified by consulting the species descriptions.

KG 33(male) – characters

1. Caudal ramus, seta V
   - filiform - slender, with an even taper from a narrow base
   - whiplash - short, wide and slightly bulbous at base, tapering unevenly to a very thin, flexible apical portion
   - pedunculate - elongate, slender, with a terminal portion articulating on a wider basal portion.

2. P5
   - n - total number of setae and spines

3. P4 exopod, setation
   - 1+3 - 1 long and very stout spine + 3 short, weak setae internal to the spine
   - 1+1 - 1 long and very stout spine + 1 vestigial seta internal to the spine

4. Antennule
   - n - number of segments

KG 33(male)

CR seta	P5 setae	P4 Exp setae	A1 segs	
filiform	6	1+1	7?[1]	*Klieonychocamptoides remanei*[1, 2]
whiplash	6	1+1	5?[1]	*K. arenicola*[1, 2]
whiplash	7	1+3	6	*K. itoi*[2]
pedunculate	6–7	1+3	6	*K. arganoi*[2]

1. The male antennule is not adequately described for these species. The number of segments given here is that in the female and the assumption is made that the male has the same number as the female—as is the case in *K. itoi* and *K. arganoi.*
2. The males of *Klieonychocamptoides* species are very similar in morphology. It is essential that any identification is verified by consulting the species descriptions.

KG 34(male) – characters

Species-specific characters of males of *Galapalaophonte* are found in the details of the modifications of P2–P3 endopod. They are difficult to describe verbally, especially those of P2, and any identification arrived at with these keys must be verified using the illustrations in the species descriptions.

The caudal ramus, anal somite, anal operculum and the exact form of the surface ornamentation of the body segments also provide distinguishing characters. See Fiers (1991b).

1. P3 exopod
   n - number of segments

2. P2 basis
   n - total n umber of setae and spines on the inner side of the basis (i.e. internal to the exopod)

3. P4 Exp-3, setation
   3+1 - with 3 spines and with a weak seta at the inner distal corner
   3+0 - with 3 spines only

4. P4 basis
   A - anterior surface with 1 small row of transverse spinules; without spinules around the pedestal of outer seta; inner edge with a flame shaped hyaline process (representing the endopod) and without spinules
   B - anterior surface with a group of 3–4 spinules on inner part + spinules around the pedestal of outer seta; inner edge with 1 long seta (representing the endopod) and about 3 long spinules
   C - anterior surface with 2 groups of spinules + spinules around the pedestal of outer seta; inner edge with 3 long spinules
   D - anterior surface with 2 transverse rows of spinules + spinules around the pedestal of outer seta; inner edge naked
   E - anterior surface with 1 transverse row of spinules + spinules around the pedestal of outer seta; inner edge naked

5. P2 Enp-2, subterminal part of transformed inner seta
   A - with 3 rounded lobes, approximately equal in size
   B - with 3 lobes; proximal and distal lobes rounded, middle lobe pointed and longer than others
   C - with 3 lobes; proximal lobe simple, finger-like; middle and distal lobes almost rectangular
   D - with 3 lobes, all finger-like; proximal lobe simple, straight; middle and distal lobes hooked
   E - with 2 long finger-like lobes directed proximally

KG 34(male)

P3 Exp segs	P2 basis setae	P4 Exp-3 setae	P4 basis	P2 Enp-2	
3	3	3+1	D	B	*Galapalaophonte pacifica*
3	3	3+1	E	A	*G. carolinensis*
3	2–3	3+1	C	E	*G. antillensis*
2–3	3	3+1	B	D	*G. chilensis*
2	2	3+0	A	C	*G. biarticulata*

KG 35(male) – characters

1. Thorax somites
   orn - somites 2–5 ornamented with a short rounded or unguiform projection dorsolaterally; cephalic shield with an incipient projection dorsolaterally on distal edge
   plain - without such projections

2. P5 endopod

A - with 2 very long setae that extend far beyond the end of exopod and with a small seta (spinule?) internal to these

B - with 1 very long seta and 1 about half its length but still longer than the exopod; without additional seta

C - with 1 long seta and 1 very short seta that barely reaches the end of exopod; without additional seta

3. P5 exopod

n - relative lengths of setae I–IV

KG 35(male)

Thorax som	P5 Enp	P5 Exp	
plain	A	1: 1.3: 1: 0.8	*Laophonte inornata*
plain	C	1: 3.5: 2.2: 1	*L. sima*
orn	A	1: 1.6: 0.7: 0.5	*L. dinocerata*
orn	B	1: 1.3: 0.5: 0.5	*L. sporadiensis*

KG 36(male) – characters

1. Caudal ramus

ungui - distal edge with a large, posteriorly directed unguiform projection

simple - distal edge truncate or curved but never with an unguiform projection

2. P2 Enp-2, distal inner seta

filiform - a simple filiform seta, usually lightly biplumose

stout - much thickened in proximal half; often with a distinct disjunction between this portion and a filiform distal half; distal half usually naked, proximal half usually with stout accessory spinules on at least the inner side, sometimes with the distal part of the proximal portion transformed

3. P3 Exp-3, inner edge

long - with 2 very long plumose setae; distal seta usually about twice as long as Exp-3

weak - with 2 thin weak setae that usually do not extend beyond the end of Exp-3

spines - with 2 stout spines

4. Caudal ramus

n - ratio of maximum length to maximum breadth

5. P5 endopod seta

n - length as a multiple of maximum length of exopod

minute - seta very small; only a small fraction of length of exopod

KG 36(male)

CR distal edge	P2 Enp-2 distal inner seta	P3 Exp-3 inner edge	CR l/b	P5 Enp seta	
ungui	filiform	long	2.2	minute	*Laophonte spinicauda*
ungui	filiform	long	≈2	3	*L. spinicauda* [*sensu* Kunz 1975, as *L. spinifer*]
simple	stout	weak	3.5	2	*Paralaophonte majae*
simple	stout	weak	≈2.5	2	*P. ormieresi*
simple	stout	weak	2	1.5	*P. echinata*
simple	stout	weak	1.5	3	*P. problematica*
simple	stout	spines	1.5–2	3	*P. congenera* [*sensu* Yeatman 1962][1]
simple	stout	spines	?	≈1	*P. congenera* [*sensu* Nicholls 1945a][1]
simple	stout	spines	1.5	3	*P. brevirostris*[1]
simple	stout	spines	≈1	≈1	*P. pacifica* s. str.
simple	stout	spines	1.3	4	*P. pacifica galapagoensis*

1. These highly variable, widespread and common species are very similar. According to the classic descriptions of Sars (1908) the males differ mainly in the form of the distal inner seta of P2 endopod.

   In *P. brevirostris* the thick proximal portion grades almost imperceptibly into the whiplash distal portion and accessory spinules are present on both inner and outer sides of the proximal portion.

   In *P. congenera* the proximal portion is relatively thicker and there is an abrupt decrease in diameter at the junction with the distal portion; accessory spinules are present only on the inner side of the proximal portion.

   Unfortunately, other descriptions are not as precise and a review of the species is urgently required. See Wells & Rao (1987) and Yoo & Lee (1995) for the latest discussion and literature.

KG 37(male) – characters

1. P2 Enp-2, distal inner seta

   filiform - a simple filiform seta, usually lightly biplumose

   stout - much thickened in proximal half; often with a distinct disjunction with a filiform distal half; distal half usually naked, proximal half usually with stout accessory spinules on at least the inner side, sometimes with the distal part of the proximal portion transformed

2. P4 Enp-2

   n - number of setae and spines

3. P1 Enp-1

   n - length relative to exopod

4. P4 Exp-1

   n - length relative to combined length of Exp-2 and Exp-3

5. P4 Exp-3

   n - ratio of maximum length to maximum breadth

KG 37(male)

P2 Enp-2 distal inner seta	P4 Enp-2 setae	P1 Enp-1/ Exp	P4 Exp-1/ Exp-2+3	P4 Exp-3 l/b	
filiform	5	1.8	1.75	≈2	*Bathylaophonte azorica*[1]
filiform?	5	1.2	0.7	≈2	*B. faroensis*[1]
filiform	4	1.3	0.7	≈1.5[1]	*B. pacifica*[1, 2]
stout	4	2.25	0.5	3	*Paralaophonte congenera mediterranea*
stout	4	2.25	0.5	2	*P. lacerdai*

1. Lee & Huys (1999c) provide a detailed comparison of the species of *Bathylaophonte.*
2. P4 Exp-3 has a long unguiform projection of the distal edge that distinguishes it from the other species of this genus; it is not included in this ratio.

KG 38(male) – characters

1. P4 Enp-2, distal inner seta
   - basket - a fringe of long stout setules on the swollen proximal portion form a basket to which typically is attached a mucoid bolus
   - filiform - normal, filiform, plumose

2. P1 Exp-2
   - n - number of setae and spines

3. P4 Enp-1, inner edge
   - n - number of setae

4. P3 Enp-2, apophysis
   - smooth *or* dentate

KG 38(male)

P4 Enp-2 distal inner seta	P1 Exp-2 setae	P4 Enp-1 inner setae	P3 Enp-2 apophysis	
basket	5	0	smooth?	*Corbulaseta bulligera*
filiform	5	1	smooth	*Esola bulbifera*[1]
filiform	5	0	smooth	*E. lobata*[1]
filiform	5	0	dentate	*E. vervoorti*[1]
filiform	4	1	?	*E. longicauda*[1]
filiform	4	0	smooth	*E. galapagoensis*[1]

1. Huys & Lee (2000) provide an extended discussion of these species.

KG 39(male) – characters

1. P4 endopod
   - long - comparatively long, extending to about ¼ the length of Exp-1; about twice as long as broad
   - short - very small, barely extends to the beginning of Exp-1; about as long as broad

2. P3 Enp-2, inner seta
long - much longer than the length of Enp-2
medium - about as long as Enp-2
short - much shorter than Enp-2

Fiers (1993) provides a dichotomous key to *Loureirophonte.*

KG 39(male)

P4 Enp	P3 Enp-2 inner seta	
long	long	*Loureirophonte laingensis*
long	short	*L. catharinensis*
short	medium	*L. majahualensis*

KG 40(male) – characters

1. Caudal ramus, inner edge in dorsal view
straight *or* undulating *or* convex

2. Caudal ramus, in dorsal view
n - ratio of maximum length to maximum breadth

3. Anal operculum
long - extends beyond the end of the anal somite
medium - extend to the end of the anal somite
short - does not reach the end of the anal somite

4. P2–P4 Enp-2
n:n:n - number of setae and spines on P2, P3 and P4

Gheerardyn, Fiers, Vincx & De Troch (2006) provide a dichotomous key to *Peltidiphonte.*

KG 40(male)

CR inner edge	CR l/b	Anal op	P2–P4 Enp-2 setae	
undulating	1.7	short	4:4:4	*Peltidiphonte cristata*
straight	2	short	4:4:4	*P. paracristata*
convex	2	long	4:4:4	*P. ovata*
straight	2.5	short	3–4:4:4	*P. major*
convex	1.6	long	4:3:3	*P. rostrata*
straight	3	short	3:3:3	*P. furcata*
convex	1.7	medium	3:3:3	*P. morovoensis*

KG 41(male) – characters

1. Urosomite 3
   - present - with a pair of lateral mucin glands marked by large patches of small denticles; may be accompanied by large balls of extruded mucin (the 'saddle bags' of Schizas & Shirley, 2006)
   - absent - without such glands or patches of denticles

2. P3 Enp-3
   - n - number of setae

KG 41(male)

Urosome 3 glands	P3 Enp-3 setae	
present	1	*Apolethon hippoperus*[1]
absent	2	*A. fumator*[1]

1. *Apolethon* is included in the key to the family Laophontidae for users convenience. It is now considered a genus *incertae sedis* in the superfamily Laophontoidea.

Family Laophontopsidae

KG 0 – characters

1. Antenna exopod
   n - number of setae

2. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

3. Female P5
   n:n - number of setae on endopod and exopod

KG 0

A2 Exp setae	P2–P4 Exp-3 setae	Female P5 setae	
4	6:7:7	5:6	*Aculeopsis longisetosa*
4	5:6:6	5:6	*Laophontopsis borealis*, *L. lamellifera*[1]
4	5:6:5	5:6	*L. monardi*
3	5:6:6	5:5	*Telodocus secundus*

1. The latest revision of the family (Huys & Willems 1989) confines *L. lamellifera* to the original record, mainly because the inadequate original description makes it difficult to assign other records to it. All non-Mediterranean records of *L. lamellifera* are placed in *L. borealis.*

Family Latiremidae

Caution: Huys, Karaytuğ & Cottarelli (2005) state that "morphological stasis in the genus [*Delamarella*] makes it extremely difficult to separate congeners unambiguously" and that "characters traditionally applied to separate species are no longer valid". Any identification arrived at with this key must be confirmed by consulting Huys *et al.* (2005) and, if necessary, the literature cited therein.

KG 0 – characters

1. Caudal ramus, setae II and III
   bulbous *or* spiniform

2. Anal operculum
   serrate 1 - distal edge coarsely serrate; a row of 17 large spinules beneath the operculum
   serrate 2 - distal edge finely serrate; operculum without large spinules
   n - distal edge not serrate; with *n* large spinules

3. Antenna, relative length of abexopodal setae on basis and Enp-1
   equal - the 2 setae approximately equal in length
   unequal - distal seta about half the length of proximal seta

4. Female P4 endopod
   n - number of segments

5. Male P5, relative length of setae I and III
   I<III - seta I distinctly shorter than seta III
   equal - setae I and III approximately equal in length
   uk - male unknown

KG 0

CR setae I & III	Anal operculum	A2 setae	Female P4 Enp segs	Male P5 Exp setae I/III	
bulbous	serrate 1	equal	3	uk	*Arbutifera phyllosetosa*
spiniform	serrate 2	equal	3	I<III	*Delamarella eximia*
spiniform	20–30	equal	3	equal	*D. obscura*
spiniform	15	equal	3	equal	*D. karamani*
spiniform	10	equal	2	I<III	*D. arenicola*
spiniform	7–10	unequal	3	equal	*D. galateae*

Family Leptastacidae

Huys (1992) provides a dichotomous key to genus level within a rigorous review of the family to that date. Huys & Todaro (1997) and Huys & Conroy-Dalton (2005) provide further highly relevant remarks on the difficult taxonomy of this family.

KG 0 – characters

1. P1
   n:n - number of segments in exopod and endopod

2. P2–P4 endopod
   n:n:n - number of segments in P2, P3 and P4

3. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

4. P5
   distinct - exopod not fused to basis
   fused - exopod fused to basis (P5 is a single plate in which the exopod and endopod often cannot be recognised)

KG 0

P1 segs	P2–P4 Enp segs	P2–P4 Exp-3 setae	P5	
3:3	2:2:2	5:5:5	fused	*Meloriastacus ctenidis*
3:3	2:2:2	4:4:4	fused	KG 1 (p. 476)
3:2	2:2:2	4:5:6	distinct	KG 2 (p. 477)
3:2	2:2:2	4:5:5	distinct	KG 3 (p. 478)
3:2	2:2:2	3:5:6	distinct	KG 4 (p. 478)
3:2	2:2:2	3:5:5	distinct	*Paraleptastacus brevicaudatus*
3:2	2:2:2	3:4:5	fused	KG 5 (p. 479)
3:2	2:2:2	3:4:4	fused	KG 6 (p. 481)
3:2	2:2:2	3:3:3	fused	*Leptastacus christellae*[1]
3:2	2:2:2	3:2:3	fused	*L. nichollsi*[2]
2:2	2:2:2	4?:4:5	distinct	*Paraleptastacus ammodytensis*
2:2	1:1:2	3:4:5	distinct	*Arenocaris bifida*
2:2	1:1:2	3:4:4	distinct	*A. reducta*
1–2:2	2:2:2	3:4:5	fused	KG 7 (p. 483)
1:2	2:2:2	3:4:4	fused	*Psammastacus confluens*
1:2	2:2:2	3:3:4	fused	*Arenotopa ghanai* female[3]

1. Considered by Huys (1992) as Leptastacidae *incertae sedis.*
2. Considered by Huys (1992) as *species inquirenda* in *Cerconeotes*.
3. See KG 7 (p. 483) for the male.

KG 1 – characters

1. Caudal ramus
   spiniform - apex produced as a spiniform projection
   not - apex not spiniform (but note that seta III is a stout spine, with origin clearly visible)

2. Female P5

spiniform - apex produced as a spiniform projection

not - apex not spiniform (but note that seta II is a stout spine, with origin clearly visible)

KG 1

CR	Female P5	
spiniform	spiniform	*Archileptastacus dichatoensis*[1]
not	not	*A. aberrans*

1. Male unknown.

KG 2 – characters

1. P5 exopod

n:n - number of setae and spines in female and male

2. P1 endopod, length relative to exopod

long - approximately twice as long as exopod; prehensile

short - not more than 1.3 times as long as exopod; not prehensile

3. Female P5 endopod

n - relative length of seta II to seta I

4. Female P5 exopod

n - relative length of seta I to outermost seta

5. Male P5 endopod

n - relative length of seta II to seta I

6. Male P5 exopod

n - relative length of seta I to outermost seta

Huys (1992) provides a dichotomous key to *Paraleptastacus.*

KG 2

P5 Exp setae	P1 Enp/ Exp	Female P5 Enp seta II/ seta I	Female P5 Exp seta I/ outermost seta	Male P5 Enp seta II/ seta I	Male P5 Exp seta I/ outermost seta	
4:4	long	1	3	1.5	3	*Paraleptastacus laurenticus*
4:4	short	1.8	3.8	4	2.7	*P. spinicauda* s. str.[1]
4:4	short	1.5	3	2.7	3.8	*P. unisetosus*
4:4	short	1.3	4.5	3.5	1.3	*P. longicaudatus*[1]
4:4	short	1.3	3	2	2	*P. kliei*[2]
4:4	short	1.2	5–6	1.4	3	*P. supralittoralis*[3]
4:4	short	1	3.5	1.4	2.8	*P. holsaticus*[1]
4:4	short	0.8	4.5	1	2.2	*P. wilsoni*
4:4	short	0.6	4.8	2	3.5	*P. katamensis*[1]

3:3	short	1	2.3	1	2.3	*P. caspicus*
3:3	short	1	2	1.3	2.3	*P. triseta*[1]
2:(2?)	short	1.5	1.6	?	?	*P. spinicauda bisetosus*[4]

1. Data from the redescription by Whybrew (1986).
2. The male of *P. kliei* is also the only species in this key group in which seta II of P5 exopod is much longer than seta I (2.5 times as long).
3. Data from the original description (Mielke 1975) and the redescription by Whybrew (1986).
4. It is not clear whether the male is known for this subspecies.

KG 3 – characters

1. Abdomen, hyaline frill
   entire - not divided into lappets
   lappets - divided in rectangular lappets

2. Caudal ramus, inner edge
   spinulose - with 3–4 long stout spinules distally
   naked - without spinules

3. Anal somite, spinules on ventral posterior edge
   large - 2 large, long spinules flanked with much smaller, fine spinules
   small - with small fine spinules only

4. P5 endopod seta II
   long - seta II 2–2.5 times as long as seta I
   short - seta II only 1.2–1.5 times as long as seta I

5. Male P6
   n - number of setae

Huys (1992) provides a dichotomous key to *Paraleptastacus.*

KG 3

Abdomen hyaline frill	CR inner edge	Anal som	P5 Enp seta II	Male P6 setae	
entire	naked	small	long	3	*Paraleptastacus moorei*
lappets	spinulose	large	short	2	*P. supralittoralis*[1]

1. Data from the original description (Mielke 1975) and the redescription by Whybrew (1986).

KG 4 – characters

1. P5 exopod
   n:n - number of setae and spines in female and male

2. P2–P4 Enp-1, inner edge
   n:n:n - number of setae on P2, P3 and P4

Huys (1992) provides a dichotomous key to *Paraleptastacus.*

KG 4

P5 Exp setae	P2–P4 Enp-1 inner setae	
4:4	1:1:0	*Paraleptastacus monensis*
4:4	0:0:0	*P. espinulatus*
3:3	1:1:0	*P. triseta*

KG 5 – characters

1. Caudal ramus, dorsomedial surface
   - present - with an oblique spinule row
   - absent - without an oblique spinule row

2. Caudal ramus, seta III
   - simple - simple filiform seta
   - composite - seta in 2 parts—proximal part tubular, distal part slender, filiform and articulating with proximal part

3. Caudal ramus, distal edge
   - acuminate - ventral distal edge drawn out into a long acuminate process
   - spinulose - ventral distal edge not acuminate but with several short, stout spinules
   - spinose - distal edge not acuminate, without spinules; seta VI a short, very stout spine, which may be articulated with or fused to the distal edge at the inner distal corner adjacent to seta V
   - simple - distal edge not acuminate, without spinules; seta VI short and swollen at base, but not spiniform; orignates ventral to seta V

4. P5
   - triang - a single triangular plate, usually acutely pointed distally but occasionally with a shoe-shaped, flattened apex
   - round - a single rounded or weakly bilobed plate; never acutely pointed distally
   - bilobed - endopod and exopod fused but recognisable

5. P2–P4 Enp-1, inner edge
   - n:n:n - number of setae on P2, P3 and P4

KG 5

CR spinules	CR seta III	CR distal edge	P5 shape	P2–P4 Enp-1 inner setae	
absent	composite	spinulose	triang	0:0:0	*Lepatastacus corsicaensis*[1]
absent	composite	spinulose	triang	1:1:0	KG 5/1 (p. 480)
absent	simple	acuminate	round	1:1:0	KG 5/2 (p. 480)
absent	simple	simple	bilobed	1:1:0	*Aquuilastacus serratus*
present	simple	spinose	round	1:0:0	*Sextonis laminaserratus*
present	simple	spinose	round	0:0:0	*S. mehuinensis*
present	simple	spinose	round	1:1:0	*S. incurvatus*[2], *S. chilensis*[2], *Leptastacus naylori*[3]

1. *Leptastacus corsicaensis* is also distingsuished by its very long caudal rami—about 6 times as long as broad.
2. These species were first differentiated on the basis that the seta at the inner distal corner of P3 Exp-2 in *L. incurvatus* is absent in *L. chilensis.* It is now thought (Huys, 1992) the description of *L. incurvatus* is in error and that the species can only be distinguished on fine points of detail, especially in the P5. Consult the original descriptions and the commentary by Huys (1992).
3. Considered as *species inquirenda* in *Sextonis* by Huys (1992 p. 175) as the original description is a composite of two species. Further, a careful comparison of the illustrations with those of *Sextonis* species makes it seem possible that the description of the P5 has omitted some rudimentary setae (pers. obs.).

KG 5/1 – characters

1. Caudal ramus
    n - ratio of maximum length to maximum breadth (in dorsal view)

2. Caudal ramus, seta V
    filiform - slender filiform throughout length
    isp - with a spinous process on the inner side

3. P2–P4 Exp-3 and P5
    present - with some spatulate setae (i.e. long setae with a spatulate tip)
    absent - without spatulate setae

4. P5, shape of apex
    conical - approximately conical, without pronounced bend at tip
    external - tip bent towards external side
    shoe - tip deformed into a shoe-shaped structure

5. Body length (from apex of rostrum to apex of caudal ramus)
    n - length in µm

KG 5/1

CR l/b	CR seta V	spatulate setae	P5 apex (µm)	Body length	
≈4	isp	absent	straight	5–600	*Leptastacus macronyx*[1]
3.3	filiform	present	external	500	*L. spatuliseta*
3.3	isp	absent	external	425–470	*L. kwintei*
<3	filiform	present	straight	325–350	*L. coulli*[1]
<3	filiform	present	straight	235–250	*L. pygmaeus*[1]
<3	filiform	absent	shoe	300–325	*L. laticaudatus*[2]
<3	filiform	absent	external	340–380	*L. uncinatus*

1. Data from the redescription by Huys (1992).
2. Data from the redescription by Huys (1987b).

KG 5/2 – characters

1. Anal operculum
    simple - shallow semilunar shape, not reaching the end of the anal somite, clothed with long, fine setules
    bilobed - 2 shallow semilunar lobes, each with 2 spinules
    bifurcate - produced to a long, narrow, bifurcate point

2. Caudal ramus, seta V
simple - simple, filiform
bifurcate - with a tubular proximal part which subapically gives rise to a long filiform branch

3. Body length (from apex of rostrum to apex of caudal ramus)
n - length in µm

KG 5/2

Anal operculum	CR seta V	Body length (µm)	
simple	bifurcate	630–780	*Schizothrix ctenata*[1]
bifurcate	bifurcate?	1520	*S. rostrata*[1]
bilobed	simple?	400	*S. pontica*[1]

1. Male unknown.

KG 6 – characters

1. Caudal ramus, shape
acuminate - with a long acutely pointed extension of the distal edge
trispinulose - distal edge narrow, truncate with 3 stout spinules around origin of seta V
spinulose - distal edge narrow, truncate; seta VI (at inner distal corner) a stout spine
simple - distal edge narrow, truncate or slightly protruding at inner corner; seta VI filiform, often very small

2. P5, shape
x:x - for female and male, where x represents one of the following states
A - trilobed; small lobes representing the exopod, endopod and external part of the basis
B - bilobed; a distal lobe representing exopod and endopod, and an external lateral lobe representing the outer part of the basis
C - simple; a small plate, not triangular and without distinct lobes
D - triangular; with a single seta or spine at the apex
E - triangular; with 2 setae (or 1 seta and 1 setule?) at the apex
F - triangular; with 1 seta and 1 stout spinule (partially fused to the segment) at the apex
G - triangular; with setae subapically
uk - male or female unknown

3. Anal operculum
acuminate - a massive triangular structure extending to about the end of the caudal rami
straight - straight or weakly concave
lunar 1 - shallow semilunar, not extending to end of anal somite
lunar 2 - semicircular, extending to the end of the anal somite

4. P1 Exp-3
n - number of setae and spines

5. P2–P4 Enp-2
n:n:n - number of setae and spines on P2, P3 and P4

6. P4 Exp-1, spine at outer distal corner

long - very long, recurved at apex, extending at least to the end of Exp-2
short - never extending more than halfway along Exp-2

KG 6

CR shape	P5 shape	Anal op	P1 Exp-3 setae	P2–P4 Enp-2 setae	P4 Exp-1 spine	
acuminate	B?:B?	?	3	1:1:2	short	*Leptastacus euryhalinus*[1]
acuminate	B:B	lunar 1	3	1:2:2	short	*Cerconeotes mozambicus*
acuminate	D:D	lunar 2	3	1:2:2	short	*C. jenneri*
acuminate	D:D	lunar 1	3	1:1:1	short	*Leptastacus waltairensis*[1]
acuminate	G:G	straight	4	1:2:2	long	KG 6/1
trispinulose	G:G	acuminate	3	1:2:2	short	*Stereoxiphos operculatus*[2]
trispinulose	G:uk	lunar 2	3	1:2:2	short	*Leptastacus minutus*
spinulose	A:C	?	4	1:1:2	short	*L. delamarei*[3]
simple	D:F	lunar 1	3	1:2:2	short	*Cerconeotes japonicus*
simple	D:E	lunar 1	4(3?)[4]	1:2:2	short	*C. constrictus*[4]
simple	G:G	lunar 1	3	1:1:2	short	*Leptastacus wieseri*

1. Considered by Huys (1992) as *species inquirenda* in *Cerconeotes.*
2. Data mainly from the redescription by Huys & Conroy-Dalton (2005).
3. Considered by Huys (1992) as *species inquirenda* in *Sextonis.*
4. Huys (1992) considers Lang (1965a) was mistaken in his view that P1 Exp-3 has 4 setae.

KG 6/1 – characters

1. Caudal ramus
   n - ratio of maximum length (including the expanded inner distal corner) to maximum breadth

2. P1 endopod
   n - ratio of maximum length of entire endopod to maximum breadth

3. Female P5
   entire - apex acutely pointed, entire
   split - apex rounded, with a notch
   uk - female unknown

4. Male P5
   entire - apex acutely pointed, entire
   split - apex acutely pointed, with a subapical notch on outer edge

KG 6/1

CR l/b	P1 Enp l/b	Female P5 apex	Male P5 apex	
3.8	5.8	entire	entire	*Belemnopontia dispinosa*
2.7	4.6	split	split	*B. panamensis*
≈3	≈4	uk	entire	*Leptastacus acuticaudatus*[1]

1. Considered by Huys (1992) as *species inquirenda* in *Belemnopontia*.

KG 7 – characters

1. P1 Enp-1
   long - 3–4 times as long as exopod; prehensile
   short - about as long as exopod; not prehensile

2. Caudal ramus, accessory processes
   absent - without dorsally projecting recurved processes
   one - 1 process at distal edge
   two - 1 small process at distal edge and 1 large process anterior to this
   3cusp - 1 tricuspid process at distal edge
   4cusp - 1 quadricuspid process at distal edge

3. Mandible palp
   n - number of segments

4. Labrum (in lateral view)
   hook - with a large frontal spinous process, recurved dorsally (Fig. 105)
   simple - labrum strongly developed but without a large spinous process (Fig. 106)

5. Female P5
   n(n) - total number of setae (number of very small or vestigial setae included in this total)

6. Male P5
   n(n) - total number of setae (number of very small or vestigial setae included in this total)

KG 7

P1 Enp/Exp	CR	Mandible palp segs	Labrum	Female P5 setae	Male P5 setae	
long	3cusp	1	simple	6(2)	5(2)	*Psamathea nautarum*[1]
long	4cusp	1	simple	6(2)	5(2)	*P. brittanica*[1]
short	one	2	simple	7(2)	5(1)	*Afroleptastacus clandestinus*
short	two	1	simple	4(0)	3(0)	*Arenotopa dyadacantha*
short	one	2	simple	4(0)	3(0)	*A. erasmusi*
short	one	1	simple	5(1)	4(1)	*A. rossii*[2]
short	absent?	1	simple	4(0)	4(0)	*A. ghanai*[2]
short	absent	2?	simple?	6[3](2)	4(1)	*Afroleptastacus remanei*[3]
short	absent	2	hook	6(0)	5(1)	*Membranastacus inopinatus*
short	absent	2	hook	4(0)	3(0)	*Minervella baccettii*
short	absent	2	hook	5(1)	4(1)	*Minervella perplexa*[4]
short	absent	2	hook	7(2)	7(2)	*Neopsammastacus spinicauda*[4]
short	absent	2	hook	5(1)	3(0)	*N. spinicaudatus*[5]

1. P1 exopod is an additional distinguishing character. In *P. brittanica* this is a single segment but in *P. nautarum* it has extensive traces of the articulating surfaces of the two component segments that are now at least partially fused together. Data on *P. nautarum* is from the redescription by Huys, Bodiou & Bodin (1996).

2. These two west African species are extremely similar but there is a significant difference in the shape of the female P5, which has a terminal lobe in *A. ghanai* that is absent in *A. rossii*.

3. The original description illustrates 5 setae but Huys (1992 p. 151) believes that P5 seta I probably has been overlooked (along with the presence of a dorsomedial spinule row on the caudal ramus).
4. Data from the redescription by Huys (1992).
5. Data from the redescription by Wells & Rao (1987).

Family Leptopontiidae

KG 0 – characters

1. P1
   n:n - number of segments in exopod and endopod

2. P2 and P4 endopod
   n:n - number of segments in P2 and P4

3. P5
   distinct - exopod distinct from basis; endopod small but recognisable
   fused - P5 a single structure, often without exopod and endopod portions

4. P2–P4 Exp-3
   n:n:n - number of setae and spines in P2, P3 and P4

KG 0

P1 segs	P2 & P4 Enp segs	P5	P2–P4 Exp-3 setae	
3:2	2:2	distinct	3:4:4	KG 1
2:2	2:2	distinct	3:4:4	*Leptopontia breviarticulata*
2:2	2:2	fused	3:4:4	*Notopontia biarticulata*
2:2	2:1	fused	3:3:3	*N. stephanieae*
2:2	1:1	fused	3:3:3	KG 2

KG 1 – characters

The data used to construct this key are from Huys & Conroy-Dalton's (1996) revision of *Leptopontia* and Mielke's (1975) description of *L. curvicauda* female.

By far the best way to identify species of *Leptopontia* is via the descriptions conveniently provided by Huys & Conroy-Dalton in a single publication.

This advice is especially relevant as many of the truly species diagnostic characters reside in subtle differences in the male P3–P4 endopod and in the precise pattern of subsurface integumental pits, which tend to defy accurate and meaningful textual exposition and are best demonstrated through illustrations.

1. Anal operculum
   A - with a long, median, spiniform process and with 1–2 small spiniform processes at each lateral edge of the operculum
   B - with a long, median, spiniform process and with 1 massive, spiniform process at each lateral edge
   C - with a long, median, spiniform process but without lateral processes
   D - with 3 small, medial, spiniform process and with 1 large, spiniform process at each lateral edge

2. Caudal ramus, dorsal; ratio of maximum length (including distal spiniform process) to maximum breadth
   long - more than 3 times as long as broad
   short - less than 3 times as long as broad

3. P1 Enp-1
   n - ratio of maximum length of Enp-1 to Enp-2

4. Female P5 endopod
n - number of setae
uk - female unknown

5. Male P5 exopod, relative length of outer seta to inner seta
long - approximately equal in length
short - outer seta shorter than inner seta

KG 1

Anal operculum	CR l/b	P1 Enp-1/ Enp-2	Female P5 Enp setae	Male P5 Exp setae	
A	short	≈3	2	short	*Leptopontia curvicauda*
A	long	4.5	2	short	*L. dovpori*
C	long	3.5	2	long	*L. punctata*
A	short	>5	1	long	*L. flandrica*
B	?	?	uk	?	*L. mediterranea*[1]
D	short	?	uk	?	*L. americana*[2]

1. *Leptopontia mediterranea* is known only from 1 male stage V copepodid.
2. *Leptopontia americana* is known only from 1 incomplete male specimen.

KG 2 – characters

1. Anal operculum, spinous processes
one - with 1 large median spinous process
several - with several small spinous process (known range is 2–5)

2. P5
A - armament of the portion external to the unguiform projection consists entirely of filiform setae; female with 1 seta internal to the unguiform projection—this seta absent in the male
B - armament of the external portion contains 1 stout spine; inner edge asetose in both sexes

3. Female antennule
n - number of segments

4. Female P3 endopod
n - number of setae

5. Male P3 endopod
n - number of segments
uk - male unknown

Huys & Ohtsuka (1993) provide a discussion, a table of comparison of the species and a dichotomous key to *Syrticola*.

KG 2

Anal operc spines	P5	Female A1 segs	Female P3 Enp setae	Male P3 Enp segs	
one	A	7	1	2	*Syrticola galapagoensis*
one	B	7	2	2	*S. intermedius*
several	B	6	2	uk	*S. flandricus*
several	B	6	1	1	*S. mediterraneus*

Family Longipediidae

Species of this family are distinguished on relatively fine points of detail. Any determination arrived at with this key should be checked by consulting Wells (1980), Itô (1980a, 1981) and Gómez (2001a).

KG 0 – characters

1. P2 coxa, inner seta or spine
   - wd - well developed
   - sm - small or very reduced
   - absent - inner edge without a seta or spine

2. P1 coxa, diagonal spinule/setule row on outer side
   - spine - distal element a large spine, much larger than the proximal elements
   - not - distal element not as above; the row may be of similar sized setules or spinules or terminate in a bunch of long, fine setules

3. Female P2 Enp-1, unguiform projection on distal part of anterior face
   present *or* absent

4. Female P5 exopod, shape
   - rect - rectangular; sides taper only at the extreme base
   - tri - triangular; apex wider than base, sides taper evenly from just above the base

5. Male P5 exopod
   - n - number of setae
   - uk - male unknown

KG 0

P2 coxa inner seta	P1 coxa	Female P2 Enp1	Female P5 Exp shape	Male P5 Exp setae	
wd	spine	present	tri	6	KG 1
wd	spine	present	tri	uk	*Longipedia brevispinosa* (see KG 1)
wd	spine	absent	rect	5	*L. helgolandica*
wd	not	present	rect	6	*L. coronata*
wd	not	absent	rect	5	*L. minor*
sm	spine	present	rect	uk	*Longipedia* sp. Fiers, 1984a
sm	not	present	tri	5	*L. scotti*
sm	not	absent	tri	6	KG 2
sm	not	absent	tri	uk	*Longipedia santacruzensis* (see KG 2)
absent	not	present	tri	5	*L. andamanica*

KG 1 – characters

1. Hyaline frill of female genital double somite and male abdomen somite 2
   - plain - undivided
   - blunt - divided into very small, blunt teeth of similar form all round somite; visible at moderate magnification

sharp - deeply divided into large, sharp teeth easily visible at moderate magnification; size and form of teeth differ from dorsum to venter—dorsal teeth smaller than ventral

2. Anal operculum
- long - median spine much longer than lateral spines
- short - median spine not longer than lateral spines

3. P3 Enp-3, inner edge
- n - number of setae

4. Male P5 exopod
- n - number of setae
- uk - male unknown

5. Female P2 Enp-3, median terminal spine
- serrate - inner side spinulose or serrate, serrations never massive
- dentate - inner side with at least 1 very large tooth

KG 1

Hyaline frill	Anal operculum	P3 Enp-3 inner setae	Male P5 Exp setae	Female P2 Enp-3 spine	
plain	long	3	7	serrate	*Longipedia kikuchii* (Japan)[1]
plain	long	3	7	dentate	*L. kikuchii* (Bay of Bengal)[1]
blunt	long	3	8	dentate	*L. nichollsi*, *L. spinulosa*[2]
sharp	long	3	8	serrate	*L. weberi*
sharp	short	2	uk	serrate	*L. brevispinosa*

1. See Wells (1980: p. 121).
2. These species can only be separated on very fine points of detail and may be synonymous (see Itô, 1981).

KG 2 – characters

1. P1 coxa, diagonal spinule/setule row on outer side
- spinules - consists of 4–5 spinules, slightly increasing in size from proximal to distal
- sp+set - consists of 4 spinule + a few long fine setules at distal end

2. P1 basis and Enp-1
- A - transverse band of long fine setules present on Enp-1; distal edge of basis naked
- B - Enp-1 without transverse band of setules; distal edge of basis naked
- C - Enp-1 without transverse band of setules; distal edge of basis with long setules

3. P2 coxa, inner seta or spine
- wd - slender but reasonably well developed—extending almost to the distal edge of coxa
- red - very reduced, shorter than any of the setules on coxa and only extending to the middle of coxa

KG 2

P1	P1	P2	
coxa	basis & Enp-1	coxa	
spinules	A	wd	*Longipedia americana*
spinules	B	wd	*L. santacruzensis*
sp+set	C	red	*L. corteziensis*

Family Metidae

KG 0 – characters

1. Antenna exopod
   - spine - represented by a plumose spine or seta
   - absent - exopod absent

2. P1 endopod
   - n - number of segments

3. P1 Exp-3
   - n - number of setae and/or spines

4. P2 Exp-2, inner edge
   - n - number of setae

5. P2 Enp-3
   - n - number of setae

6. P2–P4 Enp-1, inner edge
   - n:n:n - number of setae on P2, P3 and P4

KG 0

A2 Exp	P1 Enp segs	P1 Exp-3 setae	P2 Exp-2 inner setae	P2 Enp-3 setae	P2–P4 Enp-1 inner setae	
spine	3	4	0	3	0:0:0	*Laubieria tercera*
spine	3	4	1	3	1:1:1	*L. secunda*
spine	3	3	1	3	1:1:1	*L. corallicola*
spine	1	4	1	4	0:1:1	*Metis reducta*
absent	2	4	1	4	0:1:1	KG 1
absent	2	4	0	2	0:0:0	*Metis pallida*
absent	2	3	?	?	?:?:?	*M. natans*

KG 1 – characters

1. Rostrum
   - 0 - apex rounded; with 2 subapical setae but without apical spines
   - 2 - apex with 2 closely apposed stout, usually blunt spines; without subapical setae
   - 4 - apex with 4 closely apposed stout spiniform structures (see also note 2 to the key below)

2. P2–P4 Exp-3
   - n:n:n- number of setae and spines on P2, P3 and P4

3. P2–P4 Exp-2, inner edge
   - n:n:n- number of setae on P2, P3 and P4

4. P2–P4 Enp-3
   - n:n:n- number of setae on P2, P3 and P4

5. P2–P4 Enp-2, inner edge

n:n:n- number of setae on P2, P3 and P4

KG 1

Rostrum	P2–P4 Exp-3 setae	P2–P4 Exp-2 inner setae	P2–P4 Enp-3 setae	P2–P4 Enp-2 inner setae	
0	5:6:6	1:1:1	4:4:4	1:0:0	*Metis ignea* [*sensu* Lang 1948][1]
0	5:6:6	1:0:1	4:4:4	1:0:0	*M. ignea* [*sensu* Vilela 1965][1]
2	5:6:6	1:1:0	4:4:4	0:0:0	*M. holothuriae* [*sensu* Lang 1948][1]
2	5:6:6	1:0:0	4:4:4	1:0:0	*M. holothuriae* [*sensu* Vervoort 1964][1]
2	5:6:6	1:1:0–1	4:4:4	0:0:0	*M. holothuriae* [*sensu* Gurney 1927b][1, 2]
2	5:5:5	1:1:0	4:4:3	1:0:0	*M. holothuriae* [*sensu* Noodt 1955b][1]
2	5:5:6	1:1:0	4:4:4	1:0:0	*M. holothuriae* [*sensu* Sewell 1940][1]
2	?:6:?	?:1:?	?:5:?	?:1:?	*M. holothuriae* [*sensu* T. Scott 1894][1]
2	5:6:6	1:1:0	4:4:4	1:0:0	*M. holothuriae* [*sensu* Nicholls 1941b][1]
4	5:6:6	1:1:0	4:4:4	1:0:0	*M. galapagoensis*[1, 3]

1. A large amount of variation has been reported for *Metis holothuriae* and the rostrum would seem to be the only character that can be relied on to separate this species from *M. ignea.*

   However, Mielke (1989b) is uncertain that the situation is that simple and describes a further variant in this complex as *M. galapagoensis.*

   Any determination arrived at with this key must be checked against the discussion given by Mielke and with other available descriptions
2. Gurney's text indicates that P4 Exp-2 has an inner seta but his illustration does not show it.
3. Mielke's (1989b) text states that there are 4 apical structures ("hyalinen, lappenartigen Fortsätzen") on the rostrum but his illustration appears to show only 3.

Family Miraciidae

KG 0 – characters

1. Antenna exopod
   n - number of segments
   0 - exopod absent

2. P1 endopod
   n - number of segments

3. P4 endopod
   n - number of segments

4. P1 Exp-3
   n - number of setae and spines

5. P2–P4 Exp-3, outer edge
   n:n:n - number of setae and spines on P2, P3 and P4

KG 0

A2 Exp segs	P1 Enp segs	P4 Enp segs	P1 Exp-3 setae	P2–P4 Exp-3 outer setae	
3	3	3	5	3:3:3	KG 1 (p. 494)
3	3	3	5	2:3:3	*Amphiascus demersus*
3	3	3	4	3:3:3	KG 2 (p. 521)
3	3	3	4	3:3:2	*Paramphiascella brucei*, *P. aquaedulcis*[1]
3	3	3	4	2:2:3	*Bulbamphiascus angustifolius*
3	3	3	4	2:2:2	KG 3 (p. 540)
3	2	3	5	3:3:3	KG 4 (p. 541)
3	2	3	4	3:3:3	KG 5 (p. 542)
3	2	3	4	3:3:2	KG 6 (p. 546)
3	2	3	4	3:2:2	KG 7 (p. 547)
3	2	3	4	2:2:2	KG 8 (p. 548)
3	2	2	4	note 2	KG 9 (p. 548)
2	3	3	5	3:3:3	KG 10 (p. 549)
1–2	3	3	4	3:3:3	KG 11 (p. 550)
2	2–3	3	4	3:3:2	*Diosaccus varicolor*
2	3	3	4	2:3:2	KG 12 (p. 553)
2	3	3	4	2:2:2	KG 13 (p. 554)
2	3	3	3	3:3:3	*Amphiascoides walteri*
2	3	2	4	2:2:2	KG 14 (p. 563)
2	3	2	4	?:?:3	*Pseudodiosaccus propinquus*
2	2	3	5	3:3:3	*Teissierella salammboi*
2	2	3	4	2:3:2	*Pseudodiosaccopsis brunneus*

2	2	3	4	2:2:2	KG 15 (p. 563)
2	2	3	3	2:2:2	*Psammotopa trisetosa*
2	2	3	2	2:2:2	*P. biarticulata*
2	2	2	4	1:1:1	*Schizopera gauldi*
1	3	3	5	3:3:3	*Pseudamphiascopsis attenuatus*[3]
1	3	3	4	2:3:3	KG 16 (p. 566)
1	3	3	4	2:2:3	*Miracia efferata*[4]
1	3	3	4	2:2:2	KG 17 (p. 567)
1	2	3	5	3:3:3	KG 18 (p. 568)
1	2	3	4	3:3:3	KG 19 (p. 568)
1	2	3	4	2:3:3	*Diosaccus borborocetus*
1	2	3	4	2:2:2	KG 20 (p. 569)
1	2	3	3	2:2:2	KG 21 (p. 570)
1	2	3	3	1:1:1	*Psammotopa chappuisi*
1	2	3	2	2:2:2	*Protopsammotopa wilsoni*
1	2	2	4	2:2:2	*Schizoperoides expeditionis*
0	3	3	4	2:2:2	*Oculosetella gracilis*[3]
0	3	3	3	2:2:2	*Macrosetella gracilis*[3]

1. As *P. brucei* is known only from the female and *P. aquaedulcis* only from the male it is very difficult to find characters that clearly separate the species, especially as neither description is comprehensive. *P. brucei* is reported as having only 1 well developed terminal seta on the caudal ramus, and that this is relatively short and broadly spatulate, but since sexual dimorphism in the caudal ramus is known in the genus this character alone is not sufficient.
2. In these species P2–P4 Exp-3 tends to be subcircular in shape and thus it is difficult to recognise inner, outer and distal edges.
3. As *P. ismaelensis* Monard, 1936. Wells (1968) considers this a synonym.
4. Data from the redescription by Huys & Böttger-Schnack (1994), who also provide data on distribution and ecology of these holoplanktonic species. *Miracia* and *Oculosetella* are distinguished from *Macrosetella* in possessing a pair of large cuticular lenses on the cephalic shield.

KG 1 – characters

1. P2–P4 Exp-3*

   n:n:n - number of setae and spines on P2, P3 and P4

* In some genera of Miraciidae (most notably *Delavalia, Amphiascus*, *Amphiascoides*, *Haloschizopera*, *Rhyncholagena* and *Robertsonia*) the most distal inner seta of P2–P4 Exp-3 may be very thin and weak and much shorter than the proximal setae—even minute or almost vestigial. It may also be oriented so that it lies closely applied to the segment edge, or even become trapped beneath the segment so that it is difficult to see in anterior view. Any of these circumstances may have caused authors to misrepresent the true number of inner setae, e.g. as 7 when it really is 8, or 6 when 7 is the true number.

On the other hand there is no doubt that some descriptions are accurate in reporting this reduced number and thus it is difficult to know whether absence is the true situation or not—especially in older descriptions.

These facts have been taken into account in these keys but it would be wise to double check identifications in the vulnerable genera by running them through alternative KGs.

2. P2–P4 Exp-1, inner edge

   n:n:n - number of setae on P2, P3 and P4

3. P3–P4 Enp-2, inner edge
    n:n - number of setae on P2 and P4

4. Antenna Exp-2
    n - number of setae

KG 1

P2–P4 Exp-3 setae	P2–P4 Exp-1 inner setae	P3–P4 Enp-2 inner setae	A2 Exp-2 setae	
7:8:8	1:1:1	2:1	0–1	KG 1/1 (p. 495)
7:8:7	1:1:1	2:1	0	KG 1/2 (p. 500)
7:7:8	1:1:1	2:1	1	KG 1/3 (p. 501)
7:7:8	1:1:1	2:1	0	KG 1/4 (p. 502)
7:7:8	1:1:1	1:1	1	KG 1/5 (p. 504)
7:7:8	1:1:1	1:1	0	KG 1/6 (p. 509)
7:7:8	0:0:0	2:1	1	*Pholenota spatulifera*
7:7:8	0:0:0	1:1	0	KG 1/7 (p. 510)
7:7:7	1:1:1	2:1	1	KG 1/8 (p. 512)
7:7:7	1:1:1	1:1	1	KG 1/9 (p. 512)
7:7:7	1:1:1	1:1	0	KG 1/10 (p. 513)
7:7:7	0:0:0	1:1	0	KG 1/11 (p. 513)
7:6:7	0:0:0	1:1	0	KG 1/12 (p. 514)
6:7:8	1:1:1	1:1	1	*Amphiascus amblyops*
6:6:8	1:1:1	1:1	1	KG 1/13 (p. 515)
6:6:8	1:1:1	1:1	0	KG 1/14 (p. 516)
6:6:8	0:0:1	1:1	0	*Amphiascus humphriesi*[1]
6:6:7	1:1:1	1:1	1	KG 1/15 (p. 517)
6:6:7	1:1:1	1:1	0	KG 1/16 (p. 517)
6:6:7	1:1:1	1:0	0	KG 1/17 (p. 521)
6:6:7	0:0:0	1:1	0	*Robertsonia hamata*, *R. mourei*[2]
6:6:6	1:1:1	1:1	1	*Amphiascus parvus* [*sensu* Noodt 1964][3]

1. Lang (1965a) considers this a synonym of *Amphiascus parvus.*
2. Nogueira (1961) compares these closely similar species.
3. The number of setae and spines on P4 Exp-3 differs between the text (6) and illustration (7) in Noodt's description.

KG 1/1 – characters

1. Antenna Exp-2
    n - number of setae

2. P4 Exp-3, distal seta of inner edge
    wd - well developed
    sw - small and weak

3. Female antennule
    n - number of segments

4. Antennule, plumose setae
present *or* absent

5. Male P1 basis, inner spine
mod - modified; at least half as long as endopod, curved and sabre-like
not - usually not modified; if modified always short
uk - male unknown

6. Male P5
n:n - number of setae on endopod and exopod
uk - male unknown

KG 1/1

A2 Exp-2 setae	P4 Exp-3 distal inner seta	Female A1 segs	A1 plumose setae	Male P1 basis spine	Male P5 setae	
1	wd	9	absent	not	2:6	*Dactylopodamphiascopsis latifolius*
0	wd	9	absent	not	2:6	KG 1/1/1 (p. 496)
0	wd	9	absent	mod	2:6	*Amphiascopsis australis*[1]
0	wd	9	absent	uk	uk	*Amonardia magna*[1]
0–1	wd	8	absent	mod	2:5–6	KG 1/1/2 (p. 497)
0	wd	8	absent	not	2:6	KG 1/1/3 (p. 498)
0	wd	8	absent	not	2:4	*Amonardia similis*
0	wd	8	present	not	2:6	KG 1/1/4 (p. 499)
1	sw	8	absent	not	2:6	*Amphiascus minutus*[2]
0	sw	8	absent	not	2:6	KG 1/1/5 (p. 499)

1. See also KG 1/1/1.
2. Gurney (1927b) as *A. aegypticus*. See introduction to KG 1/3 (p. 501).

KG 1/1/1 – characters

1. Abdomen, ornamentation
hirsute - many rows of setules and spinules on all segments
distal - spinules present at distal edge only
naked - without ornamentation

2. Female antennule, segment 4
2 - segment 4 twice as long as segment 3
≈ - segments 3 and 4 approximately the same length

3. Female P5 endopod, outer edge
setules - a continuous row of fine setules
spinules - a continuous row of large spinules
distal - spinules in distal half only

KG 1/1/1

Abd	Female A1 seg 4/3	Female P5 Enp	
hirsute	2	setules	*Metamphiascopsis hirsutus* s. str[1]
hirsute	2	spinules	*M. hirsutus bermudae*
naked	2	naked	*M. banyulensis*[2]
distal	≈	distal	*Amphiascopsis australis*[1]
distal	≈	naked	*Amonardia magna*[2]

1. Males of *M. hirsutus* and *Amphiascopsis australis* are separated in KG 1/1.
2. The male is unknown in *M. banyulensis* and *Amonardia magna.*

KG 1/1/2 – characters

1. Caudal ramus
   - l>b - length significantly greater than breadth
   - l=b - at most as long as broad

2. P1 exopod
   - long - Exp-2 at least twice as long as Enp-3
   - short - Exp-2 less than twice as long as Enp-3

3. Female P5 exopod
   - n - ratio of maximum length to maximum breadth

4. Male P1 basis, inner spine
   - long - at least as long as Enp-1
   - short - much shorter than Enp-1

5. Antenna Exp-2
   - n - number of setae

KG 1/1/2

CR l/b	P1 Exp-2/ Exp-3	Female P5 Exp l/b	Male P1 basis spine	A2 Exp-2 setae	
l≤b	long	1.3	long	?	*Amphiascopsis cinctus*[1, 2]
l≤b	long	1–1.3	long	0	*A. cinctus*[1, 3]
l≤b	long	1–1.3	long	1	*A. cinctus*[1, 4]
l≤b	long	1.3	short	0	*A. southgeorgiensis*
l≤b	long	2	short	?	*A. corallicola*
l≤b	short	1.5	short	0	*A. thalestroides*
l>b	short	1.8	long	0	*A. angrapequensis*
l>b	short	1.8	long	1	*A. angrapequensis* [*sensu* Noodt 1964]

1. The taxonomy of *Amphiascopsis cinctus* is confused. Most authors note differences from previous descriptions and many describe variability between the specimens in their samples, for example: "The variability is extensive and affects almost all parts of the body. Different populations overlap in parts of this variation" (Wells & Rao 1987 p. 104).

   Wells & Rao also show that variability is present between individuals taken in the same littoral sediment sample and Lang (1965a) and Willey (1935) record asymmetry between right and left P5 in a single individual.

   Lang (1948, 1965a) deals with this problem by including eight species in his synonymy of *A. cinctus* while admitting that it is unknown if the specimens "represent different species, different generations, or different phaenotypes".

   Wells & Rao (1987 p. 104) summarise by stating that *A. cinctus* "can be accepted either as a virtually cosmopolitan species (absent only in the Arctic and Antarctic) with a high degree of inter-population variability or as a species complex with, at present, indefinable boundaries between the component species".

   The key literature for discussion of these issues is Lang (1965a), Noodt (1964) and Wells & Rao (1987). Excellent descriptions also are given by Hicks (1971), Ohtsuka & Iwasaki (1998) and Pallares (1970).
2. Thompson & A. Scott (1903) as *Dactylophusia ceylonica*.
3. Noodt (1964), Sewell (1940), Willey (1935).
4. All records except as in 1 and 2 above.

KG 1/1/3 – characters

1. Caudal ramus, basal part of seta V

filiform - normal plain seta
arched - outer side swollen
ellipse - both sides swollen
bag - outer side distended as a bag-shaped swelling

2. P1 Enp-1

long - Enp-1 much longer than entire exopod
medium - Enp-1 slightly longer than entire exopod
short - Enp-1 shorter than entire exopod

3. Female antennule

4 - an aesthete on segment 3
3+4 - an aesthete on segments 3 and 4

4. Female antennule segment 1, anterior surface

3 - 3 spinule rows
1 - 1 spinule row
0 - without spinule rows

5. Male P1 basis, inner side proximal to the true spine

2 - with 2 spine-like outgrowths ("nebendornen")
3 - with 3 nebendornen

6. Male P5 endopod, setae

filiform - normal plain or plumose setae
bifid - setae with bifid (or trifid or quadrifid) tips

Hicks (1986b) provides a dichotomous key to *Paramphiascopsis*.

KG 1/1/3

CR terminal	P1 Enp-1/ Exp	Female A1 aesthete	Female A1 seg1	Male P1 basis	Male P5 Enp	
filiform	long	4	3	2	bifid	*Paramphiascopsis triarticulatus*
filiform	medium	4	0	2	filiform	*P. soyeri*
filiform	medium	4	3	2	bifid	*P. ekmani*
filiform	short	4	0	2	filiform	*P. pallidus*
filiform	short	3+4	1	3	bifid	*P. waihonu*
arched	medium	4	0	3	filiform	*P. longirostris*
ellipse	long	4	0	2	bifid	*P. paromolae*
bag	long	4	0	?	filiform?	*P. giesbrechti*

KG 1/1/4 – characters

1. Mandible endopod (In *Pararobertsonia* this is a very characteristic broad, ovoid lobe)
   1 - with 1 seta only, in proximal part of inner edge
   1+4 - with 1 inner seta and 4 terminal setae

2. P1 Exp-3
   n - number of setae and spines

KG 1/1/4

Mandible Enp setae	P1 Exp-3 setae	
1	5	*Pararobertsonia abyssi*
1+4	4?	*P. chesapeakensis*[1]

1. Data on P1 from the illustration in the original description; there is no text description.

KG 1/1/5 – characters

This key deals with species of *Amphiascus*, a genus with many species for which the evidence is inconclusive as to whether the known material represents a morphologically variable species or a complex of closely similar species. The key attempts to describe the differences but in many cases these are relatively subtle and any identification must be checked against relevant descriptions in the literature.

1. Caudal ramus
   ≈ - approximately as broad as long
   < - significantly broader than long

2. P1
   short - Enp-1 only as long as exopod
   long - Enp-1 significantly longer than entire exopod

3. P1 Enp-1, ratio of length (in midline of anterior surface) to maximum breadth
   ≥6 - at least 6 times as long as broad
   <6 - less than 6 times as long as broad

4. P1

n - ratio of length of Enp-3 to Enp-2 (in midline of anterior surface)

KG 1/1/5

CR l/b	P1 Enp-1/ Exp	P1 Enp-1 l/b	P1 Enp-3/ Enp-2	
≈	long	<6	3	*Amphiascus longarticulatus*[1]
<	long	<6	3	*A. longarticulatus*[2]
<	short	≥6	3	*A. longarticulatus*[3]
<	long	≥6	1.5	*A. paracaudaespinosus*[4]

1. As *Amphiascus* sp. Wells, 1968; synonymised with *A. longarticulatus* by Bodin (1977a).
2. As redescribed by Bodin (1977a).
3. In the original description by Marcus (1974b).
4. Lang (1965a) synonymises with *A. caudaespinosus* but Marcus (1974b) disagrees.

KG 1/2 – characters

1. Female antennule

n - number of segments

2. Caudal ramus

≈ - approximately as broad as long

< - significantly broader than long

3. P1 Exp-2

n - ratio of length (in midline of anterior surface) to maximum breadth

4. P1 endopod

n - ratio of length (in midline of anterior surface) of Enp-2 + Enp-3 to length of Enp-1

5. Male P2 Enp-2

A - sub-terminally with a broad, flat extension that divides into 2 filiform structures that bend through 180°; one of these extends to the extreme proximal end of Enp-2, the other is shorter and may terminate in an arrowhead shape. Outer side with a massive modified spine originating at the extreme proximal end of the segment.

B - with 1–3 terminal and subterminal simple or plumose setae. Outer side with one thick blunt spine originating in the middle of the segment

C - terminally as B but with 2 spines originating subterminally on outer side, 1 thick and 1 slender

D - terminally with 1 long seta and a short spine. Outer side with a very short seta originating in a notch that represents the original border between the now fused second and third segments

E - terminally with 1 long, plumose seta. Outer side with 2 short, blunt spines subterminally

F - terminally without setae but with a long seta subterminal on inner side; outer side apparently with 2 highly modified spines originating in the proximal part of the segment (note that this information is inferred from the illustration by Noodt (1955b), which is difficult to interpret; there is no written description)

6. Male P5

n:n - number of setae on endopod and exopod

KG 1/2

Female A1 segs	CR l/b	P1 Exp-2 l/b	P1 Enp-2+3/ Enp-1	Male P2 Enp-2	Male P5 setae	
9	≈	≈2.5	0.15–0.20	A	2:4	*Amonardia arctica*
9	<	≥2	0.25	A	2:4	*A. subnasuta*
9	<	≥2	0.15–0.20	C	2:6	*Metamphiascopsis nicobaricus*
8	<	≈2.5	<0.15	A	2:4	*Amonardia tristanensis*
8	≈	≥2	0.15–0.20	A	2:4	*A. perturbata*
8	≈	≥2	0.40	B	2:6	*Amphiascus caudaespinosus*[1]
8	<	?	?	B	2:6	*Metamphiascopsis monardi*[2]
8	<	2.2	0.15–0.20	F	2:4	*Amonardia similis*[2]
8	≈	≥2	0.15–0.20	D	2:4	*A. phyllopus*
8	≈	≈3	0.10	E	2:4	*A. pentasetosa*[3]

1. The inclusion of *A. caudaespinosus* in this key depends on Monard's description of setation of P4 Exp-3 being correct. Lang (1948 p. 254) believed otherwise but his inference must remain conjectural until a revision of the genus is made.
2. The incomplete description of *M. monardi* makes it difficult to separate females of these two species.
3. This species may also be recognised by the extreme reduction of seta V of the female P5 exopod.

KG 1/3 – characters

Amphiascus minutus and the *minutus*-group:

Lang (1965a, p. 255) declared that "the taxonomy within the *minutus* group is a very difficult problem .... [in which] .... the determination of a specimen is pure arbitrariness". While the second part of his comment was probably a cry of despair arising from his frustration with the first part, essentially he is correct.

Part of the problem lies, as always, with incomplete and inadequate original descriptions, but in this group, and in *Amphiascus minutus* in particular, the concept of the highly variable species probably has been stretched beyond its limits.

This key takes this variability into account but as some authors present what they believe are peculiarities of their material either without describing other characteristics that are now known to be variable or without referring adequately to the source of their comparison, it will remain difficult to be entirely confident that the correct identification has been arrived at until a full revision of the group has been done.

1. P1 Enp-1*

n - approximate ratio of maximum length (in midline of anterior surface) to maximum breadth

* As these measurements have been taken from illustrations that frequently are rather small it is advisable to consider this character indicative rather than absolute.

2. Female P5

n - number of setae on endopod and exopod

na - not applicable

3. Female P5 endopod, outer distal corner

- round 1 - rounded; the corner may bear a few small spinules; origin of seta II is on the distal edge
- round 2 - rounded; origin of seta II is on inner edge
- square - square; origin of seta II is at the extreme corner
- mucro - with a small mucroniform projection
- spinulose - with 2 prominent large spinules
- na - not applicable

4. Male P5

- n - number of setae on endopod and exopod
- uk - male unknown

5. Male P5 endopod, outer distal corner

- round 1 - rounded; the corner may bear a few small spinules; seta II originates on the distal edge
- round 2 - rounded; seta II originates on inner edge
- square - square; seta II originates at the extreme corner
- mucro - with a small mucroniform projection
- uk - male unknown

KG 1/3

P1 Enp-1	Female P5 setae	Female P5 Enp	Male P5 setae	Male P5 Enp	
8	5:6	round 1	2:6	square	*Amphiascus minutus* [*sensu* Sars 1906]
?	5:6	spinulose	?	?	*A. minutus* [*sensu* Lang 1948][1]
?	?	mucro	?	?	*A. minutus* [*sensu* Lang 1948][1]
8	5:6	mucro	2:6	mucro	*A. minutus*[2]
8	5:6	mucro	uk	uk	*A. minutus* [*sensu* Brady 1880][3]
8	5:6	square	2:6	square	*A. tenuiremis* [*sensu* Mielke 1974]
8	na	na	2:6	mucro	*A. elongatus* male[4]
7	5:6	round 1	2:6	mucro	*A. minutus* [*sensu* Chislenko 1977]
7	5:6	round 1	uk	uk	*A. minutus* [*sensu* Apostolov 1972][5]
7	5:6	round 2	uk	uk	*A. minutus*[6]
7	5:6	round 2	2:6	round 1	*A. gracilis*[7]
7	5:6	?	2:6	mucro	*A. minutus* [*sensu* Pesta 1959][8]
6	5:6	square	uk	uk	*A. tenuiremis* [*sensu* Brady 1880]
6	5:6	square	2:6	square	*A. tenuiremis* [*sensu* Sars 1906]
6	5:6	round 1	2:6	mucro	*A. tenuiremis*[9]
6	5:6	round 1	2:6	mucro	*A. tenuiremis* [*sensu* Scheibel 1973][10]
6	5:6	?	2:6	mucro	*A. minutus* [*sensu* Pesta 1959][8]
6	5:7	square	uk	uk	*A. brevis*
6	4:6	round 1	2:5	round 1	*Rhyncholagena josaphatis*
6	4:6	mucro	2:5	mucro	*Amphiascus hirtus* [*sensu* Gurney 1927b][11]
6	?	?	?	?	*A. minutus* [*sensu* Drzycimski 1969][12]
5	5:6	round 1	uk	uk	*A. congener* [*sensu* Sars1909b]
5	5:6	round 1	2:6	square	*A. minutus* [*sensu* Lang 1936c]

5	5:6	round 1	2:6	round 1	*A. congener* [*sensu* Chislenko 1977]
5	5?:6	round 1	uk	uk	*A. hirtus*[11]
5	5:6	round 1	2:5	mucro	*A. hirtus*[11]
5	5:6	mucro	2:6	mucro	*A. minutus calcaratus* f. *tenuipes* Willey, 1935
5	5:6	mucro	uk	uk	*A. minutus calcaratus* f. *crassipes* Willey, 1935
5	5:6	?	?	?	*A. minutus* [*sensu* Mielke 1974]
?	5:6	round 1	2:6	mucro	*A. minutus* [*sensu* Letova 1982]

1. Lang (1948: p. 650, Abb. 262, 1c) gives illustrations of the female P5 endopod from "Sars' material" without commenting on the apparent differences from Sars' illustrations. Further, he actually provides two illustrations of the P5 that conflict with his statement. One is of the whole P5 and shows the outer corner of the endopod as 'spinulose' as defined in this key; the other is of only the apical part of P5 endopod and shows the outer corner as mucroniform.
2. As *Amphiascus parvus tenuis* Brian, 1928. It is not clear from the description whether the outer distal corner of the female P5 is minutely mucroniform or bears a small spinule.
3. Brady describes the female antennule with 9 segments [cf. 8 by Claus (1863) and all other descriptions] but firmly identifies his material with Claus's without further mention of this difference. Neither Claus nor Brady describes the antenna or the setation of P2–P4.
4. Itô (1972) gives an illustration of the male P3 in which Enp-2 bears 2 inner setae (in contrast to the female which bears only 1 seta) but he does not refer to this most unusual sexual dimorphism in his description. See KG 1/5/1 (p. 504) for the female.
5. Apostolov gives two illustrations of the female P5. One of these certainly is not *A. minutus* and thus it is impossible to attribute the males that he describes.
6. As *Amphiascus tenuiculus* Monard (see Lang, 1948).
7. According to Pallares (1968a) the distal part of the male P5 endopod is semilunar in shape; some distance from the origin of seta II is a small mucroniform projection.
8. Pesta describes variability in P1.
9. As *Amphiascus minutus* sp. 1, Lang, 1965, which Mielke (1974) places in the synonymy of *A. tenuiremis.* The outer distal corner of the female P5 endopod is very wide. Lang notes considerable variation in the P4 Exp-3, where the weak, distal inner seta may be present or absent—sometimes differing between the pair in a single individual.
10. Scheibel (1973) redescribes *Amphiascus graciloides trisetatus* Klie, 1950 and places it in the synonymy of *Amphiascus minutus* sp. 1 Lang , 1965a (and thus into *A. tenuiremis*—see note 9 above).

    Lang (1965a) declared this subspecies to have no standing as it is based on a developmental abnormality in the male P2 endopod. Scheibel (1973) reaffirms that this abnormality occurs in a large proportion of the males.

    However, while this is most unusual—and probably shows the "abnormality" has a stronger genetic foundation than such features usually have—it has not yet been demonstrated that it represents a separate taxon from the nominate subspecies.

    Thus it is *A. graciloides* as a whole that must sink into the synonymy of *A. tenuiremis.*
11. Three authors have described *Amphiascus hirtus*. According to Gurney (1927b) the antenna Exp-2 is "very small and indistinct" (but he does not state whether or not it bears a seta) and the female P5 endopod has 4 long setae and a very small mucroniform projection of the outer distal corner; in the male this projection is larger than that of the female, but is still small.

    Lang (1934) does not mention the antenna and illustrates the female P5 endopod with 4 long setae and a very long spinule (or short seta?) at the outer distal corner; he did not find the male.

    Vervoort (1964) clearly states that antenna Exp-2 bears a seta; that the outer distal corner of the female P5 endopod bears a "spiniform seta" which is longer than that illustrated by Lang; the male P5 endopod bears a prominent spinule at the outer distal corner.
12. Drzyzcimski does not fully describe his material, nor state his point of reference for identification—but it probably is Sars (1906).

KG 1/4 – characters

See introduction to KG 1/3 (p. 501)

1. Rostrum, in dorsal view

    tri/round - approximately triangular; apex rounded tri/acute - approximately triangular; apex extremely finely pointed

flask - flask shaped; bulbous proximally then tapering to an extremely fine point

2. Caudal ramus

≈ - approximately as broad as long; inner and outer edges straight or slightly convex

<< - much broader than long; inner and outer edges straight or slightly convex

rect - rectangular; approximately 1.5 times as long as broad; inner and outer edges straight

bulb - approximately as long as broad but almost globular in shape; densely hirsute

ridge - longer than broad, tapering from middle to apex; with a dorsal ridge

3. P1 endopod, ratio of length (in midline of anterior surface) of segment 3 to segment 2

≈ - segment 3 approximately equal to segment 2

≈1.5 - segment 3 approximately 1.5 times as long as segment 2

≥2 - segment 3 at least twice as long as segment 2

4. Female P5

n - number of setae on endopod and exopod

na - not applicable

5. Male P5

n - number of setae on endopod and exopod

uk - male unknown

na - not applicable

KG 1/4

Rostrum shape	CR	P1 Enp-3/ Enp-2	Female P5 setae	Male P5 setae	
tri/round	≈	≈	5:6	2:6	*Amphiascus caudaespinosus*[1]
tri/round	≈	≥2	5:6	uk	*A. ultimus*[2]
tri/round	<<	≈	5:6	?	*A. minutus* [*sensu* Vervoort 1964][3]
tri/round	<<	≈1.5	4:6	2:5	*A. hirtus* [*sensu* Gurney 1927b][4]
tri/round	?	?	4?:6	uk	*A. hirtus* [*sensu* Lang 1934][4]
tri/round	<<	≈	na	2:5	*A. discrepans* male
tri/round	ridge	≈	5:6	na	*A. discrepans* female
tri/acute	<<	≥2	5:5	uk	*Rhyncholagena profondorum*
flask	bulb	≈1.5	5:6	3:6	*R. pestai* [*sensu* Monard 1935a]
flask	bulb?	?	5:6	3:5	*R. pestai* [*sensu* Bodin 1964]
flask	rect	≥2	5:6	uk	*R. pestai americana*

1. The inclusion of *A. caudaespinosus* in this key depends on Monard's (1937b) description of setation of P4 Exp-3 being wrong, as believed by Lang (1948).
2. The inclusion of *A. ultimus* in this key depends on accepting Lang's (1948) query of Monard's (1928) description of antenna exopod as 2-segmented. Lang gives no reasons for his doubt.
3. Vervoort describes two variants of *A. minutus*; this codon identifies the female from Loc. 594—the male is not described. See also KG 1/8 (p. 512).

4. Three authors have described *Amphiascus hirtus*. According to Gurney (1927b) the antenna Exp-2 is "very small and indistinct" (but he does not state whether or not it bears a seta) and the female P5 endopod has 4 long setae and a very small mucroniform projection of the outer distal corner; in the male this projection is larger than that of the female, but is still small.

   Lang (1934) does not mention the antenna and illustrates the female P5 endopod with 4 long setae and a very long spinule (or short seta?) at the outer distal corner; he did not find the male.

   Vervoort (1964) clearly states that antenna Exp-2 bears a seta; that the outer distal corner of the female P5 endopod bears a "spiniform seta" which is longer than that illustrated by Lang; the male P5 endopod bears a prominent spinule at the outer distal corner.

KG 1/5 – characters

1. P2–P4 Enp-3
   n:n:n - number of setae on P2, P3 and P4

2. P1, relative length of exopod to Enp-1
   short - exopod extends at most to about ¾ the length of Enp-1
   long - exopod extends at least to the end of Enp-1

3. P1 endopod, relative length of segment 2 + segment 3 to segment 1 (in midline of anterior surface)
   short - segments 2+3 at most half as long as segment 1
   long - segments 2+3 at least half as long as segment 1

KG 1/5

P2–P4 Enp-3	P1 Exp/ Enp-1	P1 Enp-2+3/ Enp-1	
4:6:5	short	short	KG 1/5/1 (p. 504)
4:5:5	short	short	*Amphiascus gauthieri* [*sensu* Pallares 1968a]
?:?:4	short	short	*Bulbamphiascus imus* [*sensu* Brady 1880][1]
4:5:4	long	long	KG 1/5/2 (p. 507)

1. The measurements of P1 are taken from Brady's rather imprecise illustrations and must be treated with caution. But even if Brady's illustrations are only approximate, the difference from other descriptions of this species (or of other forms attributed to it by subsequent revisers) is striking. Mu & Gee (2000) provide an excellent redescription of *B. imus* based on neotypes from a location close to the type locality. This confirms that Brady's 1880 material is unlikely to be *B. imus*. Lang (1948) has already shown the male to be that of *Amphiascus varians*. See also notes to KG 1/5/2 (p. 507).

KG 1/5/1 – characters

The species in this key all belong to the *varians*-group of *Amphiascus*. Hicks (1989) has given an excellent review of this group but species differentiation still suffers from the problems caused by inadequate descriptions (by modern standards) and thus from uncertainties about the limits of intraspecific variation. It is particularly difficult to separate males. These uncertainties are reflected in this key.

It is probable that the ornamentation of the abdomen will prove to be a most crucial character in species differentiation, but this is as yet unknown in detail for most species—especially in the males—and its intrapopulation variability has not been investigated. Any identification indicated by this key should be checked against Hicks' (1989) discussion.

1. Female P5

    n:n - number of setae on endopod and exopod

2. Abdomen ornamentation*

    x:x - for female and male, where x represents one of the following states

    uk - unknown

    A - abdomen without rows or groups of spinules or setules; hyaline frill usually simple

    B - ornamentation confined to a circumsomitic row of long fine setules proximally on somites 3–4

    C - spinules present in short rows or small groups lateral and dorsolateral on somites 1–4

    D - spinules present in short rows or small groups lateral and dorsolateral on somites 1–3; somite 4 with lateral group only

    E - spinules present in short , very dense rows or small groups lateral and dorsolateral on somites 1–3; lateral and ventrolateral on somite 4

    F - spinules present in short rows or small groups lateral and dorsolateral on somites 1–3; somite 4 naked

    G - spinules present in very short rows or small groups lateral and dorsolateral on somites 1–2; somite 3 with small groups of spinules dorsolateral, lateral and ventrolateral; somite 4 naked

    H - spinules present very sparsely; in short rows or small groups lateral and dorsolateral on somites 1–2; lateral only (sometimes only 1 or 2 spinules) on somites 3–4

    I - fine spinules present as a continuous ventral row on somites 1–2 but with a midventral gap on somite 3; somite 4 naked?

    J - as F but with an additional ventral row on somites 2–3

    K - spinules confined to a weak ventral row on somite 1

    L - spinules present as continuous rows—from lateral to lateral across dorsum on somite 1; from lateral to lateral across venter on somite 2; ventrolateral and ventral on somite 3; confined to ventral on somite 4

* In addition to the patterns listed above, the last segment always has spinules at its distal edge.

3. Female P5 exopod

    A - a deep cleft exists between setae II and III but origin of both setae is at distal edge of exopod

    B - a deep cleft exists between setae II and III but origin of seta II is much more distal than that of seta III

    C - at most the cleft between setae II and III is very small

4. Male P5

    n:mucro:n - number of setae on endopod: outer distal corner of endopod a mucroniform projection: number of setae on exopod

    n:spine:n - number of setae on endopod: outer distal corner of endopod with an obvious spiniform seta: number of setae on exopod

    n:spine?:n - number of setae on endopod: outer distal corner of endopod with a very small spiniform seta (possibly this is only the most distal spinule of the row that clothes the outer edge?): number of setae on exopod

    uk - male unknown

KG 1/5/1

Female P5 setae	Abdomen	Female P5 shape	Male P5 setae	
5:6	A:uk	A	uk	*Stenhelia perplexa*[2]
5:6	A:uk	C	uk	*A. gauthieri* [*sensu* Monard 1936]
5:6	A:K	C	3:spine:5	*A. tenellus* [*sensu* Noodt 1964]
5:6	B:uk	B	2:mucro:5	*A. dentiformis*[3]
5–6:6	C:I	C	2:mucro:6	*A. elongatus*[4]
5:6	D:uk	A	3:spine:5	*A. propinqvus* [*sensu* Hicks 1989][1]
5:6	E:uk	B	uk	*A. angustipes* [*sensu* Thompson & A. Scott 1903][1]
5:6	E:uk	B	2:mucro:4	*A. angustipes* [*sensu* Gurney 1927][1, 5]
5:6	E?:uk	A	2:mucro:4–5	*A. angustipes* [*sensu* Willey 1930][1, 6]
5:6	E:uk	A	3:spine:5	*A. angustipes* [*sensu* Monard 1928][1]
5:6	E:L	B	2:mucro:4	*A. angustipes* [*sensu* Vervoort 1962][1, 7]
5:6	F:uk	C	2:mucro:5	*A. lobatus*
5:6	F:J	C	2:mucro:5	*A. tainui*
5:6	G:uk	C	2?:spine?:5	*A. polaris*
5:6	H:uk	C	3:spine:5	*A. tenellus*[8]
5:6	uk:uk	C	uk	*A. profondus*[9]
5:5	F:uk	B	3:spine:5	*A. varians*

1. Hicks (1989) rejects the concept that *Amphiascus propinqvus* Sars and *A. angustipes* Gurney are synonymous (Wells 1968; Wells & Rao 1987). Hicks' opinion is accepted here but it remains difficult to decide where to place some of the records of both species and I have retained the opinion of Lang (1948) on this. Note that both Noodt (1955c, as *A. angustipes*) for *A. propinqvus* and Monard (1928) for *A. angustipes* give illustrations of P4 Exp-3 that indicate that the small, weak, distal inner seta characteristic of all other descriptions of these and other species in the group is absent. It is assumed here that this is a failure of observation.
2. Considered now as *incertae sedis* in the *varians*-group of *Amphiascus.*
3. *Amphiascus dentiformis* may also be recognised by the spur on antennule segment 1.
4. There is considerable variation in the female P5, including individuals that have 5 setae on the right endopod and 6 on the left (Itô 1972). It is not clear from Itô's description whether the male abdominal ornamentation quoted here replaces the female pattern or is additional to it. *Amphiascus elongatus* is much larger (1.3 mm female, 1.14 mm male) than other species in this key (0.6–0.7 mm). See also KG 1/1 (p. 495).
5. According to Gurney (1927b) the antenna exopod is "two-jointed, with three setae". As antenna Exp-2 in *Amphiascus* is always very small it is possible he failed to observe a minute middle segment. But with a total of only 3 setae on the ramus, a middle segment is likely to be asetose. Gurney's record is included in this key because other reports of the species do describe a 3-segmented antenna exopod with 1 seta on segment 2 (notes 5 and 6).
6. As *Amphiascus propinqvus*; Willey states that antenna Exp-2 has a seta in the female but is asetose in the male.
7. Vervoort failed to gain a satisfactory preparation of the antenna but he provides illustrations of the whole female and male that suggest Exp-2 is asetose.
8. Abdominal ornamentation after Hicks (1989). Sars (1906) describes the male P5 endopod as having "three unequal spines". His illustration shows the outermost spine is extremely small and Lang (1948) ignores it and considers that there are only 2 setae on the endopod.
9. At 0.37 mm *A. profondus* is much smaller than the other species in this key.

KG 1/5/2 – characters

1. Female P5

uk - female unknown

A - endopod with 5, Exp with 5 setae: exopod with outer distal corner transformed to a massive unguiform projection at 90° to the long axis of exopod

- B - endopod with 4, exopod with 6 setae: exopod seta IV very short, bulbous base steeply tapering to a very fine point; seta V plain, filiform
- C - endopod with 5, exopod with 6 setae: exopod seta IV very short, bulbous at the base and with a steep taper to a very fine point; seta V plain, filiform
- D - endopod with 5, exopod with 6 setae: exopod seta IV very short, bulbous at the base and with a steep taper to a very fine point; seta V plain, spinulose
- E - endopod with 5, exopod with 6 setae: exopod seta IV with a broad but not bulbous base and with a relatively long and shallow taper to the pointed apex; seta V plain, filiform
- F - endopod with 5, exopod with 6 setae: exopod setae IV and V with a broad but not bulbous base and with a relatively long and shallow taper to the pointed apex
- G - endopod with 5, exopod with 6 setae: exopod setae IV and V plain, filiform
- H - endopod with 5, exopod with 6 setae: exopod setae IV plain, filiform; seta V weakly spinulose
- I - endopod with 5, exopod with 6 setae: All setae of endopod and exopod short, approximately the same length (except for endopod I) and heavily spinulose (except for exopod II–III).

2. Male P5

- uk - male unknown
- A - endopod with 2, exopod with 4 setae: exopod with outer distal corner a massive unguiform projection (the transformed seta IV?) parallel to the long axis of exopod
- B - as A but with a small dentiform projection at the external base of the terminal unguiform projection
- C - endopod with 2, exopod with 5 setae: exopod with a broad externally directed unguiform projection (the transformed seta IV?) at outer distal corner; the seta at its external base very small
- D - endopod with 2, exopod with 5 setae: exopod seta IV a short but massive blunt spine
- E - endopod with 2, exopod with 6 setae: exopod seta IV very short, bulbous at the base and with a steep taper to a very fine point; seta V plain, filiform
- F - endopod with 2, exopod with 6 setae: exopod seta IV very short, bulbous at the base and with a steep taper to a very fine point; seta V with a broad but not bulbous base and with a relatively long and shallow taper to the pointed apex
- G - endopod with 2, exopod with 6 setae: exopod seta IV with a broad but not bulbous base and with a relatively long and shallow taper to the pointed apex; seta V plain, filiform
- H - endopod with 2, exopod with 6 setae: exopod seta IV plain, filiform; seta V spinulose
- I - endopod with 2, exopod with 6 setae: exopod setae IV and V spinulose
- J - endopod with 2, exopod with 6 setae: exopod setae IV and V very short, thick—seta IV more or less tubular—and with a short very fine “hair” at the tip.
- K - endopod with 2, exopod with 7 setae: exopod setae IV and V spinulose

3. Antennule, segment 2, distal spur

present *or* absent

4. P1 exopod, length relative to endopod

- 3 - exopod extends well into proximal half of Enp-3
- ≈2 - exopod extends approximately to the end of Enp-2
- 1.5 - exopod extends to about halfway along Enp-2
- ≈1 - exopod extends approximately to the end of Enp-1

5. Male P1 basis, inner side proximal to the true spine

1 - with a simple spiniform outgrowth (“nebendorn”)

2 - with a bifid nebendorn

uk - male unknown

KG 1/5/2

Female P5	Male P5	A1 seg 2 spur	P1 Exp/ Enp	Male P1 Basis	
B	A	absent	≈1	1	*Bulbamphiscus chappuisi*
B	uk	absent	?	uk	*B. imus* [*sensu* Wells & Rao 1987][1]
D	uk	absent	≈1	uk	*B. imus*[1, 2]
D	uk	absent	1.5	uk	*B. imus* [*sensu* Monard 1928][1]
D	D	absent	≈1	?	*B. imus* [*sensu* Bodin 1964][1]
D	E	present	≈2	?	*B. denticulatus*
E	A	absent	≈1	1	*B. incus*
E	C	absent	≈1	1	*B. incus*, *B. scilloniensis*[3]
E	E	absent	≈2	1	*B. imus* [*sensu* Mu & Gee 2000][1]
F	G	absent	≈2	1	*B. spinulosus*
F	uk	absent	≈1	uk	*B. imus* [*sensu* T. Scott 1895][1]
F	uk	absent	1.5	uk	*B. imus* [*sensu* Dinet 1971][1, 4]
F	F	absent	?	?	*B. imus* [*sensu* Willey 1930][1]
G	I	absent	≈2	1	*B. plumosus*
H	J	absent	≈2	1	*B. cibimae*
I	uk	absent	≈2	uk	*B. angustifolius*[5]
J	H	absent	3	1	*Sinamphiascus dominatus*
uk	B	absent	≈1	2	*B. inermis*[6]

1. Notes on *Bulbamphiascus imus*:
   (i) Mu & Gee (2000) provide an excellent redescription based on neotypes from a location close to the type locality.
   (ii) *Bulbamphiascus imus* (and forms assigned to it—see Lang 1948) has been reported from littoral or shallow sublittoral habitats worldwide except for polar regions (Wells & Rao 1987). Prior to Mu & Gee’s (2000) redescription the species had not been well described and the several descriptions show considerable variation in at least the proportions of the components of P1 and P5. It is difficult to assess how much of this may be due to inaccuracies of interpreting small or otherwise inadequate illustrations and how much may represent real variation.
   (iii) Mu & Gee (2000) also describe 2 new species that they differentiate from *B. imus* on small morphometric characteristics and on somitic ornamentation. Since all earlier descriptions—of *B. imus* and most other species of the genus—give insufficient information on ornamentation it is impossible to be certain of the distribution of *B. imus*.
   (iv) Norman & Scott (1906, as *Stenhelia longirostris*) give illustrations of P4 Exp-3 in which the small, weak distal inner seta characteristic of all other descriptions of the species is absent. It is assumed here that this is a failure of observation.
2. *Sensu* Norman & Scott (1906), Sars (1911), and Monard (1936).
3. These species can only be distinguished on ornamentation of the urosome and by their ecology; see Gee (2005).
4. This form also can be recognised by the comparatively long P5 endopod female, which extends almost to the end of the exopod (in other forms it is between 0.5 and 0.75 of the exopod length).
5. Wells & Rao (1987) synonymise *B. angustifolius* with *B. imus*. This is probably incorrect. See Checklist Note 116 (p. 87).

6. Wells & Rao (1987) synonymise *Amphiascus inermis* with *B. imus*. This is almost certainly incorrect. See Checklist Note 116 (p. 87).

KG 1/6 – characters

1. P2 Enp-2, inner edge
   n - number of setae

2. P1 Enp-1
   >> - extends far beyond end of entire exopod
   ≈ - extends approximately to the end of the entire exopod
   mid 3 - extends to about the middle of Exp-3
   end 2 - extends only to about the end of Exp-2
   <2 - does not extend to the end of Exp-2

3. Rostrum, in dorsal view
   needle - apical portion very narrow, terminating in a very fine point
   blunt - apical portion narrow or broad but always rounded at tip

4. Female antennule
   n - number of segments

5. Male P5
   n:n - number of setae on endopod and exopod
   uk - male unknown

Fiers (1996a) provides a dichotomous key to *Robertsonia.*

KG 1/6

P2 Enp-2 inner setae	P1 Enp-1/ Exp	Rostrum	Female A1 segs	Male P5 setae	
2	>>	needle	8	3:6	*Rhyncholagena pestai* [*sensu* Por 1964a]
2	>>	blunt	8	2:4–5	*Amphiascus angustipes*[1]
1	≈	blunt	5(–6?)	2:6	*Robertsonia propinqua*[2]
1	≈	blunt	5	uk	*R. barnesi*[3]
1	end 2	blunt	5	2:6	*R. glomerata*
1	end 2	blunt	6?	2:6	*R. knoxi* [*sensu* Sewell 1940][4]
1	mid 3	blunt	5(–6?)	2:6	*R. salsa*, *R. knoxi*[5]
1	<2	blunt	5	2:6	*R. tenuis kielensis*

1. Vervoort and Willey; see KG 1/5/1 (p. 504).
2. Wells & Rao (1987) review the several descriptions of this species. *R. propinqua* may also be distinguished from the other species in this key by the very dense nature of the ornamentation of the abdomen with spinules.
3. *Robertsonia barnesi* is included in this key because it is possible that P4 Exp-3 has 3 inner setae, although the distal seta is extremely small and very difficult to observe (Hamond 1973d). See note 2 for other means of distinguishing *R. barnesi* from *R. propinqua*.

4. The distal inner seta of P4 Exp-3 is "very minute" (Sewell 1940).
5. A great deal of confusion surrounds these apparently sympatric species, which are considered synonymous by Gurney (1927b) but separate by Por (1973). The original descriptions of both are incomplete and the situation is made more difficult by what appear to be discrepancies between the original and subsequent descriptions. Before making a decision it is necessary to consult Gurney (1927a, b) and Por (1973).

KG 1/7 – characters

1. P1 endopod, segments 2 and 3

    < - both segments broader than long

    ≈ - both segments about as long as broad

2. P1, relative length of exopod to Enp-1

    short - exopod extends to about the middle of Enp-1

    medium - exopod extends well into the distal half of Enp-1

    long - exopod longer than Enp-1

3. P1 Enp-1

    normal - inner edge approximately straight; outer edge without transverse striae

    striate - inner edge convex; outer edge with transverse striae along entire length

4. Female P5 endopod, setae

    equal - all setae approximately the same length; all filiform

    I–III <IV>V - setae I–III approximately the same length but shorter than seta IV and longer than seta V; all filiform

    I–II bifid<III–V - setae I–II bifid and shorter than setae III–V

Fiers (1996a) provides a dichotomous key to *Robertsonia.*

KG 1/7

P1 Enp l/b	P1 Exp/ Enp-1	P1 Enp-1	Female P5 Enp setae	
<	short	striate	I–II bifid<III–V	*Robertsonia curtisii*
<	medium	normal	I–II bifid<III–V	*R. robusta*
≈	medium	normal	equal	*R. angolensis* [*sensu* Bodin 1964][1]
>	long	normal	I–III<IV>V	*R. diademata*

1. *Robertsonia angolensis* only appears in this key because Bodin found females with 3 setae on the inner edge of P4 Exp-3 (the distal seta being small and weak, as is usual). While it seems most likely that Monard (1934) failed to observe this seta, the setation of P2–P4 remains problematical. Monard states that the P2–P4 Enp-3 have 4, 4 and 5 setae respectively (and illustrates P2 and P3). The otherwise universal setation in *Robertsonia* is 4, 6, 5 (see Fiers 1996a).

    Lang (1948: p. 630) refused to believe Monard's data and arbitrarily records 4, 6, 5 in his table of setation. He attempts to explain this by suggesting Monard confused P3 and P4 but this alone cannot explain the difference, as none of the endopod setae in this genus are so small or weak that they are likely to be overlooked. Bodin (1964) does not describe these appendages for his material.

KG 1/8 – characters

1. P1 endopod, segments 2 and 3
   - short - both segments broader than long; approximately equal in length
   - long - segment 2 about as long as broad; segment 3 considerably longer than broad; segment 3 about twice as long as segment 2

2. Female P5 endopod, setae
   - equal - all setae approximately the same length
   - IV> - seta IV longer than the others

3. FemaleP5 exopod, longest setae
   - III - seta III longer than all others, which are approximately the same length
   - II–III - setae II–III at least twice as long as all others, which are approximately the same length

4. Female P2, relative length of endopod and exopod
   - long - endopod at least as long as exopod
   - short - endopod distinctly shorter than exopod

KG 1/8

P1 Enp l/b	Female P5 Enp setae	Female P5 Exp setae	Female P2 Enp/Exp	
short	IV>	III>	Enp<Exp	*Amphiascus minutus* [*sensu* Vervoort 1964][1]
long	equal	II–III>	Enp=Exp	*A. tenuiremis*[2]

1. Vervoort describes two variants of *A. minutus*; this codon identifies the female from Loc. 591—the male is not described. See also KG 1/4 (p. 502).
2. As *Amphiascus minutus* sp. 1, Lang, 1965a, which Mielke (1974) places in the synonymy of *A. tenuiremis.* Lang notes considerable variation in the P4 Exp-3, where the weak distal inner seta may be present or absent—sometimes differing between the pair in a single individual.

KG 1/9 – characters

1. P1 Exp-2, inner edge
   - n - number of setae

2. P3 Enp-3
   - n - number of seta

3. Female P5
   - n:n - number of setae on endopod and exopod

4. Male P5
   - n:n - number of setae on endopod and exopod

KG 1/9

P1 Exp-2 inner setae	P3 Enp-3 setae	Female P5 setae	Male P5 setae	
1	6	5:6	2:4	*Mesamphiascus ampullifer*[1]
0	5	5:5	2:5	*Robertgurneya intermedia*[2]

1. Considered now as *incertae sedis* in the *varians*-group of *Amphiascus.*
2. Considered now as a species *incertae sedis* in *Amphiascus* that cannot be included in any of Lang's (1948) species groups.

KG 1/10 – characters

1. Abdomen, ornamentation with spinules

distal - restricted to distal edge of somites

general - present at distal edge and as several rows on the body of the somites

2. P1 Enp-1, length relative to exopod

≈Exp-2 - Enp-1 extends to the end of Exp-2 or slightly beyond

≈Exp-3 - Enp-1 extends approximately to the end of Exp-3

3. P1 Enp-1, inner seta

long - extending beyond the end of Enp-3

short - not extending to the end of Enp-2

Fiers (1996a) provides a dichotomous key to *Robertsonia.*

KG 1/10

Abd orn	P1 Enp-1/ Exp	P1 Enp-1 inner seta	
distal	≈Exp3	?	*Robertsonia barnesi*
general	≈Exp3	long	*R. propinqua* [*sensu* Candeias 1959)
general	≈Exp2	short	*R. knoxi* [*sensu* Gurney 1927][1]
?	≈Exp2	s hort	*R. knoxi* [*sensu* Marinov 1971]

1. Gurney's (1927b) "Form B". "Form A" is treated in these keys as *R. salsa* (see KG 1/6 p. 509).

KG 1/11 – characters

1. P1 Enp-1, length relative to exopod

<Exp-2 - Enp-1 does not extend to the end of Exp-2

≥Exp-2 - Enp-1 extends to the end of Exp-2 or slightly beyond

<Exp-3 - Enp-1 extends to the distal half of Exp-3

≥Exp-3 - Enp-1 extends at least to the end of Exp-3

2. P1 Enp-1, ratio of maximum length to maximum breadth (in midline of anterior surface)
   ≤2 - at most twice as long as broad
   ≈3 - approximately 3 times as long as broad

3. P1 Enp-3, length relative to Enp-2
   ≈1 - Enp-3 approximately 1–1.3 times as long as Enp-2
   ≥2 - Enp-3 at least twice as long as Enp-2

4. P1 Enp-1, length relative to Enp-2
   n - ratio of length Enp-1 to length of Enp-2 (in midline of anterior surface)

5. Female P5
   n:n - number of setae on endopod and exopod

Fiers (1996a) provides a dichotomous key to *Robertsonia.*

KG 1/11

P1 Enp-1/ Exp	P1 Enp-1 l/b	P1 Enp-3/ Enp-2	P1 Enp-1/ Enp-2	Female P5 setae	
≥Exp2	≤2	≈1	1–1.5	5:6	*Robertsonia tenuis* s. str.
<Exp2	≤2	≈1	1–1.5	5:5	*R. tenuis* [*sensu* Sars 1909a]
<Exp3	≈3	≈1	≈2.5	5:6	*R. celtica* [*sensu* Monard 1935]
<Exp3	≤2	≈1	1–1.5	5:6	*R. diademata*
≥Exp3	≈3	≈1	4–4.5	5:6	*R. angolensis*
≥Exp3	≈3	≥2	≈6	5:6	*R. irrasa*

KG 1/12 – characters

The species of *Robertsonia* in this key are distinguished by the absence of a reduced seta on the distal part of P3–P4 Exp-3.

For many species of this family such a feature may have to be treated with caution (see cautionary note to KG 1 p. 494), but perhaps not for those in this key. With the exception of Brady's (1880) original description of *R. tenuis* authors provide sufficiently good text and illustrations to make it most probable the condition is genuine.

1. P1 Enp-1, length relative to exopod
   short - Enp-1 extends to the distal half of Exp-3 at most
   long - Enp-1 1.5–2 times as long as the entire exopod

2. P1 endopod, segments 2–3 together
   A - longer than broad; longer than Enp-1
   B - longer than broad; about as long as Enp-1
   C - longer than broad; about half the length of Enp-1
   D - broader than long, very short; Enp-1 at least 5 times as long as Enp-2+Enp-3

3. P2–P4 Enp-1, inner edge
   n:n:n - number of setae

4. P4 Enp-3
n - number of setae and spines

Fiers (1996a) provides a dichotomous key to *Robertsonia.*

KG 1/12

P1 Enp-1/ Exp	P1 Enp segs 2–3	P2–P4 Enp-1 inner setae	P4 Enp-3 setae	
short	A	?:0:?	?	*Robertsonia tenuis* [*sensu* Brady 1880]
short	B	1:1:1	5	*R. celtica* [*sensu* Roe 1958]
long	C	1:1:1	5	*R. adduensis*
long	D	1:1:1	5	*R. monardi*
long	D	1:0:0	4	*R. flavidula*

KG 1/13 – characters

1. P1, relative length of exopod to Enp-1
short - exopod extends to about the middle of Enp-1
long - exopod extends well into the distal half of Enp-1

2. P2–P4, relative length of endopod and exopod
long - endopod extends to at least the end of the exopod
short - endopod does not reach the end of exopod

3. Antenna Exp-3
present - lateral seta present in proximal half
absent - without proximal lateral seta

4. Female P5 exopod
broad - a broad oval, approximately 1.6 times as long as broad
elongate - an elongate oval, approximately 2.7 times as long as broad
taper - approximately 1.3 times as long as broad; distal half tapers to apex; proximal half with approximately straight sides

5. Female P5, outer distal portion of basis
plain - a plain, tubular pedestal with terminal seta
unguiform - terminates in an unguiform projection; seta sub-terminal, internal

KG 1/13

P1 Exp/ Enp-1	P2–P4 Enp/ Exp	A2 Exp-3 inner seta	Female P5 Exp	Female P5 basis	
short	short	present	elongate	unguiform	*Amphiascus parvus* [*sensu* Rouch1962]
long	short	present	broad	plain	*A. parvus* [*sensu* Noodt 1964][1]
long	short	absent	taper	plain	*A. pacificus*
long	long	present	broad	plain	*A. sinuatus*

1. See KG 1 note 3 (p. 495).

KG 1/14 – characters

1. Rostrum, in dorsal view
   - needle - biconvex; apical portion terminating in a very fine point
   - blunt - triangular, with sides approximately straight; apical portion rounded at tip

2. Female P2 Enp-2, inner edge
   - n - number of setae

3. Female P5 exopod, setules on inner and outer edge
   - setules present on *inner* or *outer* or on *both* edges

4. Female P5 exopod, relative length of setae III–IV
   - <Exp - setae very short, not reaching end of the exopod
   - >Exp - setae long, extending well beyond exopod
   - mixed - seta III extends well beyond exopod; seta IV extends only to about the end of exopod

5. Male P5 endopod, relative length of setae
   - long - seta II is more than half the length of seta I
   - medium - seta II is about as long as seta I
   - short - seta II is less than half the length of seta I

KG 1/14

Rostrum	Female P2 Enp-2 inner seta	Female P5 Exp setules	Female P5 Exp setae III–IV	Male P5 Enp seta II/I	
needle	1	both	<Exp	long	*Rhyncholagena levantina*
blunt	2	outer	>Exp	uk	*Amphiascus parvus* [*sensu* Sars 1906, Ueda & Nagai 2005]
blunt	2	both	>Exp	short	*A. kawamurai*
blunt	2	both	mixed	medium	*A. parvus* [*sensu* Monard, 1926b 1928]
blunt	2	inner	>Exp	?	*A. parvus* [*sensu* Yeatman 1970]
blunt	2	both	>Exp	long	*A. undosus*[1]

1. In *A. undosus* caudal ramus seta V has a misshapen base. Lang (1965a) distinguishes *A. undosus* also on the P5 female—presumably mainly on the form of the hyaline field—but it is uncertain how stable such characters as these two are. There are many examples in the harpacticoid literature of both stability and lability within what can reasonably be presumed to be a single population.

KG 1/15 – characters

1. P1 Exp-2, inner edge
   - n - number of setae

2. P3 Enp-3
   - n - number of setae and spines

3. Female P5

A - exopod with straight sides, sub-rectangular, about 1.8 times as long as broad; exopod extends beyond endopod

B - exopod with convex sides, sub-ovoid, about 1.4 times as long as broad; exopod extends to the end of endopod

KG 1/15

P1 Exp-2 inner setae	P3 Enp-3 setae	Female P5	
1	5	A	*Bulbamphiascus minutus*[1]
0	6	B	*Amphiascus parvus* [*sensu* Noodt 1964][1, 2]

1. Male unknown.
2. See KG 1 note 3 (p. 495).

KG 1/16 – characters

The taxonomy of *Typhlamphiascus* is confused. The last major reviewer (Por 1963) concluded that *T. confusus* is a widespread highly variable species with three identifiable "races". This opinion was rejected by Lang (1965a).

Lang believed the evidence was strongly in favour of several distinct species but that Por had presented his data in such a way that this could not be conclusively demonstrated. He pleaded for a "more penetrating examination of Por's types", which should include a thorough comparison of the mouthparts.

This has not been done but Por (1968b) extends the concept of intraspecific variability to *T. latifurca* and Por (1967) and Moore (1976b) extend the variability of the *T. confusus* complex.

The situation is now so complex that it cannot be fully taken into account in these keys and it is essential that any identification (particularly of *T. confusus* and other species in KG 1/16/1 and 1/16/2) be checked against relevant descriptions.

1. P3–P4 Enp-3

n:n - number of setae and spines on P3 and P4

2. P1, relative length of exopod to endopod

short - exopod much shorter than Enp-1

medium - exopod extends to about the end of Enp-1

long - exopod extends to about the end of Enp-2

3. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

4. Female P5

n:n - number of setae on endopod and exopod

5. Male P5

n:n - number of setae on endopod and exopod

uk - male unknown

KG 1/16

P3–P4 Enp-3 setae	P1 Exp/Enp	CR l/b	Female P5 setae	Male P5 setae	
6:5	short	<2	5:6	3:5	*Rhyncholagena lagenirostris*, *R. spinifer*[1]
5:5	short	2–3	5:6	2:6	*Typhlamphiascus bouligandi*[2]
5:5	short	<2	5:5	uk	*T. dentipes*[3]
5:5	medium	2–3	5:6	2:6	*T. lutincola*
5:5	medium	<2	5:6	uk	*T. lamellifer capensis*
5:5	medium	<2	5:5	2:5	KG 1/16/1 (p. 518)
5:5	medium	>3.5	5:5	2:4	*Typhlamphiascus blanchardi*[4]
5:5	medium	>3.5	5:4	2:4	*T. longifurcatus*[5]
5:5	medium	>3.5	4:5	2:4	*T. gracilicaudatus*[6]
5:4	medium	2–3	5:6	2:6	KG 1/16/2 (p. 519)
5:4	medium	<2	5:6	2:5–6	KG 1/16/3 (p. 520)
5:4	long	2–3	5:6	2:6	*Typhlamphiascus pectinifer*
4:4	medium	2–3	5:6	uk	*T. unisetosus*
?:?	medium	<2	5:6	uk	*Stenhelia accraensis*[7]

1. *Rhyncholagena spinifer* is not well described but can be distinguished on the presence of a row of about 8 large spinules at the posterior edge of the abdominal somites; *R. lagenirostris* lacks any ornamentation in this region.
2. While this species has most of the characteristics of *Typhlamphiascus* the male P1 basis lacks "nebendornen" (in *Typhlamphiascus* this usually is a complex toothed comb) and has the inner spine transformed. It thus differs from all other species of the genus except the problematical *T. longifurcatus* (see note 5).
3. The only description of this species provides an illustration in which P1 Exp-3 has only 4 setae and spines (there is no text comment). The species is placed in this key since it seems probable the description is in error.
4. In *T. blanchardi* the outer distal corner of the P5 exopod in both sexes is produced as an unguiform claw and the inner side of the caudal ramus is markedly concave.
5. This species certainly is not *Typhlamphiascus* (Lang 1965a). The P5 serves to identify the female. The transformed inner spine of the P1 basis together with the absence of “nebendornen” easily distinguish males (but see note 2 above).
6. Por (1963) purports to describe the previously unknown male of *T. gracilicaudatus* but since the females he associates with this male differ from the original description there must be some doubt that he is correct in this judgement. See notes 4 and 5 above for a means of distinguishing these males from those of *T. blanchardi* and *T. longifurcatus.*
7. Considered as *incertae sedis* in *Typhlamphiascus.*

KG 1/16/1 – characters

1. Caudal ramus

conical - even taper from base to apex; apex about half as wide as base; about 1.2 times as long as breadth at base

barrel - both lateral sides convex; 1.4–1.5 times as long as maximum breadth

2. Female P5

A - exopod seta II about half as long as setae I and IV; seta III very short, about half as long as seta II: endopod seta IV slightly longer than seta V

B - exopod seta II about as long as setae I and IV; seta III about half as long as setae II and IV: endopod seta IV twice as long as seta V

3. Male P5 exopod, shortest seta

III *or* IV

4. Male P1 basis, inner edge

3 - with 3 nebendornen; spine slightly thickened distally

7 - with a comb of 7 nebendornen; spine normal

KG 1/16/1

CR shape	Female P5	Male P5 Exp	Male P1 basis	
conical	A	III	3	*Typhlamphiascus drachi*
barrel	B	IV	7	*T. gracilis*

KG 1/16/2 – characters

1. Caudal ramus, seta V

filiform - normal; without basal swelling

bag - with a bag-like swelling at base of inner side

2. Female P5 exopod, setae IV and V

long - well developed; about as long as seta VI

short - well developed; shorter than seta VI

reduced - much shorter than seta VI, and may be rudimentary

uk - female unknown

3. Male P5 exopod, setae IV and V

long - well developed; about as long as seta VI

short - well developed; shorter than seta VI

reduced - much shorter than seta VI, and may be rudimentary

uk - female unknown

4. Male P1 basis, inner edge

3–4 - with a comb of 3–4 nebendornen; spine present, unmodified

7–8 - with a comb of 7–8 nebendornen; spine present, unmodified

1 - with a single, chisel shaped outgrowth; spine absent?

uk - male unknown

5. Abdomen, ventral ornamentation

present - spinules present in mid-somite (in addition to the distal edge)

absent - spinules absent from mid-somite—present only on distal edge

KG 1/16/2

CR inner terminal seta	Female P5 Exp setae IV–V	Male P5 Exp setae IV–V	Male P1 basis	Abdomen ventral spinules	
filiform	long	long	3–4	?	*Typhlamphiascus confusus*[1]
filiform	long	long	3–4	present	*T. confusus confusus*[2]
filiform	uk	long	3–4	present	*Typhlamphiascus* sp. Vilela, 1965

filiform	long	short	3–4	absent	*T. confusus gullmaricus*[3]
filiform	uk	short	1	?	*T. confusus* [*sensu* Marinov & Apostolov 1985][4]
filiform	long	uk	uk	?	*T. brevicornis*[5]
bag	reduced	uk	uk	?	*Amphiascus typhloides*[6]

1. Abdominal ornamentation patterns are not described for a number of records of *T. confusus*, especially the early ones (see Lang 1948).
2. Por (1963, 1967) and Moore (1976b).
3. Por (1963) and Marinov (1977).
4. This species cannot be *Typhlamphiascus* if Marinov & Apostolov are correct in their interpretation of the male P1 basis.
5. The only description of this species provides an illustration of P1 Exp-3 bearing only 4 setae and spines (there is no text comment). The species is placed in this key since it seems probable that the description is in error.
6. Considered *incertae sedis* in *Typhlamphiascus.*

KG 1/16/3 – characters

1. Female P5 exopod

ungui - outer distal corner a small unguiform projection external to seta III

plain - outer distal corner bearing seta III; with out a projection

2. Female P5 exopod, setae IV and V

long - well developed—at least as long as seta VI

short - well developed but shorter than seta VI

mixed - seta IV well developed, as long as seta VI; seta V rudimentary

3. Male P5 exopod

n - number of setae

4. Male P1 basis, inner edge

2 - with 2 rather thick, pointed nebendornen

3–4 - with a comb of 3–4 blunt, finger-like nebendornen

8 - with a comb of 8 nebendornen, the inner 6 blunt, finger-like

uk - male unknown

5. Caudal ramus, in dorsal view, ratio of maximum length to maximum breadth

<1.5 - less than 1.5 times as long as broad

≥1.5 - at least 1.5 times as long as broad

KG 1/16/3

Female P5 Exp	Female P5 Exp setae IV–V	Male P5 Exp setae	Male P1 basis	CR l/b	
ungui	short	uk	uk	≥1.5	*Typhlamphiascus* sp. Bodin, 1964
plain	long	6	3–4	≥1.5	*Typhlamphiascus confusus erythraeicus* Por, 1963
plain	long	6	2	≥1.5	*T. lamellifer* s. str.
plain	long	5	3–4	<1.5	*T. latifurca*
plain	mixed	6	8	<1.5	*T. ovale*

KG 1/17 – characters

1. P3–P4 Enp-3
   n:n - number of setae on P3 and P4

2. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

3. Female P5 exopod, setae IV and V
   long - well developed; at least as long as seta VI
   reduced - much shorter than seta VI, and may be rudimentary

KG 1/17

P3–P4 Enp-3 setae	CR l/b	Female P5 Exp setae IV–V	
5:5	≈1.5	long	*Typhlamphiascus lamellifer capensis*
5:4	≈2.5	reduced	*T. typhlops*[1]

1. Por (1963) considers that the male of *T. confusus* [*sensu* Sars 1911] is referable to *T. typhlops*.

KG 2 – characters

1. P2–P4 Exp-3*
   n:n:n - number of setae and/or spines on P2, P3 and P4

* In some genera of Miraciidae (most notably *Delavalia, Amphiascus*, *Amphiascoides*, *Haloschizopera*, *Rhyncholagena* and *Robertsonia*) the most distal inner seta of P2–P4 Exp-3 may be very thin and weak and much shorter than the proximal setae—even minute or almost vestigial. It may also be oriented so that it lies closely applied to the segment edge, or even become trapped beneath the segment so that it is difficult to see in anterior view. Any of these circumstances may have caused authors to misrepresent the true number of inner setae, e.g. as 7 when it really is 8, or 6 when 7 is the true number.

On the other hand there is no doubt that some descriptions are accurate in reporting this reduced number and thus it is difficult to know whether absence is the true situation or not—especially in older descriptions.

These facts have been taken into account in these keys but it would be wise to double check identifications in the vulnerable genera by running them through alternative KGs.

2. P2–P4 Exp-1, inner edge
   n:n:n - number of spines on P2, P3 and P4

3. P3–P4 Enp-2, inner edge
   n:n - number of setae on P3 and P4

4. Antenna Exp-2
   n - number of setae

KG 2

P2–P4 Exp-3 setae	P2–P4 Exp-1 inner setae	P3–P4 Enp-2 setae	A2 Exp-2 setae	
7:8:8	1:1:1	1:1	1	KG 2/1 (p. 522)
7:8:8	1:1:1	1:0	1	*Hicksia xylophila*
7:8:8	0:0:1	2:1	1	*Diosaccus rebus*
7:8:8	0:0:0	2:1	1	KG 2/2 (p. 523)
7:8:7	1:1:1	2:1	0	*Amonardia normani*, *A. pelophila*[1]
6:7:8	1:1:1	1:1	1	KG 2/3 (p. 523)
6:7:8	0:0:0	1:1	1	*Anisostenhelia asetosa*
6:7:?	0:0:?	1:?	1	*Robertgurneya rostrata* [*sensu* Sewell 1940]
6:6:7	1:1:1	1:1	0	KG 2/4 (p. 524)
6:6:7	0:0:0	1:1	0	KG 2/5 (p. 524)
6:6:7	0:0:0	1:1	1	KG 2/6 (p. 527)
6:6:6	0:0:0	1:1	1	*Haloschizopera aegyptica*
5:6:7	0:0:0	1:1	1	KG 2/7 (p. 528)
5:6:6–7	0:0:0	1:1	0	KG 2/8 (p. 530)
5:6:6	0:0:0	1:1	1	KG 2/9 (p. 538)
5:5:7	0:0:0	1:1	1	KG 2/10 (p. 538)
5:5:6	0:0:0	1:1	0–1	KG 2/11 (p. 539)
5:5:6	0:0:0	1:0	0	KG 2/12 (p. 540)

1. It is difficult to distinguish *A. pelophila* from the several excellent descriptions of *Amonardia normani* (e.g. Sars 1906 (as *Amphiascus similis*), Pallares 1968a, Pinkster 1968, Song & Chang 1995). Illustrations in these descriptions can be interpreted as showing that there are differences between the species in the form of the modified spines of the male P2 endopod, but this could be due to the particular orientation of this appendage in *A. pelophila* as drawn by Por (1964a).

KG 2/1 – characters

1. P1 Enp-3
   n - number of setae and spines

2. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

3. Female P5
   n:n - number of setae on endopod and exopod

KG 2/1

P1 Enp-3 setae	CR l/b	Female P5 setae	
3	≈2	5(4?):6	*Beatricella aemula*[1]
1	≈7	4:5	*Delavalia diegensis*

1. The outermost seta of P5 endopod is very small, and could be only a long spinule. The original description calls it a seta. See Lang 1948.

KG 2/2 – characters

1. P1 Enp-1, length relative to exopod
   short - extends approximately to the end of the exopod
   long - extends far beyond the end of the exopod

2. P1 endopod, relative length of segments 2 and 3
   equal - segments approximately the same length
   3=2x2 - segment 3 twice as long as segment 2

3. Female P5 exopod, inner proximal corner
   smooth - smoothly rounded
   tubercle - with a setulose tubercle

4. Female P5 endopod
   long - extends into the distal half of exopod
   short - does not reach the mid point of exopod

KG 2/2

P1 Enp-1/ Exp	P1 Enp-2 & Enp-3	Female P5 Exp	Female P5 Enp	
short	3=2x2	tubercle	short	*Diosaccus valens*[1]
long	equal	smooth	long	*D. robustus*[1]

1. Male unknown.

KG 2/3 – characters

1. P3 Enp-3
   n - number of setae and spines

2. P1 Enp-1, length relative to exopod
   long - Enp-1 extends at least to the end of Exp-3
   medium - Enp-1 extends at least to the end of Exp-2
   short - Enp-1 extends only to about halfway along Exp-2 at most

3. P1 Enp-1, length relative to Enp-2 + Enp-3
   n - ratio of maximum length of Enp-1 to maximum length of Enp-2 and Enp-3 combined

4. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

Mu & Huys (2002) provide a dichotomous key to *Stenhelia.*

KG 2/3

P3 Enp-3	P1 Enp-1/ Exp	P1 Enp1/ Enp-2+3	CR l/b	
6	long	2.5	≈1	*Stenhelia peniculata*
6	long	2	1.5	*S. pubescens*
6	medium	1.75	2.25	*S. taiae*
6	medium	1.75	1.5	*S. sheni*
6	short	1.2	≈2	*S. divergens*
5	long	2.2–2.5	1.5–2	*S. gibba*
5	medium	2.25	1.5	*S. proxima*
5	medium	1.5	≈2	*S. curviseta*

KG 2/4 – characters

1. P1 Enp-1
   short - approximately as long as the entire exopod; about 3.5 times as long as broad
   long - much longer than the exopod; about 7 times as long as broad

2. P4 Enp-3
   n - number of seta and spines

3. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

4. Female P5
   normal - endopod with 5, exopod with 6 setae. All setae filiform.
   unguiform - endopod with 5 setae; seta IV a short stout spine. Exopod with 5 setae; outer distal corner unguiform

KG 2/4

P1 Enp-1	P4 Enp-3 setae	CR l/b	Female P5	
long	5	≈1.5	unguiform	*Typhlamphiascus dentipes*[1]
short	4	≈3	normal	*T. brevicornis*[1]

1. The male is unknown in these species and the descriptions also lack much important detail. They also describe (by illustration; there is no text comment) P1 Exp-3 as bearing only 4 setae and spines but this not the normal condition in *Typhlamphiascus.*

KG 2/5 – characters

1. P1 Enp-1, length relative to exopod
   short - only extending to the end of the exopod, or slightly beyond; exopod always extends to the level of the origin of inner seta on Enp-1
   long - much longer than exopod; exopod does not reach the origin of inner seta of Enp-1

2. P1 Enp-1, length relative to combined length of Enp-2 and Enp-3
short - Enp-1 at most twice as long as Enp-2 + Enp-3
long - Enp-1 approximately 2.5 times as long as Enp-2 + Enp-3

KG 2/5 – characters

3. Female P2 Enp-2, inner edge
n - number of setae

4. Female P5
n:n - number of setae on endopod and exopod

5. Male P5
n:n - number of setae on endopod and exopod
uk - male unknown

KG 2/5

P1 Enp-1/ Exp	P1 Enp-1/ Enp-2+3	Female P2 Enp-2 inner setae	Female P5 setae	Male P5 setae	
short	short	2	5:6	2:4–6	KG 2/5/1 (p. 525)
long	short	2	5:6	2:5	KG 2/5/2 (p. 526)
long	short	1	4:6	uk	*Robertgurneya oligochaeta*[1]
long	long	2	5:6	2:6	*R. remanei*
long	long	1	4:6	uk	*R. soyeri*[2]
long	long	1	4:5	2:6	*R. ilievecensis*[3]

1. Female P2 Enp-2 originally described as having 1 or 2 inner setae (only a single individual known). Marinov (1971) confirms that 2 is correct.
2. The caudal ramus of *R. soyeri* is also distinctive—about 1.75 times as long as broad, compared with the usual genus condition of broader than long.
3. Data from the description of the male by Wells (1963a) and Por (1964a) and the redescription of the female by Hamond (1973b).

KG 2/5/1 – characters

1. Caudal ramus
broad - much broader than maximum length
square - approximately as broad as the maximum length

2. Caudal ramus, relative length of setae IV and V
i>o - inner seta (V) much longer than outer
o>i - outer seta (IV) longer than inner

3. Female P5 endopod, setae
normal - all filiform, plain or biplumose for most of their length; seta V well developed, at least as long as setae I–II

tufted - setae I–II with a tuft of spinules apically; setae III–V biplumose for most of their length; seta V well developed, at least as long as setae I–II
V small - setae I–IV elongate, filiform; seta V reduced, much smaller than other setae

4. Female P5 exopod, setae
filiform- all filiform
bulbous- setae II–III very small, bulbous at their base; other setae filiform

5. Male P5
n:n - number of setae on exopod and exopod
uk - male unknown

6. Male P5 endopod, setae
normal - both filiform, plain or biplumose for most of their length
tufted - with a tuft of spinules apically
uk - male unknown

KG 2/5/1

CR l/b	CR terminal setae	Female P5 Enp setae	Female P5 Exp setae	Male P5 setae	Male P5 Enp setae	
broad	i>o	normal	filiform	2:5	normal	*Robertgurneya similis* s. str.
broad	i>o	tufted	filiform	2:5	normal	*R. hopkinsi*
broad	i>o	tufted	filiform	2:5	tufted	*R. smithi*
broad	i>o	V small	bulbous	uk	uk	*R. similis bulbamphiascoides*
broad	o>i	normal	filiform	2:4	normal	*R. dactylifer*
broad	i>o	normal	filiform	2:5	normal	*R. rostrata* [*sensu* Klie 1942][1]
square	i>o	normal	normal	2:6	normal	*R. simulans*

1. Klie (1942) declares that in his material of *R. rostrata* antenna Exp-2 is "regelmäß borstenlos". The original description (Gurney 1927b) does not describe this character but other authors have placed within *R. rostrata* (without relevant comment) specimens in which antenna Exp-2 does bear a seta. But note also that other descriptions of the male of *R. rostrata* state that P5 exopod has only 5 setae. See also KG 2/6/1 (p. 528) and KG 2 (p. 521).

KG 2/5/2 – characters

1. Female abdomen somite 3, spinule row midventral distal edge
present *or* absent

2. P5 female, relative length of endopod to exopod
short - endopod extends to about halfway along the exopod
long - endopod extends well into the distal half of exopod

3. Male P1 basis, distal inner corner
A - spine long but does not reach the origin of the inner seta of Enp-1; with 2 spiny outgrowths of segment edge adjacent to spine

B - spine very long—reaching the origin of inner seta of Enp-1; without adjacent armature
C - spine short—reaches about halfway to the origin of inner spine of Enp-1; without adjacent armature

KG 2/5/2

Female Abdomen somite 3	Female P5 Enp/Exp	Male P1 male	
present	short	A	*Robertgurneya similis*[1]
absent	short	B	*R. falklandiensis*
absent	long	C	*R. diversa*

1. Brian (1927, 1928) as *Amphiascus tenax*.

KG 2/6 – characters

1. Caudal ramus, outer distal corner
   - seta - with a plain, thin seta
   - bulb - with a large bulbous based seta

2. P1 Enp-1
   - n - ratio of maximum length to maximum breadth (in midline of anterior surface)

3. Female P5 exopod
   - ovoid - ovoid in shape; less than twice as long as broad
   - parallel - inner and outer sides approximately parallel; at least twice as long as broad
   - vase - vase-shaped—inner and outer sides converge from a rounded basal portion; at least twice as long as broad

4. Male P5
   - n:n - number of setae on endopod and exopod

5. Male P2 endopod
   - n - number of segments

KG 2/6

CR outer distal corner	P1 Enp-1 l/b	Female P5 Exp	Male P5 setae	Male P2 Enp segs	
seta	≈2	parallel	uk	uk	*Robertgurneya brevipes*
seta	5	ovoid	2:6	2	*R. ecaudata*[1, 2]
seta	<5	ovoid	2:6	2	KG 2/6/1
seta	8	vase	3:5	3	*Robertgurneya spinulosa*[2]
seta	8	ovoid	2:5	2	*Amphiascoides* (?) *arabicus*[3]
bulb	≥10	parallel	uk	uk	*Robertgurneya dictydiophora*

1. Lang (1948) was unaware Klie (1942) had shown that Monard (1936) was mistaken in stating that P2 endopod had 3 segments.

2. See discussion by Hamond (1973b).
3. Placed, without discussion, in *Robertgurneya* by Lang (1965a).

KG 2/6/1 – characters

1. P1 Enp-1, length relative to exopod

short - does not extend to the end of the exopod
medium - extends slightly beyond the end of the exopod; exopod extends to about the origin of inner seta of Enp-1
long - Enp-1 longer than exopod; exopod does not reach the origin of inner seta of Enp-1

2. P1 Enp-1

n - ratio of length of Enp1 to combined length of Enp-2 and Enp-3

3. Male P1 basis

female - without modification to the inner spine or the basis inner edge
modified - with a long curved spine and adjacent spinous projections
uk - male unknown

KG 2/6/1

P1 Enp-1/ Exp	P1 Enp-1/ Enp-2+3	Male P1 basis	
medium	1.4	uk	*Robertgurneya rostrata* [*sensu* Gurney 1927b][1]
medium	?	modified	*R. rostrata* [*sensu* Willey 1935][1]
medium	1.7	na	*R. rostrata* female [*sensu* Vervoort 1964][1]
long	1.9	modified	*R. rostrata* male [*sensu* Vervoort 1964][1]
short	1.1	female?	*R. rostrata* [*sensu* Monard 1928][1, 2]

1. *Robertgurneya rostrata* has several good descriptions (see Lang 1948, Sewell 1940 (as *Amphiascus ctenophorus*), Vervoort 1964) but there are some variable features whose phylogenetic significance has yet to be determined. See also KG 2/5/1 (p. 525) and KG 2 (p. 521).
2. As *Amphiascus ctenophorus*. Monard does not describe the male P1, except to state that its Enp-2 and Enp-3 are relatively shorter than those of the female. I presume that he would have noticed the presence of modifications to the basis.

KG 2/7 – characters

1. P1 Enp-3

n - number of setae and spines

2. P3–P4 Enp-3

n:n - number of setae and spines on P3 and P4

3. P1 Enp-1, length relative to exopod

long - extends well beyond the end of Exp-2
medium - extends to approximately the end of Exp-2
short - extends well short of the end of Exp-2

4. Female P5
n:n - number of setae on endopod and exopod

5. Male P5
n:n - number of setae on endopod and exopod
uk - male unknown

KG 2/7

P1 Enp-3 setae	P3–P4 Enp-3 setae	P1 Enp-1/ Exp	Female P5 setae	Male P5 setae	
3	6:4	long	5:5	uk	*Amphiascus roberti*[1]
3	5:4	long	5:5	uk	*Paramphiascella curtiseta*[2]
3	4:4	long	4:5	2:5	*Haloschizopera ruthorum*, *H. tenuipes*[3]
3	4:4	medium	4:5	2:5	KG 2/7/1 (p. 529)
3	4:4	short	4:5	2:5	KG 2/7/2 (p. 530)
2	4:4	short	4:5	2:5	*Haloschizopera nuditerga*
2	4:4	short	4:4	2:4	*H. clotensis*
2	4:5	medium	4:5	uk	*H. latisetifera*

1. Placed *incertae sedis* in *Paramphiascella* by Lang (1948).
2. The only specimen known of this species has highly characteristic caudal rami in which all of the distal setae and spines are truncated.
3. In *H. ruthorum* the P1 Enp-1 does not reach to the end of the exopod. In *H. tenuipes* it extends well beyond the exopod.

KG 2/7/1 – characters

1. Female P5, relative length of endopod to exopod
short - endopod extends only into the proximal half of the exopod
medium - endopod clearly extends into the distal half of the exopod
long - endopod extends to about the end of the exopod

2. Female P5, shape and size
n = ratio of maximum length to maximum breadth
rect:n - subrectangular
circ:n - subcircular

3. Female antennule
n - number of segments

4. Female, genital double-somite, ornamentation
heavy - somite 1 with 2 short rows of spinules dorsolaterally; somite 2 with a continuous row of spinules across venter from dorsolateral
light - somite 1 with 2 large spinules dorsolaterally; somite 2 with a few spinules ventrolaterally

5. Male, abdomen segments 1–3, ornamentation
heavy - somite 1 with 2 short rows of spinules dorsolaterally; somites 2–3 with a continuous row of

spinules across venter from dorsolateral

light - somite 1 with 2 large spinules dorsolaterally; somites 2–3 with a midventral row only

KG 2/7/1

Female	Female	Female	Female	Male	
P5	P5	A1	gds	abdomen	
Benp/Exp	shape	segs			
long	circ:1.3	7	light	light	*Haloschizopera bulbifer*[1]
medium	rect:1.5–1.9	8	heavy	heavy	*H. mathoi*[2]
short	rect:≈3	8	light	light?	*H. marmarae*[3]

1. Data from the redescription by Moore & O'Reilly (1993). They show that the "characteristic" bulbous seta on the caudal ramus (see Lang 1948; Sars 1911) does not occur in all females and is never present in males.
2. Data from the redescription by Moore & O'Reilly (1989).
3. The male of *H. marmarae* is incompletely described by Por (1964a) and elements of that description are inaccurate (Moore & O'Reilly 1989: p. 103).

KG 2/7/2 – characters

1. Female P5, relative length of endopod to exopod

short - endopod extends to about the middle of the exopod

long - endopod extends to about the end of the exopod

2. Female P5, shape and size

n = ratio of maximum length to maximum breadth

rect:n - subrectangular

circ:n - subcircular

3. Female antennule

n - number of segments

4. Male P2 Enp-2, modified spines

spatulate - inner spine with spatulate apex; inner spine longer than outer

dentate - inner spine with 2 teeth sub-terminally

5. Male P5 endopod

equal - outer seta only slightly longer than inner; both setae set with small spinules

o>i - outer seta nearly twice as long as inner; inner seta with a tuft of long spinules distally

KG 2/7/2

Female	Female	Female	Male	Male	
P5	P5	A1	P2	P5	
Benp/Exp	shape	segs	Enp-2	Enp	
short	rect:1.6–2.4	8	spatulate	o>i	*Haloschixopera pygmaea*[1]
long	circ: 1.3–1.5	7	dentate	equal	*H. lionensis*

1. Data from the redescription by Moore & O'Reilly (1989).

KG 2/8 – characters

Paramphiascella and *Amphiascoides* are primarily defined by the structure of the male P2 endopod and P1 basis and in the absence of associated males it may be difficult to place females in the correct genus.

Paramphiascella (except for *P. mediterranea*) is readily distinguished by the male P2 endopod in which the distal "seta" on the inner edge of segment 2 (sometimes referred to as the outer part of the endopod claw) is transformed into a long deeply grooved spine in *Paramphiascella*, but remains as a seta, usually very long, in the other genera; see Wells, Hicks & Coull (1982, Fig. 10) for drawings of this appendage in a range of diosaccinid genera.

In both genera the detailed structure of the male P2 endopod probably is species specific but existing illustrations cannot properly be compared because

(a) the complexity of structure that can be seen in the best modern descriptions (e.g. Noodt (1958a) for *Paramphiascella vararensis* and Pallares (1982) for *P. austroatlantica*) leave no doubt that most, if not all, earlier descriptions are deficient in detail;

(b) it is very likely that some of the apparent differences in the nature of the outer "claw" are due to the structures being drawn in differing orientations;

(c) reported differences may be due to inadvertent damage caused to specimens during dissection (see Wells & Rao 1987: p. 115).

1. P1 Enp-1, length relative to exopod
   short - Enp-1 extends to just beyond Exp-3 at most
   long - Enp-1 extends significantly beyond the end of the exopod

2. P4 Exp-3
   n - number of setae and spines

3. Antenna Exp-3
   n - number of setae

4. P3 Enp-3
   n - number of setae

5. P1 Enp-2, inner edge*
   n - number of setae

* In many species the seta on the inner edge of P1 Enp-2 is very small and may easily be overlooked or assumed to be merely a spinule. Its presence or absence is usually inferred from illustrations as it is seldom mentioned in descriptions and it is possible that some authors have missed its presence. Treat absence with caution.

Marcotte (1974) provides a dichotomous key to *Paramphiascella* and a discussion of the state of the genus.

KG 2/8[1]

P1 Enp-1/ Exp	P4 Exp-3 setae	A2 Exp-3 setae	P3 Enp-3 setae	P1 Enp-2 inner setae	
short	7	4	5	1	KG 2/8/1 (p. 532)
short	7	3	5	1	KG 2/8/2 (p. 533)
short	7	2	5	0	*Neomiscegenus indicus*

short	6	3	5	0	KG 2/8/3 (p. 534)
long	7	4	5	1	*Amphiascoides bulbiseta*[2]
long	7	4	5	0	KG 2/8/4 (p. 535)
long	7	3	5	1	KG 2/8/5 (p. 535)
long	7	3	5	0	KG 2/8/6 (p. 537)
long	6	5	4	1	*Amphiacoides debilis*, *Stenhelia limicola*[2]
long	6	3	5	1	*A. golikovi*
long	6	3	5	0	KG 2/8/7 (p. 537)
long	6	3	4	0	*Amphiascoides paradebilis*
long	?	?	5	0	*A. proximus*

1. *Paramphiascella faurei* is not included as it is a late copepodid stage of an unidentified species of the genus.
2. *Stenhelia limicola* is considered a synonym of *A. debilis* by some authors (see Arlt 1983 and Bodin 1997) but its original description is so deficient that this cannot be properly established without a redescription of material from the type locality (Mielke 1975) and it is treated here as *incertae sedis* in *Amphiascoides*.

   The material currently assigned to *A. debilis* makes it appear a very variable species but the complex nature of the variability, with overlapping combinations of characters among sympatric individuals, requires an in depth analysis for resolution of the true status.

   Amphiascoides bulbiseta is only distinguished from *A. debilis* by the setation of P4 Exp-3; all other characters fall within the known variability of *A. debilis* as that species is currently constituted. This situation is compounded by records attributed to *A. debilis* by Klie (1950) and Becker (1970) that also differ from all others in bearing 7 setae and spines on P4 Exp-3. The original description of *A. bulbiseta* (Pallares 1975d) compares it with *A. subdebilis* only.

KG 2/8/1 – characters

1. Abdomen, ornamentation of distal edge of somites
   A - female: short spinule row midventral on somite 3 only
   male: short spinule row midventral somites 2–3
   B - female and male: spinules midventral and lateral on somites 2–3, midventral only on somite 4

2. Antennule, segment 2, ratio of length to breadth
   short - at most as long as broad
   long - longer than broad

3. Female P5
   spiniform - endopod setae III–IV and exopod setae I–II and IV–V short and spiniform
   filiform - all setae filiform

4. Male P5
   n:n - number of setae on endopod and exopod

5. Male P2 Enp-2
   claws - with 2 long, curved "claws" originating midway along outer edge; apically with a long, plumose seta
   mucro - with a long, apical, triangular, mucroniform projection; outer edge without setae, spines or claws

KG 2/8/1

Abdomen orn	A1 seg-2 l/b	Female P5 setae	Male P5 setae	Male P2 Enp2	
A	short	spiniform	2:5	claws	*Miscegenus heretaunga*
B	long	filiform	3:5	mucro	*Amphiascoides breviarticulatus*

KG 2/8/2 – characters

1. Caudal ramus, in dorsal view, ratio of maximum length to maximum breadth
   - ≥2 - at least twice as long as broad
   - ≥1 - as long as broad, or slightly longer
   - <1 - broader than long

2. Caudal ramus, terminal setae
   - A - setae IV and V elongate, possibly rather broad at their base
   - B - all terminal setae very short and spiniform
   - C - seta V elongate, normal; seta IV very short, spiniform; seta VI short, filiform, plumose
   - D - setae IV–V subequal in length, elongate; seta IV normal, seta V very broad, spatulate, sword like
   - E - seta IV short, broad at the base and tapering to a whip lash in distal half; seta V short, broad, spatulate, slightly shorter than seta IV; all other setae shorter than these two; seta III short, spiniform
   - F - setation similar to E but with seta IV much longer than seta V and all other setae at least as long as seta V; seta III elongate, stout filiform

3. Rostrum
   - bifid - bifid at apex
   - plain - apex acutely pointed or rounded

4. P1 endopod, relative length of segments 3 and 2 (in midline of anterior surface)
   - ≈1 - segments 2 and 3 approximately equal in length
   - ≈1.5 - segment 3 approximately 1.5 times as long as segment 2
   - ≥2 - segment 3 at least twice as long as segment 2

KG 2/8/2

CR l/b	CR setae	Rostrum apex	P1 Enp-3/Enp-2	
≥2	B	plain	≈1	*Paramphiascella coulli* female
≥2	C	plain	≈1	*P. coulli* male
≥1	A	plain	≈1	*P. hispida*
≥1	E	plain	≈1	*P. bulbifer*
<1	F	plain	≥2	*P. delamarei*
<1	D	?	≈1	*P. xiphophora*
<1	A	bifid	≈1.5	*P. hyperborea*[1]
<1	A	bifid	≥2	*P. hyperborea* [*sensu* Chislenko 1977]
<1	A	bifid	≈1	*P. intermedia*
<1	A	plain	≈1.5	*P. vararensis*
<1	A	plain	≈1	KG 2/8/2/1

1. Data from the redescription by Moore & Stevenson (1994).

KG 2/8/2/1 – characters

Caution: The character states used (with the exception of character 4) may not be reliable since they depend on the interpretation of relatively inadequate descriptions and illustrations.

1. P1, relative length of Enp-1 to exopod
   - ≥3 - Enp-1 extends approximately to the end of Exp-3 or beyond
   - >2 - Enp-1 extends to approximately midway along Exp-3
   - ≤2 - Enp-1 extends to end of Exp-2 at most

2. Female P5, hyaline fields (Fig. 16)
   - Enp+Exp - large hyaline fields present on both endopod and exopod
   - Enp - hyaline field present only on endopod
   - absent - hyaline fields not present (or not reported)
   - uk - female unknown

3. Male P5, hyaline fields (Fig. 16)
   - Enp - hyaline field present only on endopod
   - absent - hyaline fields not present (or not reported)
   - uk - male unknown

4. Male P2 Enp-2
   - A - the distal of the 2 or 3 setae or spines on inner edge is a long filiform, plumose seta (Wells, Hicks & Coull 1982: Fig. 10f)
   - B - the distal of the 2 or 3 setal/spinous elements on inner edge is a stout tubular spine with a deep groove in at least the distal half (Wells, Hicks & Coull 1982: Fig. 10g)

KG 2/8/2/1

P1 Enp-1/ Exp	Female P5 hyaline field	Male P5 hyaline field	Male P2 Enp-2	
≤2	Enp+Exp	absent	A	*Paramphiascella mediterranea*[1]
≥3	absent	absent	B	*P. commensalis*
≥3	absent	uk	uk	*P. robinsoni* [*sensu* A. Scott 1902][2]
>2	uk	absent	B	*P. robinsoni* [*sensu* Pallares 1968a][2]
≤2	uk	absent	B	*P. robinsoni* [*sensu* Gurney 1927b][2]
=3	Enp	Enp	B	*P. pacifica*, *P. fulvofasciata*[3]
>2	Enp+Exp	Enp	B	*P. austroatlantica*

1. For other forms attributed to *P. mediterranea* by Marcotte (1974) see KG 2/8/5 (p. 535).
2. For other forms attributed to *P. robinsoni* see KG 2/8/5 (p. 535).
3. See Rosenfield & Coull (1974).

KG 2/8/3 – characters

1. Antennule, segment 2
   - n - ratio of maximum length to maximum breadth

2. P1 endopod

n - relative length of segments 3 and 2 (in midline of anterior surface)

KG 2/8/3

A1 seg 2	P1 Enp-3/ Enp-2	
≈2	≈4	*Amphiascoides nanoides*[1]
≈1	≈1	*A. sterilis*[1]

1. Male unknown.

KG 2/8/4 – characters

1. Female antennule, segments 1–4

short - each segment at most as long as broad

long - each segment longer than broad

2. Caudal ramus, seta on the outer edge

spiniform - origin about halfway along outer edge; short, spiniform; without sexual dimorphism

bulbous - origin appears to be close to outer distal corner;
female: broad bulbous base tapering to a flagellar distal part
male: long, filiform

3. Female P5 baseoendopod

n - number of spinule rows on anterior surface

4. Male P5 baseoendopod

n - number of spinule rows on anterior surface

5. Male P2 Enp-2, setae on the inner edge

equidistant - the 3 setae evenly spaced along the inner edge

juxtaposed - the 2 distal setae originate very close together

KG 2/8/4

Female A1 segs1–4	CR outer seta	Female P5 benp spinule rows	Male P5 benp spinule rows	Male P2 Enp-2 inner setae	
short	spiniform	3	3	equidistant	*Amphiascoides lancisetiger*
short	spiniform	1	0	equidistant	*A. petkovskii*
long	bulbous	0	0	juxtaposed	*A. dimorphus*

KG 2/8/5 – characters

Amphiascoides atopus is the only species in this key that is adequately described. The character states used to separate the others must be treated with caution.

1. P1 endopod
   n - relative length of segments 3 and 2 (in midline of anterior surface)

2. Female P5 endopod, relative of setae IV and V
   equal - approximately equal length
   IV - seta IV longer than seta V
   uk - female unknown

3. Female P5 endopod, outer edge
   spinulose - set with small spinules
   plain - without ornamentation
   uk - female unknown

4. Male P1 basis, inner edge
   bifid - with 2 broad, pointed unguiform projections proximal to the inner seta
   digitate - with a single broad, spatulate digitate projection adjacent to the inner seta
   uk - male unknown

5. Male P2 Enp-2
   curved - terminal projection curved, lamellate on outer side; inner edge of segment with 2 setae, the proximal short, the distal very long, plumose, extending well beyond the end of the terminal projection
   dagger 3 - terminal projection triangular; inner edge of segment with 3 setae, the median longer than the terminal projection
   dagger 2A - terminal projection triangular; inner edge of segment with 2 setae, the proximal very short —less than half as long as the distal; setae do not reach the end of the terminal projection
   dagger 2B - terminal projection triangular; inner edge of segment with 2 setae, the proximal almost as long as the distal; setae do not reach the end of the terminal projection
   dagger 2C - terminal projection triangular; inner edge of segment with 2 setae of equal length, both reaching at least to the end of the terminal projection
   uk - male unknown

KG 2/8/5

P1 Enp-3/ Enp-2	Female P5 Benp setae	Female P5 Benp	Male P1 basis	Male P2 Enp-2	
≥2	uk	uk	bifid	curved	*Amphiascoides* sp. Becker & Schriever, 1979
>1.5	equal	spinulose	digitate	dagger 3	*A. atopus*
>1.5	IV	plain	uk	uk	*Paramphiascella robinsoni*[1]
>1.5	IV	spinulose	digitate	dagger 2C	*P. mediterranea* [*sensu* Wiborg 1964][4]
>1.5	IV	plain	digitate	dagger 2B	*P. mediterranea*[2, 4]
>1.5	uk	uk	digitate	dagger 2A	*P. mediterranea*[3, 4]
?	uk	uk	digitate	dagger 2A	*P. bodini*[4]

1. Sewell (1940) as *Amphiascus robinsoni* (see Marcotte 1974). For other forms attributed to *P. robinsoni* by various authors see KG 2/8/2/1 (p. 534).

2. Pesta (1959) as *Paramphiascella vararensis* (see Marcotte 1974).
3. Sewell (1940) as *Amphiascus* sp. (see Marcotte 1974).
4. See Marcotte (1974) for discussion of *P. mediterranea* and *P. bodini.*

KG 2/8/6 – characters

1. Rostrum

bifid - bifid at apex

plain - acutely pointed or rounded

2. Caudal ramus, in dorsal view

n - ratio of maximum breadth to maximum length

3. Female antennule segment 4

n - ratio of maximum length (including the pedestal that bears the aesthetasc) to maximum breadth

4. Female P5 endopod

spiniform - all setae very short, spiniform, spinulose

filiform - all setae long or moderately long, filiform; plain or plumose

5. Male P2 Enp-2, distal projection

pincer - bifid, the 2 claws forming a pincer; inner edge with 2 setae, the proximal the longest dagger 1-a single, sharply pointed blade; inner edge with 2 long setae, the proximal the longest (sometimes with a third, very small seta at extreme proximal end) dagger 2 as dagger 1 but with distal inner seta the longest

uk - male unknown

KG 2/8/6

Rostrum apex	CR b/l	Female A1 seg 4	Female P5 Enp setae	Male P2 Enp-2	
plain	≥2	≈3	spiniform	pincer	*Amphiascoides brevifurca*
plain	≥2	≈1	filiform	dagger 1	*A. subdebilis* [*sensu* Willey][1]
plain	≥2	1–2	filiform	dagger 2	*A. subdebilis*[1]
plain	≈1	3–4	filiform	dagger 1	*A. neglectus*
bifid	≥2	2.5	filiform	uk	*A. nichollsi*

1. There is a great deal of variability between the many reports of this widespread species. This includes possibly significant differences between the original description by Willey and all subsequent descriptions. Wells & Rao (1987) discuss the situation.

KG 2/8/7 – characters

1. P5 exopod

n - number of setae in female and male

2. Caudal ramus, outer distal corner

square - approximately square; with a long filiform or spiniform seta

oblique - obliquely truncate; seta reduced to a small knob

3. P1, relative length of exopod

short - exopod extends about ⅔ the length of Enp-1

long - exopod extends at least 80% the length of Enp-1

4. Female P5 endopod, outer edge

convex - distal part of edge strongly convex

concave - edge weakly concave or straight through its length

KG 2/8/7

P5 Exp	CR outer corner	P1 Enp-1/ Exp	Female P5 Enp	
4	square	long	concave	*Amphiascoides dispar*
5	square	short	concave	*A. nanus*
5	oblique	long	convex	*A. littoralis*

KG 2/9 – characters

1. P1 endopod

long - Enp-1 extends beyond the entire exopod; Enp-2 + Enp-3 about half as long as Enp-1

short - Enp-1 extends only to the end of Exp-2; Enp-2 + Enp-3 about 1.5 times as long as Enp-1

2. Male P2 Enp-2, distal edge

dagger - with a sharply pointed unguiform extension

claw - with 1 long seta and 1 heavily chitinised stout claw

3. Male P5, relative length of endopod to exopod

short - endopod does not extend to end of exopod

long - endopod extends at least to the end of exopod

KG 2/9

P1 Enp	Male P2 Enp-2	Male P5 Enp/Exp	
long	dagger	short	*Amphiascoides debilis* [*sensu* Nicholls 1939a][1]
short	claw	long	*Haloschizopera noodti*[2]

1. Nicholls material of *Amphiascus* (=*Amphiascoides*) *debilis* differs from that of Sars (1906) only in the setation of antenna Exp-2.
2. The female is unknown in *Haloschizopera noodti*.

KG 2/10 – characters

1. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

2. P1 Enp-1

long - Enp-1 extends approximately to the middle of Exp-3

short - Enp-1 extends only to the end of Exp-2

3. Female P5 exopod

circular - subcircular in shape, slightly longer than broad

rectangular - subrectangular in shape, about 1.6 times as long as broad

4. Female P5 endopod, longest seta

II *or* III

KG 2/10

CR l/b	P1 Enp-1	Female P5 Exp	Female P5 Enp	
≈1	long	circular	II	*Haloschizopera abyssi*
≈1.5	short	rectangular	III	*H. lima*[1]

1. Male unknown.

KG 2/11 – characters

1. P1 Enp-1

extreme - Enp-1 extends far beyond the end of Exp-3

long - Enp-1 extends well into the proximal half of Exp-3

short - Enp-1 extends only to approximately the end of Exp-2

2. Antenna exopod

n:n:n - number of setae on segments 1–3

3. Female P5

n:n - number of setae on endopod and exopod

4. Female P5 exopod

n - ratio of maximum length to maximum breadth

5. Female caudal ramus, seta at outer distal corner (males always filiform)

filiform - filiform, long or short

bulbous - very bulbous base and a short terminal flagella

6. Male P5

n:n - number of setae on endopod and exopod

uk - male unknown

KG 2/11

P1 Enp-1	A2 Exp setae	Female P5 setae	Female P5 Exp l/b	Female CR	Male P5 setae	
extreme	1:0:3	4:5	3.5	bulbous	2:5	*Haloschizopera phyllura*
long	1:0:3	4:6	2	filiform	uk	*H. exiguua* [*sensu* Sars 1906]
short	1:0:3	4:5	2	filiform	uk	*H. exiguua* [*sensu* Por 1964b]

short	?	4:5	2	filiform	uk	*H. pauciseta*
short	1:1:1	3:4	2	filiform	2:4	*H. bathyalis*

KG 2/12 – characters

1. Abdomen, ornamentation of anal somite as seen in ventral view
   - distal - spinules present only at distal edge
   - lateral - a lateral spinule row present in mid-somite in addition to spinules on distal edge

2. P1 Enp-1
   - n - number of setae on inner edge

KG 2/12

Abdomen orn	P1 Enp-1 inner setae	
distal	0	*Haloschizopera conspicua*[1]
lateral	1	*H. minima*[1]

1. Male unknown.

KGG 3 – characters

1. P1 Enp-1, length relative to exopod
   - extreme - Enp-1 almost twice as long as entire exopod
   - long - Enp-1 slightly shorter to slightly longer than entire exopod
   - short - Enp-1 very short, only slightly longer than Exp-1

2. P2–P4 Exp-2, inner edge
   - n:n:n - number of setae on P2, P3 and P4

3. P2–P4 Enp-1, inner edge
   - n:n:n - number of setae on P2, P3 and P4

4. P3–P4 Enp-3
   - n:n - number of setae and spines on P3 and P4

5. Pseudoperculum
   - absent - distal edge of penultimate somite not expanded posteriorly on dorsal side
   - convex - distal edge of penultimate somite expanded as an even convex cover extending nearly to the mid point of the anal somite
   - spine - distal edge of penultimate somite with a long, narrow spine shaped expansion that extends to the posterior edge of the anal somite

KG 3

P1 Enp-1	P2–P4 Exp-2	P2–P4 Enp-1	P3–P4 Enp-3	Pseud-operculum	
extreme	1:1:1	1:1:1	5:4	absent	*Actopsyllus longipes*

short	1:1:1	0:1:1	4:4	convex	*Haloschizopera apprisea*
long	1:1:1	1:1:1	4:4	absent	*Helmutkunzia variabilis*
long	1:1:1	0:1:1	4:3	spine	*Eoschizopera syltensis*[1]
long	1:1:1	0:1:1	4[2]:3	absent	*Helmutkunzia hartmannorum*[2]
long	1:1:1	0:1:1	3:3	convex	*Balucopsylla triarticulata* [*sensu* Wells & Rao 1976]
long	1:1:1	0:1:1	3–4:3–4	convex	*B. triarticulata* [*sensu* Mielke 1994a, 1997a][3]
long	1:1:1	0:1:1	3:2	convex	*Eoschizopera chiloensis*[1]
long	0:1:1	0:1:1	4:3	convex	*E. nicoyana*[1]
long	0:1:1	0:1:1	4:2	absent?	*E. reducta* [*sensu* Kunz 1983][1, 4]
long	0:1:1	0:1:1	3:2	convex	*E. reducta* [*sensu* Wells & Rao 1976][1]

1. Male *Schizopera* and *Eoschizopera* appear to be unique among Harpacticoida in bearing a hyaline bract on the inner edge of P3 Exp-3. This is in addition to the normal complement of 4 (rarely 3 or 5) setae and spines.
2. One of the setae on P3 Enp-3 (and P2, but not P4) is reduced to rudimentary proportions. Kunz (1971a) would appear to be mistaken in recording (in a text table) this vestige as a seta in P3 but not in P2.
3. Mielke discusses the extraordinary variability in the setation of P2–P4 in forms attributed to this species and the difficulty in assessing the taxonomic importance of these data.
4. Kunz's specimens differ in several respects from those of Wells & Rao and are unlikely to be conspecific.

KG 4 – characters

1. P1 Enp-2

n - number of setae and spines

2. P3–P4 Enp-3

n:n - number of setae and spines

3. Female P2 Enp-3

n - number of setae and spines

4. Female P5

n:n - number of setae on endopod and exopod

5. Male P5

f:n - basis and exopod fused: total number of setae and spines on P5

d:n:n - exopod not fused to basis: number of setae and spines on endopod: number of setae and spines on exopod

uk - male unknown

KG 4

P1 Enp-2 setae	P3–P4 Enp-3 setae	Female P2 Enp-3 setae	Female P5 setae	Male P5	
4	6:5	4	5:5	f:6	*Delavalia reflexa*[1]
4	4:3	3	5:6	d:2:6	*D. bifidia*
3	6:5	5	4:5	uk	*D. lima*
3	5:4	4	5:6	d:2:6	*Teissierella massiliensis*

1. Data from Sars (1906); the original description is unreliable.

KG 5 – characters

1. P2–P4 Exp-3*

    n:n:n - number of setae and spines on P2, P3 and P4

* In some genera of Miraciidae (most notably *Delavalia, Amphiascus*, *Amphiascoides*, *Haloschizopera*, *Rhyncholagena* and *Robertsonia*) the most distal inner seta of P2–P4 Exp-3 may be very thin and weak and much shorter than the proximal setae—even minute or almost vestigial. It may also be oriented so that it lies closely applied to the segment edge, or even become trapped beneath the segment so that it is difficult to see in anterior view. Any of these circumstances may have caused authors to misrepresent the true number of inner setae, e.g. as 7 when it really is 8, or 6 when 7 is the true number.

On the other hand, there is no doubt that some descriptions are accurate in reporting this reduced number and thus it is difficult to know whether absence is the true situation or not—especially in older descriptions.

These facts have been taken into account in these keys but it would be wise to double check identifications in the vulnerable genera by running them through alternative KGs.

2. P3–P4 Enp-3

    n:n - number of setae and spines on P3 and P4

3. P1 Enp-2

    n - number of setae and spines

4. P2–P4 Exp-1, inner edge

    n:n:n - number of setae on P2, P3 and P4

5. Caudal ramus, in dorsal view

    n - ratio of maximum length to maximum breadth

KG 5

P2–P4 Exp-3 setae	P3–P4 Enp-3 setae	P1 Enp-2 setae	P2–P4 Exp-1 inner setae	CR l/b	
7:8:8	6:5	4	1:1:1	≈7.6	*Delavalia stephensoni*
7:8:8	6:5	4	1:1:1	≈6	*D. longicaudata*
7:8:8	6:5	4	1:1:1	≈4.5	*D. mixta*
7:8:8	6:5	4	0–1:1:1	2–4	KG 5/1 (p. 543)
7:8:8	6:5	4	1:1:1	<2	KG 5/2 (p. 544)
7:8:8	6:5	4	0:1:1	≈1.3	*Delavalia oblonga* [*sensu* Wells & Rao 1987]
7:8:8	6:5	4	0:0:0	≈1.3	*D. breviseta*
7:8:8	6:5	3	1:1:1	3–4	KG 5/3 (p. 545)
7:8:8	5:5	3	1:1:1	7	*Delavalia diegensis*
7:8:8	5:4	4	1:1:1	2?	*D. acutirostris*
7:8:7	6:5	4	1:1:1	3	*D. latioperculata*
7:8:7	6:5	4	1:1:1	2	*D. normani*[1]
7:8:7	6:5	4	1:1:1	3	*D. latioperculata*
7:8:7	6:5	4	1:1:1	≈1.8	*D. adriatica*
7:8:7	6:5	4	?:1:1	≈2?	*D. polluta* [*sensu* Monard 1928][1]

7?:8:7	6:5	4	?:1:1	≈1.3	*D. latisetosa*
7:7:7	5:4	4	0:0:?	≈1	*D. tethysensis* [*sensu* Monchenko 1967a]
7:7:7	3:?	4	1:1:1	?	*D. normani* [*sensu* Gurney 1927b][1]
6:8:8	6:5	3	1:1:1	6	*D. mastigochaeta*
6:8:8	5:4	3	1:1:1	6	*D. intermedia*
6:7:8	6:5	4	1:1:1	2	*D. saharae*
6:7:8	6:5	3	1:1:1	3–3.5	KG 5/4 (p. 546)
6:7:8	5:5	4	1:1:1	2.5	*Delavalia cornuta*
6:7:8	4:4	3	1:1:1	≈5	*D. islandica*
6:7:7	6:5	4	1:1:1	2.6	*D. gundulae*
6:7:7	6:4	2	0:0:0	2.5–3	*D. palustris*[2]
6:7:7	5:4	4	?:?:?	≈1	*D. tethysensis* [*sensu* Monard 1928]
6:7:7	4:4	4	0:0:0	≈3	*D. minuta*[3]
6:6:6	4:4	4	0:0:0	2.5	*D. andamanica*
5:6:8	5:5	4	1:1:1	≈1.5	*D. bermudensis*
?:?:8	?:5	3	?:?:1	1.5–2	*D. arenicola*
?:?:?	?:?	4	?:?:?	2	*D. truncatipes*
?:?:?	?:?	4	?:?:?	2+	*D. inopinata*[4]

1. There is confusion about whether *Delavalia normani* and *D. polluta* are separate species. Lang (1948) synonymises them but a number of authors disagree (Wells & Rao 1987).

   According to Lang (1948) *normani* has 7 setae and spines on P4 Exp-3 and 4 setae on the female P5 endopod, while *polluta* has 8 and 3 respectively. But Monard's (1928) original description of *polluta* shows only 7 setae on P4 Exp-3.

   Further, Por (1964a) and Wells & Rao (1987) describe as *polluta* specimens that have 8 setae on P4 Exp-3 and 4 setae on the female P5 endopod (and show considerable differences in the form of the P5 setae) and Gurney (1927b), writing before Monard described *polluta*, states that his specimens of *normani* have 7 setae and spines on Exp-3 of both P3 and P4.

   Wells & Rao identify their material on the basis of body ornamentation. Only Wells & Rao describe a male for *polluta* and the male of *normani* s. str. remains unknown.

   The problem is not resolvable without rigorous redescription of material from the type localities. See also KG 5/1.
2. Data mainly from Sars (1906); the original description is unreliable for some characters. The number of segments in the female antennule varies between 6 and 8 in the several descriptions available for this species (see Bodin 1997). This is currently an accepted level of variation within species of this genus.
3. Data from Gurney (1927b); the original description is unreliable. Note that some variation exists in the setation of male P5 Exp between the several descriptions available for this species (see Bodin 1997).
4. Wells & Rao (1987) claim that the male described as *D. inopinata* by Sewell (1940) is actually the male of *D. madrasensis.* If that is correct then *D. inopinata* remains so poorly described that it is unlikely to be recognised.

KG 5/1 – characters

1. P2–P4 Exp-1, inner edge

   n:n:n - number of setae on P2, P3 and P4

2. Caudal ramus, setae IV and V

   normal - the 2 long terminal setae are distinct from each other

   fused - the 2 long terminal setae are fused at their base

3. Female antennule

   n - number of segments

4. Female P5

n:n - number of setae on endopod and exopod

5. Male P5

f:n - basis and exopod fused: total number of setae and spines on P5

d:n:n - exopod not fused to basis: number of setae and spines on endopod: number of setae and spines on exopod

uk - male unknown

KG 5/1

P2–P4 Exp-1 inner setae	CR term setae	Female A1 segs	Female P5 setae	Male P5	
1:1:1	normal	8	5:5	uk	*Delavalia magnacaudata*
1:1:1	normal	8	4:6	uk	*D. arctica*
1:1:1	fused	8	4:6	uk	*D. hanstroemi*
1:1:1	fused	7	4:6	uk	*D. bocqueti*
1:1:1	normal	8	4:5	uk	*D. nuwukensis*
1:1:1	fused	8	4:4	f:7	*D. confluens*
0:1:1	normal	7	4:5	d:2:5	*D. hirtipes*
0:1:1	normal	8	4:5	uk	*D. polluta* [*sensu* Por 1964a][1]
0:1:1	normal	8	4:5	f:7(8?)	*D. polluta* [*sensu* Wells & Rao 1987][1]
?:1:1	normal	8	3:5	uk	*D. polluta* [*sensu* Monard 1928][1]
?:?:?	normal	8	3:5	uk	*D. polluta* [*sensu* Sewell 1940][1]

1. There is confusion about whether *Delavalia normani* and *D. polluta* are separate species. Lang (1948) synonymises them but a number of authors disagree (Wells & Rao 1987).

According to Lang (1948) *normani* has 7 setae and spines on P4 Exp-3 and 4 setae on the female P5 endopod, while *polluta* has 8 and 3 respectively. But Monard's (1928) original description of *polluta* shows only 7 setae on P4 Exp-3.

Further, Por (1964a) and Wells & Rao (1987) describe as *polluta* specimens that have 8 setae on P4 Exp-3 and 4 setae on the female P5 endopod (and show considerable differences in the form of the P.5 setae). Wells & Rao identify their material on the basis of body ornamentation.

Finally, Gurney (1927b), writing before Monard described *polluta*, states that his specimens of *normani* have 7 setae and spines on Exp-3 of both P3 and P4. Only Wells & Rao describe a male for *polluta* and the male of *normani* s. str. remains unknown.

The situation is not resolvable without rigorous redescription of material from the type localities. See also KG 5 (p. 542).

KG 5/2 – characters

1. Caudal ramus, seta IV

normal - elongate, filiform

spatulate - short, broad, spatulate

2. Rostrum, in dorsal view

bifid - apex distinctly bifid, with a pair of rounded lobes

acute - apex acutely pointed
rounded - apex broadly rounded

3. Female P5 endopod
   - A - setae all of similar length, relatively short; setae I and IV extending only to the end of exopod, setae II and III only slightly longer
   - B - setae all of similar length, elongate, at least 1.5 times as long as exopod
   - C - setae II–IV elongate, at least 1.5 times as long as exopod; seta I much shorter, extending only to the end of exopod

4. Male P5
   - A - endopod setae very unequal, seta II very small and weak, about a quarter of the length of I; exopod seta IV spiniform and longer than all others, which are slender filiform
   - B - endopod seta II well developed, stout, about half the length of I; exopod setae I–II subequal, longer than III–IV
   - C - endopod setae I–II subequal; exopod setae I–II subequal, longer than III–IV

5. Male P2 Enp-2, outer edge
   - claw - with a long claw-like extension in middle of edge; edge plumose only proximal to this claw
   - notch - middle of edge with a small notch; edge plumose only proximal to this notch
   - plain - edge plain and plumose throughout

KG 5/2

CR outer termimal seta	Rostrum apex	Female P5 Enp	Male P5	Male P2 Enp-2	
spatulate	bifid	A	A	plain	*Delavalia giesbrechti*
normal	acute	B	B	claw	*D. elisabethae*
normal	rounded	C	C	notch	*D. oblonga*

KG 5/3 – characters

1. P1 endopod
   - normal - both segments of normal form, about twice as long as broad; outer edge of segment 1 with stout spinules along its length
   - broad - segment 1 approximately triangular, with distal edge about ⅓ the maximum breadth of the segment; segment 2 very short, about as long as broad; outer edge of segment 1 with a transverse row of fine spinules

2. Male P5 exopod
   - 5 - with 5 setae and spines; outermost very broad, sword shaped.
   - 3 - with 3 setae only, but with outer distal corner a massive unguiform projection

KG 5/3

P1 Enp	Male P5 Exp	
broad	5	*Delavalia latipes*
normal	3	*D. coineauae*

KG 5/4 – characters

1. Maxilliped syncoxa, outer edge
   - plain - with a few isolated spinules
   - crescent - with a crescentic row of long spinules about midway

2. Male P4 Enp-3, setae of the inner edge
   - filiform - both setae elongate, filiform, plumose
   - club - both setae short, club-shaped, with blunt teeth distally

KG 5/4

Maxilliped syncoxa outer edge	Male P4 Enp-3 inner setae	
plain	filiform	*Delavalia longipilosa*[1]
crescent	club	*D. fustiger*[1]

1. See Wells & Rao (1987) for a discussion of these species.

KG 6 – characters

1. P2–P4 Exp-3*
   - n:n:n - number of setae and spines on P2, P3 and P4

* In some genera of Miraciidae (most notably *Delavalia, Amphiascus*, *Amphiascoides*, *Haloschizopera*, *Rhyncholagena* and *Robertsonia*) the most distal inner seta of P2–P4 Exp-3 may be very thin and weak and much shorter than the proximal setae—even minute or almost vestigial. It may also be oriented so that it lies closely applied to the segment edge, or even become trapped beneath the segment so that it is difficult to see in anterior view. Any of these circumstances may have caused authors to misrepresent the true number of inner setae, e.g. as 7 when it really is 8, or 6 when 7 is the true number.

On the other hand, there is no doubt that some descriptions are accurate in reporting this reduced number and thus it is difficult to know whether absence is the true situation or not—especially in older descriptions.

These facts have been taken into account in these keys but it would be wise to double check identifications in the vulnerable genera by running them through alternative KGs.

2. P3–P4 Enp-3
   - n:n - number of setae and spines on P3 and P4

3. P1 Enp-2
   - n - number of setae and spines

4. Female P5
   n:n - number of setae on endopod and exopod
   uk - female unknown

5. Male P5
   f:n - basis and exopod fused; total number of setae and spines
   d:n:n - exopod not fused to basis; number of setae and spines on endopod and exopod
   uk - male unknown

KG 6

P2–P4 Exp-3 setae	P3–P4 Enp-3 setae	P1 Enp-2 setae	Female P5 setae	Male P5	
7:8:7	6:5	3	4:5	f:5	*Delavalia incerta*
6:7:6	6:4	2	3:6	f:4	*D. palustris*[1]
6:7:6	4:4	4	4:5	d:1:3[2]	*D. schminkei*[2]
6:7:6	4:4	4	uk	d:2:3[2]	*D. paraclavus*
6:7:5	4:4	4	3:5	d:2:4	*D. unisetosa*
6:6:6	4:3	4	4:4[3]	d:2:3[2]	*D. clavus*
6:6:5	4:3	4	4:5	uk	*D. valens*

1. *Delavalia palustris* [*sensu* Gurney 1932] and *D. palustris bispinosa* Bodin (1970).
2. In addition to 3 setae, the male P5 exopod has a massive unguiform projection at the outer distal corner.
3. The female P5 exopod also bears a massive unguiform projection between setae III and IV.

KG 7 – characters

1. P2–P4 Exp-3*
   n:n:n - number of setae and spines on P2, P3 and P4

* In some genera of Miraciidae (most notably *Delavalia, Amphiascus*, *Amphiascoides*, *Haloschizopera*, *Rhyncholagena* and *Robertsonia*) the most distal inner seta of P2–P4 Exp-3 may be very thin and weak and much shorter than the proximal setae—even minute or almost vestigial. It may also be oriented so that it lies closely applied to the segment edge, or even become trapped beneath the segment so that it is difficult to see in anterior view. Any of these circumstances may have caused authors to misrepresent the true number of inner setae, e.g. as 7 when it really is 8, or 6 when 7 is the true number.

On the other hand, there is no doubt that some descriptions are accurate in reporting this reduced number and thus it is difficult to know whether absence is the true situation or not—especially in older descriptions.

These facts have been taken into account in these keys but it would be wise to double check identifications in the vulnerable genera by running them through alternative KGs.

2. P3–P4 Enp-3
   n:n - number of setae and spines on P3 and P4

3. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

4. Female P5
   n:n - number of setae on endopod and exopod

5. Male P2 Enp2
n - number of setae
uk - male unknown

KG 7

P2–P4 Exp-3 setae	P3–P4 Enp-3 setae	CR l/b	Female P5 setae	Male P2 Enp-2 setae	
7:7:6	6:4	≈3.5	4:5	uk	*Delavalia golikovi*
6:5:6	5:4	7	3:6	3	*D. longifurca*[1]
6:5:6	5:4	4	3:6	4–5	*D. madrasensis*[1]
6:5:6	5:4	5	3:6	uk	*D. ornamentalia*

1. Wells & Rao (1987) provide a discussion of these species.

KG 8 – characters

1. P2–P4 Exp-3
n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Exp-1, inner edge
n:n:n - number of setae on P2, P3 and P4

3. P1 Enp-1, relative length to exopod
2 - Enp-1 extends to end of Exp-2
3 - Enp-1 extends to end of entire exopod

Willen (2002) provides a dichotomous key to *Melima.*

KG 8

P2–P4 Exp-3 setae	P2–P4 Exp-1 inner setae	P1 Enp-1/ Exp	
5:7:7	1:1:1	3	*Melima bisetosa*, *M. papuaensis*[1]
4:6:7	0:1:1	3	*M. ovalis*
4:5:7	1:1:1	3	*M. caulerpae*
4:5:7	0:0:1	2	*M. indica*[2]

1. According to Willen (2002) the most prominent difference between these species is the relative length of segments 1 and 2 of the female antennule—in *M. papuaensis* segment 2 "is clearly longer than the first" while in *M. bisetosa* the segments are of equal length—consult Willen's paper before confirming an identification; the male of both species remains unknown.
2. Data from the redescription by Wells & Rao (1987).

KG 9 – characters

1. Caudal ramus, in dorsal view
n - ratio of maximum length to maximum breadth

2. Antennule, lateral spur on segments 1 and 2
present *or* absent

3. P2–P4 Exp-3
n:n:n - number of setae and spines on P2, P3 and P4

4. P2–P4 Exp-2, inner edge
n:n:n - number of setae on P2, P3 and P4

5. P5 exopod, unguiform projection
present *or* absent

KG 9

CR l/b	A1 spurs	P2–P4 Exp-3 setae	P2–P4 Exp-2 inner setae	P5 Exp unguiform projection	
≈9	present	7:8:8	1:1:1	present	*Onychostenhelia falcifera* female
≈9	present	7:8:7[1]	1:1:1	present	*O. falcifera* male[1]
≈3	absent	6:7:7	1:1:1	absent	*Pseudostenhelia wellsi*[2]
≈2	absent	6:7:6	0:0:1	absent	*P. prima*[2]
≈2	absent	5:6:6	0:0:0	absent	*P. secunda* female
≈2	absent	5:6:5	0:0:0	absent	*P. secunda* male

1. P4 is extensively modified in the male with one feature being a massive spur at the outer proximal corner of Exp-3.
2. Gómez (2000a) redescribes *P. wellsi* and amends the description of *P. prima.*

KG 10 – characters

1. P2–P4 Exp-3
n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Exp-2, inner edge
n:n:n - number of setae on P2, P3 and P4

3. P2–P4 Exp-1, inner edge
n:n:n - number of setae on P2, P3 and P4

4. P3 Enp-2, inner edge
n - number of setae

5. Antenna exopod
n - total number of setae

KG 10

P2–P4 Exp-3 setae	P2–P4 Exp-2 inner setae	P2–P4 Exp-1 inner setae	P3 Enp-2 inner setae	A2 Exp setae	
7:8:8	1:1:1	1:1:1	2	3	*Pseudamphiascopsis attenuatus* s. str.
7:8:8	1:1:1	1:1:1	2	4	*P. attenuatus orientalis*[1]
7:7:8	1:1:1	1:1:1	2	5	*Amphiascus discrepans*[2]
7:8:8	(1:1:1)?	(1:1:1)?	2	4	*A. ultimus*
7:7:8	1:1:1	1:1:1	1	3	*A. angustipes* [*sensu* Gurney 1927b]
7:7:8	1:1:1	1:1:1	1	4	KG 10/1
7:7:7	2:2:2	1:1:1	1	4	*Teisierella pontica*[3]
5?:6:7	0?:0:0	0?:0:1	1	4	*Amphiascoides koltuni*

1. Wells (1968) considers there is no reason to maintain subspecies *orientalis* distinct from the nominate subspecies.
2. Females of *A. discrepans* are instantly recognisable by their peculiar caudal rami, which are flask-shaped and with a dorsal keel. In the male the rami are the normal quadrangular shape and are broader than long.
3. This species is known only from 2 females. The presence of 2 inner setae on P2–P4 Exp-2 requires confirmation, as this would be a unique feature in Harpacticoida.

KG 10/1 – characters

1. Thoracic somite 4 (the P4 bearing somite), distal edge spur

   present - with a narrow lateral projection extending at least to the distal end of thoracic somite 5

   absent - without a spur

2. Female P5 exopod

   A - seta II borne on an elongate lobe of exopod; a deep cleft between the lobes that bear setae II and III; origin of seta III approximately halfway along the length of exopod; origin of seta I distal to that of seta III

   B - a deep cleft between the equal length lobes bearing setae II and III gives the appearance of deeply cleft distal edge; origin of seta I proximal to that of setae III and IV

KG 10/1

Thorax 4 spur	Female P5 Exp	
present	A	*Rhyncholagena bermudensis*[1]
absent	B	*R. littoralis*[1]

1. Male unknown.

KG 11 – characters

1. P2–P4 Exp-3

   n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Exp-1, inner edge

   n:n:n - number of setae on P2, P3 and P4

3. P1 Exp-2, inner edge

n - number of setae

4. P3–P4 Enp-3

n:n - number of setae and spines on P3 and P4

5. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

KG 11

P2–P4 Exp-3 setae	P2–P4 Exp-1 inner setae	P1 Exp-2 inner setae	P3–P4 Enp-3 setae	CR l/b	
7:8:8	1:1:1	1	6:5	≈1	*Pseudamphiascopsis herdmani*
7:8:8	0:0:0	1	5:5	≈2	KG 11/1
7:8:8	0:0:0	1	5:5	≤1	KG 11/2 (p. 552)
5:6:7	0:0:0	0	5:4	≤1	KG 11/3 (p. 552)

KG 11/1 – characters

1. Body ornamentation

copious - pointed projections posterolaterally on thoracic somites 2–4 and abdomen somites 1–3

moderate - pointed projections posterolaterally on thoracic somites 3–4 and abdomen somite 1 only

minor - pointed projections posterolaterally only on abdomen somite 1

2. P1 Enp-1

slender - approximately 5–5.5 times as long as broad; distal edge only as broad as Enp-2; origin of inner seta just proximal to distal corner

truncate - approximately 3 times as long as broad; distal edge about twice as broad as Enp-2; inner seta originates at distal corner

3. Female P5

n:n:n - number of setae on endopod and exopod

4. Male P5

distinct - exopod articulated with basis

fused - exopod fused to basis

uk - male unknown

KG 11/1

Body orn	P1 Enp-1	Female P5 setae	Male P5	
copious	truncate	5:6	uk	*Diosaccus* sp. aff. *dentatus* Itô, 1982
moderate	slender	5:7	distinct	*Diosaccus dentatus*
minor	slender	5:6	fused	*D. hamiltoni*[1]

1. The male is described by Sewell (1940) but there must be some doubt that it is mature as all other species of *Diosaccus* for which the male is known have P5 rami distinct and well developed.

KG 11/2 – characters

1. Caudal ramus, setae IV and V
   - filiform - long and filiform
   - bulbous - short, bulbous at their base

2. P1, relative length of exopod to Enp-1
   - short - Enp-1 only slightly longer than exopod
   - long - exopod extends only about ⅔ the length of Enp1

3. Female P5
   - n:n - number of setae on endopod and exopod

4. Male P1 basis
   - simple - inner edge without chitinous projections; inner spine long, extending at least halfway along Enp-1
   - complex - inner edge with 1 tongue-like, striated chitinous projection; inner spine short, not reaching the middle of Enp-1

5. Antenna exopod
   - n:n - number of segments: total number of setae

KG 11/2

CR terminal setae	P1 Exp/ Enp-1	Female P5 setae	Male P1 basis	A2 segs setae	
filiform	short	5:6	simple	1:2	*Diosaccopsis rubeus* [*sensu* Brian][1]
filiform	short	5:6	simple	2:2	*D. rubeus* [*sensu* Monard][1]
bulbous	long	6:8	complex	2:4	*Antiboreodiosaccus crassus*[2]

1. According to Brian (1925, 1927) both setae of antenna exopod are terminal. According to Monard (1928) (and Bodin 1964) each segment bears 1 seta.
2. Data from the redescription by Pallares (1970).

KG 11/3 – characters

1. Caudal ramus, setae IV and V
   - simple - plain and filiform
   - complex - inner seta whip-like with a long, spatulate proximal portion and a thin whiplash distally; outer seta short, with a spatulate basal portion with a notch on inner side

2. P1
   - elongate - exopod and endopod elongate, slender; Enp-1 extends slightly beyond the end of the exopod; Enp-1 6–7 times as long as broad
   - long - Enp-1 extends to the end of the exopod, or slightly less; Enp-1 approximately 3 times as long as broad
   - short - Enp-1 extends only to the end of Exp-2; Enp-1 approximately twice as long as broad

3. Female P5, setae

filiform - all setae filiform, though they are of varying length (but seldom much shorter than the length of the exopod) and some may be plumose

spiniform - most setae very short (much shorter than the length of the exopod) broad and biplumose

uk - female unknown

4. Male antennule, segment 4

blade - laterally with a long blade shaped extension of the distal edge that extends well into segment 6

plain - without such a structure

uk - male unknown

5. Male P2 Enp-2

spike - terminally with 1 long, sharp, unguiform projection

fork - terminally with 2 parallel, long, sharp, unguiform projections

claws - terminally with a plumose seta; outer side with a pair of long spines, articulated with the segment

uk - male unknown

KG 11/3

CR terminal setae	P1	Female P5 setae	Male A1 seg 4	Male P2 Enp-2	
simple	elongate	filiform	plain	spike	*Paramphiascella calcarifer*
complex	long	filiform	uk	uk	*P. langi*
simple	long	filiform	uk	uk	*P. robinsoni* [*sensu* A. Scott1902, Sewell 1940][1]
simple	long	filiform	plain	spike	*P. robinsoni* [*sensu* Gurney 1927b, Willey 1930][1]
simple	long	uk	blade	spike	*P. robinsoni* [*sensu* Pallares 1968a][1]
simple	long	filiform	blade	spike	*P. sirbonica*[2]
simple	long	spiniform	plain	claws	*Miscegenus heretaunga*
simple	short	spiniform	plain	fork	*Paramphiascoides mixtus*

1. It is not conclusively established whether these are records of the same species. This is partially due to inadequate or incomplete descriptions but also to some inconsistency between each record. The inadequately described *Amphiascus invaginatus*—placed *incertae sedis* in *Paramphiascella* by Lang (1948)—should also be considered here.
2. There is a great similarity between this species and *P. robinsoni*, especially in the male (Pallares 1968a).

KG 12 – characters

1. Male P5 endopod, setae I and II

equal - setae I and II approximately equal length

I<II - seta I rudimentary, only about a quarter of the length of seta II

2. P1 Enp-2, inner edge

n - number of setae

KG 12

Male P5 Enp setae	P1 Enp-2 inner	
equal	1	*Pseudodiosaccopsis mesogeae*
I<II	0	*P. rufescens*

KG 13 – characters

In addition to the characters used in this key, note that

- In *Balucopsylla* the P2 endopod is not sexually dimorphic.
- In *Schizopera* males P2 endopod is reduced to 2 segments by fusion of segments 2–3 and has claw-like structures on the inner edge of segment 2.
- Male *Schizopera* and *Eoschizopera* appear to be unique among Harpacticoida in bearing a hyaline bract on the inner edge of P3 Exp-3. This bract is in addition to the normal complement of 4 (rarely 3 or 5) setae and spines.

1. P2–P4 Exp-3
n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Exp-2, inner edge
n:n:n - number of setae on P2, P3 and P4

3. P3–P4 Enp-3
n:n - number of setae and spines on P2, P3 and P4

4. P2–P4 Enp-1, inner edge
n:n:n - number of setae on P2, P3 and P4

KG 13

P2–P4 Exp-3 setae	P2–P4 Exp-2 inner setae	P3–P4 Enp-3 setae	P2–P4 Enp-1 inner setae	
4:5:4	1:1:1	4:3	0:1:1	KG 13/1 (p. 555)
4:4:5	1:1:1	4:3	0:1:1	*Balucopsyllus similis*
4:4:5	1:1:1	5:4	0:1:1	*Schizopera indica*
4:4:4	1:1:1	5:3	0:1:1	*S. akatovae*
4:4:4	1:1:1	4:4	0:1:1	*S. petkovski*
4:4:4	1:1:1	4:3	0:1:1	KG 13/2 (p. 556)
4:4:4	1:1:1	4:3	0:0:0	KG 13/3 (p. 557)
4:4:4	1:1:1	3:4	0:1:1	*Schizopera variseta*[1]
4:4:4	1:1:1	3:3	0:1:1	*S. bradyi*
4:4:4	1:1:1	3:3	0:1:1	*S. borutzkyi*
4:4:4	1:1:1	3:2	0:1:1	KG 13/4 (p. 558)
4:4:4	1:1:1	3:2	0:0:0	KG 13/5 (p. 559)

4:4:4	1:1:0	4:3	0:1:1	KG 13/6 (p. 560)
4:4:4	1:1:0	3:4	0:1:1	*Schizopera variseta*[1]
4:4:4	1:1:0	3:2	0:1:1	*S. variseta*[1]
4:4:4	1:1:0	3:2	0:0:0	*S. reducta*
4:4:4	1:0:1	4:3	1:1:1	*S. paradoxa*
4:4:4	1:0:0	4:4	0:1:1	*Sparvula*
4:4:4	1:0:0	4:3	0:1:1	KG 13/7 (p. 560)
4:4:4	1:0:0	3:2	0:0:0	KG 13/8 (p. 561)
4:4:4	1:0:0	2:2	0:0:0	*Schizopera kunzi*
4:4:4	0:0:0	4:3	0:1:1	KG 13/9 (p. 561)
4:4:4	(0:0:1)?	3:3	1:1:1	*Schizopera pontica*
4:4:4	0:0:0	3:3	0:1:1	*S. roberiverensis*
4:4:4	0:0:0	3:3	0:0:0	*S. bozici* [*sensu* Bozić 1969b)[2]
4:4:4	0:0:0	3:2	0:1:1	KG 13/10 (p. 562)
4:4:4	0:0:0	3:2	0:0:0	*Schizopera noodti*
4:3:4	1:0:0	5:3	0:1:1	*S. clandestina* [*sensu* Arlt 1983]
4:?:?	1:?:?	?:?	1:?:?	*S. longirostris*
4:?:?	1:?:?	?:?	0:1:1	*S. scalaris*[3]

1. *Schizopera variseta* is known only from a single female in which there is variability in the setation of P3–P4 between right and left sides. In addition to these 3 states it also keys out in KG 13/6 (p. 560).
2. The separation between P1 Enp-2 and Enp-3 is weak—"un sillon très fin et incomplet est à peine perceptible". See also KG 15 (p. 563).
3. P1 endopod may be indistinctly 3-segmented or clearly only 2-segmented; see also KG 15 (p. 563).

KG 13/1 – characters

1. P1 Enp-1, length relative to exopod
   - long - slightly longer than exopod
   - short - shorter than exopod (the exact relationship is unknown)

2. Female P5
   - n:n - number of setae and spines on endopod and exopod

3. Male P5
   - n:n - number of setae and spines on endopod and exopod
   - uk - male unknown

KG 13/1

P1 Enp-1/ Exp	Female P5 setae	Male P5 setae	
long	3:5	2:5	*Schizopera haitiana*[1]
short	5:6	uk	*S. triacantha*[1]

1. The original description of both species is incomplete. *Schizopera triacantha* has not been rediscovered but de Infante, Riehl & Saunders (1979) provide an expanded description of *S. haitiana*.

KG 13/2 – characters

The species included in this key are extremely difficult to separate on external morphology.

The habitat of *Schizopera* species spans the full range from marine to freshwater, including hypersaline and hyperthermic habitats. Thus the high degree of variability reported in currently recognised species is not unexpected and the debate between "splitters" and "lumpers" will continue for some time yet.

This present key attempts to set out the known variability between and within the species. Since some of this is meristic and relies on measurements made on small drawings, whose accuracy may be questionable, any determination made must be treated with caution.

1. Caudal ramus, in dorsal view
   - n - ratio of maximum length to maximum breadth

2. Caudal ramus, ornamentation with spinules or setules (excluding distal edge)
   - S1 - along most if not all of the inner edge, but not elsewhere
   - S2 - confined to distal half of inner edge at most
   - S3 - along all or part of inner edge and on proximal part of dorsal (and sometimes ventral) surface
   - naked - without ornamentation

3. P1 Enp-1, length relative to exopod
   - 3+ - Enp-1 extends beyond exopod (exopod never extends beyond approximately 85% of the length of Enp-1)
   - ≈3 - Enp-1 extends approximately to the end of exopod
   - ≈2.5 - Enp-1 extends only to approximately the middle of Exp-3
   - ≈2 - Enp-1 extends only to about the end of Exp-2

4. P1 Enp-1
   - n - ratio of length relative to combined length of Enp-2 and Enp-3

5. P1 Enp-1
   - n - ratio of maximum length to maximum breadth

KG 13/2

CR l/b	CR orn	P1 Enp-1/ Exp	P1 Enp-1/ Enp-2+3	P1 Enp-1 l/b	
4	S2	2.5	≈1.5	4–5	*Schizopera jundeei*[1]
2.7	S1	?	?	?	*S. uramurdahi* female[2]
2.2	S1	?	?	?	*S. uramurdahi* male[2]
≈2	S1	≈3	≈2.5	4–5	*S. brusinae*[1]
≈2	S1	≈3	≈1.8	≈4	*S. samchunensis*
≈2	S3	≈3	≈1.5	3–4	*S. oldcuei*
≈1.5	S1	3+	≈2.5	4–5	*S. clandestina* s. str. [*sensu* Noodt 1953]
≈1.5	S1	3+	≈2	4–5	*S. compacta* [*sensu* Lint 1922]
≈1.5	S1	≈3	≈2.5	4–5	*S. knabeni*[3]
≈1.5	S1	≈2.5	≈1.5	3–4	*S. costaricana*[4]
≈1.5	S1	≈2.5	≈1	3–4	*S. clandestina* s. str. [see Lang 1948][5]
≈1.5	S1	≈2	≈2	3–4	*S. clandestina* s. str. [*sensu* Apostolov 1973c]
≈1.5	S2	≈3	≈2	5–6	*S. clandestina* s. str. [*sensu* Apostolov 1973a]

≈1.5	S2	≈3	≈2	4–5	*S. compacta* [*sensu* Apostolov 1973c][6]
≈1.5	S2	≈3	≈1.5	3–4	*S. validior*
≈1.5	S2	≈2	≈1.5	3–4	*S. lindae*[7]
≈1.5	S2	≈2	≈1.5	≤2	*S. elatensis*[8]
≈1.5	S3	≈3	≈2	≥6	*S. depotspringsi* female[9]
≈1.5	S3	≈2.5	≈1.5	5–6	*S. depotspringsi* male
≈1.5	S3	≈2	≈1.5	5–6	*S. austindownsi*
≈1.5	naked	≈3	≈2.5	4–5	*S. tobae*
≈1.5	naked	≈3	≈2	4–5	*S. pori* female, *S. vicina*[10]
≈1.5	naked	≈2.5	≈1	≤2	*S. subterranea*
1.25	naked	≈2.5	≈2	≈3.5	*S. weelumurra*
≈1	S2	≈3	≈2.5	4–5	*S. tobae* [*sensu* Yeatman 1983][11]
≈1	S2	≈2.5	≈1.5	3–4	*S. clandestina brevicauda*
≈1	naked	≈3	≈2	3–4	*S. pori* male
1.25	naked	≈2.5	≈2	≈3.5	*S. weelumurra*

1. Female P5 exopod bears 5 setae and spines (rather than the usual 6).
2. Consult Karanovic (2004) for characters that distinguish this species.
3. The setules on the inner edge of the caudal ramus are very long and fine.
4. See Mielke (1995a) for description as *Schizopera* sp. A.
5. Lang (1948) summarises information on records to that date. In one variant the male the P5 basis and exopod are fused together. In all other variants of *S. clandestina*, and in all other species in this key, they are distinct or the male is unknown.
6. Apostolov's illustrations seem to indicate that the female P6 bears 1 spine in addition to the usual 2 setae.
7. The illustration of the apparently damaged male P5 indicates the endopod might bear 3 setae instead of the usual 2. This requires confirmation.
8. The unique feature of this species is the male caudal ramus. The setae are reduced to small bulbous stumps and there is a prominent ventral shelf beneath the origin of the terminal setae. The female is less reduced, but there is a small terminal ventral shelf.
9. The female *S. depotspringsi* P1 Enp-2 bears a long inner seta. This is unique among known species of *Schizopera.* The male P1 differs considerably from that of the female, including lacking this seta.
10. Females are readily distinguished by the P5. In *S. pori* endopod setae II–IV are almost of equal length and exopod setae IV–V are less than half the length of any other exopod seta. In *S. vicina* endopod seta III is nearly twice as long as any other endopod seta and only exopod seta II is twice as long as setae IV–V.
11. Yeatman records only a single male. There is no indication in other descriptions of this species that sexual dimorphism exists in this ramus (though it is common in the genus).

KG 13/3 – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. P1 Enp-1, length relative to exopod
   long - Enp-1 extends approximately to the end of exopod
   medium - Enp-1 extends only to approximately the middle of Exp-3
   short - Enp-1 extends only to about the end of Exp-2

3. P1 Enp-1
   n - ratio of length relative to combined length of Enp-2 and Enp-3

4. Male P5 exopod
   n - number of setae and spines

5. Male P5 exopod setae

extreme - all setae longer than length of exopod

long - seta IV at most as long as exopod; all other setae much longer

short - seta II is longer than exopod; other setae much shorter than exopod

KG 13/3

CR l/b	P1 Enp-1/ Exp	P1 Enp-1/ Enp-2+3	Male P5 Exp setae	Male P5 Exp setae	
3.5	long	4	5	long	*Schizopera longifurcata*
≈2	long	4	5	long	*S. consimilis*
1.5	long	2.5	4	extreme	*S. inopinata*
1.5	long	≈2	5	extreme	*S. longicauda*
1.5	short	2–2.5	5	long	*S. aralensis*
1.25	medium	2.5	5	short	*S. neglecta*

KG 13/4 – characters

1. Female caudal ramus

A - elongate, 2.5 times as long as broad, inner edge with short spinules in distal ⅔ and on dorsal distal edge; seta VI very short, intensely bulbiform with its origin about ⅔ along the outer edge

B - moderately elongate, approximately 1.8 times as long as broad, inner edge with short spinules in distal ⅔ and on dorsal distal edge; seta VI a short broad spine with its origin about ⅔ along the outer edge

C - moderately elongate, approximately 1.7 times as long as broad, inner edge with 3–4 spinules in distal half, dorsal distal edge naked; seta VI an elongate spine with its origin about ⅔ along the outer edge

D - short, only as long as broad, inner edge with a few very long, fine spinules at the distal corner, dorsal distal edge with a few spinules; seta VI spiniform with its origin close to the outer distal corner

2. Male caudal ramus

A - moderately elongate, about 1.5 times as long as broad, inner edge with short spinules in distal ⅔ and on dorsal distal edge; seta VI an elongate spine with its origin about ⅔ along the outer edge

B - moderately elongate, approximately 1.7 times as long as broad, inner edge with 3–4 spinules in distal half, dorsal distal edge naked; seta VI an elongate spine with its origin about ⅔ along the outer edge

uk - male unknown

3. Female P5

n:n - number of setae on endopod and exopod

4. Female P5 exopod

A - elongate, twice as long as broad; setae IV–VI subequal in length; seta I about half as long as seta II

B - moderately elongate, 1.5 times as long as broad; setae IV–V shorter than all others; seta I about half as long as seta II

C - short, about 1.2 times as long as broad; seta IV shorter than all others; seta I about half as long as seta II

D - very short, only as long as broad; setae IV–V less than half as long as any other setae (note that seta II is unknown)

5. Male P5 exopod

A - elongate, twice as long as broad; setae II–III the longest setae, subequal in length and at least twice as long as any other seta; seta I very small and weak, only about $^1/_5$ the length of seta II

B - short, about 1.3 times as long as broad; seta III the longest seta; seta I short, less than half the length of seta II

C - very short, only as long as broad; seta II the longest seta; seta I well developed, about half the length of seta II and extending to the end of endopod seta II

KG 13/4

Female CR	Male CR	Female P5 setae	Female P5 Exp	Male P5 Exp	
A	A	4:6	A	A	*Schizopera minuta*
B	A	4:5	C	B	*S. langi*
C	B	4:6	B	C	*S. lagrecai*
D	uk	4:6	D	uk	*S. variseta*[1]

1. *Schizopera variseta* is known only from a single female in which there is variability in the setation of P3–P4 between right and left sides. See also KG 13 note 1 (p. 555).

KG 13/5 – characters

1. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

2. Caudal ramus, inner edge

naked - without ornamentation

spinulose - with long spinules along the entire edge

3. Caudal ramus, setae II and III

odc - origin close to the outer distal corner

middle - origin in the middle of the outer edge

4. P2–P3 Exp-2, inner seta, length relative to Exp-3

short - seta extends to about the end of Exp-3

long - seta extends well beyond the end of Exp-3

5. P4 Enp-3, length of outer seta relative to inner seta

long - approximately equal

short - approximately ⅔ the length

KG 13/5

CR l/b edge	CR inner II–III	CR setae inner	P2–P3 Exp-2 setae seta	P4 Enp-3	
1.7	naked	odc	?	?	*Schizopera jugurtha* s. str.[1]
1.7	naked	odc	short	short	*S. jugurtha* [*sensu* Borutzky 1971]
2.5	spinulose	middle	long	short	*S. pseudojugurtha*

1. See Lang (1948).

KG 13/6 – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. Anal operculum
   hairy - with fine setules
   naked - without ornamentation

3. P1 Enp-1
   n - length relative to combined length of Enp-2 and Enp-3

4. P4 Enp-2, inner edge
   n - number of setae

KG 13/6

CR l/b	Anal op	P1 Enp-1/ Enp-2+3	P4 Enp-2 inner setae	
1.3	naked	≈2	1	*Schizopera tobae cubana* female[1]
1.6	hairy	≈1.5	0	*S. taricheana*

1. See KG 13/7 for the male.

KG 13/7 – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. P1 Enp1
   n - length relative to combined length of Enp-2 and Enp-3

KG 13/7

CR l/b	P1 Enp-1/ Enp-2+3	
1.8	1.2	*Schizopera baltica*
1.3	≈2	*S. tobae cubana* male[1]

1. See KG 13/6 for the female.

KG 13/8 – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. Caudal ramus, inner edge
   naked - without ornamentation
   spinulose - with long spinules along the entire edge

3. P1 Enp1
   n - length relative to combined length of Enp-2 and Enp-3

4. P1 Enp-1, length relative to exopod
   ≈3 - extends to the end of Exp-3 or slightly less
   2.5 - extends to about the middle of Exp-3

KG 13/8

CR l/b	CR inner edge	P1 Enp-1/ Enp-2+3	P1 Enp-1/ Exp	
1.2	spinulose	2	≈3	*Schizopera cicolanii*
2	naked	1.9	≈3	*S. jugurtha stephanidesi*[1]
1.4	naked	1.4	2.5	*S. j. stephanidesi* [sensu Kunz 1963b][1]
1.4	naked	1.66	2.5	*S. j. stephanidesi* [*sensu* Montschenko 1967a][1]
1.3	naked	1.25	2.5	*S. j. stephanidesi* [*sensu* Apostolov 1973c][1]

1. This key takes into account the considerable variability that has been reported for *Schizopera stephandesi* but its true extent is difficult to establish as descriptions often are inadequate or incomplete and the quality of the illustrations does not always inspire confidence in their accuracy.

KG 13/9 – characters

1. Caudal ramus
   A - length/breadth ratio 2.5 in female, ≈2 in male; inner edge sparsely spinulose; seta VI a stout spinulose spine
   B - length/breadth ratio ≈2 in female, 1.5 in male; inner edge naked; seta VI a slender naked spine

2. P3–P4 Enp-2, inner seta
   short - extends to about the end of Enp-3 or slightly beyond
   long - extends well beyond Enp-3

3. Female antennule, segment 2
   n - ratio of maximum length to maximum breadth

4. Female P5, setae
   spiniform - endopod setae III–IV spiniform and shorter than setae I–II; exopod setae II–III twice as long than other setae, which are stout and spiniform
   filiform - endopod setae all filiform, III–IV at least as long as I–II; exopod setae all subequal, filiform

5. Male P5, setae
spiniform - all setae spiniform, except exopod seta III
filiform - all setae filiform, except, possibly, endopod seta II

KG 13/9

CR	P3–P4 Enp-2	Female A1 seg 2	Female P5 setae	Male P5 setae	
A	short	1.5	spiniform	spiniform	*Schizopera osana*
B	long	2.2	filiform	filiform	*S. hawaiiensis*

KG 13/10 – characters

1. Caudal ramus
pyriform - weakly pyriform, proximal outer edge convex, inner edge almost straight (female) or weakly convex proximally and straight distally (male); inner edge with small spinules in distal half; seta VI a bulbous spine about ⅔ the length of the ramus (female) or a very long, plain spine 1.5 times the length of the ramus (male); origin of seta VI in middle of outer edge
conical - weakly conical, outer edge straight, inner edge straight, weakly convex or weakly concave; inner edge with long spinules throughout its length; seta VI a weakly bulbous spine about half as long as the ramus

2. P1 Enp-1, length relative to exopod
short - Enp-1 extends to the middle of Exp-3 at most
long - Enp-1 extends to about the end of Exp-3

3. P3–P4 Enp-2, inner seta
short - extends to about the end of Enp-3 or slightly beyond
long - extends well beyond Enp-3

4. Female P5 endopod
equal - setae subequal in length
III - seta III twice as long as any other seta

KG 13/10

CR	P1 Enp-1/ Exp	P3–P4 Enp-2 inner seta	Female P5 Enp	
pyriform	short	long	equal	*Schizopera nana*
conical	long	short	III	*S. californica*

KG 14 – characters

Male *Schizopera* and *Eoschizopera* appear to be unique among Harpacticoida in bearing a hyaline bract on the inner edge of P3 Exp-3. This bract is in addition to the normal complement of 4 (rarely 3 or 5) setae and spines.

1. P3–P4 endopod, distal segment
   n:n - number of setae on P3 and P4

2. P3–P4 Enp-1, inner edge
   n:n - number of setae on P3 and P4

3. Female P2 Enp-3
   n - number of setae

KG 14

P3–P4 Enp distal seg setae	P3–P4 Enp-1 inner setae	Female P2 Enp-3 setae	
3:2	1:1	4	*Schizopera nichollsi*
3:2	0:0	3	*S. arenicola*
2:2	1:1	3	*S. varnensis*

KG 15 – characters

Male *Schizopera* and *Eoschizopera* appear to be unique among Harpacticoida in bearing a hyaline bract on the inner edge of P3 Exp-3. This bract is in addition to the normal complement of 4 (rarely 3 or 5) setae and spines.

1. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Exp-2, inner edge
   n:n:n - number of setae on P2, P3 and P4

3. P3–P4 Enp-3
   n:n - number of setae and spines on P3 and P4

4. P2–P4 Enp-1, inner edge
   n:n:n - number of setae on P2, P3 and P4

5. P1 endopod
   long - Enp-1 much longer than entire exopod (exopod extends only to about ⅔ the length of Enp-1); Enp-1 5–10 times as long as Enp-2
   medium 1 - Enp-1 about as long as entire exopod (Enp-1 reaches at least the middle of Exp-3 but at most is slightly longer than entire exopod); Enp-1 2.5–3.5 times as long as Enp-2
   medium 2 - as medium 1 but Enp-1 only twice as long as Enp-2
   medium 3 - as medium 1 but Enp-1 and Enp-2 equal in length
   short 1 - Enp-1 extends to the end of Exp-2 at most; Enp-1 only twice as long as Enp-2
   short 2 - as short 1 but Enp-1 less than twice as long as Enp-2

KG 15

P2–P4 Exp-3	P2–P4 Exp-2	P3–P4 Enp-3	P2–P4 Enp-1	P1 Enp-1	
5:5:4	0:0:0	2:4	1:1:0	short 2	*Schizopera crassipinata*[1]
4:5:4	1:1:1	4:3	0:1:1	long	*S. marlieri*
4:4:5	1:1:1	4:4	1:1:1	long	*Actopsyllus matthewi*
4:4:5	0:0:0	4:3	0:1:1	short 1	*Schizopera gligici* female
4:4:5	0:0:0	4:3	0:1:1	medium 1	*S. gligici* male
4:4:4	1:1:1	4:3	1:1:1	long	*S. rotundipes*[2]
4:4:4	1:1:1	4:3	0:1:1	medium 1	KG 15/1 (p. 564)
4:4:4	1:1:1	4:3	0:1:1	medium 2	KG 15/2 (p. 565)
4:4:4	1:0:0	4:3	1:1:1	short 2	*Schizopera arconae*
4:4:4	0:0:1	4:3	1:0:1	medium 1	*S. monardi*
4:4:4	0:0:0	4:3	0:0:1	short 1	*S. lacusamari*
4:4:4	0:0:1	3:3	0:1:1	medium 1	KG 15/3 (p. 565)
4:4:4	0:0:0	3:3	0:1:1	medium 1	*Schizopera spinifer*
4:4:4	0:0:0	3:3	0:0:0	medium 2	*S. bozici*[3]
4:?:?	1:?:?	?:?	0:1:1	long	*S. scalaris*[2, 4]
4:?:?	1:?:?	?:?	0:?:?	medium 3	*S. minuticornis*[4]
?:?:4	?:?:1	?:3	?:?:1	medium 1	*S. fimbriata*[4]
?:?:?	?:?:?	?:?	?:?:?	long	*S. ungulata*, *S. spinulosa*[4]

1. *Schizopera crassipinata* has a very distinctive caudal ramus. In the female the inner terminal seta is a short, broad lamella.
2. Lang (1948) argues that *S. rotundipes* may be synonymous with *S. scalaris*.
3. P1 Enp-1 may be indistinctly 3-segmented or clearly only 2-segmented; see also KG 13 (p. 554).
4. These species have been collected only in Lake Tanganyika. Apart from the P2–P4 they are well described by Sars (1909c) and are distinguished on features of the caudal ramus and the P5. At this time *S. minuticornis* is the only species in the genus with this type of P1.

KG 15/1 – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. P1 Enp-1, length relative to exopod
   long - Enp-1 extends to the end of Exp-3
   short - Enp-1 extends only to the middle of Exp-3

3. Female P5
   d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod

4. Male P5
   d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod
   uk - male unknown

KG 15/1

CR l/b	P1 Enp-1/ Exp	Female P5	Male P5	
2	short[1]	d:4:5	d:2:5	*Schizopera brusinae* [*sensu* Kunz 1974a][1]
1.7	long	f:4:6	f:2:5	*S. dimentmani*
≈1	long	d:4:6	uk	*S. giselae*

1. Data on P1 from Kunz's illustration. He does not comment on this significant difference from the original description.

KG 15/2 – characters

1. P5
   - x:x - for female and male, where x represents one of the following states
   - d *or* f - exopod distinct from *or* fused to basis

2. P2–P4
   - broad - all segments relatively short and broad (e.g. terminal segments about twice as long as broad)
   - elongate - all segments relatively long and slender (e.g. terminal segments 3–4 times as long as broad)

3. Caudal ramus
   - n - number of diagonal rows of spinules on dorsal surface

KG 15/2

P5	P2–P4 segs	CR spinules	
d:f	broad	2	*Schizopera chaetosa*
f:f	elongate	1	*S. pratensis*

KG 15/3

1. Caudal ramus
   - normal - without sexual dimorphism: ≈1.5 times as long as broad; seta VI spiniform, shorter than the length of the ramus; origin in the middle of the distal half of the outer edge
   - modified - with sexual dimorphism: Female slightly longer than broad; seta VI a massive lamellate spine, longer than the ramus—its origin close to the outer distal corner makes the origin of the terminal setae appear to be to the inner side of the distal edge. Male slightly less than 1.5 times as long as broad; seta VI a long spine, almost twice the length of the ramus; origin in the middle of the outer edge

2. Female P5
   - n:n - number of setae and spines on endopod and exopod

3. Male P4 Exp-3, inner edge, hyaline bract*
   - present *or* absent

* See introduction to KG 15 (p. 563); note that a bract is always present on P3 Exp-3.

KG 15/3

CR	Female P5 setae	Male P4 Exp-3 bract	
normal	4:6	absent	*Schizopera meridionalis* s. str. [*sensu* Petkovski 1954]
normal	4:6	present	*S. meridionalis* s. str. [*sensu* Noodt 1954b][1]
normal	3–5:6	absent	*S. m. listensis*[2]
modified	4:6	absent	*S. ornata*[3]

1. As *S. inornata* Noodt, 1954b. A hyaline bract on P4 in addition to that on P3 is unique in the genus. Other authors (except Mielke; see note 2) who have recorded *S. meridionalis* have paid no attention to this fact—even those who must have been aware of Noodt's discovery, and have provided further descriptions of the species, do not discuss this character.
2. Mielke (1975) distinguishes this subspecies mainly on the absence of a hyaline bract on P4. He records variability in the female P5 between individuals and within a single female.
3. Mielke (1974) provides superb illustrations of the caudal ramus of *S. ornatus* and *S. meridionalis.*

KG 16 – characters

1. Cuticular lenses on cephalic shield
   present *or* absent

2. Caudal ramus
   bulb - with a short bulbous spine at outer distal corner
   filiform - all setae and spines filiform

3. Maxilliped basis
   straight - inner edge approximately straight; endopod claw long, extending at least halfway along basis
   concave - inner edge weakly concave; endopod claw short, not reaching halfway along basis
   step - inner edge strongly convex proximally and straight or weakly concave distally; endopod claw long, extending at least halfway along basis

4. Female P5 endopod
   6l - with 6 long spines, at least 1 spine as long as the endopod
   6s - with 6 short spines
   5s - with 5 short spines
   5b - with 5 very short, bulbous spines
   4+1 - with 4 spines and 1 filiform seta

5. Male P2 endopod
   A - Enp-2 an obvious amalgamation of 2 segments; nearly 3 times as long broad and 3 times as long as Enp-1
   B - Enp-2 short, only about as long as broad and only as long as Enp-1 at most; setation includes a broad, curved, dagger-like spine that is about twice as long as Enp-2
   C - Enp-2 short, only about as long as broad and only as long as Enp-1 at most; setation includes a broad, serrated spine that is about 4 times as long as Enp-2
   D - Enp-2 short, only about as long as broad and only as long as Enp-1 at most; setation includes 2 stout, biplumose spines

E - Enp-2 short, only about as long as broad and only as long as Enp-1 at most; all setae and spines filiform

KG 16

Cuticular lenses	CR	Maxilliped basis Enp	Female P5 Enp	Male P2 Enp	
present	filiform	concave	6l	A	*Miracia efferata*[1]
absent	filiform	step	5s	C	*Diosaccus spinatus*
absent	filiform	step	6s	E	*D. ezoensis*
absent	filiform	step	4+1	B	*D. tenuicornis*
absent	bulb	straight	5b	D	*D. truncatus*

1. Data from the redescription by Huys & Böttger-Schnack (1994).

KG 17 – characters

Male *Schizopera* and *Eoschizopera* appear to be unique among Harpacticoida in bearing a hyaline bract on the inner edge of P3 Exp-3. This bract is in addition to the normal complement of 4 (rarely 3 or 5) setae and spines.

1. Cuticular lenses on cephalic shield
   present *or* absent

2. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

3. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

4. Female P2–P4 Enp-2, inner edge
   n:n:n - number of setae

KG 17

Cuticular lenses	CR l/b	P2–P4 Exp-3 setae	Female P2–P4 Enp-2 inner setae	
present	≈3	6:7:7	2:2:1	*Distioculus minor*[1]
absent	2.5	4:4:4	2:1:1	*Schizopera anomala*
absent	≈1	4:4:4	1:1:1	*S. carolinensis*

1. Data from the redescription by Huys & Böttger-Schnack (1994), who also provide data on distribution and ecology of this holoplanktonic species.

KG 18 – characters

1. P1 Enp-1, length relative to exopod
   short - Enp-1 does not extend to the end of the exopod
   long - Enp-1 extends at least to the end of the exopod

2. Caudal ramus, dorsal surface
   1 - with 1 transverse row of spinules
   3 - with 3 transverse rows of spinules

3. Antenna exopod
   n - number of setae on distal edge

4. Female P5
   n:n - number of setae on endopod and exopod

5. Male P5
   n:n - number of setae on endopod and exopod

KG 18

P1 Enp-1/ Exp	CR spinule rows	A2 Exp setae	Female P5	Male P5	
short	1	1	5:5	2:5	*Cladorostrata brevipoda*
long	3	2	5:6	2:6	*C. longipoda*

KG 19 – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maxim um breadth

2. P1 endopod
   A Enp-1 extends to the end of Exp-3; Enp-2 with 2 claw-like spines and a thin seta
   B - Enp-1 extends to the end of Exp-3; Enp-2 with 1 very long, claw-like spine, 2 slender setae and 1 spinule
   C - Enp-1 extends to slightly beyond the end of Exp-2; Enp-2 with 2 very long, claw-like spines only
   D - Enp-1 extends only to the end of Exp-1; Enp-2 with 3 setae, the middle being thick at its base and terminating in a long whiplash

3. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

4. P3–P4 Enp-3
   n:n - number of setae and spines on P3 and P4

5. Female P5
   n:n - number of setae and spines on endopod and exopod

KG 19

CR l/b	P1 Enp	P2–P4 Exp-3 setae	P3–P4 Enp-3 setae	Female P5 setae	
≈1	A	7:8:8	5:5	5:6	*Diosaccus monardi*
≈1.4	B	(7:8:8)?	(6:5)?	5:6	*Tydemanella typica*[1]
≈1	C	7:8:7	6:5	5:5	*Ialysus rufus*
≈6	D	6:7:7	5:4	4:5	*Delavalia noodti*

1. The setation of P2–P4 is unknown in *Tydemanella typica*, which otherwise is moderately well described. The figures given here are inferred from comments in the original description.

KG 20 – characters

1. P2–P4 Exp-3
    n:n:n - number of setae and spines on P2, P3 and P4

2. P3–P4 Enp-3
    n:n - number of setae and spines on P3 and P4

3. P3–P4 Enp-2, inner edge
    n:n - number of setae on P3 and P4

4. Female P2 Enp-3
    n - number of setae and spines
    uk - female unknown

5. Female P2 Enp-2, inner edge
    n - number of setae
    uk - female unknown

KG 20

P2–P4 Exp-3 setae	P3–P4 Enp-3 setae	P3–P4 Enp-2 inner setae	Female P2 Enp-3 setae	Female P2 Enp-2 inner setae	
6:7:7	5:5	1:1	4	1	*Parialysus robustus*
6:7:7	5:5	1:1	uk	uk	*P. proximus*
6:7:7[1]	5:4	1:1	5	2	*P. investigatoris*[1]
4:4:4	4:4	1:1	3	1	*Protopsammotopa tipperi*

1. Setation of P2–P4 Exp-3 as amended by Nicholls (1945a).

KG 21 – characters

1. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Exp-2, inner edge
   n:n:n - number of setae on P2, P3 and P4

3. P2–P4 Exp-1, inner edge
   n:n:n - number of setae on P2, P3 and P4

4. Female P2 Enp-3
   n - number of setae

5. Male P2 endopod
   unmod - 3-segmented; as female condition
   modified - radically modified; 2-segmented; segment 2 with long contorted spines arising from the middle of the outer edge

KG 21

P2–P4 Exp-3 setae setae	P2–P4 Exp-2 inner setae	P2–P4 Exp-1 inner setae	Female P2 Enp-3	Male P2 Enp	
4:4:4	0:0:0	0:0:0	4	modified	*Protopsammotopa norvegica*
4:4:4	0:0:0	0:0:0	3	unmod	KG 21/1
4:3:4	1:1:1	0:0:1	5	unmod	*Goffinella stylifer*[1]

1. This genus is also distinguished by caudal ramus seta VI being an elongate broad lamella, rather than a simple spine. Note also that the inner apical seta on P4 Exp-3 and P4 Enp-3 is lamellate in the female, and filiform in the male.

KG 21/1 – characters

1. P1 Enp-1, length relative to exopod
   long - Enp-1 extends approximately to the end of exopod
   short - Enp-1 extends only midway along Exp-3 at most

2. Female P5
   n:n - number of setae on endopod and exopod

3. Female P2–P4, presence of lamellate setae on Exp-3 and Enp-3*
   all - inner apical seta on P2–P4 Exp-3 and Enp-3
   P4 - both apical setae of P4 Exp-3 and inner apical seta of P4 Enp-3
   none - lamellate setae absent

* Lamellate setae are never present in males.

4. Male P5
   A - endopod setae elongate, filiform, plumose; exopod approximately 1.5 times as long as broad
   B - endopod setae short, spiniform; exopod approximately twice as long as broad
   C - endopod setae short, spiniform; exopod approximately 1.5 times as long as broad

KG 21/1

P1 Enp-1/ Exp	Female P5 setae	Female P2–P4 lamellate setae	Male P5	
≈3	2:5	all	A	*Psammotopa polyphylla*
2.5	3:5	P4[1]	B	*P. phyllosetosa*[1]
2.5	3:5	none	C	*P. vulgaris*[2]

1. Mielke (1975) found "occasional" females that lacked the lamellate setae on P4.
2. Data from the redescription by Lindgren (1975).

Family Neobradyidae

KG 0 – characters

1. Female P2–P4 endopod
   n:n:n - number of segments in P2, P3 and P4

2. Male P2–P4 endopod
   n:n:n - number of segments in P2, P3 and P4
   uk - male unknown

3. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

4. Female P5
   n:n - number of seta and spines on endopod and exopod*

* Exopod may be fused to basis but is always recognisable.

5. Male P5
   n:n - number of seta and spines on endopod and exopod*
   uk - male unknown

* Exopod may be fused to basis but is always recognisable.

KG 0

Female P2–P4 Enp segs	Male P2–P4 Enp segs	P2–P4 Exp-3 setae	Female P5 setae	Male P5 setae	
3:3:3	2:2:3	7:7:7	3:5	2:4	*Marsteinia typica*
3:3:3	2:2:3	7:8:7	3:6	2:5	*M. bozici*
3:3:3	uk	7:8:8	5:5	uk	*M. similis*, *M. parasimilis*[1]
3:3:3	uk	7(?):8:7	1:4	uk	*M. sarsi*
3:3:3	uk	7:7:7	3:5	uk	*M. laubieri*
3:3:3	uk	7:6:6	4:4	uk	*M. ibericus*
2:2:3	uk	7(?):7:8	3:5	uk	*Tachidiopsis cyclopoiodes*
2:2:2	2:2:2	4:4:5	2:5	2:5	*Neobradya pectinifera*[2]
2:2:2	2:2:2	4:4:5	2:4	2:4	*Antarcticobradya tenuis*[2]

1. The only significant difference seems to be the female P5. In *M. similis* both exopod and endopod articulate with the basis. In *M. parasimilis* the endopod is firmly fused to the basis to form a baseoendopod. The description of *M. similis* lacks the detail necessary for a proper comparison with *M. parasimilis*.
2. Another prominent character that differentiates these species is the relative length of the P2–P4 Enp-1. In *Neobradya* Enp-1 extends well beyond the end of Exp-1. In *Antarctobradya* Enp-1 never extends to the end of Exp-1.

Family Normanellidae

Several species of *Normanella* have been considered as having a wide geographic distribution and a high degree of variability. In revising the family, Lee & Huys (1999b) dismiss this concept and conclude that "it is obvious that only a small fraction of the actual number of species has been discovered" (p. 201). They consign several current species to the status of *species inquirenda* and state that many records of known taxa cannot be substantiated.

Since species in this family often are distinguished by relatively small differences in body ornamentation and in proportions of the appendages, and since many records are now considered doubtful, any determination must be checked against the best available description.

See Lee & Huys (1999b) for a discussion of the validity of *Normanella semitica*, *N. quarta* and *N. serrata*, which they consider as *species inquirendae*; they are not included in these keys.

KG 0 – characters

1. cephalic shield
   - areolate - decorated with numerous surface pits
   - smooth - without, or with only very few, surface pits

2. Antenna exopod
   - n - number of setae

3. P2 Enp-2
   - n - number of setae and spines

4. P4 Enp-2
   - n - number of setae and spines

5. Caudal ramus, seta V fracture plane (Fig. 3)
   - present *or* absent

Lee & Huys provide a dichotomous key to the species of *Normanella*. Lee, Montagna & Han (2003) provide additional discussion and excellent descriptions of new species.

KG 0[1]

Cph	A2 Exp setae	P2 Enp-2 setae	P4 Enp-2 setae	CR seta V fracture plane	
smooth	3	5	5	present	*Sagamiella aberrans*, *S. latirostrata*[1]
smooth	4	6	5	present	KG 1 (p. 574)
areolate	4	6	5	present	KG 2 (p. 574)
areolate	4	6	5	absent	KG 3 (p. 575)
areolate	4	5	5	absent	*Normanella bifida*
areolate	4	4–5[2]	4	absent	*N. reducta*[2]
areolate?	4	6	4	?	*N. mucronata* [*sensu* Marinov 1977]
areolate?	4	?	4	?	*N. reducta* [*sensu* Griga 1963, as *N. mucronata*]

1. Males of the 2 species of this genus are differentiated on the caudal ramus, which is twice as long as broad in *S. latirostrata* but only about 1.5 times as long as broad in *S. aberrans*. Females cannot be properly compared in this key as the female of S. *aberrans* is known only from a stage V copepodid.
2. P2 Enp-2 has 5 setae in the female but only 4 in the male.

KG 1 – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. Caudal ramus, seta V
   n - ratio of length of seta V to maximum length of the ramus in dorsal view

3. Female P5 exopod
   n - ratio of maximum length to maximum breadth

KG 1

CR l/b	CR seta V/ CR	Female P5 Exp l/b	
1.5	2.5	2.75	*Normanella dubia*
2	≥6.5	3.5	*N. minuta*

KG 2 – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. Caudal ramus, seta V
   n - ratio of length of seta V to maximum length of the ramus in dorsal view

3. Female antennule
   n - number of segments

4. Female P5 exopod
   n - ratio of maximum length to maximum breadth

5. Male P5 exopod
   n - ratio of maximum length to maximum breadth
   uk - male unknown

KG 2

CR l/b	CR seta V/ CR	Female A1 segs	Female P5 l/b	Male P5 l/b	
>4	4	5	≈4	2.6	*Normanella tenuifurca*
3	6	5	≈3.5	2.7	*N. brevispina*[1]
3	≥5	5	≈3.5	2.2	*N. paratenuifurca*
2.5	5.5	5	≈2.5	2.7	*N. sarsi*
2	≈6	6	4	2.3	*N. pallaresae*
2	7	6	≈2.5	uk	*N. chanhoi*
2	5.5–6	5	≈3	uk	*N. porosa*, *N. obscura*[2]
2	≈2.5	5	≈2.5	3	*N. similis*
1.5	6	5	≈2.5	2	*N. texana*[3]
1.2	≈2.5	5	≈2.5	2	*N. bolini*[3]

1. The areolate rostrum distinguishes *N. brevispina* from other species in this key.
2. *Normanella porosa* is incompletely described and difficult to separate from *N. obscura*; see Lee & Huys (1999b, p. 236) for a discussion.
3. These species also differ in the P1 endopod, which is 10 times as long as broad in *N. texana* and only 7–8 in *N. bolini.*

KG 3 – characters

The species in this key are closely similar and can only be separated on small differences, for example, in the shape of the rostrum apex; the pattern of areolation of the cephalic shield; ornamentation of the urosome; proportions of the components of the female P5 and the sites of origin of its setae. Unfortunately, information on these characteristics is not of a uniform standard in these species and there are indications of variability within *Normanella mucronata*. Further, the male is not well known in *N. mucronata* and unknown in *N. incerta*.

In this key I have used only the two characters that might be stable, but the key is not an adequate substitute for consulting the species descriptions—see Lang (1948, 1965a) and Lee & Huys (1999b, pp. 220, 247).

1. Caudal ramus, seta V

taper - tapers gradually from base to the flagellate distal part

lanceolate - the lanceolate proximal half—without appreciable taper—is followed by a rapid taper to the flagellate distal part

2. Rostrum

needle - apex of rostrum, distal to the origin of the lateral setae, is long, narrow and very finely pointed

blunt - apex of rostrum short, broad and more bluntly pointed

KG 3

CR	Rostrum	
taper	needle	*Normenella mucronata*
taper	blunt	*N. incerta*
lanceolate	blunt	*N. confluens*

Family Novocriniidae

KG 0 – characters

1. P1 bearing somite
   fused - fused to cephalosome and cephalic shield
   covered - covered by cephalic shield but not fused to it

2. P1 Enp-1, inner edge
   n - number of setae

3. P1 Enp-3
   n - number of setae and spines

4. Female P5
   distinct - exopod articulated with basis
   fused - exopod fused to basis

5. Male P5, endopod
   n - number of setae and spines

KG 0

P1 somite	P1 Enp-1 inner setae	P1 Enp-3 setae	Female P5 Exp	Male P5 Enp setae	
fused	1	5	distinct	4	*Novocrinia trifida*
covered	0	4	fused	2	*Atergopedia vetusta*

Family Orthopsyllidae

The systematics of this family are very uncertain and await the publication of an important revision (see Checklist Note 388, p. 90). This key is based on the revision by Boer (1971) but does not attempt to key out the subspecies of *Orthopsyllus linearis*.

KG 0 – characters

1. P1–P4 endopod
   n:n:n:n - number of segments in P1, P2, P3 and P4

2. P1–P4 Exp-2, inner edge
   n:n:n:n - number of setae on P1, P2, P3 and P4

3. P2–P4 Exp-3, outer edge
   n:n:n - number of spines on P2, P3 and P4

4. P2 endopod, distal segment
   n - number of setae

KG 0

P1–P4 Enp segs	P1–P4 Exp-2 inner setae	P2–P4 Exp-3 outer spines	P2 Enp distal seg setae	
1:1:1:1	1:1:1:1	3:3	1	*Orthopsyllus spinicaudatus*
2:2:2:2	0:0:0:0	3:3	4	*O. linearis*[1]
2:2:2:2	0:0:0:0	3:3	3	*O. sarsi*
2:2:2:2	0:0:0:0	3:3	2	*O. coralliophilus*
2:2:2:2	0:0:0:0	2:2	4	*O. wallini*

1. See introduction to the family.

Family Paramesochridae

Huys (1987a) provides a phylogenetic analysis of the family Paramesochridae.

KG 0 – characters

1. P1–P4 endopod
   n:n:n:n - number of segments in P1, P2, P3 and P4

2. P4 exopod
   n - number of segments

3. P2 endopod, distal (or only) segment
   n - number of setae
   na - not applicable (P2 endopod absent)

4. P1 exopod, distal (or only) segment
   n - number of setae and spines

KG 0

P1–P4 Enp segs	P4 Exp segs	P2 Enp distal seg setae	P1 Exp distal seg setae	
3:3:3:3	3	5	8	*Tisbisoma triarticulatum*
3:3:3:3	3	3	6	KG 1 (p. 579)
3:3:3:3	3	3	5	*Diarthrodella lancifera*
3:3:3:3	3	4	6	*D. parorbiculata*
3:2:3:3	3	5	6	*D. orbiculata*
3:2:3:2	3	5	6	*D. psammophila*
2:3:3:3	3	3	6	*D. galapagoensis*
2:3:3:3	3	5	8	*Tisbisoma spinisetum*
2:2:3:3	3	4	7	*Rossopsyllus kerguelensis*
2:2:3:3	3	5	7	*R. obscurus*
2:2:3:3	3	2	7	*Diarthrodella chilensis*
2:2:2:2	3	3	6	*Remanea arenicola*
2:2:2:2	3	2	6	*R. plumosa*
2:2:2:2	3	1	4–5	KG 2 (p. 579)
2:1:1:2	3	1	4	*Kliopsyllus andeep*
2:1:1:2	2–3	0	4	KG 3 (p. 581)
2:1:1:1	3	1	5	KG 4 (p. 582)
2:1:1:1	3	1	4	KG 5 (p. 582)
2:1:1:1	3	1?[1]	4	*Scottopsyllus* (*Wellsopsyllus*) *gigas*[1]
2:1:1:1	3	0	4	KG 6 (p. 587)
2:1:1:1	2	1	4	*Paramesochra laurentica*[2]
2:1:1:1	2	0	4	KG 7 (p. 588)
2:0:1:1	3	na	4	*Leptopsyllus* (*Paraleptopsyllus*) *arcticus*
2:0:0:2	3	na	4	KG 8 (p. 589)
2:0:0:1	3	na	4	KG 9 (p. 589)

2:0:0:1	2	na	4	KG 10 (p. 590)
2:0:0:0	3	na	4–5	KG 11 (p. 591)
2:0:0:0	2	na	4	*Apodopsyllus biarticulatus* female[3]
2:0:0:0	1	na	5	*Caligopsyllus primus*
1:1:1:1	3	1	5	KG 12 (p. 594)
1[4]:1:1:1	3	1	4(5?)	*Kunzia bispinosa*[4]
0:0:0:1	3	na	4	*Meiopsyllus marinae*

1. Edges of P2–P3 endopod are densely hirsute, with a small, weak subapical seta on inner edge.
2. Usually included as *incertae sedis* in *Kliopsyllus*—with reservations by some authors.
3. See KG 11/1 (p. 592) for the male.
4. P1 endopod reduced to a vestigial knob.

KG 1 – characters

1. P1 Enp-3
   n - number of setae and spines

2. P2–P4 Enp-3
   n:n:n - number of setae and spines on P2, P3 and P4

3. P2–P4 Enp-2, inner edge
   n:n:n - number of setae on P2, P3 and P4

4. Female P5
   n - total number of setae
   na - not applicable (P5 absent in the female)

5. Male P5
   n - total number of setae
   uk - male unknown

KG 1

P1 Enp-3 setae	P2–P4 Enp-3 setae	P2–P4 Enp-2 inner setae	Female P5 setae	Male P5 setae	
2	3:3:2	0:0:1	2	3	*Diarthrodella secunda* s. str.
2	3:2:2	1:1:1	na	1	*D. convexa*
1	3:3:1	0:0:1	2	uk	*D. secunda pacifica*
1	3:2:1	0:0:1	3	3	*D. neotropica*

KG 2 – characters

1. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-1, inner edge
   n:n:n - number of setae on P2, P3 and P4

3. P1 exopod
   n - number of segments

4. Female P5
n:n - number of setae on endopod and exopod

5. Male P5
n:n - number of setae on endopod and exopod
uk - male unknown

Huys (1987a) provides a dichotomous key to *Paramesochra.*

KG 2

P2–P4 Exp-3 setae	P2–P4 Enp-1 inner setae	P1 Exp segs	Female P5 setae	Male P5 setae	
4:4:4	0:0:0	2	2:3	uk	*Paramesochra brevifurca*
4:4:2	0:1:1	2	1–2:3–4	0/2:3–4	KG 2/1
4:4:2	0:0:1	2	2:4	0:2	*Paramesochra longicaudata*
4:4:2	0:0:1	2	2:3	0:3	*P. helgolandica*
4:4:2	0:0:0	2	2:3	0:4	*P. unaspina*
4:4:2	0:0:0	1	0:3	0:3	*P. denticulata*
4:3:2	0:0:0	2	1:3	0:3	*P. acutata* s. str.
2:2:2	0:0:0	1:2	0:3	uk	*P. ornata*

KG 2/1 – characters
1. Antennule, segment 1
ungui - inner distal corner with an inwardly directed unguiform projection
plain - inner distal corner simple

2. Caudal ramus, shape in dorsal view
cyl - cylindrical for at least most of its length; distal outer corner may be rounded or square
tri - triangular, distal margin acutely pointed

3. Anal somite, distal edge
ungui - laterally with a long posteriorly directed unguiform projection
plain - simple; without projections laterally

4. P2–P3 Enp-2
knob - distal edge with a rounded, hirsute knob
plain - distal edge simple

5. Caudal ramus, in dorsal view
n - ratio of maximum length to maximum breadth

KG 2/1

A1 seg1	CR shape	Anal somite	P2–P3 Enp-2	CR l/b	
ungui	cyl	plain	plain	≈4	*Paramesochra dubia*
plain	tri	plain	plain	3.2	*P. acutata hawaiiensis*[1]

plain	cyl	ungui	plain	≈5	*P. pterocaudata*
plain	cyl	plain	knob	1.5	*P. borealis*
plain	cyl	plain	plain	4	*P. similis*
plain	cyl	plain	plain	≈2.5	*P. mielkei*
plain	cyl	plain	plain	≈3.5	*P. kunzi*, *P. helgolandica* [*sensu* Mielke 1975][2]

1. *Paramesochra acutata* is also recognisable by the very long and extremely acutely pointed P5 endopod in the female, which bears only 1 seta.
2. These extremely similar species perhaps may be distinguished on the details of the caudal ramus.

KG 3 – characters

1. P4 exopod
   n - number of segments

2. P1 basis, inner edge
   n - number of setae

3. Antenna exopod
   n - number of setae

4. Caudal ramus, in dorsal view*
   n - ratio of maximum length to maximum breadth

* The caudal ramus is known to be sexually dimorphic in some species, but this affects the shape and the form of the terminal setae rather than the length/breadth ratio.

5. Female antennule
   n - number of segments

6. Male P6
   3 - with 3 setae
   2 - with 2 setae but also with a small inner unguiform projection

KG 3

P4 Exp segs	P1 basis inner setae	A2 Exp setae	CR l/b	Female A1 segs	Male P6 setae	
3	5	5	3	7	2	*Scottopsyllus* (*Scottopsyllus*) *robertsoni*
3	5	5	3	8[1]	3	*S.* (*S.*) *langi continentalis*[1]
3	5	4	4	7	3	*S.* (*S.*) *pararobertsoni*
3	1	4	1.5–1.8	8	3	*S.* (*S.*) *herdmani*
3	1	3(4?)[2]	≈3	8	3	*S.* (*S.*) *praecipuus*[2]
3	1	3–4	2–2.5	8	3	*S.* (*S.*) *minor*
2[3]	5	5	3.5	8	3	*S.* (*S.*) *langi* s. str.[3]

1. The junction between segments 6–7 is poorly defined.
2. Antenna exopod bears 3 well developed setae with tufted apices and a short, finger-like structure that may represent another seta. The absolute distinguishing feature of *S. praecipuus* is the male caudal ramus.
3. Traces of the former articulation between segments 1–2 are clearly visible.

KG 4 – characters

1. P1 exopod
   n - number of segments

2. Female P5
   n:n - number of setae on endopod and exopod

3. Male P5
   n:n - number of setae on endopod and exopod
   uk - male unknown

KG 4

P1 Exp segs	Female P5 setae	Male P5 setae	
2	0:3	uk	*Kliopsyllus minutus*
1	1:3	0:3	*K. pseudogracilis*
1	0:3	0:3	*Emertonia gracilis*[1]

1. Usually included as *incertae sedis* in *Kliopsyllus*—with reservations by some authors.

KG 5 – characters

1. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 endopod
   n:n:n - number of setae and spines on P2, P3 and P4

3. Caudal ramus, seta III (at outer distal corner)
   simple - an unornamented seta or spine
   plumose - a plumose seta or spine; plumes usually long, but there may be few or many

4. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

KG 5

P2–P4 Exp-3 setae	P2–P4 Enp setae	CR seta III	CR l/b	
4:4:3	1:1:1	plumose	2–2.5	KG 5/1 (p. 583)
4:4:2	1:1:2	simple	9	*K. spiniger ornatus*
4:4:2	1:1:2	simple	6.5	*K. spiniger* s. str. [*sensu* Wells, Kunz & Rao 1975]
4:4:2	1:1:2	simple	≈3.5	KG 5/2 (p. 583)
4:4:2	1:1:2	plumose	3.5	*K. holsaticus varians*
4:4:2	1:1:1	plumose	1.75	*K. holsaticus* s. str. [*sensu* Kunz, 1981, Helgoland material]
4:4:2	1:1:1	plumose	1.4	*K. holsaticus* s. str.[1]
4:4:2	1:1:1	plumose	2–3.5	KG 5/3 (p. 584)
4:4:2	1:1:1	plumose	4	KG 5/4 (p. 585)
4:4:2	1:1:1	simple	4	*Kliopsyllus coelebs*

4:4:2	1:1:1	simple	≈3	KG 5/5 (p. 585)
4:4:2	1:1:1	simple	2–2.6	KG 5/6 (p. 586)
4:3:2	1:1:2	plumose	3	*Kliopsyllus perharidiensis*
4:3:2	1:1:1	simple	2.8	*K. major*
4:3:2	1:1:1	?	?[2]	*K. longisetosus*[2]
3:3:2	1:1:1	plumose	3.5	*K. masryi*
3:3:2	1:1:1	plumose	3	KG 5/7 (p. 587)
3:3:2	1:1:1	plumose	≈2	KG 5/8 (p. 587)
3:3:2	1:1:1	plumose	1.3	*Kliopsyllus constrictus orotavae* [*sensu* Masry 1970]
3:3:2	1:1:1	?[3]	2	*Kliopsyllus* sp. Apostolov, 1973e[3]
2:2:2	1?:1?:1	simple	≈2	*Scottopsyllus* (*Wellsopsyllus*) *gigas*[4]

1. Data from the redescription of type material by Kunz (1981).
2. The caudal ramus is described as "longer than broad". It is impossible to obtain more accurate information from the species description.
3. The caudal ramus in this species differs from all others in this key in having only terminal setae. The probable equivalent of seta III originates in the middle of the distal edge. The distal outer corner has 3 small setae (or spinules?).
4. Edges of P2–P3 endopod are densely hirsute, with a small, weak seta subapically on inner edge.

KG 5/1 – characters

1. Antenna exopod
   - 2 - with 2 large setae (1 lateral, 1 apical) + 3–4 spinules
   - 3 - with 3 setae, all apical

2. Anal somite, ventral distal edge
   - spinulose *or* naked

3. P2–P3 endopod, outer edge
   - notch - with a notch about ¾ of the length from the base; setulose only proximal to the notch
   - smooth - without a notch; setulose throughout

4. Female P5
   - n:n - number of setae on endopod and exopod

5. Male P5
   - n:n - number of setae on endopod and exopod

KG 5/1

A2 Exp setae	Anal somite	P2–P3 Enp outer edge	Female P5 setae	Male P5 setae	
2	spinulose	smooth	1:3	0:3	*Kliopsyllus panamensis*
3	naked	notch	2:3	0:3	*K. idiotes*

KG 5/2 – characters

1. Penultimate somite
   - n - number of middorsal spiniform outgrowths

2. Caudal ramus, seta V (inner terminal seta)
digitate - with a short digitate base from which springs a thin terminal lash
filiform - simple, filiform; usually spinulose or plumose

3. P4 endopod, outer terminal seta
spatulate - apex spatulate, bifid; with concave terminal edge finely setose
filiform - simple, filiform with spinulose outer edge

4. Male P5
n:n - number of setae and spines on endopod and exopod

KG 5/2

Penult somite middorsal spines	CR seta V	P4 Enp outer terminal seta	Male P5 setae	
2	digitate	spatulate	0:4	*Kliopsyllus spiniger* s. str. [*sensu* Mielke 1984a]
0	filiform	filiform	1:3	*K. diva*

KG 5/3 – characters

1. A2 Exp
n:(n+n):n - total number of setae: (number of lateral setae + number of apical setae): number of accessory spinules*

* The accessory spinules may be very small and may have been overlooked in some descriptions.

2. Anal somite, ventral distal edge
spinulose *or* naked

3. P1, relative length of endopod and exopod
n - ratio of length of endopod to exopod (from inner proximal corner of segment 1 to middle of distal edge of distal segment)

4. Caudal ramus, in dorsal view
n - ratio of maximum length to maximum breadth

5. Female P5
n:n - number of setae on endopod and exopod
uk - female unknown

6. Male P5
n:n - number of setae on endopod and exopod
uk - female unknown

KG 5/3

A2 Exp setae	Anal somite	P1 Enp/ Exp	CR l/b	Female P5 setae	Male P5 setae	
5:(2+3):1	spinulose	1.6	3.1	2:3	0:3	*Kliopsyllus unguiseta*
5:(2+3):1	spinulose	≈1	≈3	2:3	0:4	*K. similis*
5:(2+3):1	naked	≈1	≈2	2:3	0:4	*K. regulexstans*
5:(2+3):1	naked	1.6	≈2	2:3	0:4	*K. holsaticus listensis*
4:(2+2):0	spinulose	1.5	2.6	2:3	0:4	*K. longifurcatus*
4:(1+3):1	spinulose	1.3	2.4–3	2:3	0:4	*K. paraholsaticus*
3:(1+2):0	spinulose	1.6	3.3	uk	0:4	*K. miguelensis*[1]
3:(1+2):0	spinulose	1.4	3	1:3	0:4	*K. atlanticus*[1]
3:(2+1):0	naked	1.3	2	2:3	uk	*K. debilis*
3:(2+1):0	naked	1.5	2.3	2:5	0:4	*K. pygmaeus*
3:(?):?	spinulose	1.6	≈3	2:3	0:3	*K. holsaticus* [*sensu* Wells & Rao 1987]
2:(1+1):1	spinulose	1.3	2.25	2:3	0:3	*K. chilensis*
2:(1+1):1	naked	1.8	3.2	2:3	0:3	*K. californicus*

1. *Kliopsyllus miguelensis* is also distinguished from *K. atlanticus* by the presence of a transverse row of spinules on P2–P4 endopod.

KG 5/4 – characters

1. Caudal ramus
   - cyl - cylindrical
   - triang - distal part forms an acutely pointed triangular lappet ventral to the origins of the terminal setae

2. Female antennule
   - n - number of segments

KG 5/4

CR shape	Female A1 segs	
cyl	9	*Kliopsyllus ponticus*[1]
triang	8	*K. acutifurcatus*

1. The description of the single known female is very brief. There are no illustrations but it may be similar in most respects to *K. holsaticus*.

KG 5/5 – characters

1. Female antennule
   - n - number of segments

2. Antenna exopod
   - n - number of setae

3. Female P5
   - n:n - number of setae on endopod and exopod

4. Male P5
n:n - number of setae on endopod and exopod

5. P4 endopod, seta length
long - seta approximately as long as the segment
short - seta less than half as long as the segment

KG 5/5

A1 female segs	A2 Exp setae	Female P5 setae	Male P5 setae	P4 Enp seta	
8	4	2:3	1:4	<	*Kliopsyllus insularis*
7	3	2:3	0:3	≈	*Paramseochra wilsoni*[1]
7	2	2:3	0:3	≈	*P. arenicola*[1]

1. Usually included as *incertae sedis* in *Kliopsyllus*—with reservations by some authors.

KG 5/6 – characters

1. Anal somite, distal edge
ungui - laterally with a long posteriorly directed unguiform projection
plain - simple; without projections laterally

2. Caudal ramus, in dorsal view
n - ratio of maximum length to maximum breadth

3. Antenna exopod
n - number of setae

4. Female antennule
n - number of segments

5. Male P5
n:n - number of setae on endopod and exopod
uk - male unknown

KG 5/6

Anal somite	CR l/b	A2 Exp setae	P5 A1 segs	Male P5 setae	
ungui	2.6	?	8	0:4	*Kliopsyllus furcavaricatus*
plain	2.5	3	8	0:3	*K. psammophilus*
plain	2	3	7	0:4	*K. psammobionta*
plain	~2?[1]	1	7[1]	uk	*K. enalius*[1]

1. *Kliopsyllus enalius* is poorly described. The caudal ramus is said to be "longer than broad" but the very small illustration gives the impression that it is about twice as long as broad. The female antennule is described and illustrated with 8 segments, but the aesthete is said to be on the "fourth joint" while the illustration shows it on segment 5. The latter condition is extremely unlikely and hence it is more likely that the first illustrated segment is simply the peduncle of a 7-segmented appendage.

KG 5/7 – characters

1. Antenna exopod
   n - number of setae

2. P1, relative length of endopod and exopod
   n - ratio of length of endopod to exopod (from inner proximal corner of segment 1 to middle of distal edge of distal segment)

3. Anal somite, ventral distal edge
   spinulose *or* naked

4. Female antennule
   n - number of segments

KG 5/7

A2 Exp setae	P1 Enp/ Exp	Anal somite	Female A1 segs	
2	≈2	naked	7	*Kliopsyllus constrictus* s. str.
4	1.5	spinulose	8	*K. constrictus pacificus*

KG 5/8 – characters

1. Antenna exopod
   n - number of setae

2. Female P5
   n:n - number of setae on endopod and exopod

3. Male P5
   n:n - number of setae on endopod and exopod

KG 5/8

A2 Exp setae	Female P5 setae	Male P5 setae	
2	2:3	0:3	*Kliopsyllus constrictus orotavae* [*sensu* Noodt 1958a]
1	0:3	0:2	*K. capensis*

KG 6 – characters

1. Caudal ramus, length (measured in middorsal line)
   long - 2.4 times as long as broad; elliptical in dorsal and ventral view
   short - approximately as long as broad; inner distal corner expanded as a finely pointed unguiform projection

2. Maxilliped endopod
   n+n - number of setae + number of spinules

3. P4 endopod seta

long - approximately as long as endopod; filiform, spiniform, plain

short - approximately half as long as endopod; lanceolate, plumose

4. Female P5 endopod, setae

narrow - gap between origin of setae much narrower than exopod

wide - gap between origin of setae very wide (wider than exopod)

5. Male P5 endopod

plain - a simple blunt projection

dentate - endopod terminates in 3 teeth

KG 6

CR	Maxilliped Enp setae	P4 Enp seta	Female P5 Enp	Male P5 Enp	
long	3+1	long	narrow	plain	*Scottopsyllus (Wellsopsyllus) abyssalis*
short	2+1	short	wide	dentate	*S.* (*W.*) *runtzi*

KG 7 – characters

1. Caudal ramus, in dorsal view

n - ratio of length (in middorsal line) to maximum breadth

2. P2–P4 endopod

large - well developed, longer than Exp-1

minute - very small; much less than half the length of Exp-1

3. Female P5

A - endopod with 2 setae; exopod minute but not fused to basis, with 3 setae; endopod of pair fused to form a large semicircular plate

B - endopod with 1 seta; exopod minute, fused to basis, with 2 setae; endopod of pair fused to form a large semicircular plate

C - exopod minute, fused to basis, with 2 setae; endopod absent; P5 plate with a total of 3 setae each side

4. Male P5

A - as female A but endopod without setae, although with numerous setules on distal edge

uk - male unknown

KG 7

CR l/b	P2–P4 Enp	Female P5	Male P5	
≈2	large	A	A	*Scottopsyllus* (*Intermedopsyllus*) *intermedius*
≈2	large	B	uk	*S.* (*I.*) *minutus*
≈1.5	minute	C	?[1]	*S.* (*I.*) *smirnovi*[1]

1. Description states that the P5 male was not observed—“nicht beobachtet”.

KG 8 – characters

1. Caudal ramus
   - cyl - cylindrical; inner side longer than outer; distal edge straight
   - taper - ramus tapers from a broad base to a narrow apex

2. Female P5
   - distinct - basis and exopod distinct, endopod extends beyond end of exopod
   - fused - basis and exopod fused, endopod absent

3. Female P5
   - n:n (n) - number of setae on endopod and exopod: (total number of setae)

3. Male P5
   - n:n (n) - number of setae on endopod and exopod: (total number of setae)
   - uk - male unknown

KG 8

CR shape	Female P5	Female P5	Male P5	
cyl	distinct	2:3 (6)	uk	*Leptopsyllus* (*Leptopsyllus*) *typicus*
taper	fused	0:3 (4)	0:3 (4)	*L.* (*L.*) *reductus*

KG 9 – characters

1. Antenna exopod
   - n:n - number of segments: total number of setae on exopod

2. P2–P4 Exp-2, inner edge
   - n:n:n - number of setae on P2, P3 and P4

3. Female P5
   - n:n - number of setae on endopod and exopod
   - uk - female unknown

4. Male P5
   - n:n - number of setae on endopod and exopod
   - uk - male unknown

KG 9

A2 Exp segs/ setae	P2–P4 Exp-2 inner setae	Female P5 setae	Male P5 setae	
2:4	0:0:0	0:3	uk	*Leptopsyllus* (*Leptopsyllus*) *dubatyi*
1:5	0:0:0	uk	0:4	*L.* (*L.*) *elongatus*
1:4	1:1:0	2:3	0:4	*L.* (*L.*) *celticus*
1:4	1:1:0	uk	0:3	*L.* (*L.*) *paratypicus*
1:4	0:0:0	0–2:3	0:3	KG 9/1
1:3	0:0:0	2:3	0:2	*L.* (*L.*) *harveyi*

KG 9/1 – characters

1. Caudal ramus
   - A - inner distal corner a minute projection beyond origin of seta; outer distal corner with a filiform, sparsely plumose seta
   - B - inner distal corner with a massive lanceolate projection, about half as long as the ramus; outer distal corner with a broad lanceolate spine

2. Antenna exopod, origin of proximal seta
   - proximal - at extreme proximal end of inner edge
   - middle - in middle of inner edge

3. Maxilla endites
   - equal - all 3 endites large and of similar length
   - graded - only the distal endite well developed; middle endite much reduced but larger than proximal; middle and proximal endite with 1 seta only

4. P1
   - A - Exp-1 approximately as long as Enp-1; Exp-2 less than half the length of Exp-1
   - B - Exp-1 shorter than Enp-1; Exp-2 almost as long as Exp-1

5. Female P5 endopod
   - fused - endopod of the pair of P5 fused together to form a large semicircular plate that extends well beyond exopod
   - absent - endopod absent; basis of pair of P5 fused to form a simple strip that does not extend beyond exopod

KG 9/1

CR	A2 Exp	maxilla endites	P1	Female P5	
A	proximal	equal	A	fused	*Leptopsyllus* (*Leptopsyllus*) *punctatus*
B	middle	graded	B	absent	*L.* (*L.*) *platyspinosus*

KG 10 – characters

1. Antenna exopod
   - n:n - number of segments: total number of setae on exopod

2. P2–P4 exopod
   - n:n:n - number of segments in P2, P3 and P4

3. P2–P4 exopod, distal segment
   - n:n:n - number of setae and spines on P2, P3 and P4

KG 10

A2 Exp segs/ setae	P2–P4 Exp segs	P2–P4 Exp distal seg setae	
1:5	2:2:2	3:3:3	*Leptopsyllus* (*L.*) *abyssalis*
1:4	3:3:2	2:2:3	*Biuncus ingens*

KG 11

This key contains only the genus *Apodopsyllus.* In this genus it is easier to distinguish between females than between males. In some cases males may be differentiated only on subtle differences in the caudal ramus and P5, which will require the observer to compare descriptions of all the species concerned.

KG 11 – characters

1. P1 exopod
   n - number of segments

2. P1
   n - ratio of maximum length of Enp-1 to maximum length of exopod

3. Antenna exopod
   n:n - number of segments: number of setae

4. Female P5
   n - total number of setae
   uk - female unknown

4. Male P5
   n - total number of setae
   uk - male unknown

KG 11

P1 Exp segs	P1 Enp-1/ Exp	A2 Exp segs setae	Female P5 setae	Male P5 setae	
2	2.4	1:3	4	4	*Apodopsyllus unguiformis*
2	2.2	1:4	6	4	*A. pseudocubensis*
2	2.0	?	4	4	*A. madrasensis* [*sensu* Krishnaswamy 1951a][1]
2	1.8	1:4	6	4	*A. arcuatus*
2	1.5	1:3	4	3	*A. bermudensis*
2	1.25	1:4	6	4	*A. cubensis*
2	1.2	1:3	6	4	*A. alejandrovillalobosi*
2	≈1	2:3	6	4	*A. vermiculiformis*
2	≈1	1:4	4–5	4	KG 11/1 (p. 592)
2	≈1	1:3	5	3	*Apodopsyllus adaptatus*[1]
2	≈1	1:3	3	4	*A. spinipes*[1, 2]
2	≈1	1:3	6	4	*A.vermiculiformis*
2	0.8	1:3	4	4	KG 11/2 (p. 593)
2	0.75	1:4	?	4	*Apodopsyllus samuelgomezi*
2	?	1:?	uk	5	*A. perplexus*
1	2.0	?	4	4	*A. madrasensis* [*sensu* Wells & Rao 1987]
1	≈1	2:3	4	4	*A. arenicolus* [*sensu* Bodin 1979a]
1	≈1	2:3	3	uk	*A. arenicolus* [*sensu* Chappuis 1954a]
1[3]	≈1	1:4	4	4	*A. melitae*[3]
1	≈1	1:3	4	4	KG 11/3 (p. 593)
1	≈1	1:3(2?)[3]	3	3	*Apodopsyllus depressus*[4]
1	0.7	1:3–4	4	4	*A. littoralis*

1. The exopod of the female P5 in *A. madrasensis*, *A. adaptatus* and *A. spinipes* is a distinct, rounded ramus, articulating with the basis. In all other species of the genus (except those in KG 11/2, p. 593) the exopod is incorporated into the basis and usually is unrecognisable.
2. The exopod of the male P5 in *A. spinipes* is a distinct, rounded ramus, articulating with the basis. In all other species of the genus the exopod is incorporated into the basis and usually is unrecognisable. *A. spinipes* may be unique in the genus in having sexually dimorphic caudal rami, which also differ radically in form from that of all other species (see Nicholls 1939b). However, the caudal ramus in *A. aberrans* is equally peculiar, though the male is unknown in this species.
3. In *A. melitae* P1 exopod shows remnants of the plesiomorphic 2-segmented condition in that a clear suture line can be seen on the posterior surface. The anterior surface has a row of spinules at the similar location. See also KG 11/1.
4. The text states that there are 3 setae on antenna exopod but the illustration shows only 2.

KG 11/1 – characters

1. P2–P3 basis, outer edge
   n - number of setae

2. P4 basis, inner edge
   n - number of setae

3. Female P5
   n - total number of setae
   na - not applicable

4. Male P5
   acute - apex an acute point; all setae on outer edge
   truncate - apex truncated; at least 1 seta on distal edge

5. Male P6
   simple - with 3 long, plain filiform setae
   tufted - with 3 long setae; the inner seta with a terminal tuft of setules
   hyaline - with 3 long setae; the middle seta stout and cylindrical for proximal ⅔, terminating in a finely pointed hyaline cap
   minute - with 2 long setae with a minute seta between them

KG 11/1

P2–P3 basis outer seta	P4 basis inner seta	Female P5 setae	Male P5	Male P6	
0:0	1	4	truncate	simple	*Apodopsyllus africanus* s. str.
1:1	1	5	truncate	simple	*A. africanus listensis*
1:1	0	na	acute	minute	*A. biarticulatus* male[1]
0:1	1	5	acute	hyaline	*A. chilensis*
1:1	0	4	acute	tufted	*A. melitae*[2]

1. P4 exopod has 3 segments in *Apodopsyllus biarticulatus* male but only 2 in the female (segments 1 and 2 are fused); see KG 0 (p. 578) for the female.
2. In *A. melitae* P1 exopod shows remnants of the plesiomorphic 2-segmented condition in that a clear suture line can be seen on the posterior surface. The anterior surface has a row of spinules at the similar location. See also KG 11 (p. 591).

KG 11/2 – characters

1. Caudal ramus, in dorsal or ventral view
   - ellipse - semi-elliptical; inner and outer distal corners with a slender filiform seta
   - quad - approximately quadrangular; inner and outer distal corners with a stout plumose spine

2. Female P5 endopod
   - present - endopod of the pair of P5 forms a broad rounded hyaline lamella that extends well beyond the end of the outer, setose portion (presumed to be the exopod) of P5
   - absent - endopod appears to be absent

3. P1 basis, seta on outer edge
   - present - very slender, but well developed
   - absent? - probably absent (replaced with a setule) or possible reduced to a minute vestige

4. P2–P4 coxa
   - free - well demarcated from basis; rectangular, broader than long
   - fused - distinguishable from basis only by a fine suture line; triangular

KG 11/2

CR	Female P5 Enp	P1 basis outer seta	P2–P4 coxa	
ellipse	present	present	fused	*Apodopsyllus schulzi*
quad	absent	absent?	free	*A. aberrans*

KG 11/3 – characters

1. P1 basis, seta on inner edge
   - short - less than half the length of Enp-1
   - long - longer than entire endopod

2. P5 setae
   - separate - 4 setae; 3 setae in a proximal group, but with space between their origins, separated by a considerable distance from a subterminal seta
   - juxtaposed - 4 setae in a single proximal group, with contiguous origins

3. Male P6
   - n - total number of setae

KG 11/3

P1 basis	P5 setae	Male P6 setae	
short	separate	3	*Apodopsyllus lynceorum*
long	juxtaposed	2	*A. camptus*

KG 12 – characters

1. P2–P4 Exp-3
    n:n:n - number of setae and spines on P2, P3 and P4

2. P1 endopod
    short - much shorter than exopod
    long - at least as long as exopod

3. Caudal ramus, inner most seta
    present - with a row of spinules at origin of seta
    absent - without spinules at origin of seta

4. Male P5 exopod
    n - number of setae

5. Male P6
    n - number of setae

KG 12

P2–P4 Exp-3 setae	P1 Enp	CR P5 setae	Male P6 setae	Male	
4:4:2	short	absent	3	3	*Kunzia epacra*
3:3:2	long	present	4	2	*K. minutissima*

Family Parastenheliidae

Parastenhelia: Song, Kim & Chang (2003) provide a synopsis of the genus.

Karllangia: This genus is rare among Harpacticoida in displaying sexual dimorphism in the antenna exopod. Not all species have this characteristic (it is absent in *K. arenicola* and *K. tertia*). Mielke (1994b) believes it to be an autapomorphy of the group that possess it and that the failure to recognise this has confused the taxonomy at the species level. This key follows Mielke's scheme.

KG 0 – characters

1. Anal operculum
   - spinose - ornamented with *n* spines
   - fh - ornamented with fine hairs or a large number (>20) of small setae or spinules, or naked

2. P1 Exp-2
   - long - elongate; at least 4 times as long as broad
   - short - short; not more than twice as long as broad

3. P4 Enp-3
   - n - number of setae and spines on P2 and P4

4. P2–P4 Exp-3
   - n:n:n - number of setae and spines on P2, P3 and P4

5. P1 Enp-1, origin of inner seta
   - proximal - in proximal third of segment
   - middle - approximately in middle of segment

KG 0

Anal operculum	P1 Exp-2 l/b	P4 Enp-3 setae	P2–P4 Exp-3 setae	P1 Enp-1 inner seta	
spinose:7	short	5	7:7:7	middle	*Parastenhelia ornatissima* [*sensu* Por, 1964a]
spinose:9	short	5	7:8:8	middle	*Karllangia tertia*
spinose:12–14	short	5	7:8:8	mid	*K. obscura*
spinose:≈15	short	5	7:7:8	middle	*K. arenicola*
spinose:16	short	5	7:7:7	middle	*Parastenhelia ornatissima*
spinose:16	short	4	7:7:7	proximal	*P. reducta*
fh	short	5	7:8:8	proximal	*P. anglica*
fh	short	5	7:8:8	middle	KG 1
fh	short	5	6:8:8	proximal	KG 2
fh	short	5	6:7:7	proximal	*Parastenhelia pyriformis*
fh	short	3	6:8:8	proximal	*P. oligochaeta*
fh	long	5	6:6–8:6–8	middle	*P. costata*
fh	long	5	6:7:8	proximal	*P. minuta*[1]
fh	long	4–5	6:7–8:7–8	proximal	*P. spinosa*[1]
fh	long	4	6:7:7	middle	*P. gracilis*

1. These species are distinguished on the setation of P2 Enp-3—a total of 4 setae and spines in *P. spinosa* and only 3 in *P. minuta.*

KG 1 – characters

1. Mandible exopod
   present *or* absent

2. Female P5
   n:n - number of setae and spines on endopod and exopod

3. Male P3 Enp-3, spine at outer distal corner
   long - nearly as long as Enp-3
   vestigial - spine very small, not easily distinguishable from adjacent spinules

KG 1

Mandible Exp	Female P5 setae	Male P3 Enp-3	
present	5:6	vestigial	*Karllangia pulchra*
absent	5:5	long	*K. psammophila*, *K. bengalensis*[1]

1. There is debate about whether these species are separate entities—at species or subspecies level (see Wells & Rao 1987 and Mielke 1994b). The differences between them are not large, especially as at least one feature of the description of *K. psammophila* probably is an error—Wells (1967) describes P2 Exp-3 with 3 inner setae in a total of 8 setae and spines; this is most unlikely to be true.

KG 2 – characters

1. Female antennule
   short - segments 1–6 very short, mostly broader than long, so that rostrum appears massive—reaching to segment 6
   long - segments 1–6 long—all longer than broad; rostrum does not reach the end of segment 2

2. P1 Enp-2
   short - only as long as broad
   long - approximately twice as long as broad

KG 2

Female A1	P1 Enp-2	
short	long	*Parastenhelia megarostrum*
long	short	*P. hornelli*[1]

1. The descriptions of *P. hornelli* differ to the extent that it is possible they represent more than one species (Wells & Rao 1987) but the characters used in this key probably aren't variable.

Family Parastenocarididae

Although seven genera have now been described in this speciose family, the vast majority of the species are still contained in the genus *Parastenocaris.* Most species have a highly restricted distribution, and many have been recorded only once. The family is in desperate need of a comprehensive phylogenetic study, but this is inhibited by the extreme sexual dimorphism displayed by all species—which provides species-specific characters for males but often not for females—and is made more difficult by the poor quality of the description of many of the species. But Galassi & De Laurentiis (2004) and Corgosinho & Martínez Arbizu (2005) have begun the process.

Caution: Because many of the known species seem to be restricted to single river systems (or part thereof), and much of world remains to be investigated this thoroughly, it can reasonably be predicted that only a small number of the species of this family have been described; Karanovic (2005) estimates the number may reach at least 1000.

Sexual dimorphism is highly developed in this family. Because of this, separate keys are given for males and females.

From the viewpoint of constructing keys for identification, it is unfortunate that most of the characters currently used to define species are male secondary sexual characters.

Females attributed to different species often are difficult to distinguish (a situation aggravated by the lack of detail in descriptions and of precision in illustrations) and in many cases are placed in a particular species purely because of their association with distinctive males in seemingly monospecific samples.

It is very likely, therefore, that these keys will secure a false identification (particularly for specimens from areas where the groundwater fauna is not well known) and it is critical that any identification be checked against the best published descriptions.

KEYS TO FEMALES

(for keys to males, see p. 616)

Parastenocaris monodi, *P. nigerianus*, *P. tapajosensis* and *P. arctica* are not included in these keys. The description of *P. arctica* is inadequate and females of the other species have been recorded but not described.

KG 0(female) – characters

1. Last somite, ornamentation

   (Excluding the proctodaeal region and excluding sensilla that may be present at the lateral borders of the anal operculum and elsewhere; see Fig. 107.)

   A - surface of somite finely punctate (“pitted”); without other ornamentation
   B - surface of somite pitted; other ornamentation confined to the distal edge of the anal operculum (or, perhaps, in the area immediately beneath the distal edge of the operculum and positioned so that in dorsal view they appear to originate on the distal edge)
   C - surface of somite pitted; dorsal and dorsolateral posterior edge with ornamentation; distal edge of the anal operculum with fine setules
   D - surface of somite not pitted and entirely without ornamentation
   E - surface of somite not pitted; ornamentation confined to the anal operculum (distal edge and/or dorsal surface)
   F - surface of somite not pitted; rows of spines, spinules, setae and/or setules present on areas other than the anal operculum—which may be naked or ornamented

2. Last somite, dorsal surface, spinule row(s)

prox - in proximal half of somite only

distal - in distal half of somite only

pd - in both proximal and distal halves (the latter may be close to the posterior edge of the anal operculum)

absent - absent (spinule rows may be present laterally and/or ventrally)

3. Penultimate somite

present - prominent lateral epimera present

absent - epimera absent

4. P3 endopod

segment - a single segment articulating with the basis; may have the form of an acuminate spine

vestige - a minute setose or asetose knob or lamellate projection from the basis

absent - absent

5. P4 Exp-1, origin of outer spine

lateral *or* posterior

KG 0(female)

Last somite	Last somite dorsal spinules	Penult. somite epimera	P3 Enp	P4 Exp-1 outer spine	
A	absent	absent	segment	lateral	KG 1(female) (p. 599)
B	absent	absent	segment	lateral	*Parastenocaris macaco*, *P. jane*
C	absent	absent	segment	lateral	*P. madagascarensis*
D	absent	absent	segment	posterior	*Murunducaris juneae*
D	absent	absent	segment	lateral	KG 2(female) (p. 599)
D	absent	absent	vestige	lateral	*Parastenocaris sandhya*
D	absent	absent	absent	lateral	KG 3(female) (p. 610)
D	absent	present	segment	lateral	*Paraforficatocaris paranaensis*
E	absent	absent	segment	lateral	KG 4(female) (p. 611)
F	absent	absent	segment	lateral	KG 5(female) (p. 612)
F	absent	absent	absent	lateral	*Parastenocaris guyanensis*
F	prox	absent	segment	lateral	KG 6(female)[1] (p. 614)
F	prox	absent	vestige	lateral	KG 7(female)[1] (p. 615)
F	distal	absent	segment	lateral	KG 8(female) (p. 615)
F	distal	present	segment	lateral	*Forficatocaris fittkaui*[2]
F	pd	absent	segment	lateral	KG 9(female) (p. 616)

1. These species can be distinguished by their P5. In *P. macaco* it is about 3 times as long as maximum breadth and the segment edge between setae II and III is smooth. In *P. jane* it is only about twice as long as broad and there is a distinct notch and tooth in the segment edge between setae II and III.
2. Most other species of *Forficatocaris* key out in KG 6 (p. 614) and KG 7 (p. 615). *Forficatocaris amazonensis* is in KG 2/3 (p. 609) and *F. noodti* in KG 9 (p. 616). In addition to the characters that are used in these keys, *Forficatocaris* is the only genus in the family that is known to produce ovisacs. Usually more than 1 ovisac is attached to the female (2–5 have been observed). Each ovisac is banana-shaped and contains 2 unequal sized eggs. Reid (1982) provides a dichotomous key to both sexes of *Forficatocaris.*

KG 1(female) – characters

1. Anal operculum, shape
   - str/convex - almost straight or weakly convex
   - concave - strongly to extremely concave

2. Caudal ramus, inner side
   - present - hyaline lamella present
   - absent - hyaline lamella absent

3. Caudal ramus
   - n - ratio of maximum length to maximum breadth

4. P5
   - n - total number of setae

5. Urosome, integumental windows
   - A - a single median dorsal window on urosomites 3–5
   - B - a pair of lateral windows on urosomites 4–5
   - C - a pair of dorsolateral windows on urosomite 5
   - 0 - urosome without windows

KG 1(female)

Anal operculum shape	CR inner side	CR l/b	P5 setae	Urosome windows	
str/convex	absent	2.3	4	A	*Parastenocaris palmerae*
str/convex	absent	2.9	4	B	*P. eberhardi*
str/convex	absent	4	4	0	*P. variolata*
str/convex	present	3.5	3	C	*P. caffer*
concave	absent	3.5	4	0?[1]	*P. muscicola*[1]
concave	absent	4.7	4	B	*P. cornuta*
concave	absent	2.5–2.7	4	0?[1]	*P. lyncaea*[1, 2]
concave	absent	3	3	B	*P. forficulata*

1. Treat with caution as a statement that windows are absent is not made in the description.
2. P4 endopod is absent in this species.

KG 2(female) – characters

1. Antennule
   - n - number of segments

2. P1 Exp-3
   - n - total number of setae and spines

3. P3 endopod
   - large - well developed single segment, usually with terminal and subterminal spines or setae or with the terminal spine fused to the segment to give the ramus a spiniform character; usually

reaching at least as far as the distal half of Exp-1

small - reduced to a small, slim segment; terminal appendages, if present, very small; usually barely extending to the basal quarter of Exp-1

4. P5, inner distal corner

ungui - an unguiform projection, though this may be small and resemble a spine

not - inner distal corner rounded or square

na - not applicable (P5 entirely absent)

5. P2 and P4 Exp-2, outer spine

absent (but there are always some setae or spinules at the outer distal corner) *or*

present (in addition to such setae and spinules)

KG 2(female)

A1 segs	P1 Exp-3 setae	P3 Enp	P5 inner distal corner	P2 & P4 Exp-2 outer spine	
7	4	large	na	absent	*Simplicaris lethaea*
7	4	small	ungui	absent	KG 2/1(female) (p. 600)
7	4	large	ungui	absent	KG 2/2(female) (p. 601)
7	4	large	ungui	present[1]	*Parastenocaris andalusica*[1]
7	4	large	not	absent	KG 2/3(female) (p. 609)
7	5[2]	large	ungui	absent	*Parastenocaris chelifer*[2]
6[3]	5[3]	small	not	absent	*P. brasilibathynellae*[3]
5[4]	4	large	not	absent	*P. digitiphora*[4]

1. The illustrations of *P. andalusica* by Enckell (1965) give the impression that there is a true spine at this location but the text does not describe the appendage in detail. If correct, this condition is unique in *Parastenocaris*.
2. The illustration in the original (and only) description of *P. chelifer* shows 5 setae and spines (see Lang (1948), who believes that this is an error), but the text does not describe the appendage in detail.
3. Jakobi & de Loyola e Silva (1962) state that in *P. brasilibathynellae* the "A1 [is] 6-jointed, true second article absent, fused with first" and that there are "three well-developed and two rudimentary bristles apically" on P1 exopod.
4. A 5-segmented antennule is unique in this family, but it is the very peculiar female P2 exopod (see Dussart 1984b) that makes it difficult to assess the status of *P. digitiphora*. As only 1 female is known it is not possible to be certain if these features are normal or are the result of abnormal development.

KG 2/1(female) – characters

1. Caudal ramus, terminal setae

filiform - at least 1 seta is slender and elongate

mod - modified, none elongate; 1 seta transformed to a short, stout blunt spine

2. Caudal ramus, setae of outer side (I–III in Fig. 3)

all - all 3 setae present (1 long, 2 short)

1l+1s - only 2 setae present (1 long, 1 short)

2s - only 2 short or minute setae present

3. Caudal ramus, in dorsal view
n - ratio of maximum length to maximum breadth

4. P5, outer edge
round - a relatively smooth arc from origin to base of distal unguiform projection; origin of the outermost seta does not demarcate a change in angle of the edge
angular - in 2 approximately straight sections, with an abrupt break at the origin of the proximal outer seta
recurved - in 2 sections, with an abrupt break at the origin of the proximal outer seta; proximal section convex basally and concave distally

5. P1 Enp-2
n - ratio of length of inner seta to outer seta

KG 2/1(female)

CR term setae	CR setae I–III	CR l/b	P5 outer edge	P1 Enp-2 setae	
filiform	1l+1s	≈3	angular	≈2	*Remaneicaris itica*[1]
filiform	1l+1s	≈3	angular	≈4	*Parastenocaris panamericana* s. str.[1]
filiform	1l+1s	≈4	angular	≈3	*P. cuscatlensis*[1]
filiform	1l+1s	≈4	angular	≈2.5	*P. salvadorensis* s. str.[1]
filiform	all	3.75	round	≈2.5	*P. mangini*[1, 2, 3]
filiform	1l+1s	3.5	recurved	3	*P. douellensis*[3]
mod	2s	≈3	angular	≈4	*P. salvadorensis* f. *lanceolata*[1]
mod	2s	≈2[4]	angular	≈4	*P. panamericana* f. *truncata*[1, 4]

1. These species have been recorded only from Central America; their descriptions can be compared by consulting Noodt (1961).
2. *Parastenocaris mangini* is distinguished from others in this key by
   (a) the P5 in which the outer distal corner is rounded and claw–like instead of straight-sided and spiniform, and
   (b) the P3 endopod, which is an asetose hyaline lamella.
3. These species have been recorded only from the Pyrenees mountains of France.
4. Caudal rami laterally compressed.

KG 2/2(female) – characters

1. P5
n - number of setae

2. Caudal ramus, placement of setae I–III* on outer side
prox - in the proximal third of the side
mid - in the middle third of the side
distal - in the distal third of the side

* See Fig. 3; these setae always originate adjacent to each other, but note that according to some descriptions 1 or more of them may be absent, although these statements must be treated with caution as often these setae are very small and perhaps easily overlooked.

3. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

4. Caudal ramus, shape (in dorsal or ventral view)

±cyl - approximately cylindrical for most of the length (the apex may be slightly narrower than the widest part of the ramus); extreme distal end may taper to a narrower apex and the proximal portion of inner or outer or both sides may curve to a narrower base

convex - inner side convex, especially in the distal half to two-thirds; outer side approximately straight

concave - inner side with a concave ‘bay’ in proximal half; outer side approximately straight, curving distally to a narrow apex

curved - outer side weakly but evenly convex throught its length; inner side approximately straight

ovoid - both inner and outer sides convex

taper - a more or less even taper from base to apex; extreme proximal portion often sharply curved towards the narrow base

5. Caudal ramus, setae on distal edge

filiform - both setae slender, filiform

bulbous - the base of at least 1 seta extremely bulbous; with or without a terminal setiform portion

lamella - the base of at least 1 seta flattened and leaf-like; with or without a terminal setiform portion

vestigial - at least 1 seta reduced to a very small knob, with or without a small terminal setiform portion

KG 2/2(female)

P5 setae	CR setae	CR l/b	CR shape	CR term setae	
2	prox	≈4	convex	filiform	*Parastenocaris lacustris*
2	prox	3	±cyl	filiform	*P. fossoris*
2	mid	≈4	±cyl	filiform	*P. arenicola*
2	mid	≈3	±cyl	filiform	*P. jeanninae*
2	distal	2.6	±cyl	filiform	*P. italica*[1]
2	distal	3.2	±cyl	lamella	*P. italica*[1]
2	absent?	≈2.5	±cyl	filiform	*P. amyclaea*
3	prox	4	taper	bulbous	*P. novaki*
3	prox	≈4	±cyl	filiform	*P. conimbrigensis*
3	prox	3	±cyl	filiform	*P. matapoica*
3	prox	2.5–3	±cyl	filiform	*P. germanica*
3	prox	2.3	convex	filiform	*P. amalasuntae*
3	prox	≈2	±cyl	filiform	*P. proserpina*, *P. pannonica*[2]
3	prox	≈2	taper	filiform	*P. ruffoi*
3	mid	3-5	±cyl	filiform	*P. fontinalis*
3	mid	≈4	±cyl	filiform	*P. psammica*, *P. aquaeductus*[3]
3	mid	3.5	±cyl	filiform	*P. moravica*
3	mid	3.5	ovoid	filiform	*P. nomiae*
3	mid	≈3	convex	filiform	*P. bohemica*

3	mid	≈3	±cyl	filiform	*P. longipoda*, *P. longicaudis*[4]
3	mid	≈3	convex	filiform	*P. santaremensis*
3	mid	2.5	ovoid	lamella	*P. tumida*
3	mid	≈2	±cyl	filiform	*P. chelifer*
3	mid	≈2	curved	filiform	*P. dactyloides*
3	mid	≈1	taper	filiform	*P. leuweni*
3	distal	7.2	±cyl	filiform	*P. triphyda*
3	distal	5?	±cyl	filiform	*P. carpathica*
3	distal	≈4	±cyl	filiform	*Remaneicaris psammae*
3	distal	3.5	±cyl	filiform	*Parastenocaris pusillus*
3	distal	3.3	±cyl	filiform	*P. kimberleyensis*
3	distal	≈3	±cyl	filiform	KG 2/2/1(female) (p. 604)
3	distal	≈3	±cyl	lamella	*Parastenocaris gracilis*
3	distal	≈3	ovoid	filiform	*P. delamarei*
3	distal	≈3	concave	filiform	*Remaneicaris clandestina*
3	distal	2.5–3	±cyl	filiform	KG 2/2/2(female) (p. 605)
3	distal	2.5–3	±cyl	lamella	*Parastenocaris italica*[1]
3	distal	2.5	±cyl	bulbous	*P. latisetosus*
3	distal	≈2	±cyl	filiform	*Parastenocaris* sp. Enckell, 1970
3	distal	?	±cyl	filiform	*P. nana*
3	distal	?	±cyl?	filiform	*P. minuta*
3–4	distal	2.3	±cyl	lamella	*P. italica*[1]
4	prox	2.5	±cyl	filiform	*P. phyllura*
4	prox	2.2	convex	filiform	*P. kabyloides*
4	mid	≈4	±cyl	filiform	*P. trichelata*
4	mid	3	±cyl	filiform	KG 2/2/3(female) (p. 605)
4[5]	mid	≈3	±cyl	filiform	*Parastenocaris brevipes*[5]
4	mid	≈3	taper	filiform	*P. sinoiaica*
4[5]	mid	≈3	curved	filiform	*P. irenae*[5]
4	mid	2.5	ovoid	filiform	*P. texana*
4	mid	2.25	±cyl	filiform	*P. serbica*
4	mid	2.2	±cyl	filiform	*P. kimi*
4	distal	4-6	±cyl	filiform	KG 2/2/4(female) (p. 606)
4	distal	≈4	convex	filiform	*Remaneicaris argentina*
4	distal	3–4	±cyl	filiform	KG 2/2/5(female) (p. 607)
4	distal	≈3.5	±cyl	lamella	*Parastenocaris jeanelli*
4	distal	≈3	±cyl	filiform	*P. aethiopica*
4	distal	≈3	±cyl	bulbous	*P. pasquinii*
4	distal	≈3	convex	filiform	*Remaneicaris drepanophora*
4	distal	≈3	taper	filiform	*R. palaciosi*
4[5]	distal	2.8	±cyl	bulbous	*Parastenocaris numidiensis*[5]
4[5]	distal	2.8	±cyl	lamella	*P. italica*[1, 5]
4	distal	≈2.8	ovoid	vestigial	*P. arenosus*
4	distal	2.5	±cyl	filiform	KG 2/2/6(female) (p. 608)
4	distal	2.5	convex	filiform	*Parastenocaris sibaritica*[6]
4	distal	2.5	±cyl	lamella	*P. inferna*

4	distal	2.2–2.3	±cyl	filiform	KG 2/2/7(female) (p. 608)
4	distal	≈2	±cyl	filiform	KG 2/2/8(female) (p. 609)
4	distal	≈2	ovoid	filiform	*Parastenocaris mirabilis*
4	distal	1.5	±cyl	filiform	*P. stellae*
4	absent?	≈3	±cyl	bulbous	*P. marlieri*
5	mid	2.5	ovoid	filiform	*P. crassicaudis*
5[5]	mid	3.5	taper	filiform	*P. cataractae*[5]
2–4	distal	2.6	±cyl	lamella	*P. italica*[1]

1. *Parastenocaris italica* is an extremely variable species, especially in the form of the principal terminal caudal seta and P4 endopod. Consult Kiefer (1968a) and Cottarelli (1972) before confirming identification.
2. According to the redescription of *P. proserpina* by Bruno & Cottarelli (1998) and of the female of *P. panonica* by Damian (1959), these species may be distinguished on the P5, whose inner edge is naked in *P. proserpina* but bears 4–5 long spinules in *P. panonica*. Also, P3 endopod is extremely short in *P. proserpina*, where it barely extends 1/5 of the length of Exp-1, compared with about ⅓ of Exp-1 in *P. panonica.*
3. According to the redescription of *P. aquaeductus* by Zinenco (1971), the P2 basis bears an extremely long outer seta that extends beyond the end of the entire exopod. Unfortunately the female of *P. psammica* is not described in detail but it would appear that P2 basis lacks an outer seta or, if it is present, it is short.
4. These species are distinguished on the P4 endopod, which extends to the end of Exp-3 in *P. longipoda* but only to the end of Exp-2 in *P. longicauda.*
5. One seta of P5 is very small.
6. It is not clear from the description whether the caudal ramus is 'convex' or '±cyl'; see also KG 2/2/6 (p. 608).

KG 2/2/1(female) – characters

The characters used in this key are derived by interpretation of very small illustrations that do not always give confidence that they include all possible detail of the structure, and the text is not very helpful. Any identification must be checked against the description and preferably only made positive if males also are present.

1. P4 endopod

present *or* absent

2. Integumental windows

many - present on cephalic shield and abdomen somites 1–4

Abd 4 - present on lateral sides of abdomen somite 4

absent? - presumed to be absent (or not observed?)

3. Anal operculum

straight - distal edge straight or very weakly convex

concave - distal edge distinctly concave

4. P5

n - length of unguiform projection of inner distal corner (from opposite the origin of the distal seta on the outer edge) expressed as percentage of the total length of inner edge (from the base of the appendage to the tip of the unguiform projection)

KG 2/2/1(female)

P4 Enp	Integumental windows	Anal operculum	P5	
absent	many	straight	40	*Parastenocaris corsica*
present	Abd 4	concave	25	*Remaneicaris icoaraci*
present	absent?	convex	<20	*Parastenocaris husmanni*
present	absent ?	?	<20	*P. dubia*

KG 2/2/2(female) – characters

1. Integumental windows
   - Abd 3–4 - present on dorsum of abdomen somites 3 and 4
   - absent? - presumed to be absent (or not observed)

2. P5 setae
   - long - the 2 inner setae extend well beyond the end of P5
   - short - the 2 inner setae extend only to the end of P5

3. P3 endopod, length (including terminal fused seta) relative to exopod
   - long - endopod extends to the end of Exp-1
   - short - endopod reaches only to halfway along Exp-1

4. P4 endopod, length (including terminal fused seta) relative to exopod
   - long - endopod extends more than halfway along Exp-2
   - short - endopod reaches only to the end of Exp-1

KG 2/2/2(female)

Integumental windows	P5 setae	P3 Enp/Exp	P4 Enp/Exp	
Abd 3–4	long	short	short	*Parastenocaris acherusia*
absent?	short	long	long	*P. italica*[1]

1. *Parastenocaris italica* is an extremely variable species, especially in the form of the principal terminal caudal seta and P4 endopod. Consult Kiefer (1968a) and Cottarelli (1972) before confirming identification.

KG 2/2/3(female) – characters

1. Integumental windows
   - cph+abd - present on cephalic shield and abdomen somites 1–4
   - abd - present on dorsum of abdomen somites 2–4
   - absent? - presumed to be absent (or not observed)

2. Anal operculum
   - straight - distal edge straight or very weakly convex
   - concave - distal edge distinctly concave

3. P5, outer edge

arcuate - outer edge an almost smooth, shallow arc

obtuse - outer edge in 2 straight portions, one each side of origin of outer most seta, with a very obtuse angle between these planes

step - outer edge with a 90° bend at origin of outermost seta and at a point just beyond the origin of the innermost seta, so that the setae appear to originate on a ‘step’ in the edge

KG 2/2/3(female)

Integumental windows	Anal operculum	P5 outer edge	
cph+abd	straight	arcuate	*Parastenocaris hispanica*
Abd 2–4	straight	step	*P. savita*
absent?	concave	obtuse	*P. feuerborni*

KG 2/2/4(female) – characters

1. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

2. Anal operculum, ornamentation with setules or spinules

surface - confined to the operculum surface proximal to the distal edge—usually a row across the base

naked - without ornamentation

3. P3 endopod, length relative to exopod

long - extends to about the end of Exp-1

short - extends only to about halfway along Exp-1

4. P4 endopod

spiniform - terminal spine fused to segment so that whole endopod forms a long, pointed spike; former area of articulation of spine not marked with small setules, though distal part of endopod may be setulose along its length

simple - endopod consists of a simple cylindrical segment with a terminal spine and with 3–4 small spinules around the point of articulation of the spine

KG 2/2/4(female)

CR l/b	Anal operculum	P3 Enp	P4 Enp	
≈6	naked	long	spiniform	*Remaneicaris pluto*
5–6	naked	short	spiniform	*Parastenocaris orcina*
≈5	naked	?	spiniform	*P. entzii*
4.7	naked	short	spiniform	*P. silvana*
≈4	surface	long	simple	*P. ursulae*

KG 2/2/5(female) – characters

1. Caudal ramus, shape
   - simple - cylindrical for most of the length; may be slightly tapered at extreme distal end and the extreme basal portion may be slightly tapered or be wider than the rest of the ramus; without a dorsal tooth
   - dentate 1 - cylindrical for most of the length; outer dorsolateral distal edge extended as a small unguiform projection
   - dentate 2 - cylindrical for most of the length; with a dorsomedial unguiform extension from about the level of the origin of the lateral setae of the ramus

2. Anal operculum, shape
   - str/convex - almost straight or weakly convex
   - concave - strongly concave

3. Last somite, ornamentation (excluding sensilla)
   - naked - with ornamentation
   - ventral - ventral side with 2 rows of setules

4. P5
   - n - number of setae (v = seta is minute or vestigial)

5. P5, longest seta
   - I - seta I
   - II - seta II
   - I=IV - seta I and IV are approximately equal in length

KG 2/2/5(female)

CR shape	Anal operculum	Last seg	P5 setae	P5 longest seta	
simple	str/convex	ventral	4	I	*Parastenocaris similis*
simple	str/convex	naked	4	I	*P. gertrudae*, *P. austriaca*[1]
simple	str/convex	naked	4	I=IV	*Remaneicaris meyerabichi*
simple	str/convex	naked	3+1v	I	*Parastenocaris bulgarica*
simple	concave	naked	4	I	*P. arenosus* f. *typica*[2]
dentate 1	str/convex	naked	4	I	*P. banaticus*
dentate 2	str/convex	naked	4	II	*P. federici*

1. Using the published descriptions only, it is very difficult to distinguish between the females of *P. gertrudae* and *P. austriaca.* The only character that inspires any confidence is the size of the unguiform projection of the inner distal corner of the P5. In *P. austriaca* this extends to about the end of setae II–IV; in *P. gertrudae* it is much shorter than these setae.
2. *Parastenocaris arenosus* also is distinctive in the shape of the P5. Setae II–IV are small and originate on a small rounded lobe close to seta I. Distal to this the P5 has the form of a massive unguiform projection.

KG 2/2/6(female) – characters

This KG should also include *Parastenocaris narentina* but the female is so inadequately described that it is impossible to distinguish it from the other species.

1. P5, relative length of setae I–III
   - I≈II≈III - all setae approximately the same length
   - I<II>III - seta II the longest
   - I>II<III - seta II the shortest

2. P4 endopod, length relative to Exp-1
   - long - endopod as long as, or slightly longer than, Exp-1
   - short - endopod extends to about ¾ the length of Exp-1

3. P1 Enp-2, relative length of outer seta
   - long - approximately half as long as inner seta
   - short - a quarter of the length of inner seta at most

KG 2/2/6(female)

P5 setae	P4 Enp/Exp	P1 Enp-2 setae	
I≈II≈III	?	?	*Parastenocaris phreatica* [*sensu* Chappuis 1936b]
I<II>III	short	short	*P. phreatica* [*sensu* Sterba 1964]
I>II<III	long	long	*P. sibaritica*

KG 2/2/7(female) – characters

1. Maxillule arthrite
   - n:n - number of distal spines: number of lateral setae

2. Maxillule basis
   - n - number of setae

3. Maxilla endite 2
   - *either* represented by 1 seta *or* absent

KG 2/2/7(female)

Maxillule arthrite spines	Maxillule basis setae	Maxilla endite 2	
3:1	3	1 seta	*Parastenocaris oligoalina*[1]
3:1	2	absent	*P. etrusca*[1]
4:1	2	1 seta	*P. aphroditis*[1]

1. Females of these species can also be distinguished on subtle differences in the shape and armature of P4 endopod. See Cottarelli, Bruno & Venanzetti (1995) and Cottarelli & Bruno (1997).

KG 2/2/8(female) – characters

1. Caudal ramus, shape
   - round - cylindrical except for a slightly rounded extreme apex
   - taper - cylindrical but with distal ⅓ tapering to a narrow apex

2. P5, shape
   - vase - vase-shaped, with apex nearly twice as broad as base; inner distal corner a very small, spiniform projection
   - rect - rectangular; inner distal corner a large, unguiform projection

3. P4 endopod, length relative to exopod
   - long - endopod extends beyond Exp-1
   - short - endopod does not reach end of Exp-1

KG 2/2/8(female)

CR	P5	P4	
shape	shape	Enp/Exp	
round	vase	long	*Parastenocaris curvispinis*
taper	rect	short	*Remaneicaris jujuyensis*

KG 2/3(female) – characters

1. P5, shape
   - triang - triangular; maximum breadth at apex
   - pent - pentagonal; maximum breadth about midway
   - rect - rectangular
   - square - square; very small
   - round - rounded; very small

2. P5
   - n - total number of setae

3. Caudal ramus, in dorsal view
   - n - ratio of maximum length to maximum breadth

4. P4 endopod, shape
   - sp - spiniform; distal portion usually plumose
   - cyl 1 - cylindrical; with a well developed terminal spine or seta
   - cyl 2 - cylindrical; without a well developed terminal spine or seta

5. P4 Exp-3, longest setae or spine
   - extreme - much longer than the entire exopod
   - long - nearly as long as the entire exopod
   - medium - at most only slightly longer than Exp-3
   - short - much shorter than Exp-3

KG 2/3(female)

P5 shape	P5 setae	CR l/b	P4 Enp shape	P4 Exp-3 setae	
triang	3	4	sp	long	*Parastenocaris dianae*
pent	4	4	sp	short	*Remaneicaris hurdi*[1]
pent	4	4	sp	extreme	*P. vicesima*[2]
rect	5	2.5	sp	long	*P. ahaggarica*
rect	5	2.5	sp	medium	*P. fonticola*
rect	5	1.7	cyl 1	long	*Forficatocaris amazonensis*[3]
square	4	4.4	sp	extreme	*Parastenocaris nertensis*
round	1	4	cyl 2	medium	*P. budapestensis*

1. Caution: The description of *P. hurdi* is inadequate and poorly illustrated.
2. Caution: Despite being very common in European brackish water beaches, *P. vicesima* has never been described and illustrated to modern standards.
3. See note 2 to KG 0(female) (p. 598).

KG 3(female) – characters

1. P2 and P4 endopod
   present *or* absent

2. P5, inner distal corner
   bifid - a bifid unguiform projection
   simple - a simple unguiform projection

3. P5
   n - total number of setae

4. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

KG 3(female)

P2 & P4 Enp	P5 inner distal corner	P5 setae	CR l/b	
present	bifid	4	4–4.5	*Potamocaris bifida*
present	bifid	4	2.4	*Potamocaris cuiabaensis*
present	bifid	2	≈4	*Potamocaris bidens*
present	simple	4	3	KG 3/1(female)
absent	simple	3	4.3	*Parastenocaris vandeli*
absent	simple	3	3.5	*P. boulouensis*

KG 3/1(female) – characters

1. Anal operculum, shape
   - straight - straight or very weakly convex
   - convex - very strongly convex

2. P1 endopod, length relative to exopod
   - long - endopod extends beyond exopod
   - short - endopod extends only to about the end of exopod

3. P4 endopod, shape
   - simple - simple cylinder, edges straight
   - complex - curved at base, simple cylinder thereafter

KG 3/1(female)

Anal operculum shape	P1 Enp/Exp	P4 Enp shape	
straight	short	complex	*Parastenocaris kubitzkii*
convex	short	simple	*P. columbianus*
convex	long	complex	*P. roettgeri*

KG 4(female) – characters

1. P3 endopod
   - sp:long - spiniform: extends into the distal half (often to about the end) of Exp-1
   - sp:short - spiniform: reaching at most to about midway along Exp-1
   - rect:long - rectangular segment, usually with a terminal spine: segment plus terminal spine extend beyond the midway point of Exp-1
   - rect:short - rectangular segment, usually with rudimentary terminal setae: segment plus terminal setae extend only to basal part of Exp-1

2. P4 endopod
   - sp - spiniform: former articulation of spine with segment may be marked by a ring of spinules
   - rect - rectangular segment: with or without a terminal spine

3. P5, inner distal corner
   - ungui - an unguiform projection, though this may be small and resemble a spine
   - not - inner distal corner rounded or square
   - na - not applicable (P5 entirely absent)

4. P5
   - n - total number of setae
   - absent - P5 entirely absent

5. Caudal ramus, in dorsal view
   - n - ratio of maximum length to maximum breadth

KG 4(female)

P3 Enp	P4 Enp	P5 inner distal corner	P5 setae	CR l/b	
sp:long	sp	ungui	4	≈2	*Parastenocaris hera*
sp:long	sp	ungui	4	2.5	*P. hinumaensis*, *P. lorenzae*[1]
sp:long	sp	ungui	4	≈3	*P. mangyans*
sp:long	sp	ungui	3	4–5	*P. nolli*
sp:long	sp	ungui	3	≈3	*P. pauliani*
sp:long	sp	not	4	3	*P. spinipes*
sp:long	sp	not[2]	4	2.3	*P. oshimaensis*[2]
sp:long	rect	ungui	4	3.5	*P. trinacriae*
sp:short	sp	ungui	4	≈4	*P. cantabrica*
sp:short	sp	ungui	3	2.6	*P. aesculapii*
sp:short	sp	not[3]	3	5–6	*P. spinosa*[3]
sp:short	rect	ungui	3	3–4.5	*P. glacialis*
sp:short	rect	not	3	≈2.5	*P. amatheia*
rect:long	rect	na	absent[4]	≈7	*Simplicaris veneris*[4]
rect:short	sp	ungui	3	2.7	*Parastenocaris kalypso*

1. P1 endopod extends beyond the exopod in *P. lorenzae* but is only as long as the exopod in *P.hinumaensis*. P4 endopod (including terminal spine) extends beyond the end of Exp-1 in *P. hinumaensis* but is shorter than Exp-1 in *P. lorenzae.*
2. P5 is not well described and it is possible that the inner distal corner is in the form of a very small unguiform projection.
3. Inner distal corner is a rounded lobe set with many spinules.
4. Galassi & De Laurentiis (2004: p. 433) provide new information on P5.

KG 5(female) – characters

1. Anal operculum, ornamentation with setules or spinules

edge - confined to the distal edge
surface - confined to the operculum surface proximal to the distal edge—usually a row across the base
edge+surface - present on distal edge and operculum surface
naked - without ornamentation

2. Caudal ramus

n - length relative to length of anal segment

3. P5, inner distal corner

ungui - an unguiform projection, though this may be small and resemble a spine
not - inner distal corner rounded or square

4. P5

n - total number of setae

5. P4 endopod, length relative to exopod

≈Exp-2	- extends to approximately the end of Exp-2
<Exp-2	- extends to approximately halfway along Exp-2
≈Exp-1	- extends to approximately the end of Exp-1
<Exp-1	- extends to approximately halfway along exopod
<<Exp-1	- very small, extends to about ? the length of Exp-1 at most

KG 5(female)

Anal operculum	CR/ anal segment	P5 inner distal corner	P5 setae	P4 Enp/Exp	
edge	≈1	not	5	≈Exp-2	*Parastenocaris spinicauda*
edge	≈1	not	3	<Exp-2	*P. spinosa*
edge	≈1.3	ungui	2	≈Exp-1	*P. nippponensis*
surface	«1	not	4	?	*P. trisaetosa*
surface	≈1	ungui	3	<Exp-1	*P. ima*
surface	≈1	not	3	«Exp-1	*P. ima*
surface	<1	ungui	4	≈Exp-1	*P. tyrrhenidis*
edge+surface	≈1.5	ungui	4	<Exp-1	*Remaneicaris divae*
edge+surface	≈1	ungui	4	≈Exp-1	*R. tageae*
edge+surface	<1	ungui	3	≈Exp-2	*Parastenocaris admete*
naked	≈1	ungui	4	<Exp-2	*P. xyrophora*
naked	≈1	ungui	4	≈Exp-1	*Remaneicaris membranacea*
naked	≈1	ungui	4	<Exp-1	*Parastenocaris andreji*
naked	≈1	ungui	4	<<Exp-1	*P. grassei*
naked	≈1	ungui	3	≈Exp-1	*P. nicolasi*
naked	≈1	ungui	3	<Exp-1	*P. fluviatilis*
naked	≈1	ungui	3	«Exp-1	*P. calliroe*
naked	≈1	not	4	≈Exp-1	*P. mateusi*
naked	≈1	not	3	≈Exp-1	*P. clujensis*
naked	<1	ungui	4	<Exp-2	*P. gayatri*
naked	<1	ungui	4	≈Exp-1	KG 5/1(female)
naked	<1	ungui	4	«Exp-1	*Remaneicaris rhizophora*
naked	<1	ungui	3	≈Exp-1	*Parastenocaris bolbodes*
naked	<1	not	5	≈Exp-1	*P. rivi*

KG 5/1(female) – characters

The species in this key are all very similar, all endemic to Argentina and all described by Noodt (1965). As they are not very well separated by this key any identification made must be verified by consulting Noodt's paper.

1. Caudal ramus, in dorsal view

   n - ratio of maximum length to maximum breadth

2. P3 exopod

   n - ratio of length of Exp-1 to Exp-2

3. P3 endopod, length relative to Exp-1

≤½ - endopod extends to not more than halfway along Exp-1

≈1 - endopod extends almost to the end of Exp-1

KG 5/1(female)

CR l/b	P3 Exp-1/ Exp-2	P3 Enp/ Exp-1	
6	1.7	≈1	*Remaneicaris pluto*
5	1.4	≈1	*R. sanctoludovici*
4	1.7	≈1	*R. hecate*
4	1.25	≤½	*R. cordobaensis*
3.5	1.4	≤½	*R. ciliata*

KG 6(female) – characters

1. Antenna exopod

n - number of terminal setae

2. Last somite, dorsal posterior edge immediately adjacent to anal operculum

n - number of spines

3. Anal operculum, shape

±str - approximately straight

<conv - weakly convex

>conv - strongly convex

4. Caudal ramus, shape

taper - taper from base to apex; inner edge approximately straight

±cyl - approximately cylindrical; inner edge approximately straight

<conv - neither tapering nor cylindrical; inner edge weakly convex

>conv - neither tapering nor cylindrical; inner edge strongly convex

KG 6(female)

A2 Exp setae	Last somite spines	Anal operculum shape	CR shape	
2	2	±str	<conv	*Forficatocaris forficata*[1]
2	2	>conv	>conv	*F. tetracantha*[1]
1	2	<conv	±cyl	*F. schadeni*[1]
1	2	±str	taper	*F. lilianae*[1]
1	4–5	<conv	±cyl	*Remaneicaris andaluizae*

1. See KG 0(female) note 2 (p. 598) for comments on *Forficatocaris*.

KG 7(female) – characters

1. Antenna exopod
   n - number of terminal setae

2. Last somite, dorsal posterior edge immediately adjacent to anal operculum
   n - number of spines

3. Anal operculum, shape
   ±str - approximately straight
   <conv - weakly convex
   >conv - strongly convex

4. Caudal ramus, shape
   taper - taper from base to apex; inner edge approximately straight
   ±cyl - approximately cylindrical; inner edge approximately straight
   <conv - neither tapering nor cylindrical; inner edge weakly convex
   >conv - neither tapering nor cylindrical; inner edge strongly convex

KG 7(female)

A2 Exp setae	Last somite spines	Anal operculum shape	CR shape	
2	2	±str	±cyl	*Forficatocaris guarani*
1	2	<conv	>conv	*F. claudii*
1	3–4	>conv	>conv	*F. evelinae*
1	2–3	±str	taper	*F. jakobii*

See KG 0(female) note 2 (p. 598) for comments on *Forficatocaris.*

KG 8(female) – characters

1. Last somite, dorsal surface ornamentation (excluding the distal edge and anal operculum)
   cont:n - continuous row of *n* spinules mid-dorsum
   crescent - crescentic row of 10–12 spinules proximal to each of the lateral edges of the anal operculum

2. Caudal ramus, shape
   ±cyl - approximately cylindrical; inner and outer sides almost straight
   concave - cylindrical distally, but with the proximal half of inner side markedly concave in dorsal and ventral view
   taper - tapering from base to apex; width at apex less than half the width at the base
   keel - with a large dorsal hyaline keel

3. Caudal ramus, placement of setae I–III* on outer side
   distal - at the distal end
   middle - about the middle of the side

* See Fig. 3; these setae always originate adjacent to each other, but note that according to some descriptions, one or more of them may be absent; although these statements must be treated with caution as often these setae are very small and perhaps easily overlooked.

4. P4 endopod

short - does not reach the distal end of Exp-1
equal - approximately as long as Exp-1
long - reaches beyond the distal end of Exp-1

KG 8(female)

Last somite	CR shape	CR I–III	P4 Enp	
cont:12–14	±cyl	distal	short	*Remaneicaris sierrae*
cont:12–14	concave	distal	equal	*R. persephone*
cont:6	keel	distal	equal	*R. hexacantha*
cont:4	±cyl	distal	short	*R. paraensis* s. str.
cont:4	keel	distal	short	*R. paraensis* f. *bulbifera*
crescent	taper	middle	long	*Parastenocaris noodti*

KG 9(female) – characters

1. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

2. Last somite, dorsal surface

A - with 3 rows of very short spinules
B - with 2 rows of spines or spinules; distal row consists of 4 long, stout spines medially, flanked each side by 4–6 small spines
C - with 2 rows of spines or spinules; distal row consists of 2 groups of slender spines, separated by a wide medial space

3. P5, inner distal corner

ungui - inner distal corner is an unguiform projection, about as long as the body of the P5
seta - inner distal corner bears a long plain seta, flanked internally by a pair of short, claw-like extensions of the border of the P5

4. Penultimate somite, dorsal row of spines or spinules

present *or* absent

5. Antepenultimate somite, dorsal row of spines or spinules

present *or* absent

KG 9(female)

CR l/b	Last somite	P5	Penultimate somite	Antepenultimate somite	
≈3.8	A	ungui	abssent	absent	*Parastenocaris solitaria*
≈6	B	ungui	present	absent	*Remaneicaris paraguayensis* s. str.

≈1.6	B	ungui	present	absent	*R. paraguayensis* f. *phylloides*
≈4.5	B	ungui	present	absent	*R. remanei*
≈1.5	C	seta	absent	present	*Forficatocaris noodti*

KEYS TO MALES

(for keys to females, see p. 597)

Parastenocaris surinamensis and *P. dammermani* are are inadequately described and are not included in these keys.

KG 0(male) – characters

1. Last somite, ornamentation

(Excluding the proctodaeal region and excluding sensilla that may be present at the lateral borders of the anal operculum and elsewhere; see Fig. 107.)

A - surface of somite finely punctate ("pitted"); without other ornamentation

B - surface of somite pitted; other ornamentation confined to the distal edge of the anal operculum (or, perhaps, in the area immediately beneath the distal edge of the operculum and positioned so that in dorsal view they appear to originate on the distal edge)

C - surface of somite pitted; dorsal and dorsolateral posterior edge with ornamentation; distal edge of the anal operculum with fine setules

D - surface of somite not pitted and entirely without ornamentation

E - surface of somite not pitted; ornamentation confined to the anal operculum (distal edge and/or dorsal surface)

F - surface of somite not pitted; rows or groups of spines, spinules, setae and/or setules present on areas other than the anal operculum—which may be naked or ornamented

2. P4 endopod [see note below]

absent - absent

vest - rudimentary or vestigial knob, usually asetose

L-ext - large, heavily sclerotised L-shaped hook; distal arm directed externally, complex, at least trifid at tip

L-med - slender reversed L-shaped hook; distal arm directed medially, simple

not - not as any of the above

3. P4 basis, inner half and the part of basis adjacent to origin of endopod [see note below]

naked - without ornamentation

orn - with some form of armature (variable—from small setules to massive sclerotised spines) or ornamentation (sclerotised or hyaline outgrowths)

4. P3 endopod [see note below]

absent - absent

vest - reduced to a vestigial knob, usually asetose

sesp - represented by a single seta or spine (length very variable)

finger - represented by hyaline or sclerotised finger-like appendage

seg - present as a recognisable true segment (with armature) or as a hyaline or foliose lamella; usually small and not extending beyond the distal margin of the basis

5. P5

A:n	- inner distal corner an unguiform projection (sometimes very small): total number of setae
B:n	- inner distal corner not unguiform; total number of setae
C	- a curved plate, about 3.5 times as long as broad; outer edge with 2 long setae proximally; apex asetose, truncate but with outer distal corner unguiform
D	- pair of P5 firmly fused proximally; inner side with 3 proximal spines and a pronounced step midway along its length on which originates a broad, blunt, finger-like hyaline lamella; apex of P5 with 2 setae
E	- P5 is a pair of massive, complexly ornamented, sclerotised, rectangular plates with 2–3 setae each side (e.g. Noodt 1963: pp. 125–129)
F	- P5 is a pair of unornamented, massive, sclerotised, rectangular plates with 2 setae on the outer side and with or without a free or fused externally directed spine at the inner distal corner (see Reid 1991b)
G	- the pair of P5 are fused to form a heavily sclerotised plate from which projects ventralwards a pair of massive, unornamented subconical processes (see Reid 1994b)
H	- an irregularly shaped plate with 2(?) setae and a median curved, blunt finger (see Jakobi 1972a; Fig. 2i)
absent	- P5 entirely absent

P4 basis and endopod: The ornamentation of the P4 basis and the precise form of the male P4 endopod is almost species specific, but often they are so complex that a concise written description is difficult to make. Where 2 species share a codon in this key, often it will be possible to separate them by comparing the illustrations in the literature.

P3 basis and exopod: The male P3 is highly modified (Fig. 108) and its precise form is almost species specific, but often is so complex as to make a concise written description difficult. Where 2 species share a codon in this key, often it will be possible to separate them by comparing the illustrations in the literature.

P3 endopod: There are many species for which the absence of a P3 endopod may be inferred from illustrations, without this being confirmed by the written description. For some species the illustrations provide sufficient detail for one to have confidence in their accuracy. Unfortunately this is not always the case, especially in species in which the P3 endopod is represented only by a very small and weak seta or spine, which could easily be overlooked.

In this key "absent" means that this state is confirmed by a written description or quality illustrations, while "absent?" means that confirmation is required. All species where doubt exists have been included in both character states "absent" and "sesp".

Last seg	P4 Enp	P4 basis	P3 Enp	P5	
A	not	naked	absent	A:4	*Parastenocaris variolata*
A	not	naked	sesp	A:4	*P. caffer*, *P. muscicola*[1]
A	not	orn	absent	A:4	KG 1(male) (p. 621)
A	not	orn	absent?	A:3	*P. forficulata*
A	not	orn	sesp	A:4	KG 2(male) (p. 622)
B	not	orn	sesp	B:3	*Parastenocaris jane*

B	not	orn	absent	B:3	*Parastenocaris macaco*
C	not	orn	sesp?	A:4	*P. madagascarensis*
D	absent	naked	absent	A:4	*P. vandeli*
D	absent	orn	absent	A:3	*P. dianae*
D	absent	orn	absent	A:2	*P. husmanni*
D	absent	orn	absent	B:4	*P. digitiphora*
D	absent	orn	absent	B:3	*Parastenocaris* sp. Dussart, 1984b
D	absent	orn	sesp	A:4	*P. corsica*
D	absent	orn	sesp	A:3	*P. incerta*
D	absent	orn	finger	A:4	*P. nana*
D	absent	orn	seg	A:3	*P. glareola*
D	vest	naked	sesp	B:4	*P. digitata*, *P. jakobii*[2]
D	vest	naked	sesp	B:3	*P. siolii*
D	vest	orn	sesp	A:4	*P. tapajosensis*
D	L-ext	orn	absent	E	*Forficatocaris amazonensis*
D	L-med	orn	absent	A?:2?3?	*Parastenocaris bulgarica*
D	L-med	naked	sesp	A:4	*P. curvispinus*
D	not	naked	absent	A:4	KG 3(male) (p. 623)
D	not	naked	absent	A:3	KG 4(male) (p. 623)
D	not	naked	absent	A:2	KG 5(male) (p. 624)
D	not	naked	absent	B:3	KG 6(male) (p. 625)
D	not	naked	absent	F	KG 7(male) (p. 625)
D	not	naked	absent	F	*Murunducaris juneae*
D?	not	naked	absent	absent[3]	*Parastenocaris aedes*[3]
D?	not	naked	vest?	absent[3]	*P. hippuris*[3]
D	not	naked	sesp	D	*P. aberrans*
D	not	naked	sesp	A:5	*Remaneicaris jujuyensis*
D	not	naked	sesp	A:4	KG 8(male) (p. 626)
D	not	naked	sesp?	A:4	*Parastenocaris entzii*
D	not	naked	sesp	A:3	KG 9(male) (p. 627)
D	not	naked	sesp	A:2	KG 10(male) (p. 627)
D	not	naked	sesp	B:5	*Parastenocaris ahaggarica*
D	not	naked	sesp	B:4	*P. banaticus*, *P. similis*[4]
D	not	orn	sesp	A:4	KG 11(male) (p. 628)
D	not	orn	sesp	B:3–4	KG 12(male) (p. 629)
D	not	naked	sesp	F	*Potamocaris bidentata*
D	not	naked?	finger	A:4	*Parastenocaris minuta*
D	not	naked	seg	A:3	*Remaneicaris clandestina*
D	not	naked	seg	B:4	*R. hurdi*
D	not	orn	absent	A:4	KG 13(male) (p. 630)
D	not	orn	absent	A:4[5]	*Parastenocaris irenae*[5]
D	not	orn	absent	A:3	KG 14(male) (p. 631)
D	not	orn	absent	A:2	KG 15(male) (p. 632)
D	not	orn	absent	B:5	*Parastenocaris psammica*
D	not	orn	absent	B:4	KG 16(male) (p. 633)
D	not	orn	absent	B:4[5]	*Parastenocaris singhalensis*[5]

D	not	orn	absent	B:1	*P. budapestensis*
D	not	orn	absent	C:2	*P. dactyloides*
D	not	orn	absent	absent	*Simplicaris lethaea*
D	not[6]	orn[6]	absent	H[6]	*Paraforficatocaris paranaensis*[6]
D	not	orn	sesp	A:4	KG 17(male) (p. 634)
D	not	orn	sesp	A:4[4]	*Parastenocaris proserpina*[4]
D	not	orn	sesp	A:3	KG 18(male) (p. 635)
D	not	orn	sesp	A:2	*Parastenocaris arenicola*
D	not	orn	sesp	B:5	KG 19(male) (p. 636)
D	not	orn	sesp	B:4[4]	*P. stammeri*[4]
D	not	orn	sesp	B:3	KG 20(male) (p. 637)
D	not	orn	sesp	B:1	*Parastenocaris budapestensis*
D	not	orn	finger	A:4	*P. pasquinii*
D	not	orn	finger	A:3	KG 21(male) (p. 638)
D	not	orn	finger	B:5	*Parastenocaris crenobia*
D	not	orn	finger	B:3	*P. gracilis*
D	not	orn	seg	A:4	KG 22(male) (p. 639)
D	not	orn	seg	A:3	*Remaneicaris icoaraci*
D	not	orn	seg	B:5	*Parastenocaris feuerborni*
D	not	?	finger	A:4	*P. minuta*
E	absent	orn	absent?	B:4	*P. glacialis*
E	absent	orn	sesp	A:4	*P. amatheia*
E	L-med	orn	absent	B:4	*P. hinumaensis*
E	not	naked	absent	A:3	KG 23(male) (p. 639)
E	not	orn	absent	A:4	*Parastenocaris nolli*, *P. trinacriae*[7]
E	not	orn	absent	A:3	KG 24(male) (p. 640)
E	not	orn	absent	B:5	*Parastenocaris oshimaensis*
E	not	orn	absent	B:4	*P. spinipes*
E	not	orn	absent?	A:4	*P. micheli*
E	not	orn	sesp	A:4	*P. hera*, *P. lorenzae*[8]
E	not	orn	sesp	A:3	*P. cantabrica*, *P. mangyans*[9]
E	not	orn	sesp	absent[3]	*Simplicaris veneris*[3]
F	absent	naked	finger	A:3	*Parastenocaris clujensis*
F	absent	naked	sesp	A:5	*P. mateusi*
F	absent	naked	sesp	A:4	*P. tyrrhenidis*
F	absent	orn	sesp	B:4	*P. xyrophora*
F	L-ext	naked/orn	absent/vest	E	KG 25(male) (p. 640)
F	not	orn	seg	A:4	KG 26(male) (p. 641)
F	not	orn	seg	B:3	*Parastenocaris kimberleyensis*
F	not	orn	finger	A:3	*P. admete*
F	not	orn	sesp	A:4	KG 27(male) (p. 642)
F	not	orn	sesp	A:3	*Parastenocaris nicolasi*
F	not	orn	sesp	B:5	*P. rivi*
F	not	orn	sesp	B:3	KG 28(male) (p. 643)
F	not	orn	absent	A:4	KG 29(male) (p. 644)
F	not	orn	absent	A:3	*Parastenocaris ima*

F	not	orn	absent	B:3	*P. noodti*
F	not	naked	sesp[10]	B4	*Remaneicaris andaluizae*[10]
F	not	naked	seg	A:4	*R. divae*
F	not	naked	absent	A:4	*Parastenocaris nigerianus*
F	not	naked	absent	B:4	*P. spinicauda*
F	not	naked	absent?	A:3	*P. spinosa*
F	not	naked	vest	F	*Potamocaris estevesi*
F	not	naked	sesp	A:4	KG 30(male) (p. 644)
F	not	naked	sesp	A:4[5]	*Parastenocaris sardoa*[5] (see KG 30(male))
F	not	naked	sesp	A:3	*Remaneicaris tageae*
F?	not	naked	absent	absent[3]	*Simplicaris aedes*[3]
?	not	orn	sesp	?:?	*Parastenocaris* sp. 1 Strayer, 1988
?	not	orn	absent	?:?	*Parastenocaris* sp. 3 Strayer, 1988

1. In *P. caffer* the outer distal corner of P5 is rounded so there is a sharp transition from the distal edge to the unguiform inner distal corner. In *P. muscicola* the outer distal corner is not distinct and the P5 is a triangle.
2. In *P. digitata* the distal part of P3 exopod is multidigitate, with 5 "fingers". In *P. jakobii* it is chelate, with two opposed digits.
3. Galassi & De Laurentiis (2004: p. 433) consider these species as *incertae sedis* in *Simplicaris*. They also provide new information on P5.
4. In *P. similis* P4 endopod is a cylindrical segment with a terminal plumose spine that barely extends to halfway along Exp-1. In *P. banaticus* it is a long, pointed, spiniform structure that nearly reaches the end of Exp-1.
5. One of the seta is minute.
6. P4 basis and endopod are heavily sclerotised; apparently covering most of the anterior face of P4 Exp-1. P5 is described as a diamond-shaped plate with 4 setae; presumably the pair of P5 are separate. The illustration seems to indicate the presence of a heavily sclerotised spine or projection from the outer side.
7. In *P. nolli* P4 endopod is a simple spike. In *P. trinacrae* it appears to be a distinct segment (with the inner distal corner drawn out into a fine point, at 90° to the main axis) with a terminal dentate spine that is longer than the segment.
8. In *P. hera* P3 exopod terminates in a truncate "foot" that does not reach the end of the subapical outer spine and P3 endopod is a long spine or seta that extends to about ⅓ the length of the exopod. In *P. lorenzae* the P3 exopod terminates in a long, slender, pointed process that extends far beyond the end of the subapical spine and the endopod is a very short seta that barely reaches the beginning of the exopod.
9. In *P. mangyans* P3 exopod terminates in a truncate "foot" that does not reach the end of the subapical outer spine ('thumb'). In *P. cantabrica* the P3 exopod terminates in a long slender, pointed process that extends far beyond the end of the subapical spine.
10. *Remaneicaris andaluizae* appears to be unique in the family in having a large, sharply pointed hyaline spiniform structure immediately proximal and adjacent to the origin of the endopod. This structure is larger and longer than the endopod.

KG 1(male) – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. Caudal ramus, shape in dorsal view
   ±cyl - approximately cylindrical
   spindle - widest in the middle

3. P5, unguiform projection of inner distal corner
   entire *or* bifid

4. P4 basis, ornamentation around origin of endopod

setae - 5 slender setae

fingers - 2 stout finger-like outgrowths

KG 1 (male)

CR	CR	P5	P4	
l/b	shape		basis	
≈3	spindle	entire	setae	*Parastenocaris eberhardi*
4	±cyl	bifid	fingers	*P. quollensis*

KG 2(male) – characters

1. P4 basis, inner half and adjacent to origin of endopod

n - number of setae

claws - 1 large, stout, curved claw-like spine

2. P4 endopod

A - slender, spiniform, inner side setose

B - broad, short, spiniform structure, with accessory spinules and setae

C - a complex structure; basal part with 5 spiniform processes and terminating in a long spiniform appendage, setose on the inner side

3. P2 endopod

wd - well developed segment, approximately cylindrical, reaching at least halfway along Exp-1; at least 1, well developed, terminal seta

red - reduced to a small (length ≈ breadth) segment with a small terminal seta; barely reaching the base of Exp-1

4. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

5. Anal operculum

st/convex - approximately straight, or convex

concave - strongly concave; lateral edges acutely pointed

KG 2(male)

P4	P4	P2	CR	Anal	
basis	Enp	Enp	l/b	operculum shape	
5	A	wd	4.7	concave	*Parastenocaris cornuta*
4	A	wd	2.7	concave	*P. lyncaea*
claws	B	red	5	st/convex	*P. christiani*
claws	C	wd	≈2.5	st/convex	*P. palmerae*

KG 3(male) – characters

1. P4 endopod
   - spine - spiniform; weakly curved, with or without accessory setae
   - lamella - bifid lamella with a weak terminal seta

2. P3 exopod, apophysis
   - pointed - terminates in a point
   - spatulate - terminal portion spatulate, approximately circular

3. P5, outer edge distal to origin of setae
   - straight - approximately straight; without a pronounced “shoulder”
   - shoulder - with a pronounced “shoulder”, similar in form to that which bears the setae

4. P5, inner distal corner
   - massive - a massive unguiform projection, extending well beyond the end of setae I–III
   - small - a very small unguiform projection, not reaching the end of setae II–III

5. Caudal ramus, in dorsal view
   - n - ratio of maximum length to maximum breadth

KG 3(male)

P4 Enp	P3 Exp	P5 outer edge	P5 inner distal corner	CR l/b	
spine	pointed	straight	small	≈5	*Parastenocaris entzii*
spine	pointed	straight	massive	≈3	*P. sinoiaica*
lamella	spatulate	shoulder	massive	≈3	*P. arenosus*

KG 4(male) – characters

1. P4 endopod
   - clavate - club-shaped
   - spike 1 - stout, curved spike, with or without ornamentation or armature
   - spike 2 - stout spike; ring of spinules marks line of fusion between original segment and terminal spine portions
   - seg - slender cylindrical segment with terminal armature (demarcation between terminal spine and segment may be weak)

2. Caudal ramus, shape in dorsal view
   - ±cyl - cylindrical for most of the length; may taper at extreme distal end
   - convex - outer side approximately straight; inner side convex

3. Caudal ramus, placement of setae I–III* on outer side
   - prox - in the proximal half of the side
   - distal - in the distal half of the side

* See Fig. 3; note that according to some descriptions one or more of these setae may be absent, but these statements must be treated with caution as often these setae are very small and perhaps easily overlooked.

4. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

5. Anal operculum, in dorsal view
   convex - general shape weakly convex
   w - lateral edges curved, medial portion weakly concave, so that the structure has a weak W-shape

KG 4(male)

P4 Enp	CR shape	CR setae I–III	CR l/b	Anal operculum shape	
clavate	±cyl	distal	≈4	w	*Remaneicaris psammae*
seg	convex	prox	≈3	convex	*R. itica*
seg	±cyl	distal	≈4	convex	*Parastenocaris gertrudae*
spike 1	±cyl	prox	3	convex	*P. matapoica*
spike 1	±cyl	distal	2.6	convex	*P. italica*
spike 1	convex	prox	2.2	w	*P. kabyloides*
spike 2	±cyl	prox	3–5	convex	*P. fontinalis*

KG 5(male) – characters

1. Anal operculum, shape in dorsal view
   st/convex - straight or weakly convex
   concave - weakly concave
   notched - overall shape convex but with a deep median notch

2. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

3. Caudal ramus, placement of setae I–III* on outer side
   prox - in the proximal half of the side
   distal - in the distal half of the side

* See Fig. 3; these setae always originate adjacent to each other, but note that according to some descriptions 1 or more of them may be absent, although these statements must be treated with caution as often these setae are very small and perhaps easily overlooked.

4. P2 endopod
   n - number of segments

5. P4 endopod
   straight - stout, approximately straight spike, with or without ornamentation or armature
   curved - stout, curved spike, with or without ornamentation or armature

KG 5(male)

Anal operculum shape	CR l/b	CR setae I–III	P2 Enp segs	P4 Enp	
st/convex	3	prox	1	straight	*Parastenocaris matapoica*[1]
st/convex	≈2	prox	2	straight	*P. staheli*
st/convex	2.6	distal	1	curved	*P. italica*
concave	2.5	prox	1	curved	*P. fossoris*[2]
notched	≈4	prox	1	curved	*P. lacustris*

1. P5 is peculiar. Inner side has a deep notch distally and bears a seta distal to it, in addition to a number of spinules in the proximal portion. Outer side bears 2 long setae.
2. P5 is peculiar. Inner side is curved sinuously.

KG 6(male) – characters

1. P5
   - seta - terminal seta filiform; inner edge naked
   - spine - terminal "seta" a stout plumose spine; inner edge spinulose distally

2. P3 exopod, "thumb" (Fig. 108)
   - needle - long and finely pointed
   - finger - short, broad, and round at apex

3. P4 endopod
   - spiniform - represented by a single spiniform structure
   - segment - a prominent cylindrical segment with an apical spine

KG 6(male)

P5	P3 Exp	P4 Enp	
seta	needle	spiniform	*Parastenocaris pusillus*
spine	finger	segment	*P. jeanineae*

KG 7(male) – characters

1. P1 Exp-1, inner edge
   - n - number of recurved, hooked spines on inner edge

2. P4 endopod
   - simple - terminal portion a single simple spike
   - complex - terminal portion expanded laterally, with inner and outer spikes that cross one another near their apices

KG 7(male)

P1 hooked spines	P4 Enp	
1	simple	*Potamocaris bifida*
3	complex	*P. tridentata*

KG 8(male) – characters

1. P2 endopod
   n - number of segments

2. Caudal ramus, placement of setae I–III* on outer side
   prox - in the proximal half of the side
   distal - in the distal half of the side

* See Fig. 3; these setae always originate adjacent to each other, but note that according to some descriptions one or more of them may be absent, although these statements must be treated with caution as often these setae are very small and perhaps easily overlooked.

3. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

4. P4 endopod
   A - small segment with terminal armature
   B - small segment without terminal armature (often spiniform with rounded or pointed apex)
   C - approximately straight spike
   D - sinuously curved spike
   E - curved spike; inner side setose; small, barely reaching the proximal quarter of Exp-1
   F - curved spike; inner side setose; reaching about the mid point of Exp-1
   G - curved spike; inner side setose (or dentate?); reaching to the end of Exp-1

5. P1 Exp-3
   n - total number of setae and/or spines

KG 8(male)

P2 Enp segs	CR setae I–III	CR l/b	P4 Enp	P1 Exp-3 setae	
2	prox	≈2	C	5[1]	*Parastenocaris chelifer*[1]
1	prox	≈4	A	4	*P. sandhya*
1	distal	2.5	B	4	*P. inferna*
1	distal	≈3	C	4	*P. aethiopica*[2]
1	distal	≈3	B	4	*Remaneicaris meyerabichi*
1	distal	2.5	A	4	*Parastenocaris karamani brevicauda*
1	distal	≈5	A	4	*P. entzii*
1	distal	4	D	4	*P. colombiensis*
1	distal	≈3	E	4	*Remaneicaris palaciosi*
1	distal	≈3	F	4	*R. drepanophora*
1	distal	≈4	G	4	*R. argentina*

1. The illustration in the original (and only) description of this species shows 5 setae and spines (see Lang (1948), who believes this is an error), but the text does not describe the appendage in detail.
2. This species is included in this KG on the basis that Cottarelli & Bruno (1995) are correct in describing the P4 endopod with 2 long spinules at the base of an otherwise naked outer side. The illustration and text are quite clear on this point but it is possible that the origin of these spinules is on the basis adjacent to the endopod.

KG 9(male) – characters

1. P2 Enp
   - n - number of segments

2. P4 endopod
   - A - minute segment with a long terminal seta, plumose on inner side
   - B - small segment without ornamentation or armature
   - C - curved, irregular shaped, tapered lamella
   - D - weakly curved spike, multidigitate on both sides of proximal half
   - E - weakly curved spike with a single, small, pointed projection at base of inner side
   - F - strongly curved spike weakly spinose distally and with 2 spinules near base
   - G - stout, curved spike with 2 inner teeth near apex

3. Caudal ramus, shape in dorsal or ventral view
   - ±cyl - approximately cylindrical; inner and outer sides approximately straight
   - convex - outer side approximately straight; inner side weakly convex
   - ovoid - both inner and outer sides convex (also, viewed laterally, the dorsal side is inflated)
   - taper - ramus with a more or less even taper from base to apex

4. Caudal ramus, in dorsal view
   - n - ratio of maximum length to maximum breadth

5. P5, inner edge
   - sp - spinulose
   - n - naked

KG 9(male)

P2 Enp	P4 Enp	CR shape	CR l/b	P5 inner edge	
2	A	±cyl	≈2	sp	*Parastenocaris chelifer*
1	B	ovoid	2.5	sp	*P. crassicaudis*
1	C	convex	≈3	n	*P. santaremensis*
1	D	taper	≈2	sp	*P. ruffoi*
1	E	±cyl	2	sp	*P. kabyla*
1	F	±cyl	≈4	sp	*P. aquaeductus*
1	G	±cyl	2.6	n	*P. italica*

KG 10(male) – characters

1. Anal operculum, shape in dorsal view
   - straight - straight or weakly convex
   - notched - overall shape convex but with a deep median notch

2. Caudal ramus, in dorsal view
   - n - ratio of maximum length to maximum breadth

3. Caudal ramus, placement of setae I–III* on outer side
prox - in the proximal half of the side
distal - in the distal half of the side

* See Fig. 3; these setae always originate adjacent to each other, but note that according to some descriptions one or more of them may be absent, although these statements must be treated with caution as often these setae are very small and perhaps easily overlooked.

4. P2 endopod
n - number of segments

5. P4 endopod
naked - stout, almost straight spike without ornamentation or armature
spike - stout, almost straight spike with ornamentation or armature
curved - weakly curved spike; spinulose

KG 10(male)

Anal operculum shape	CR l/b	CR setae I–III	P2 Enp segs	P4 Enp	
straight	≈2	prox	2	naked	*Parastenocaris staheli*
straight	2.6	distal	1	spike	*P. italica*
straight	≈3	distal	1	spike	*P. subterranea*
notched	≈4	prox	1	curved	*P. lacustris*

KG 11(male) – characters

1. Caudal ramus, in dorsal view
n - ratio of maximum length to maximum breadth

2. P4 endopod, shape and form
A - simple spiniform, without ornamentation
B - simple spiniform, with very small accessory spinules distally
C - stoutly spiniform, with large accessory spinules along inner edge.
D - complex spiniform, with a large lateral unguiform process midway and a convoluted terminal spike
E - complex spiniform, with a large, lateral unguiform process midway and a lamellate terminal portion
F - very curved spike—almost a reversed "upside down" L-shape; reaching almost to end of Exp-1; outer edge dentate near apex; a ring of spinules mark the point of fusion between the original segment and terminal spine

3. P4 basis, inner side
A - with 3 very small spines internal to origin of endopod
B - with 3 curved spines internal to origin of endopod
C - with 2 long spinules adjacent to (or internal to) origin of endopod
D - with 1 very long spine (reaching to about the end of endopod) internal to the endopod and 1 small spine anterior to the endopod

E - with 1 short, curved, stout spine and 1 small spine internal to endopod
F - with 1 short, curved, stout spine external to origin of endopod

4. P5, unguiform projection
long - origin at inner distal corner; extends beyond origin of P5 setae
short - origin proximal to inner distal corner; does not extend to the level of the inner distal corner or the origin of P5 setae

5. P5, longest seta
I - seta IV is the longest seta; at least twice as long as other setae
II - seta II is the longest seta
IV - seta IV is the longest seta; at least twice as long as other setae

KG 11(male)

CR l/b	P4 Enp	P4 basis	P5	P5	
3.4	B	D	short	II	*Parastenocaris federici*
3.3	A	A	long	IV	*P. ranae*
≈3	C	C	long	I	*P. aethiopica*[1]
≈3	F	F	long	IV	*P. hispanica*
≈2.5	E	B	long	IV	*P. sibaritica*
2.2	D	E	long	IV	*P. aphroditis*

1. This species is included in this KG on the basis that Cottarelli & Bruno (1995) are not correct in describing the P4 endopod with 2 long spinules at the base of an otherwise naked outer side. The illustration and text are quite clear on this point but it is possible that the origin of these spinules is on the basis adjacent to the endopod.

KG 12(male) – characters

1. Antennule
hook - segment 6 with a long curved, unguiform process; segment 4 with a short process.
simple - without such a device

2. P4 endopod
complex - large (reaching to about end of Exp-1), broad and of complex shape, with sclerotised basal portion but does not terminate in a sharp spike
spike - a long sharp, straight spike, with fused teeth on parts of inner edge
segment - a narrow segment with a terminal fused seta; reaches at least to end of Exp-1
˥ - a reversed "upside down" L-shaped spike, with the short arm proximal
finger - a simple slender unadorned (or perhaps with a very small terminal seta) finger that barely reaches the origin of Exp

3. P4 basis, ornamentation adjacent to origin of endopod
n setae - with *n* setae or slender spines immediately adjacent and internal to origin of endopod
ungui - without setae or spines but with inner distal corner forming a broad unguiform projection

4. P5

truncate - apex squarely truncate, not bilobed; inner distal corner with seta
bilobed - apex distinctly bilobed; inner distal corner rounded
round - apex straight, not bilobed; inner distal corner rounded
ungui - apex very narrow and bounded either side by a small unguiform projection

5. P5

n - number of setae

KG 12(male)

A1	P4 Enp	P4 basis	P5	P5	
hook	complex	1 seta	bilobed	4	*Parastenocaris gayatri*
simple	complex	ungui	bilobed	4	*P. savita*
simple	finger	3–4 setae	truncate	4	*P. austriaca*
simple	spike	3–4 setae	round	4	*P. silvana*
simple	segment	3 setae	truncate	4	*P. nertensis*
simple	┐	1 seta	ungui	3	*P. aquaeductus*[1]

1. Data from the redescription by Zincenco (1971).

KG 13(male) – characters

1. P4 basis

A - about 4 long setae at inner proximal corner
B - 3 setae or spines internal and adjacent to endopod
C - 2 setae or spines internal and adjacent to endopod
D - 5 setae on posterior (?) surface
E - approximately 9 long, fine setae on distal edge between exopod and endopod
F - a sclerotised distal edge projects over anterior face of endopod as a tooth that is directed medially and aligns with a notch in the inner side of Exp-1, and there is 1 spine adjacent and internal to endopod.

2. P4 endopod

A - small segment; unornamented
B - long, tapering segment, with long terminal seta; both bisetose
C - large segment (reaching to about the end of Exp-1) with terminal spine-like extensions
D - foliose, hyaline lamella, reaching to about the end of Exp-1
E - curved segment with dentate terminal spine
F - long, curved spike with hyaline tip
G - complexly figured sclerotised lamella (see Chappuis & Rouch 1959a)

3. Caudal ramus, placement of setae I–III* on outer side

prox - in the proximal portion of the side
distal - in the distal portion of the side

* See Fig. 3; these setae always originate adjacent to each other, but note that according to some descriptions one or more of them may be absent, although these statements must be treated with caution as often these setae are very small and perhaps easily overlooked.

4. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

5. Anal operculum, shape in dorsal view
   straight - general shape straight or weakly convex
   w - lateral edges curved, medial portion apparently deeply indented, so that the structure has a pronounced W-shape

KG 13(male)

P4 basis	P4 Enp	CR setae I–III	CR l/b shape	Anal operculum	
A	B	distal	≈4	straight	*Remaneicaris rhizophora*
B	D	distal	≈2	straight	*P. micheli*
B?[1]	G[1]	distal	≈2	straight	*P. dentulatus*[1]
C	A	distal	6–7	straight	*P. karamani* s. str.
C	E	distal	2.5	straight	*P. balcanica*
D	D	prox	≈3	w	*P. gorganensis*
E	F	distal	3	straight	*P. kubitzkii*
F	C	distal	≈3	straight	*P. irenae*

1. P4 basis carries 3 sets of structures (see Chappuis & Rouch 1959a)
   (a) a complexly figured sclerotised lamella
   (b) a hyaline foliose lamella adjacent and internal to the origin of (a)
   (c) 3 small spines adjacent and internal to the origin of (b)
   In this key I have assumed that (a) represents the endopod and (b) and (c) are ornamental structures of the basis. Resolution of this problem requires as yet unavailable knowledge of copepodid stages.

KG 14(male) – characters

1. P1 Enp-1, inner edge
   spine - with a well developed spine or seta
   naked - naked or with small setules

2. P4 basis, inner half and adjacent to origin of endopod
   A - 1 seta on distal edge between exopod and endopod
   B - 3 spines internal to, and adjacent to, the endopod
   C - 2 setae or spines internal to, and proximal to, the endopod
   D - 1 seta internal to, and proximal to, the endopod
   E - a sclerotised lamella originating proximal to origin of endopod and covering about half of its length

3. P4 endopod*

A - clavate lobe, with or without ornamentation
B - a curved spine, with or without ornamentation
C - a dentate spike (of highly variable form)
D - a contorted spike
E - a multi-dentate sclerotised lamella

* In some of these species in this key the structure assumed to be the P4 endopod is a complexly figured spike or sclerotised lamella. It is an excellent character for distinguishing between species, but is difficult to describe adequately or accurately in a few words. It is imperative that you consult a description to confirm any tentative identification you make with this key.

4. Caudal ramus, placement of setae I–III* on outer side

prox - in the proximal portion of the side
middle - approximately in middle of the side
distal - in the distal portion of the side

* See Fig. 3; these setae always originate adjacent to each other, but note that according to some descriptions one or more of them may be absent, although these statements must be treated with caution as often these setae are very small and perhaps easily overlooked.

5. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

KG 14(male)

P1 Enp-1 inner edge	P4 basis	P4 Enp	CR setae I–III	CR l/b	
spine	A	E	prox	≈2	*Parastenocaris pannonica* [*sensu* Damian 1959]
spine	C	D	prox	≈2	*P. pannonica* [*sensu* Török 1935]
spine	C	C	distal	≈4	*P. curvicauda*
naked	A	C	middle	≈4	*P. moravica*
naked	B	B	middle	≈4.5	*P. nomiae*
naked	B	B	distal	≈2.5	*P. amyclaea*
naked	C	C	middle	≈3	*P. bohemica*
naked	D	B	distal	≈3	*P. delamarei*
naked	E	A	middle	2.5	*P. texana*

KG 15(male) – characters

1. P3 exopod

cylindrical - long and slender, cylindrical; outer edge without a lamella
lamellate - stout, contorted; outer edge with a triangular lamella distally

2. P5 setae

elongate 1 - inner distal unguiform process elongate; P5 with a total of 2 setae—a very long seta at the outer distal corner and a very small, almost rudimentary, seta immediately internal to the long seta—neither seta borne on a prominent pedestal

elongate 2 - inner distal unguiform process elongate; P5 with a total of 4 setae—a very long seta at the outer distal corner and 3 small, weak setae on prominent pedestals on the distal edge

compact - inner distal unguiform process short and stout; P5 with a total of 2 setae, neither of which is very long

KG 15(male)

P3 Exp	P5 setae	
cylindrical	elongate 1	*Parastenocaris monodi* [*sensu* Chappuis 1959]
cylindrical	elongate 2	*P. monodi* [*sensu* Soyer 1965]
lamellate	compact	*P. brincki*

KG 16(male) – characters

1. P3 exopod, apex

needle - a finely pointed projection (or a slender spine?)

spoon - a spoon-shaped lamella with a small, subapical outer spine

2. P4 basis and endopod

segment - endopod represented by a slender segment with a terminal seta; basis without an inner spine but with 4–6 slender spinules adjacent to the inner part of origin of endopod

lamella - endopod represented by a flame-shaped foliaceous membrane; basis with a curved spine immediately internal to origin of endopod lamella and with a heavily sclerotised tooth above the origin of endopod

3. P5

taper - tapers beyond origin of outermost seta to a distal edge with 3 setae

truncate - all 4 setae originate on the truncate distal edge

KG 16(male)

P3 Exp	P4 Basis & Enp	P5 shape	
needle	segment	taper	*Parastenocaris vicesima*[1]
spoon	lamella	truncate	*P. lanceolata*

1. Caution: Despite being very common in European brackish water beaches, *P. vicesima* has never been described and illustrated to modern standards.
   Petkovski (1959b) describes subspecies *dalmatina* in which the P3 has a terminal seta. This appears to differ from the descriptions of the nominate subspecies by Klie and Kunz (see Lang 1948).

KG 17(male) – characters

These species are difficult to distinguish on characters other than the P4 basis and endopod. These are excellent characters for distinguishing between species, but are difficult to describe adequately or accurately in a few words. It is imperative that you consult a description to confirm any tentative identification you make with this key.

1. P4 basis, inner half and around origin of endopod
   - A(n+n) - 2 groups of setae (number of setae near the coxa-basis junction + number of setae adjacent to origin of the endopod)
   - B(n) - confined to region of the origin of endopod (number of setae and or spines grouped adjacent to origin of the endopod and/or internal and immediately adjacent to endopod)
   - C(n) - confined to distal edge between exopod and endopod (number of setae)

2. P4 endopod
   - A - approximately cylindrical segment with a fused or freely articulating terminal spine or seta (segment and/or spine may bear accessory armature)
   - B - approximately cylindrical segment in which the inner distal corner is an unguiform projection (other armature may also be present)
   - C - flask-shaped segment with terminal seta
   - D - approximately straight spike, without ornamentation
   - E - approximately straight serrate or bisetose spike
   - F - curved spine, with or without ornamentation
   - G - blunt finger, straight or curved; without ornamentation
   - H - foliose hyaline lamella
   - J - complexly figured sclerotised lamella (see Chappuis & Rouch 1959a)

3. Caudal ramus, in dorsal view
   - n - ratio of maximum length to maximum breadth

KG 17(male)

P4 basis	P4 Enp	CR L/b	
A(≈7+≈4)	A	≈5	*Remaneicaris oncophora*
A(7+5)	E	≈4	*R. hecate*
A(≈6+4)	E	≈6	*R. pluto*
A(4+5–6)	E	≈5	*R. sanctoludovici*
A(3+many)	F	≈5	*R. membranacea*
B(1)	E	2.25	*Parastenocaris serbica*
B(2)	A	2.5	*P. balcanica*
B(2)	E	1.5	*P. stellae*
B(2)	F	6–7	*P. karamani*
B(2)	F	2.75	*P. tumida*
B(2)	F	2.2	*P. kimi*

B(3)	A	≈7	*P. triphyda*
B(3)	B	≈3	*P. stammeri gallicus*
B(3)	B	2.3	*P. etrusca*
B(3)	D	≈4	*P. trichelata*
B(3)	H	≈2	*P. micheli*
B(3)[1]	J[1]	≈2	*P. dentulatus*[1]
B(4)	A	4–5	*P. rascana*
B(4)	A	≈3	*P. narentina*
B(4)	B	8	*P. orcina*
B(4)	C	3.5	*P. cataractae*
B(5)	B	2.3	*P. oligalina*
B(6)	A	3	*P. lusitanica*
C(1)	A	≈2	*P. proserpina*
C(≈5)	D	≈4	*P. roettgeri*

1. P4 basis carries 3 sets of structures (see Chappuis & Rouch 1959a)
   (a) a complexly figured sclerotised lamella;
   (b) a hyaline foliose lamella adjacent and internal to the origin of (a);
   (c) 3 small spines adjacent and internal to the origin of (b).
   In this key I have assumed that (a) represents the endopod and (b) and (c) are ornamental structures of the basis. Resolution of this problem requires as yet unavailable knowledge of copepodid stages.

KG 18(male) – characters

1. P4 basis, inner half and adjacent to origin of endopod
   A - 1 seta on distal edge between exopod and endopod
   B(n) - (number of setae and spines) adjacent to origin of endopod
   C - a sclerotised lamella originating proximal to origin of endopod and covering about half of its length

2. P4 endopod
   A - segment with freely articulating terminal spine
   B - small bulbous segment with a stout, blunt, asetose terminal finger
   C - segment with inner distal corner unguiform and a fused terminal dentate spine
   D - long straight spine, setose or dentate
   E - curved spine, with or without ornamentation
   F - dentate or contorted spike (of highly variable form)
   G - clavate lobe, with or without ornamentation

3. Caudal ramus, placement of setae I–III* on outer side
   prox - in the proximal portion of the side
   mid - approximately in middle of the side
   dist - in the distal portion of the side

* See Fig. 3; these setae always originate adjacent to each other, but note that according to some descriptions one or

more of them may be absent, although these statements must be treated with caution as often these setae are very small and perhaps easily overlooked.

4. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

5. P5, inner edge
   spine - spinulose
   naked - naked

KG 18(male)

P4 basis	P4 Enp	CR setae I–III	CR l/b	P5 inner edge	
A	D	prox	≈5	spine	*Parastenocaris germanica*
A	F	prox	2.5	spine	*P. amalasuntae*, *P. phyllura*[1]
A	F	mid	≈3.5	spine	*P. moravica*, *P. mangini*[2]
B(1)	E	dist	≈3	naked	*P. delamarei*
B(2)	C	dist	2.5–3	naked	*P. acherusia*
B(2)	C	dist	≈3	naked	*P. andalusica*[3]
B(2)	B	dist	≈3	naked	*P. elegans*
B(2)	E	dist	2.3	naked	*P. minutissima*
B(3)	E	dist	≈3	naked	*P. nomiae*
B(0–4)	A	prox	≈4	spine	*P. conimbrigensis*

1. In *P. amalasuntae* the P4 endopod is a highly contorted spike, with fused denticles of varying size on both edges. In *P. phyllura* it is a simple spike, with a 90° bend at its base, with articulated denticles only on the outer edge.
2. In *P. mangini* the "thumb" of P3 exopod (Fig. 108) is sinuous but ends in a very fine point. In *P. moravica* it is stout and fringed with an hyaline lamella.
3. Enckell's (1965) illustrations of this species give the impression that there is a true spine at outer distal corner of P2 and P4 Exp-2; unfortunately, the text does not describe the appendages in detail. If correct, this condition is unique in *Parastenocaris*.

KG 19(male) – characters

1. P4 basis, inner half and adjacent to origin of endopod
   n - number of setae or spines

2. P4 endopod
   A - approximately cylindrical finger, curved, with a spherical tip
   B - segment with inner distal corner unguiform: a fused terminal dentate spine and a fused spine on outer edge

3. P2 endopod
   wd - well developed, reaching at least to the middle of Exp-1
   vest - reduced to a small segment barely reaching the base of Exp-1

KG 19(male)

P4 basis	P4 Enp	P2 Enp	
4	B	wd	*Parastenocaris phreatica*
3	B	wd	*P. numidiensis*[1]
3	B	wd?	*P. stammeri* s. str.[1]
2	A	vest	*P. crenobia*

1. P5 seta IV is the shortest seta in *P. numidiensis* but the second longest in *P. stammeri.*

KG 20(male) – characters

These species are difficult to distinguish on characters other than the P4 basis and endopod. These are excellent characters for distinguishing between species, but are difficult to describe adequately or accurately in a few words. It is imperative that you consult a description to confirm any tentative identification you make with this key.

1. P4 basis, inner half and adjacent to origin of endopod
   - A - 2 setae internal and immediately adjacent to endopod
   - B - 5 setae adjacent to origin of endopod
   - C - a large blunt finger and 2 claws
   - D - a triangular, sclerotised lamella originating proximal to origin of endopod and covering about half of its length

2. P4 endopod
   - A - 1 slender, bisetose spine
   - B - clavate segment with a fused terminal finger setose on outer side
   - C - large, stout segment with spinulose apex
   - D - 1 (2?) segment with a setose apex

3. P4 Exp-1, inner edge
   - normal - of normal shape—approximately straight or slightly concave
   - notched - with a deep concave notch

KG 20(male)

P4 basis	P4 Enp	P4 Exp-1	
A	B	normal	*Parastenocaris dubia*
B	A	normal	*P. marlieri*
C	C	normal	*P. brevipes*
D[1]	D[1]	notched	*P. longipoda*[1]

1. The description and illustration of the P4 is not easy to interpret. The authors seem to believe that all the structures are part of the endopod. The illustration indicates that the endopod has 2 segments, which would be unique in the family.

KG 21(male) – characters

1. P4 basis, inner half and adjacent to origin of endopod
   - A - 1 long seta on distal edge between exopod and endopod
   - B(n) - number of strong, curved spines internal and proximal to endopod

2. P4 endopod
   - spine - simple curved spine; accessory spinules may be present
   - finger - pointed sclerotised finger, expanded in the outer basal portion
   - plate - contorted sclerotised plate, extremely expanded in the outer basal portion
   - foliose - foliose lamella with a sclerotised mid vein

3. P4 Exp-1, inner edge
   - A - normal; inner edge approximately straight
   - B - heavily sclerotised; at about ⅓ along its length the segment abruptly expands medially, but is slightly recurved proximally, so that the proximal third of the edge forms a deep notch, hooked distally, that is aligned with the outer basal expansion of the endopod; together these form a "pincer"
   - C - heavily sclerotised; distal edge of notch rounded, not hooked; endopod without basal expansion; a "pincer" is not formed

4. Caudal ramus, placement of setae I–III* on outer side
   - prox - in the proximal half of the side
   - dist - in the distal half of the side

* See Fig. 3; these setae always originate adjacent to each other, but note that according to some descriptions one or more of them may be absent, although these statements must be treated with caution as often these setae are very small and perhaps easily overlooked.

5. Caudal ramus, dorsal view
   - n - ratio of maximum length to maximum breadth

KG 21(male)

P4 basis	P4 Enp	P4 Exp-1	CR setae I–III	CR l/b	
A	spine	A	dist	4.5	*Parastenocaris nipponensis*
B(1?)	spine?	B	prox	≈3	*P. brasilibathynellae*[1, 2]
B(2)	finger	B	prox	≈3	*P. panamericana*[1]
B(2)	plate	B	prox	≈4	*P. salvadorensis*[1]
B(2)	foliose	C	prox	≈4	*P. cuscatlensis*[1]

1. These species belong to the *panamericana*-group of Noodt (1961) and are characterised by a peculiar modification of P4 Exp-1. The differences between them are subtle and it is vital that you consult a description to confirm any identification you make with this key.
2. This species is poorly described and it is not possible to be certain of the condition of P4.

KG 22(male) – characters

1. Anal operculum, ornamentation
   - setules 1 - short, fine setules on distal edge
   - setules 2 - long, fine setules on, or proximal to the distal edge
   - spines - stout spines on distal edge

2. Caudal ramus, in dorsal view
   - n - ratio of maximum length to maximum breadth

3. Caudal ramus, placement of setae I–III* on outer side
   - prox - in the proximal half of the side
   - dist - in the distal half of the side

* See Fig. 3; these setae always originate adjacent to each other, but note that according to some descriptions one or more of them may be absent, although these statements must be treated with caution as often these setae are very small and perhaps easily overlooked.

4. P5 inner edge
   - setose - distal portion setose
   - naked - naked

5. P3 exopod
   - spine - terminal portion with a very long, lanceolate, terminal spine
   - pointed - terminal portion spiniform
   - blunt - terminal portion broad and blunt

KG 22(male)

Anal operculum	CR l/b	CR setae I–III	P5 inner edge	P3 Exp	
setules 1	≈3	dist	naked	spine	*Parastenocaris pauliani*
setules 2	2.5–3	prox	setose	pointed	*P. chappuisi*
spines	5–6	dist	setose	blunt	*P. spinosa*

KG 23(male) – characters

1. P4 basis, ornamentation
   - n - number of setae inserted at the inner proximal part of the anterior face adjacent to the articulation with the coxa*

* In some species it appears from the illustrations that these setae may originate on the distal edge of the coxa.

2. P4 endopod
   - ±cyl - approximately cylindrical segment with a fused terminal spine; reaches to about halfway along Exp-1
   - blade- short, broad blade; inner side curved and setose

3. P2 endopod, outer edge
n - number of setae

4. Caudal ramus, in dorsal view
n - ratio of maximum length to maximum breadth

KG 23(male)

P4 basis	P4 Enp	P2 Enp	CR l/b	
4–5	±cyl	3	≈3.5	*Remaneicaris sierrae*[1]
3–4	blade	6	≈4	*R. cordobaensis*[1]
3	blade	4	3.5	*R. ciliata*[1]

1. The difference between these species is subtle and it is imperative that you consult a description to confirm any identification.

KG 24(male) – characters

1. Caudal ramus, in dorsal view
n - ratio of maximum length to maximum breadth

2. P4 basis
irregular - with an large irregularly shaped spiniform structure adjacent to origin of endopod; usually about as long as endopod
simple - with a simple plumose seta, usually much shorter than endopod

3. P5, inner edge
n - number of spinules or setules on inner edge

KG 24(male)

CR l/b	P4 basis	P5 inner edge	
2.1–2.3	irregular	5–6	*Parastenocaris kalypso*
3.5	simple	0	*P. aesculapii*

KG 25(male)

The complexities of the P4 endopod provide good characteristics for differentiating the males of *Forficatocaris* but they are extremely difficult to describe in words. It is imperative that you consult a description to confirm any tentative identification you make with this key.

1. P4 basis, distal edge between exopod and endopod
n - number of setae

2. Last segment, dorsal surface, spinule row(s)
prox - in proximal portion of segment only
dist - in distal portion of segment only
pd - in both proximal and distal portions (the latter may be close to the posterior edge of the anal operculum)

3. Antenna exopod
   n - number of setae

4. P1 Enp-1, proximal portion of inner side
   A - expanded as a shallow knob; without projections
   B - as A plus a distally directed spiniform projection, setose on inner side
   C - as A plus a strongly recurved hook-like spine
   D - not expanded but bearing a short, blunt, finger-like outgrowth

5. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

Reid (1982) provides a dichotomous key to both sexes of *Forficatocaris.*

KG 25(male)

P4 basis	Last seg	A2 Exp setae	P1 Enp-1	CR l/b	
0	dist	1	A	≈2	*Forficatocaris fittkaui*
0	pd	1	B	1.5	*F. noodti*
0	prox	1	C	≈2	*F. claudii*, *F. lilianae*[1]
0	prox	2	D	1.6	*F. guarani*
4–5	prox	1	C	≈1.5	*F. jakobii*
4–5	prox	2	D	≈2	*F. forficata*
6–7	prox	1	C	≈2	*F. evelinae*
6–7	prox	1	D	≈3	*F. schadeni*
6–7	prox	2	D	2	*F. tetracantha*

1. In *F. lilianae* the P2 endopod extends to about the end of Exp-1. In *F. claudii* the endopod barely reaches the middle of Exp-1.

KG 26(male) – characters

1. Anal somite, dorsal surface
   a - spine rows absent
   p1wd - 1 row of ≈9 spinules flanked by a sensillum
   p1red - 1 row of 4 widely separated spinules; without sensilla
   p2 - 2 rows; distal row with 4 very large spines middorsal

2. P4 basis, inner half and adjacent to origin of endopod
   A(n+n) - 2 groups of setae (number of setae inserted at the inner proximal part of the anterior face adjacent to the articulation with the coxa* + number of setae adjacent to origin of endopod)
   B(n+n) - 2 groups of setae (number of setae inserted on the inner edge of the basis, proximal and not immediately adjacent to endopod + number of setae adjacent to origin of the endopod)
   C - 2 groups of setae; (i) adjacent to origin of endopod and (ii) as a continuous row on the inner edge of basis and coxa, either side of the line of demarcation between them

* In some species it appears from the illustrations that these setae may originate on the distal edge of the coxa.

3. P4 endopod

seg - slender, approximately cylindrical segment; inner edge setose; terminal setae minute

spine - bisetose spine

finger - blunt, sclerotised finger with a broad base

blade 1 - broad-based, short (at most reaching a quarter of the way along Exp-1), symmetrical taper; bisetose

blade 2 - broad-based, short (at most reaching a quarter of the way along Exp-1), inner side tapering to meet the straight or concave outer side; inner side setose

scale - flattened, slender, scale-like lamella; bisetose

4. P3 endopod

±cyl - cylindrical segment with very slender terminal seta

flask - flask-shaped, with several very small terminal setae

foliose 1 - foliose lamella with a hyaline cap; asetose

foliose 2 - foliose lamella; asetose

foliose 3 - foliose lamella; inner side setose

foliose 4 - foliose lamella with a minute terminal seta

5. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

KG 26(male)

Anal seg dorsal setae	P4 basis	P4 Enp	P3 Enp	CR l/b	
a	A(3+many)[1]	finger	foliose 1	≈5	*Remaneicaris membranacea*[1]
a	A(4–5+0)	seg	±cyl	≈3.5	*R. sierrae*
a	A(3–5+0)	blade 2	±cyl	≈4	*R. cordobaensis*
a	A(3+0)	blade 2	±cyl	3.5	*R. ciliata*
p1red	B(many+0)[2]	seg	foliose 3	≈3	*R. paraensis*[2]
p2	B(3+3–4)[3]	scale	foliose 2	≈6	*R. paraguayensis*[3]
p2	C	blade 1	foliose 4	≈4.5	*R. remanei*[4]

1. The spinule row above the origin of the endopod is composed of many minute spinules (Noodt 1965).
2. While the text states “many”, the illustration figures only 3 (Noodt 1963).
3. The text states that the basis has “mehrere kräftige Borsten” but the illustration shows only these numbers and gives the impression that they are long and relatively slender, rather than “strongly” built (Noodt 1963).
4. *Remaneicaris remanei* may also be distinguished by the presence of a very large, sclerotised structure on the ventral side of the first urosomite. This structure bears the P5 and is described by Noodt (1963) as shaped like the beak of a parrot (“papageienschnabelartiges”).

KG 27(male) – characters

1. P4 basis, ornamentation

(This character must be read in concert with character 2 so as to be certain that the endopod has been identified, and differentiated from any ornamentation structures of the adjacent basis) fine - a row of fine setules near the inner proximal corner and adjacent to the articulation with the coxa (note that in some illustrations it appears that these setules may originate on the coxa) plus another row near the origin of the endopod

coarse - 1 or 2 stout spines adjacent to origin of endopod

2. P4 endopod

A - a short segment with 2 curved spines at apex

B - a long, spinulose tapering segment with a freely articulating bispinulose apical spine

C - a long, curved spiniform structure, setose apically

D - a curved structure, truncate apically, with minute setae at apex

E1 - a short, bispinose spiniform structure—extends to much less than halfway along Exp-1

E2 - a long, bispinose spiniform structure—extends at least to halfway along Exp-1

F - very curved spike—almost a reversed "upside down" L-shape; reaching almost to end of Exp-1; outer edge dentate near apex; a ring of spinules mark the point of fusion between the original segment and terminal spine

3. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

KG 27(male)

P4 basis	P4 Enp form	CR l/b	
fine	E2	≈6	*Remaneicaris pluto*
fine	E2	≈5	*R. sanctoludovici*
fine	E2	≈4	*R. persephone*
fine	E1	≈4	*R. hecate*
fine	B	≈5	*R. onchophora*
coarse	A	≈3	*Parastenocaris grassei*
coarse	C	≈3	*P. trisaetosa*
coarse	D	≈4	*P. ursulae*
coarse	F	≈3	*P. hispanica*

KG 28(male) – characters

1. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth

2. P4 basis and endopod

bifid - endopod a bifid spike; basis with 1 short and 2 very small spines above and external to origin of endopod

dagger - endopod a broad, dagger-shaped structure consisting of a small segment and a fused terminal spine that has fine setules along the entire inner edge

3. P5

truncate – truncate at apex with all 3 setae originating on the truncate distal edge; inner edge with 3 very stout spinules in middle and a group of about 3 small spinules at inner distal corner

rounded - rounded at apex; all 3 setae originate on outer edge; inner edge with a continuous row of small setules in distal half

KG 28(male)

CR l/b	P4 basis & Enp	P5 shape	
≈4	bifid	truncate	*Parastenocaris cruzi*
≈2	dagger	rounded	*P. arganoi*

KG 29(male) – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. Caudal ramus, placement of setae I–III* on outer side
   mid - in the middle 1/3 of the side
   distal - in the distal 1/3 of the side

* See Fig. 3; these setae always originate adjacent to each other, but note that according to some descriptions 1 or more of them may be absent, although these statements must be treated with caution as often these setae are very small and perhaps easily overlooked.

3. P3 exopod, apophysis and thumb (Fig. 108)
   curved - apophysis a simple, elongate, curved, blunt finger; thumb spiniform, large and long, slightly curved
   truncate - apophysis forms a broad truncated cap to exopod; thumb sickle-shaped

4. P2 endopod
   rectangular - rectangular, or slightly curved; apex truncate with a few very small setae
   triangular - inner side straight, outer side bent at middle forming the other 2 sides of the triangle; apex very narrow with 1 long and 1 minute seta.

KG 29(male)

CR l/b	CR setae I–III	P3 Exp	P2 Enp	
≈2	middle	curved	rectangular	*Parastenocaris calliroe*
≈6	distal	curved	rectangular	*P. impervia*
≈4	distal	truncate	triangular	*Remaneicaris rhizophora*

KG 30(male) – characters

1. Last somite
   spinose 1 - posterior edge with 3 stout spinules dorsally and 6 ventrally; somite without other ornamentation
   spinose 2 - posterior edge with 2 stout spinules dorsally and 3 ventrally; 2 groups of 3 stout spinules midventral in distal half of somite; a row of 9 stout spinules anterior to anal operculum
   setulose - 2 adjacent lateral rows of short fine setules

2. P3 exopod, apophysis (Fig. 108)

curved - a simple, elongate, curved, blunt finger

pointed - with a broad, triangular, hyaline terminal structure with 1 large (and 1 small?) rounded lobe at its base

truncate - forms a broad truncated cap to exopod; 2 small, spiniform protuberances on outer side

3. P3 basis, inner edge

setulose - a row of setules proximal to origin of endopod

thorn - a blunt, thorn-like projection from proximal half of edge

naked - without ornamentation

4. P2 endopod

simple - simple tubular segment

bilobed - a bilobed segment

KG 30(male)

Last somite	P3 Exp apophysis	P3 basis	P2 Enp	
spinose 1	curved	setulose	simple	*Parastenocaris sardoa*
setulose	pointed	naked	simple	*P. uncinatus*
spinose 2	truncate	thorn	bilobed	*Remaneicaris euniceae*

Family Peltidiidae

KG 0 – characters

1. Body shape in dorsal view

linear - body elongate, not dorsoventrally compressed, cephalic shield helmet-shaped (Fig. 62)
compressed - body strongly dorsoventrally compressed (Figs 25–26)

2. P1

P1 as Figs 27–28 *or* Fig. 63

KG 0

Body shape	P1	
linear	Fig. 63	subfamily Clytemnestrinae (KG 1)
compressed	Figs 27–28	subfamily Peltidiinae (KG 2) (p. 647)

KG 1 – characters

1. P1 basis, outer seta or spine

present *or* absent

2. P1 exopod

n - number of setae

3. Antenna exopod

n - number of setae

4. Antenna endopod, distal segment

n+n - number of lateral + number of apical setae and spines

Huys & Conroy-Dalton (2000) revise the holoplanktonic subfamily Clytemnestrinae. Any identification arrived at with this key should be checked against their paper.

KG 1

P1 basis outer seta	P1 Exp setae	A2 Exp setae	A2 Enp distal seg setae	
present	4	2	1+5	KG 1/1
absent	3	1	1+4	*Goniopsyllus rostratus*, *G. clausi*, *G. brasiliensis*[1]

1. The only sensible way to identify the species of *Goniopsyllus* is to consult Huys & Conroy-Dalton (2000), who admit that "Identification of *Goniopsyllus* is strenuous and largely based on size, maxilliped ornamentation and proportional lengths of caudal ramus setae".

KG 1/1 – characters

1. Body length

n-n - range of recorded body length in µm

2. Female abdomen, somite 3, spinules at ventral posterior edge
present *or* absent
uk - female unknown

3. Male abdomen, somite 2, spinules at ventral posterior edge
present *or* absent

4. P2–P4 Exp-3
n:n:n - number of setae and spines

5. P5
n:n - number of setae and spines in female and male
uk - this sex unknown

KG 1/1

Body length (μm)	Female Abd 3 spinules	Male Abd 2 spinules	P2–P4 Exp-3 setae	P5 setae	
1000–1150	absent	absent	7:8:8	6:6	*Clytemnestra scutellata*[1]
1300–1600	present	absent	7:8:8	6:6	*C. gracilis*[1]
900–950	present	absent	6:8:8	5:5	*C. farrani*[1]
750–950	absent	absent	6:7:7	5:5	*C. asetosa*[1]
≈1200	uk	present	6:7:7	uk:5	*C. longipes*[1]

1. Huys & Conroy-Dalton (2000: p. 45) provide a table of comparison for all species of *Clytemnestra.*

KG 2 – characters

1. Integument
strong - integument with a complex pattern of anastomosing struts that includes a vertical component in the cephalosome; in dorsal view the pattern resembles windows (fenestra) in a solid structure (Fig. 25)
simple - well defined struts present but they are weaker in construction and the pattern is much simpler and more regular than in the strong case
weak/absent - Integument strengthened only laterally and along the posterior dorsal edge (sometimes also with short weakly defined partial struts in the cephalosome tending medially and around the mouth); strengthening apparently completely absent in some species

2. Urosome
distinct - somites (except for those included in the genital double-somite) distinct, not fused together
fused - somites (except the last) fused into a single mass, though the boundaries of each are visible

3. P1 endopod
n - number of segments

4. P2–P4 Exp-3
n:n:n - number of setae and spines on P2, P3 and P4

5. P5
distinct - baseoendopod and exopod distinct, not fused together

fused - basis, endopod and exopod fused into a single mass; distal limits of baseoendopod marked only by the points of origin of the outer and inner setae

Hicks (1986a) provides a phylogenetic analysis of the subfamily Peltidiinae at genus level that is still valid.

KG 2

Integument	Urosome	P1 Enp segs	P2–P4 Exp-3 setae	P5	
strong	distinct	2	7:8:8	distinct	KG 3 (p. 648)
strong	distinct	2	7:8:8	fused	KG 4 (p. 651)
strong	distinct	2	6:7:8	distinct	*Peltidium defreitasi*
strong	distinct	2	6:7:7	distinct	*P. fenestratum*
simple	fused	2	5–6:7:7	distinct[1]	KG 5 (p. 652)
weak/absent	distinct	2	7:8:8	distinct	KG 6 (p. 653)
weak/absent	distinct	2	7:8:7	distinct	KG 7 (p. 653)
weak/absent	distinct	2	?	distinct	*Eupeltidium glabrum*[2]
weak/absent	distinct	2	(7?:8?):8	fused	*Alteuthellopsis oblivia*[3]
weak/absent	distinct	2	6:7:7	fused	*A. corallina*
weak/absent	distinct	3	7:8:8	distinct	KG 8 (p. 654)
weak/absent	distinct	3	6?(7?):?:8?	distinct	*Alteutha sewelli*[4]
weak/absent	distinct	3	(7?:8?):8	fused	KG 9[5] (p. 656)

1. The exopod may be partially fused with baseoendopod and marked by an incomplete suture.
2. This species is very inadequately described. It is also included in KG 6 (p. 653) as the P2–P4 are "similar to those of *Peltidium*" and thus P2–P4 Exp-3 may have a setal formula of 7:8:8.
3. P2–P3 of this species have not been described but as it was established in the genus *Eupelte* it is most likely that P2–P3 Exp-3 have a setal formula of 7:8.
4. The illustrations in the original description are very poor and some are in conflict with the text. The illustrated P2–P4 Exp-3 setal formula reads 8:8:6, with the text also stating that P2 Exp-3 has a total of eight setae and spines. This is clearly an error that can only be explained if P2 and P4 have been confused following dissection. Further, the text states that P4 (in all probability actually the P2) Exp-3 has 7 setae and spines—not 6 as the indicated in the illustration. This dilemma cannot be resolved until the species is redescribed.
5. This codon describes the 3 species of *Alteuthella*, none of which have been recorded since their original description. P2–P3 are totally undescribed—there is not even a cross reference to other peltidiids —but given the knowledge of the family at that time it is most probable that the setal formula of P2–P3 Exp-3 is 7:8.

KG 3 – characters

This key contains most of the species of *Peltidium.* In this genus, species often have been demarcated on anatomical features that are not entirely trustworthy or are impossible to describe in the relatively simple and concise terms required in a key (see Wells & Rao 1987: p. 31 for a discussion of the validity of several such features). Those used below appear to be valid but do not permit universal identification to species level. Where this is the case I consider it safer for the user to consult and compare good descriptions.

1. P5 exopod (see Figs 117–119 and Geddes 1968c)
   - A - with 6 relatively stout, bispinulose setae borne on distal and outer edges only
   - B - with 5 relatively stout, bispinulose setae borne on distal and outer edges only
   - C - with 6 well developed, bispinulose setae; 3 on outer edge, 2 apically and 1 on inner edge
   - D - with 5 setae borne on distal and inner edges only; outer 2 thin, plain and shorter than the 3 spinulose inner setae (Fig. 118)

E - with 5 setae and spines; 1 small seta on inner edge and 4 very thick, short and blunt spines (often with a small flagellate tip) on distal edge (1, or 2?) and outer edge (3 or 2?) (the doubt is caused by these setae being set in deep sockets that make it difficult to interpret the site of origin) (Fig. 119)

2. P1 Enp-2
n - number of setae and spines

3. P2–P4 Enp-3
n:n:n - number of setae and spines on P2, P3 and P4

4. Integument, pattern of anastomosing struts, in dorsal view
single - cephalic shield, metasomites and urosomites—each with a large medial fenestrum; separating strut absent
double - cephalic shield, metasomites and urosomites—each with a strut in the mid-line dividing the large medial fenestrum into 2 fenestra

KG 3

P5 Exp	P1 Enp-2 setae	P2–P4 Enp-3 setae	Integument	
A	3	3:5:4	double	*Peltidium purpureum*
A?	3	3:6:4	double	*P. purpureum* [*sensu* Huys, Gee, Moore & Hamond 1996]
A	3	3:5:4	single	*P. robustum*
B	3	3:5:4	single	*P. gracile*
C	3	3:5:4	double	*P. sacesphorum*
D	5	3:5:4	double	*P. quinquesetosum*
D	4	3:5:4	double	KG 3/1 (p. 649)
D	4	3:4:4	double	*Peltidium proximum*
D	3	3:5:4	double	KG 3/2 (p. 651)
E	3	3:4:4	double	*Peltidium ovale*, *P. simplex*, *P. perturbatum*[1]
?	4	?	?	*P. cinereum*

1. There is considerable doubt that *P. ovale* and *P. simplex* are distinct species (see Wells & Rao 1987). *Peltidium perturbatum* may be distinctive in its body form, particularly in the very well developed dorsal crest of the urosome, but it is difficult to make this comparison from the literature.

KG 3/1 – characters

Most of the authors of the species in this key appear to have relied upon on rather small details of features that are proving to be variable or subject to differing interpretations according to the orientation of the specimen. This, combined with less than complete descriptions and, in many cases, a quite inadequate quality of text and illustrations makes it difficult to find reliable characters on which to base a key. The situation is further compounded by what may be significant discrepancies between the original and subsequent descriptions.

The following key uses characters which appear to be suitable but since the information often has had to be taken from descriptions of dubious quality the user is very strongly advised to be sceptical and to check with all available descriptions before making a decision.

1. P1 Enp-1
globe - globular (outer and inner edges convex; length ≈ breadth)

square - square (outer edge straight, inner edge weakly convex; length ≈ breadth)
rect - rectangular (outer and inner edges straight or very weakly convex; length > breadth)
delta - deltoid; outer and inner edges straight, distal edge wider than proximal edge

2. P5 exopod seta IV
   - A - long, slender, plain seta
   - B - long, bispinulose
   - C - long, biplumose
   - D - very small and weak relative to other setae

3. P5 exopod setae I & II
   - A - both setae filiform, without ornamentation
   - B - both setae biplumose
   - C - seta I filiform, seta II bispinulose
   - D - seta I biplumose, seta II bispinulose
   - E - seta I bispinulose, seta II bipectinate

4. P5 exopod setae III & V
   - A - both setae filiform, without ornamentation
   - B - seta III biplumose, seta V filiform
   - C - seta III stout, bipectinate; seta V filiform, very slender

5. P5 basis, outer projection
   - distal - extends into the distal half of exopod
   - proximal - does not reach the middle of exopod

KG 3/1

P1 Enp-1	P5 Exp seta IV	P5 Exp setae I & II	P5 Exp setae III & V	P5 basis outer projection	
globe	A	B	B	proximal	*Peltidium intermedium*[1]
globe	A	B	B	distal	*P. exiguum*[1]
globe	D	B	A	distal	*P. falcatum*[1]
square	A	B	B	distal	*P. hawaiiense*, *P. monardi*, *P. maldivianum*[2]
square	D	B	A	distal	*P. perplexum*[1]
globe	C	B	B	distal	*P. speciosum* female
square	A	D	A	distal	*P. speciosum* female [*sensu* Nicholls 1941a]
rect	C	C	B	distal	*P. speciosum* male [*sensu* Nicholls 1941a]
globe	D	B	C	distal	*P. angulatum* female[3]
rect	D	B	C	distal	*Peltidium* spp. A & B males[3]
delta	D	A	A	distal	*P. laudatum* female[4]
rect	D	E	A	distal	*P. laudatum* male[4]

1. The male is unknown in these species.
2. Consult and compare the original descriptions—the species have not been rerecorded.
3. See Wells & Rao (1987) for the possible relationship of these species.
4. *Peltidium laudatum* differs from all other species in the genus in the P5, which is much shorter than usual and is sexually dimorphic. It is rather longer than broad in the male but approximately square in the female.

KG 3/2 – characters

1. P5 exopod setae
   - pectinate - setae I and II heavily pectinate; much shorter than III and V and reaching to the end of the relatively long seta IV
   - spinulose - setae I and II spinulose; about as long as setae III and V; seta IV very small

2. Female P1 Enp-1
   - globe - globular (outer and inner edges convex; length ≈ breadth); approximately twice as broad as Enp-2
   - square - square (outer edge straight, inner edge weakly convex; length ≈ breadth); about 1.25 times as broad as Enp-2

3. Antenna Exp-2, outer terminal seta
   - pectinate - heavily pectinate tip
   - spinulose - sparsely bispinulose along entire length

KG 3/2

P5 Exp setae	Female P1 Enp-1	A2 Exp-2 outer terminal setae	
pectinate	globe	pectinate	*Peltidium nichollsi*[1]
spinulose	square	spinulose	*P. lerneri*[1]

1. Males are unknown in these species. Be aware that sexual dimorphism in P1 is the usual condition in *Peltidium*.

KG 4 – characters

1. P1 Enp-2
   - n - number of setae and spines

2. P5 exopod
   - n:n - number of setae and spines in female and male

3. P5 exopod
   - present - at least 1 of the setae is spiniform and at least 2 setae or spines are borne on the outer edge
   - absent - all setae are filiform and there are no setae on outer edge

4. P1 Exp-3
   - n - relative length of longest ‘claw’ to the entire exopod

5. Antennule
   - n:n - number of segments in female and male

KG 4

P1 Enp-2 setae	P5 Exp setae	P5 Exp	P1 Exp-3 claws	A1 segs	
3	7[1]	present	≤0.4	5[1]	*Parapeltidium johnstoni*[1]
3	5:5	present	≤0.4	7:8	*P. cristatum*
3	6:?	present	≤0.4	6:?	*P. serratum*
3	5:5	present	≥0.5	7:7	*P. nichollsi*
4	?:5	absent	≥0.5	?:8	*P. dubium*

1. This species is known only from a single specimen described as a female but considered by Nicholls (1941a) possibly to be a male. The small amount of developmental data available for this family (e.g. Dahms (1989) for *Alteutha interrupta*) suggests the short antennule is indicative of a copepodid V male and thus the interpretation of P5 in this key is suspect.

KG 5 – characters

1. P1 endopod
   large - about as long as Exp-1 (measured in midline of anterior face)
   small - only about ⅓ the length of Exp-1; segment 2 almost rudimentary

2. P2 Exp-3
   n - number of setae and spines

3. P2–P4 Enp-1, inner edge
   n:n:n - number of setae on P2, P3 and P4

4. P2–P4 Enp-2, inner edge
   n:n:n - number of setae on P2, P3 and P4

5. P2–P4 Enp-3
   n:n:n - number of setae on P2, P3 and P4

6. P5 endopod
   n:n - number of setae in female and male

KG 5

P1 Enp/ Exp-1	P2 Exp-3 setae	P2–P4 Enp-1 setae	P2–P4 Enp-2 setae	P2–P4 Enp-3 setae	P5 Enp setae	
large	6	0:1:1	1:1:1	3:4:4	4:1	*Neopeltopsis pectinipes*
large	6	1:1:1	1:1:1	4:4:4	5:2	*N. hicksi*
small	5	1:1:1	0:1:1	4:4:4	4:1	*N. althorpensis*

KG 6 – characters

1. P1 endopod
   n:n - number of setae on inner edge of segment 1: number of setae on segment 2

2. P2–P4 Enp-2, inner edge
   n:n:n - number of setae on P2, P3 and P4

3. Female P5
n:n - number of setae on endopod and exopod

4. Male P5
n:n - total number of setae on endopod and exopod
uk - male unknown

5. P1 Exp-3
4 - with at least 4 well developed claws
2 - with 2 well developed claws and 2 small spines

KG 6

P1 Enp setae	P2–P4 Enp-2 inner setae	Female P5 setae	Male P5 setae	P1 Exp-3 claws	
1:6	2:2:2	5:6	uk	4	*Eupelte hexaseta*
1:5	2:2:2	6:6	2:4	4	*E. minuta*, *E. simile*[1]
1:5	2:2:2	6:6	2:4	4	*E. villosa* [*sensu* Dahms 1992]
1:5	2:2:2	4:6	2:4	4	*E. villosa*[2]
1:4	2:2:2	6:4	2:4	4	*E. aurulenta*
1:4	2:2:2	5:5	0:3	4	*E. gracilis* [*sensu* Pesta 1959]
1:4	2:2:2	4:5	0?:3	4	*E. setacauda*[3]
1:4	2:2:2	1?:6	1(2?):4	4	*E. gracilis* [*sensu* Lang 1948]
1:4	2:2:1	6:6	2:4	4	*E. acutispinis*
1:4	1:1:1	6:5	uk	4	*E. gracilis* [*sensu* Pallares 1968b]
0:4	1:1:2	6:6	2:4	4	*E. beckleyae*
1:3	(2:2:2)?[4]	2:4	uk	2	*Eupeltidium glabrum*[4]

1. Data on *E. simile* from the superb redescription by Itô (1974). I find it impossible to separate these 2 species, especially given the difference in quality between Itô's description and that of *E. minuta* by Ramirez (1971).
2. Data from Lang (1948) and Pallares (1975b).
3. The description of this species is poor. The male P5 is not illustrated and its setation is not clearly stated in the text.
4. P2–P4 setation is not given in the description but these limbs are stated to "similar to those of *Peltidium*". The gross form of P1 and P5 is also more similar to some *Peltidium* species. *Eupeltidium glabrum* also is said to lack an exopod on the mandible and can also be distinguished from others in this key by the elongate and cylindrical caudal ramus.

KG 7 – characters

1. P1 endopod
n:n - number of setae on inner edge of segment 1: number of setae on segment 2

2. P2–P4 Enp-2, inner edge
n:n:n - number of setae on P2, P3 and P4

3. P2–P4 Enp-3
n:n:n - number of setae on P2, P3 and P4

4. Female P5
n:n - number of setae on endopod and exopod

5. Male P5
n:n - total number of setae on endopod and exopod

KG 7

P1 Enp setae	P2–P4 Enp-2 inner setae	P2–P4 Enp-3 setae	Female P5 setae	Male P5 setae	
1:4	2:2:2	4:5:5	7:5	2:4	*Eupelte regalis*
0:3	1:2:2	5:5:5	5:5	2:4	*E. tristanensis*

KG 8 – characters

1. P1 Exp-3
   - 3–4 - with 3 or 4 well developed claws
   - 1+ - with 1 well developed and 1 rudimentary claw
   - 1 - with only 1 well developed claw

2. Maxilliped
   - A - basis ovoid, inner edge (the "palm") convex and with a distal "pad" or "cushion", sometimes isolated from the edge by a stalk, covered with minute spinules; endopod claw elongate and narrow, much longer than the endopod setae and always extending into the distal half of the basis
   - B - basis cylindrical, inner edge straight or concave and lacking a pad; endopod claw short and stout, at most barely reaching the middle of the basis and only slightly longer than the endopod setae

3. A2 exopod
n - number of segments

4. P2–P4 Enp-3
n:n:n - number of setae on P2, P3 and P4

5. P2–P4 Exp-1, inner edge
n:n:n - number of setae on P2, P3 and P4

KG 8

P1 Exp-3 claws	Mxp	A2 Exp segs	P2–P4 Enp-3 setae	P2–P4 Exp-1 inner setae	
3–4	A	3?	5:6:5	1:1:1	*Alteutha typica* var. *maeotica*
3–4	A	2	5:6:5	1:1:1	KG 8/1 (p. 655)
3–4	A	2	5:6:5	0:0:0	KG 8/2 (p. 656)
3–4	A	2	5:5:5	0:0:0	KG 8/3 (p. 656)
3–4	A	2	4:4:4	1:1:1	*Alteutha roeae*
1+	B	1	5:6:5	1:1:0	*Alteuthoides kootare*
1	B	1	5:6:5	1:1:0	*Alteuthoides affinis*

KG 8/1–8/3 – characters

The same six characters are used throughout.

Published descriptions of the species included in these KGs indicate that body form, mouthparts and P5 are potential sources of species specific characters. But as most descriptions do not provide the detail necessary to properly evaluate this potential, I have deemed it unsafe to use them in this key except where the differences are sufficiently large to be reasonably probable. This makes it very difficult to construct a key that I am confident will be robust and it is essential that all determinations are checked against the best available literature.

1. P5 baseoendopod, maximum length relative to maximum breadth
   - short - broader than long
   - long - 2–4 times as long as broad

2. P5 exopod
   - n - ratio of maximum length to maximum breadth

3. Maxilliped basis, ratio of maximum length to maximum breadth
   - ≈3 - approximately 3 times as long as broad
   - ≈2 - approximately twice as long as broad (≈1.8–2.2)
   - <2 - significantly less than twice as long as broad

4. Female antennule
   - n - number of segments
   - uk - female unknown

5. Caudal ramus, seta II, length
   - long - much longer than ramus
   - medium - approximately as long as ramus
   - short - significantly shorter than ramus

6. Caudal ramus, seta II, origin
   - proximal - clearly in proximal half of outer edge
   - middle - about the middle of the outer edge
   - distal - clearly in the distal half of outer edge

KG 8/1–8/3

P5 Benp l/b	P5 Exp l/b	Mxp basis l/b	Female A1 segs	CR seta II length	CR seta II origin	

KG 8/1

short	≈4	≈3	8	long	distal	*Alteutha novaezealandiae*
short	3–4	≈2	8	medium	distal	*A. interrupta*
short	≈4	≈2	9	long	middle	*A. polarsternae*
short	≈3	≈2	9	medium	distal	*A. signata* [*sensu* Nicholls 1941a][1]
short	≈3	≈2	7	medium	middle	*A. spinicauda*
short	2.3	<2	9	long	middle	*A. sarsi*[2]
short	3(2.7)[3]	<2	9	medium	long	*A. depressa* [see Lang 1948, Huys, Gee, Moore & Hamond 1996][3]

short	3(3.7)[3]	<2	9	long	distal	*A. typica*[3]
long	3.5	≈2	9	short	middle	*A. dubia*

1. Considered a synonym of *A. depressa* by Hicks (1982).
2. Data from Hicks (1982).
3. The figure in parentheses is for the male.

KG 8/2

short	≈3	<2	9	medium?	long?	*Alteutha depressa* [*sensu* Pallares 1968b]
long	≈5	<2	9	short	proximal	*A. trisetosa*
long	3.8	≈2	9	short	distal	*A. oblonga* [see Lang 1948]

KG 8/3

short	2	≈2	uk	medium	distal	*Alteutha rara*
long	4(3)[1]	≈2	9	short	distal	*A. oblonga* [*sensu* Pallares 1979]

KG 9 – characters

1. Body in dorsal view

C+M+U - distal edge of cephalosome, all metasomites, and urosomites 1–2 with small spinules

C+M - distal edge of cephalosome and all metasomites with small spinules

naked - body surface without spinule rows

2. Caudal ramus, outer distal corner

spine - with a very broad spine

seta - with a relatively stout seta

filiform - with a long, slender, filiform seta

3. P5

3 - a total of 9 setae and spines; 3 short, blunt spines distally

2 - a total of 9 setae and spines; 2 stout, sharp spines distally

1 - a total of 10 setae and spines; 1 short, curved spine apically

4. P1 Exp-2, inner setae

n - number of setae

KG 9

Body orn	CR outer distal corner	P5 setae	P1 Exp-2 inner setae	
C+M+U	spine	3	0	*Alteuthella spinicauda*
C+M	seta	2	0	*A. pellucida*
naked	filiform	1	1	*A. pygmaea*

Family Phyllognathopodidae

The question of how many species are included in *Phyllognathopus* is unresolved (see Checklist Note 31, p. 84). This key follows the review by Karanovic & Ranga Reddy (2004a).

Phyllognathopus vigueiri, together with the species currently treated as synonyms, is distributed world wide in temperate and tropical latitudes. There is considerable variation, often rather subtle in nature, and often within small populations.

This points to the possibility that the species, as now understood, is in reality a complex of groups of closely related cryptic morphospecies. Unfortunately, few of the descriptions currently in the literature provide sufficient detail for a proper analysis of this probability.

KG 0 – characters

1. P4
    n:n - number of segments in exopod and endopod

2. P2 and P4 endopod, distal (or only) segment
    n:n - number of setae on P2 and P4

3. Anal operculum
    naked - naked, or with fine setae
    spinulose - with 3–8 large spinules

4. Female P5 exopod
    n - number of setae
    uk - female unknown

5. Male P5 exopod
    n - number of setae
    uk - male unknown

Karanovic & Ranga Reddy (2004a) review the family and provide a dichotomous key.

KG 0

P4 segs	P2 & P4 Enp distal seg setae	Anal operculum	Female P5 Exp setae	Male P5 Exp setae	
3:2[1]	3:3	naked	uk	6[1]	*Parbatocamptus jochenmartensi*[1]
3:2	3:3	spinulose	uk	7	*Allophyllognathopus brasiliensis*
3:2	3:3	naked	4	6	*Phyllognathopus viguieri*, *P. volcanicus*[2]
3:2	3:3	spinulose	4	6	*P. paludosus*[3]
2:2	3:3	naked	4	5	*P. chappuisi*
2:2	3:3	naked	4	uk	*P. insularis*
2:2	3:3	spinulose	4	5	*P. camptoides* [*sensu* Defaye & Heymer 1996]
2:2	3:3	spinulose	3	6	*P. camptoides* [*sensu* Bǒzić 1965a, 1966]
2:2	2:3	spinulose	3–4	5	*P. bassoti*[4]
2:1	2:3	spinulose	4	6	*P. bassoti*[5]
2:1	3:2	spinulose	4	uk	*P. paracamptoides*
1:2	3?:2	spinulose	4	uk	*Phyllognathopus* sp. Dussart, 1984b

1. P5 exopod is 2-segmented with a total of 6 setae. See Karanovic & Ranga Reddy (2004a) for a discussion of the segmentation of P4.
2. Synonymised with *P. viguieri* by Karanovic & Ranga Reddy (2004a) but the 2 forms can be distinguished by the caudal ramus, which is about twice as long as broad in *P. volcanicus* but only about as long as broad in *P. viguieri*. Females are further distinguished by the form of the principal setae of the caudal ramus. In *P. viguieri* the inner principal seta (V?) is short and lanceolate or bulbous and the outer principal seta (III?) is very short, stout and spiniform. In *P. volcanicus* both setae are slender and filiform.
3. Synonymised with *P. viguieri* by Karanovic & Ranga Reddy (2004a). Damian-Georgescu (1968) distinguishes the two forms on the caudal ramus, which is about 2.5 times as long as broad in *P. volcanicus* but only about 1.5 times as long as broad in *P. viguieri*. Her specimens also appear to have an inner seta on P2 Enp-2 in contrast to *P. viguieri.*
4. See Karanovic & Ranga Reddy (2004a).
5. A variant form (Bruno & Cottarelli 1999).

Family Porcellidiidae

The inadequacy of the description of several of the older species of *Porcellidium* (including *P. viride*, the type species—see Checklist Note 458, p. 101) has been recognised for many years and has led to conflicting views on synonymy of species.

Evaluating the phylogeny of the family is made more difficult by the relative uniformity of gross external anatomy and the consequent necessity, as more and more species are discovered, to rely on increasingly finer points of detail to distinguish between them. This makes it very difficult to compare the older species with those more recently described.

Recently Harris (1994, 2002), Harris & Iwasaki (1996b, 1997) and Harris & Robertson (1994) have described ten new genera in this previously monogeneric family. Unfortunately these descriptions are not accompanied by a phylogenetic analysis of their relationship to each other or to *Porcellidium*. Huys, Gee, Moore & Hamond (1996) consider at least one genus (*Acutiramus*) to be founded on dubious grounds and propose that all should be ignored pending a revision of *Porcellidium*. S.H. & W. Kim (1996) agree with Huys *et al*. and take their advice. Bodin (1997) lists all the new genera as valid, on the grounds that they are "in accordance with the rules of the ICZN".

Walker-Smith (2001) makes some progress towards a revision of *Porcellidium.* She rejects five of the new genera because they are not founded on automorphies and maintaining four others that are so founded. Her taxonomy is used as the basis of this key as Hennigian principles are now widely accepted as the ruling paradigms in zoological systematics.

Despite all the criticism directed at them, Harris and his co-workers have done a great service to taxonomists of the group by drawing attention to the wealth of morphological detail previously undescribed but which can easily be observed. They also reinforce comments by others that integumental colour may be a critical character. However, until the relative roles of genetic and environmental factors on the development of integumental colour are known, it must be used with caution as a taxonomic character.

The above points have made me hesitate to key all species to that level, since to do so may give a kind of spurious authority in circumstances which really require the investigator to make a detailed comparison of all descriptions before coming to, what in many cases will be only, a tentative conclusion.

Sexual dimorphism is highly developed in this family, being expressed especially in the form of the body (shape, size and proportions) and caudal ramus, in addition to the more usual antennule and P5.

Females appear to be more variable between species than are males, but some species, and some genera, are distinguished on male characters only.

Because a large number of characters are required to separate the species (even to the limited extent attempted in these keys) I believe it to be more sensible to use separate keys for females (p. 660) and males (p. 669).

Walker-Smith (2001) provides a key to the genera she recognises.

The caudal ramus

The caudal ramus provides many characters of value in the identification of species. These include the overall shape of the ramus and the form and location of the setae.

- **Setal location**: The location of the caudal ramus setae has diverged from the hypothetical ancestral form postulated by Huys & Boxshall (1991) in a manner difficult to interpret (Dr Rony Huys, pers. comm.). Huys' own interpretation uses the numbering system put forward by Huys & Boxshall, but that by Harris & Robertson (1994: p. 260), who do not acknowledge the work of Huys & Boxshall, does not. Huys uses Roman numerals, Harris & Robertson a mixture of Arabic numerals and Greek letters. The two systems are compared in Fig. 120. In this Key I refer to both interpretations by quoting the symbols for each seta as, for example, (VI, 4).

- **'Hicks' Index'**: Hicks (1982: Table 3 and Fig. 45) codified the position of caudal ramus setae (VII, α) and (I, β) by expressing the distance between their origin and the distal edge of the ramus as a percentage of the maximum length of the ramus. Harris (2002) named this statistic the 'Hicks' Index'.

KEYS TO FEMALES

(for keys to males, see p. 669)

Caution: Please read the introductory notes to the family (pp. 659) carefully—especially the information on the caudal ramus—before using these keys. Also note that because of the specialised nature of the anatomical features of this group of genera, the keys require the user to be familiar with the following papers

- Harris & Robertson (1994), especially the "Systematics" section (pp. 259–262)
- Harris (2002), especially Figures 1A and 1E.

Note also that *P. viride* is not included in these keys. See Checklist Note 458 (p. 102) for comments on the status of this species.

KG 0(female) – characters

1. Caudal ramus, shape (see Fig. 120)

where

- inner edge is the inner side proximal to the origin of seta (VI, 4);
- outer edge is the outer side proximal to the origin of seta (II, 1)
- distal edge lies between setae (II, 1) and (VI, 4).)

sq/rect - overall shape square or rectangular—although the distal edge may be slightly broader or narrower than the proximal edge, the inner and outer edges may be slightly curved and distal edge may be straight or may be bevelled at the outer corner so making the outer edge slightly shorter than the inner (Figs 121–124)

rhomb - overall shape more or less rhomboidal (or trapezoidal); outer edge much shorter than inner edge; the long and approximately straight distal edge (without bevel at outer distal corner) meets the inner edge at an acute angle with seta (VI, 4) at its apex (Figs 125–126)

pent - overall shape pentagonal; inner edge straight, longer than the distinctly triangular outer edge; distal edge bevelled at outer corner (Fig. 127)

2. Caudal ramus, dorsal setae (VII, α) and (I, β)*

x:y where x is the proximal seta and y the distal seta
with the following character states applying to both setae*

prox - distinctly in proximal half of the ramus
distal - distinctly in distal half of the ramus
middle - in the middle (approximately ±10%) of the ramus

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

3. Caudal ramus, terminal setae (IV, 2) and (V, 3)

p:p - both present
p:a - seta (IV, 2) present; seta (V, 3) absent
a:a - both absent

4. P5

A - when seen in dorsal view, and when not subject to undue coverslip pressure, the pair of P5 extend posteriorly to the caudal ramus and curve around to almost meet in the mid-line

B - not as above, although the P5 may extend posteriorly to the caudal ramus they seldom extend medially beyond the outer edge of the rami

5. Genital double-somite

orn - anterior somite ornamented laterally with a pattern of striae

unorn - ornamentation absent

KG 0(female)

CR shape	CR dorsal setae	CR setae	P5	Gds	
rhomb	prox:prox	p:p	A	unorn	KG 1(female) (p. 661)
rhomb	prox:prox	p:p	B	unorn	*Porcellidium ravanae* [*sensu* Thompson & Scott 1903; see also Lang 1948]
rhomb	prox:prox	p:a	B	unorn	*P. ravanae* [*sensu* Wells & Rao 1987]
rhomb	prox:prox	a:a	A	unorn	*P. aiiroa*, *P. acutum*[1]
rhomb	prox:middle	p:p	A	unorn	KG 2(female) (p. 662)
pent	prox:prox	p:p	A	unorn	KG 3(female) (p. 663)
pent	prox:prox	p:a	A	unorn	*Porcellidium yoroium*
sq/rect	prox:prox	p:p	A	unorn	*P. similis*
sq/rect	prox:prox	p:p	B	unorn	KG 4(female) (p. 663)
sq/rect	prox:middle	p:p	A	unorn	*Porcellidium tapui*
sq/rect	prox:middle	p:p	B	unorn	KG 5(female) (p. 664)
sq/rect	prox:distal	p:p	B	unorn	KG 6(female) (p. 665)
sq/rect	middle:middle	p:p	B	unorn	KG 7(female) (p. 667)
sq/rect	middle:distal	p:p	B	unorn	KG 8(female) (p. 668)
sq/rect	distal:distal	p:p	B	unorn	*Dilatatiocauda tristanensis*, *D. retroseta*[2]
sq/rect	prox:distal	p:p	B	orn	KG 9(female) (p. 669)
sq/rect	middle:distal	p:p	B	orn	KG 9(female) (p. 669)
sq/rect	?	p:p	A	unorn	*Porcellidium interruptum*
sq/rect	?	p:p	B	unorn	*P. charcoti*, *P. australe*, *P. interruptum*, *P. wolfendeni*[3]

1. From the published descriptions it is difficult to find any significant differences between the females of these species. Neither author was aware of the other's publication.
2. These species are readily distinguished by their caudal rami. In *D. tristanensis* these are about 2.5 times as long as broad; in *D. retroseta* they are much longer—about 4 times as long as broad. See also Harris (2002) for a detailed comparison of all species of this genus.
3. These species are imperfectly described and extremely difficult to separate. Indeed, Lang (1948) includes *australe* and *wolfendeni* as synoyms of *charcoti*. See also Checklist Note 461 (p. 102).

KG 1(female) – characters

1. Genital double-somite, lateral edge, line of fusion between somites 1 and 2

cleft - marked by a distinct cleft (Fig. 128)

notch - marked only by a notch (Fig. 129)

smooth - smooth; without trace of fusion line (except, perhaps, for a clear patch in the chitin) (Fig. 130)

2. Caudal ramus, in dorsal view
n - ratio of maximum length to maximum breadth*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

3. Caudal ramus, outer edge proximal to insertion of seta (II, 1)
±straight - approximately straight
convex - convex

4. Caudal ramus, comparative lengths of outer and inner edges*
long - outer edge much more than half as long as inner edge
short - outer edge approximately half as long as inner edge
minute - outer edge less than ⅓ the length of inner edge

* Outer edge proximal to insertion of seta (II, 1) cf. inner edge proximal to the origin of seta (VI, 4)

5. Caudal ramus, seta (II, 1)
crescent - crescentic; short, broad, unipinnate
not - not as above

KG 1(female)

Gds fusion	CR l/b	CR outer edge	CR outer/ inner edge	CR seta (II, 1)	
cleft	>2	±straight	long	crescent	*Porcellidium sesquimaculata*
cleft	>2	convex	short	not	*P. paguri*
notch	>2	±straight	long	not	*P. ravanae*
notch	>2	±straight	short	not	*P. acuticaudatum*
notch	≤2	convex	short	not	*P. brevicaudatum*
smooth?	>2	convex	minute	not	*P. tenuicauda*
smooth?	≤2	±straight	long	not	*P. ovatum*

KG 2(female) – characters

1. Genital double-somite, lateral edge, line of fusion between segments 1 and 2
cleft - marked by a distinct cleft (Fig. 128)
notch - marked only by a notch (though a fusion line often is clearly present) (Fig. 129)
smooth - smooth; without trace of fusion line (except, perhaps, for a clear patch in the chitin) (Fig. 130)

2. Colour*
ay/red - amber yellow, with 1 red stripe middorsal
white/pink - white, with 5 antero-posterior pink lines on cephalic shield; outer 2 pairs coalesce to give 3 lines on metasome, urosome and caudal rami
uk - unknown

* This character is useful only with living or recently killed specimens as the colour fades or changes in preservatives. See introductory notes to the family (p. 659).

KG 2(female)

Gds fusion	Colour	
cleft	uk	*Porcellidium ovatum* [*sensu* Geddes 1968c]
notch	white/pink	*P. quinquelineatum*
smooth	ay/red	*P. rufolineatum*

KG 3(female) – characters

1. Body length*
   n - length in µm

* From rostrum to posterior extremity of urosome; caudal rami excluded—see Harris & Robertson (1994: p. 260).

2. P5, comparative length of setae*
   In this character each seta is compared in order of size relative to the preceding seta, e.g. 1>2>3>4 means that seta 4 is smaller than seta 3 which is smaller than seta 2 which is smaller than seta 1.

* P5 bears 5 setae—a proximal stout plumose seta originating in a notch and 4 slender, naked setae distal to this. In the terminology of Harris & Iwasaki (1996) these distal setae are numbered 1–4, from the most proximal to the most distal.

3. Colour*
   rbr - red-brown
   ybr/or - pale yellow-brown, with orange-brown on anterior cephalosome and as a dorsal stripe from metasome to caudal rami
   br+4 - pale brown with 4 transverse dark red-brown bands dorsally

* This character is useful only with living or recently killed specimens as the colour fades or changes in preservatives. See introductory notes to the family (p. 659).

KG 3(female)

Body length (µm)	P5 setae length	Colour	
630–650	1<2=3>4	rbr	*Kushia gamoi*
770–810	1<2>3>4	ybr/or	*K. igaguria*[1]
900–970	1=2>3>4	br+4	*K. zosteraphila*

1. P5 seta 1 is very small, only about a quarter of the length of seta 2.

KG 4(female) – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

2. Genital double-somite, lateral edge, line of fusion between somites 1 and 2
   notch - marked only by a notch (though a fusion line often is clearly present) (Fig. 128)
   smooth - smooth; without trace of fusion line (except, perhaps, for a clear patch in the chitin) (Fig. 130)

3. Maxillipeds, as seen in intact animal*
   adjacent - coxae of the 2 maxillipeds almost touching medially; coxa and basis with fimbriate edge
   apart - coxae widely separated medially; coxa and basis without a fimbriate edge

* See Harris 2002, Figures 1A and 1E for these characteristics.

4. Maxillule endopod
   n - total number of setae

KG 4(female)

CR l/b	Gds fusion	Maxilliped	Maxillule Enp	
4	notch	apart	6	*Dilatatiocauda dilatata*, *D. multidenticulata*[1]
4	smooth	apart	6	*D. plana*
<2	smooth	adjacent	2	*Brevifrons faviolatum*

1. These species are distinguished by their males. Females are almost identical (Harris 2004: p. 22 Table 1).

KG 5(female) – characters

1. Maxillipeds, as seen in intact animal*
   adjacent - coxae of the 2 maxillipeds almost touching medially; coxa and basis with fimbriate edge
   apart - coxae widely separated medially; coxa and basis without a fimbriate edge

* See Harris 2002, Figures 1A and 1E for these characteristics.

2. Cephalic shield, hyaline border
   present *or* absent*

* If absent, the shield has the lateral margin reflexed ventrally. See Harris (1994: p. 305).

3. Genital double-somite, lateral edge, line of fusion between segments 1 and 2
   cleft - marked by a distinct cleft (Fig. 128)
   notch - marked only by a notch (Fig. 129)
   smooth - smooth; without trace of fusion line (except, perhaps, for a clear patch in the chitin) (Fig. 130)

4. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

5. Caudal ramus
n - Hicks' Index for seta (VII, α) (See introductory notes to the family (p. 660))*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

KG 5(female)

Maxilliped	Cephalic Shield	Gds fusion	CR l/b	CR Hicks' Index	
apart	present	cleft	3	62	*Dilatatiocauda bipartita*
adjacent	absent	notch	2	60	*Tectacingulum nigrum*
adjacent	present	cleft	2.4	66	*Porcellidium ofunatense*
adjacent	present	cleft	2–2.2	87	*P. sarsi*
adjacent	present	cleft	2.1	74	*P. wandoensis*
adjacent	present	notch	2.5	70	*P. kiiroum*
adjacent	present	notch	1.75	77	*P. malleatum*
adjacent	present	smooth	3	89	*P. unicum*
adjacent	present	smooth	2	66	*P. trisetosum*

KG 6(female) – characters

1. Body length*
extreme - at least 2 mm
large - approximately 1.5 mm
medium - 1–1.3 mm
small - less than 1 mm

* From rostrum to posterior extremity of urosome; caudal rami excluded—see Harris & Robertson (1994: p. 260).

2. Caudal ramus, in dorsal view
n - ratio of maximum length to maximum breadth*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

3. Caudal ramus
n - Hicks' Index for seta (VII, α) (See introductory notes to the family (p. 660))*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

4. Caudal ramus
n - Hicks' Index for seta (I, β) (See introductory notes to the family (p. 660))*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

5. P1 Enp1, groups of minute spinules on anterior surface (the "denticulate peg fields" of Harris & Robertson 1994: p. 260)

0 - peg fields absent
1 - 1 small peg field on outer side immediately proximal to beginning of fimbriate crescent and confined to the immediate edge region
2A - 2 peg fields (1 small field on outer edge and 1 larger field on inner edge) proximal to the fimbriate crescent and confined to the immediate edge region
2B - 2 large peg fields (1 outer and 1 inner) proximal to the fimbriate crescent, which almost meet medially

6. Colour*

cl/red1 - colourless or opalescent white; red colouration of internal structures and P5 give appearance in dorsal view of 2 dorsolateral bands spreading from the base of the rostrum
cl/red2 - colourless or opalescent white; red colouration of basal skeleton of antennules and in a middorsal patch on metasomites1 and 2
red - brilliant red
pp - pale pink
p/bl - pink, with 4 blue iridescent spots on cephalic shield and a blue stripe on dorsum of metasomites 2 to 4
yo/red - yellow-orange, with a dorsal red stripe the length of the body
obr - orange-brown
y/br - yellow, with a brown patch at base of rostrum and brown transverse bands at junction of cephalic shield and on metasomites 1, 4 and 5
amber - amber yellow
br/bl - pale brown; borders of cephalic shield, Metasomal epimera and P5 are blue
uk - unknown

* This character is useful only with living or recently killed specimens as the colour fades or changes in preservatives. See introductory notes to the family (p. 659).

KG 6(female)

Body length	CR l/b	CR (VII, α) Hicks' Index	CR (I, β) Hicks' Index	P1 Enp1 peg fields	Colour	
extreme	1.2	59	19	1	amber	*Porcellidium naviculum*
large	2.75	72	9	1	obr	*P. magna*
large	2	71	12	1	y/br	*P. bicincta*
large	2	58	33	0	yo/red	*P. akashimum*
large	1.5	60	13	1	cl/red1	*P. erythrogastrum*
medium	2.7	69	22	2B	pp	*Tectacingulum tumidum*
small	3	80	32	?	uk	*Porcellidium fimbriatum*
small	2.3	86	22	?	uk	*P. lecanoides*
small	2.2	83	11	1	p/bl	*P. londonarum*
small	2.2	74	38	1	br/bl	*P. aoifuchidorum*
small	2.1	77	18	1	uk	*P. poorei*
small	1.5	69	19	2A	uk	*P. algoense*
small	1.5	67	28	0	uk	*P. brevicavum*
small	1.5	64	27	1(?)	red	*P. rubrum*
small	1.4	69	13	1	uk	*P. hartmannorum*

small	1.7	67	28	0	amber	*P. hormosirii*[1]
small	1.6	67	33	0	cl/red2	*P. ocellum*[1]

1. These species are also distinguished by the inner distal corner of the caudal ramus, which is rounded in *P. ocellum* and bevelled in *P. hormosirii.*

KG 7(female) – characters

1. Maxillipeds, as seen in intact animal

adjacent - coxae of the 2 maxillipeds almost touching medially; coxa and basis with fimbriate edge

apart - coxae widely separated medially; coxa and basis without a fimbriate edge

* See Harris 2002, Figures 1A and 1E for these characteristics.

2. Cephalic shield, hyaline border

present *or* absent*

* If absent, the shield has the lateral margin reflexed ventrally. See Harris (1994: p. 305).

3. Caudal ramus, in dorsal view

n - ratio of maximum length to maximum breadth*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

4. Caudal ramus

n - Hicks' Index for seta (VII, α) (See introductory notes to the family, p. 660)*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

5. Caudal ramus

n - Hicks' Index for seta (I, β) (See introductory notes to the family, p. 660)*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

6. Colour

This character is useful only with living or recently killed specimens as the colour fades or changes in preservatives. See introductory notes to the family (p. 660).

KG 7(female)

Maxilliped	Cephalic shield	CR l/b	CR (VII, α) Hicks' Index	CR (I, β) Hicks' Index	Colour	
adjacent	absent	2	60	44	indigo	*Tectacingulum nigrum*
apart	present	3.2	53	48	unknown	*Dilatatiocauda medialis*

KG 8(female) – characters

1. Body length*

extreme	- at least 2 mm
large	- approximately 1.5 mm
small	- less than 1 mm

* From rostrum to posterior extremity of urosome; caudal rami excluded—see Harris & Robertson (1994: p. 260).

2. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

3. Caudal ramus
   n - Hicks' Index for seta (VII, α) (See introductory notes to the family (p. 660))*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

4. Caudal ramus
   n - Hicks' Index for seta (I, β) (See introductory notes to the family (p. 660))*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

5. Caudal ramus, shape of inner distal corner

rounded	- rounded
bevel	- weakly bevelled at extreme corner (only about 10% of length of inner edge bevelled)

6. Colour*

cl/red	- colourless or opalescent white; red colouration of internal structures and P5 give appearance in dorsal view of 2 dorsolateral bands spreading from the base of the rostrum
red	- blood red
obr	- orange-brown
amber	- amber yellow
ly/red	- lemon yellow, with a dorsal red stripe the length of the body
uk	- unknown

* This character is useful only with living or recently killed specimens as the colour fades or changes in preservatives. See introductory notes to the family (p. 659).

KG 8(female)

Body length	CR l/b	CR (VII, α) Hicks' Index	CR (I, β) Hicks' Index	CR inner distal corner	Colour	
extreme	1.2	59	19	rounded	amber	*Porcellidium naviculum*
large	1.5	60	13	rounded	cl/red	*P. erythrogastrum*

large	1.2	56	20	bevel	ly/red	*P. pulchrum*
large	1.1	52	19	rounded	obr	*P. phyllosporum*
small	2	60	30	bevel	uk	*P. scotti*
small	1.1	50	15	rounded	red	*P. erythrum*

KG 9(female) – characters

1. Body length*

   n- length in mm

* From rostrum to posterior extremity of urosome; caudal rami excluded—see Harris & Robertson (1994, p. 260).

2. Urosome

   short - posterior extremity does not reach to the end of the caudal ramus

   long - posterior extremity extends beyond the end of the caudal ramus

3. Caudal ramus

   n - Hicks' Index for seta (VII, α) (See introductory notes to the family, p. 660)*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

4. Caudal ramus

   n - Hicks' Index for seta (I, β) (See introductory notes to the family, p. 660)*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

5. Colour*

   Known only for *Clavigofera echinophyllum* and *C. pacifica*, where it is a pale yellow or pale amber in both species, though *C. pacifica* can be colourless.

* This character is useful only with living or recently killed specimens as the colour fades or changes in preservatives. See introductory notes to the family (p. 659).

Body length (mm)	Urosome	CR (VII, α) Hicks' Index	CR (I, β) Hicks' Index	
≈0.5	long	66	25	*Clavigofera clavigera*[1]
≈0.5	short	51	21	*C. echinophylla*[1]
≈0.6	short	56	22	*C. laurencia*[1]
≈0.6	short	51	24	*C. pacifica*[1]
≈0.8	short	65	25	*C. ulva*[1]

1. *Clavigofera* females are unique in possessing a patch of striated chitin anterolaterally on urosomite 2.

KEYS TO MALES
(for keys to females, see p. 660)

Caution: Please read the introductory notes to the family (pp. 659) carefully—especially the information on the caudal ramus—before using these keys. Also note that because of the specialised nature of the anatomical features of this group of genera, the keys require the user is familiar with the following papers

- Harris & Robertson (1994), especially the "Systematics" section (pp. 259–262);
- Harris (1994), especially the structure of the male antennule (pp. 338–340);
- Harris (2002), especially Figures 1A and 1E;
- Harris & Iwasaki (1996), especially Fig. 7.

KG 0(male) – characters

Porcellidium viride, *P. affine*, *P. australe* and *P. wolfendeni* are imperfectly described and probably are impossible to separate from their descriptions alone. Indeed, Lang (1948) includes *australe* and *wolfendeni* as synoyms of *affine.* See Checklist Note 459 (p. 102) for comments on the status of *P. viride.*

1. Maxillipeds, as seen in intact animal*
   adjacent - coxae of the 2 maxillipeds almost touching medially; coxa and basis with fimbriate edge
   apart - coxae widely separated medially; coxa and basis without a fimbriate edge

* See Harris 2002, Figures 1A and 1E for these characteristics.

2. Caudal ramus, terminal setae II(1), IV(2), V(3), VI(4) (See Fig. 120)
   flange - setae evenly spaced on the distal edge of the ramus, short, lanceolate, pinnate; pinnae arise from an hyaline lateral expansion of the setal shaft
   not - setae not as above; if pinnate, the pinnae arise directly from the shaft

3. P1 Enp-1, groups of minute spinules on anterior surface (the "denticulate peg fields" of Harris & Robertson 1994: p. 260)
   0 - peg fields absent
   ext 1 - 1 small peg field on outer side immediately proximal to beginning of fimbriate crescent; a small linear or round patch that does not extend medially beyond the line of origin of the fimbriate setae
   ext 2 - 1 peg field on outer side immediately proximal to beginning of fimbriate crescent; triangular, with a small medial expansion that does not extend medially beyond the middle of the segment
   ext 3 - 1 large peg field on outer side immediately proximal to beginning of fimbriate crescent; triangular, with a long medial expansion that extends medially well beyond the middle of the segment
   ext+int 1 - approximately linear or rounded peg fields proximal to the fimbriate crescent (1 on outer edge and 1 on inner edge) and confined to the edge region
   ext+int 2 - 2 large peg fields proximal to the fimbriate crescent (1 on outer edge and 1 on inner edge); external field triangular, with a long medial expansion that extends medially well beyond the middle of the segment
   ext+int 3 - 2 large peg fields proximal to the fimbriate crescent (1 outer and 1 inner) whose distal ends almost meet medially

4. P2 Enp-3
n - number of setae

KG 0(male)

Maxilliped	CR terminal setae	P1 Enp-1 peg fields	P3 Enp-3 setae	
adjacent	not	0	3	KG 1(male) (p. 671)
adjacent	not	0	2	KG 2(male) (p. 672)
adjacent	not	ext 1	3	KG 3(male) (p. 675)
adjacent	not	ext 1	2	KG 4(male) (p. 675)
adjacent	not	ext 2	2	*Porcellidium londonarum*
adjacent	not	ext+int 1	2	KG 5(male) (p. 676)
adjacent	not	ext+int 3	2	*Tectacingulum nigrum*, *T. tumidum*[1]
adjacent	flange	0	2–3	KG 6(male) (p. 677)
adjacent	flange	ext 2	3	*Clavigofera pacifica*
apart	not	ext 1	2	*Dilatatiocauda medialis*
apart	not	ext 2	4	*D. plana*
apart	not	ext 3	2	KG 7(male) (p. 677)
apart	not	ext+int 1	2–3	*Dilatatiocauda bipartita*
apart	not	ext+int 2	4	*D. tristanensis*
apart	not	ext+int 2	2	*D. retroseta*

1. The 2 species of *Tectacingulum* are very similar. They are most easily distinguished by their colour—indigo or black for *T. nigrum* and pink for *T. tumidum.* Consult Harris (1994) if this character is not available.

KG 1(male) – characters

1. Caudal ramus
n - Hicks' Index for seta (VII, α) (See introductory notes to the family (p. 660))*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

2. Caudal ramus
n - Hicks' Index for seta (I, β) (See introductory notes to the family (p. 660))*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

3. Antennule, ventral blade (see Harris 1994: p. 339 Fig. 31)
present *or* absent

KG 1(male)

CR (VII, α) Hicks' Index	CR (I, β) Hicks' Index	A1 ventral blade	
67	56	absent	*Porcellidium trisetosum*
71	50	absent	*P. ravanae*
64	50	present	*P. sesquimaculatum*

KG 2(male) – characters

1. Antennule, ventral blade (see Harris 1994: p. 339 Fig. 31)
   present *or* absent

2. Antennule, accessory lobe (see Harris 1994: p. 339 Fig. 31 and Harris & Iwasaki 1996, p. 213 Fig. 7)
   present - accessory lobe with a row ("comb") of spinules along its length
   absent - accessory lobe without comb

3. Caudal ramus
   n - Hicks' Index for seta (VII, α) (See introductory notes to the family (p. 660))*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

4. Caudal ramus
   n - Hicks' Index for seta (I, β)
   (see introductory notes to the family (p. 660))

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

5. Colour*
   amber - amber yellow
   ay/mauve - amber yellow, with mauve spots on cephalic shield and metasomites 3 and 4
   ay/red - amber yellow, with 1 red stripe middorsal from rostrum to caudal rami
   cl/red - colourless or opalescent white, with red colouration of basal skeleton of antennules and in a middorsal patch on metasomites 1 and 2
   lemon - lemon yellow
   purple - uniformly purple
   rbr - red-brown
   ygreen - greenish yellow
   y;/br - yellow, with a brown spot middorsal on metasomites 1and 3
   y/violet - golden yellow, with a violet patch distal on cephalic shield
   yo/red - yellow-orange, with a dorsal red stripe the length of the body
   uk - unknown

* This character is useful only with living or recently killed specimens as the colour fades or changes in preservatives. See introductory notes to the family (p. 659).

KG 2(male)

A1 ventral blade	A1 accessory lobe comb	CR (VII, α) Hicks' Index	CR (I, β) Hicks' Index	Colour	
present	absent	86	58	ay/red	*Porcellidium rufolineatum*
present	absent	71	37	cl/red	*P. ocellum*
present	absent	69	46	ay/mauve	*P. sarsi*
present	absent	63	47–50	—	KG 2/1(male) (p. 673)
present	absent	57	33	ay/red	*P. pulchrum*
absent	present	?	?	—	KG 2/2(male) (p. 373)
absent	absent	≈80	57	uk	KG 2/3(male) (p. 674)

absent	absent	77	64	ygreen	*P. brevicaudatum*
absent	absent	75	50	lemon	*P. kiiroum*
absent	absent	75	40	yo/red	*P. akashimum*
absent	absent	70	52	y/br *or* rbr	*P. tenuicauda*
absent	absent	69	44	uk	*P. brevicavum*
absent	absent	?	?	—	KG 2/4(male) (p. 674)
absent?	absent	71	46	purple	*Porcellidium ovatum* [*sensu* Geddes 1968c]
absent?	absent	69	31	uk	*P. lecanoides*
absent?	absent	68	43	y/violet	*P. fimbriatum*
absent?	absent	50	35	uk	*P. ovatum*

KG 2/1(male) – characters

1. Antennule, the aesthete bearing pedestal on fused segments 3–4
   - absent - pedestal without a terminal process
   - small - pedestal with a small blunt terminal process
   - large - pedestal with a very long acuminate process

2. Caudal ramus, setae (VII, α) and (I, β)
   - short - setae short, not extending beyond margins of ramus
   - long - setae very long, extending well beyond ramus margins, about twice as long as ramus

3. Caudal ramus, seta (III, δ)
   - short - approximately half as long as the ramus
   - long - approximately 1.5 times as long as the ramus

4. Caudal ramus, seta (VI, 4)
   - adjacent - origin adjacent to the almost square inner distal corner of the ramus
   - external - origin distinctly external to the rounded inner distal corner of the ramus

KG 2/1(male)

A1 aesthete pedestal	CR (VII, α) (I, β)	CR (III, δ)	CR (VI, 4)	
absent	short	long	external	*Porcellidium similis*[1]
absent	short	short	adjacent	*P. quinquelineatum*
large	long	long	external	*P. tapui* Morph 1[2]
small	long	long	external	*P. tapui* Morph 2[2]

1. *Porcellidium similis* and *P. tapui* are commensal with hermit crabs. S.H. & W. Kim (1996) directly compared them.
2 See Hicks & Webber (1983) for further details on the morphs of *P. tapui.*

KG 2/2(male) – characters

1. Antennule, coupling denticles (see Harris 1994, p. 339 for general terminology and Harris & Iwasaki 1996, p. 213 for the specific numbering system in *Kushia*)
   - A- #1 with spinules confined to 2 distal fringing rows; #3 a small circular pad with 1 transverse row of spinules.
   - B- #1 as A; #3 reduced to a simple aspinulose peg.
   - C- #1 "echiniform"—densely covered in rows of spinules; #3 as A.

2. Colour*

rbr	- red-brown
ybr/or	- pale yellow-brown, with orange-brown on anterior cephalosome and as a dorsal stripe from metasome to caudal rami
br+4	- pale brown, with 4 transverse dark red-brown bands dorsally

* This character is useful only with living or recently killed specimens as the colour fades or changes in preservatives. See introductory notes to the family (p. 659).

KG 2/2(male)

A1 coupling denticles	Colour	
A	rbr	*Kushia gamoi*
B	br+4	*K. zosteraphila*
C	ybr/or	*K. igaguria*

KG 2/3(male) – characters

1. Caudal ramus, setae (VII, α) and (I, β)

short	- setae short, not extending beyond margins of ramus, much shorter than ramus
long	- setae very long, extending well beyond ramus margins, at least as long as ramus

2. Habitat

crabs	- commensal with hermit crabs
algae	- free-living among algae

KG 2/3(male)

CR (VII, α) (I, β)	Habitat	
short	algae	*Porcellidium acutum*
long	crabs	*P. paguri*

KG 2/4(male) – characters

1. Body shape, in dorsal or ventral view

ovoid	- extremely ovate in outline, anterior edge of cephalic shield rounded laterally (Fig. 131)
shoulders	- anterior edge of cephalic shield with distinct 'shoulders' (Fig. 132)

KG 2/4(male)

Body shape	
ovoid	*Porcellidium malleatum*
shoulders	*P. unicum*[1]

1. *Porcellidium unicum* is imperfectly described but the body shape clearly is not similar to that of *P. malleatum.* In addition the caudal ramus in *P. unicum* is described as having the "sides of rami calcified".

KG 3(male) – characters

1. Caudal ramus
   n - Hicks' Index for seta (VII, α) (See introductory notes to the family (p. 660))*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

2. Caudal ramus
   n - Hicks' Index for seta (I, β) (See introductory notes to the family (p. 660))*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

3. Maxillule endopod
   n - total number of setae

4. Body length, as currently recorded in the literature*
   n - length in mm

* From rostrum to posterior extremity of urosome; caudal rami excluded—see Harris & Robertson (1994, p. 260).

5. Colour*
   obr - orange-brown
   red/y - dark red, with yellow crescent in anterior cephalic shield; most of urosome yellow
   y/br1 - yellow, with brown patch at base of rostrum and brown transverse bands at junction of cephalic shield and metasomites 1, 4 and 5
   y/br2 - yellow, with brown border to cephalic shield
   uk - unknown

* This character is useful only with living or recently killed specimens as the colour fades or changes in preservatives. See introductory notes to the family (p. 659).

KG 3(male)

CR (VII, α) Hicks' Index	CR (I, β) Hicks' Index	Maxillule Enp setae	Body length (mm)	Colour	
85	60	2	0.83	y/br2	*Brevifrons faviolatum*
67	50	2	0.90	red/y	*Porcellidium yoroium*
72	27	6	0.86	y/br1	*P. bicincta*
70	28	6	0.62	uk	*P. poorei*
59	30	6	1.21	obr	*P. magna*

KG 4(male) – characters

1. Antennule, ventral blade (see Harris 1994: p. 339 Fig. 31)
   present *or* absent

2. Caudal ramus
   n - Hicks' Index for seta (VII, α) (See introductory notes to the family, p. 660)*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

3. Caudal ramus
   n - Hicks' Index for seta (I, β) (See introductory notes to the family, p. 660)*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

4. Colour*
   - ly/red - yellow-orange, with dorsal red stripe the length of the body
   - ybr/purple - yellow-brown, with a patch of purple-brown or indigo middorsal on cephalic shield and metasomites 2 and 3
   - cl/red - colourless or opalescent white; red colouration of internal structures and P5 give appearance in dorsal view of 2 dorsolateral bands spreading from the base of the rostrum
   - br/bl - brown, with blue border to cephalic shield
   - po - pale orange
   - lbl - light blue
   - uk - unknown

* This character is useful only with living or recently killed specimens as the colour fades or changes in preservatives. See introductory notes to the family (p. 659).

KG 4(male)

A1 ventral blade Index	CR (VII, α) Hicks' Index	CR (I, β) Hicks'	Colour	
present	57	33	ly/red	*Porcellidium pulchrum*
present	62	38	cl/red	*P. erythrogastrum*
absent	78	55	red	*P. rubrum*
absent	68	52	ybr/purple	*P. aiiroa*
absent	62	31	lbl	*P. wandoensis*
absent	57	36	br/bl	*P. aoifuchidorum*
absent	50	35	po	*P. ofunatense*
absent?	55	20	uk	*P. hartmannorum*

KG 5(male) – characters

1. Antennule, ventral blade (see Harris 1994: p. 339 Fig. 31)
   present *or* absent

2. Caudal ramus
   n - Hicks' Index for seta (VII, α) (See introductory notes to the family, p. 660)*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

3. Caudal ramus

n - Hicks' Index for seta (I, β) (See introductory notes to the family, p. 660)*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

4. Colour*

obr	- orange-brown
amber	- amber yellow
red	- blood red
uk	- unknown

* This character is useful only with living or recently killed specimens as the colour fades or changes in preservatives. See introductory notes to the family (p. 659).

KG 5(male)

A1 ventral blade	CR (VII, α) Hicks' Index	CR (I, β) Hicks' Index	Colour	
absent	60	30	red	*Porcellidium erythrum*
absent	76	56	obr	*P. phyllosporum*
present	56	25	?	*P. algoense*
absent	58	17	amber	*P. naviculum*

KG 6(male) – characters

1. Antennule, ventral blade (see Harris 1994: p. 339 Fig. 31)
   present *or* absent

2. P2 Enp-3
   n - number of setae

KG 6(male)

A1 ventral blade	P3 Enp-3 setae	
present	2	*Porcellidium australe* [*sensu* Nicholls 1941a][1]
absent	3	*Clavigofera echinophila*, *C. laurencia*, *C. ulva*[2]

1. While Nicholls' description lacks precision, by modern standards, it seems clear that his material is unlikely to be conspecific with *P. australe* Brady. The caudal ramus shows a great resemblance to that diagnostic for *Clavigofera*.
2. These species have almost identical males. Subtle differences are seen in the antennule and caudal ramus. See Hicks (1982) for a comparison and discussion.

KG 7(male) – characters

1. Antennule, ventral blade (see Harris 1994: p. 339 Fig. 31)
   present *or* absent

2. Caudal ramus

n - Hicks' Index for seta (VII, α) (See introductory notes to the family, p. 660)*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

3. Caudal ramus

n - Hicks' Index for seta (I, β) (See introductory notes to the family, p. 660)*

* Care must be taken to measure from the base of the ramus, which frequently is overlain by the distal edge of the last urosomite.

4. P5 Exp, dorsal face

multiple - with a row (5 in total) of setules between the origin of each of the 6 setae

single - with only 1 row of setules—between spinules 1 and 2

KG 7(male)

A1 ventral blade	CR (VII, α) Hicks' Index	CR (I, β) Hicks' Index	P5 Exp setule rows	
present	63	63	single	*Dilatatiocauda multidenticulata*
absent	77	73	multiple	*D. dilatata*

Family Psammopsyllidae

KG 0 – characters

1. P1
   n:n - number of segments in exopod and endopod

2. P2–P4 exopod
   n:n:n - number of segments in P2, P3 and P4

3. P2 and P4 endopod
   n:n - number of segments in P2 and P4

KG 0

P1 segs	P2–P4 Exp segs	P2 & P4 Enp segs	
1:2	3:3:3	1:1	KG 1
1:2	1:2:2	1:0–1	*Parasewellina prima*
1:2	1:1:1	1:0	*Sewellina subtilis*
0:2	3:3:3	1:1	KG 2
0:2	1:1:1	1:0	*Sewellina reducta*

KG 1 – characters

1. Anal operculum
   spinose - with 5–6 teeth
   smooth - medially smooth, but flanked on both sides by a long curved unguiform process

2. Caudal ramus
   long - much longer than anal somite; 3.5–5 times as long as broad
   medium - about as long as the anal somite; 2.5–4 times as long as broad
   short - about ⅓ the length of anal somite; 2–2.5 times as long as broad

3. Caudal ramus
   n - number of curved unguiform projections at apex

4. P2 Exp-3
   n - number of setae and spines

5. Female P5
   spinose - with 1 very long, stout spine in addition to filiform setae and other short or vestigial spines
   setose - with filiform setae only

6. Male P1 Enp-1, inner seta
   filiform - slender filiform seta; usually naked, never with an apical comb
   transformed - slender filiform seta with an apical "comb" of setules, spinules or teeth (the description is not precise on this)

Berera, Cottarelli & Bruno (2001) provide a dichotomous key to *Ichnusella.*

KG 1

Anal operculum	CR length	CR apex	P2 Exp-3 setae	Female P5	Male P1 Enp-1 inner seta	
spinose	short	1	3	spinose	filiform	*Prosewellina chilensis*
smooth	medium	1	3	spinose	transformed	*Ichnusella improvisa*
smooth	medium	1	3	setose	filiform	*I. pasquinii*
smooth	medium	1	2	spinose	filiform	*I. tertia*
smooth	long	1	3	spinose	filiform	*I. longifurca*
smooth	medium	2	3	spinose	transformed	*I. ionica*
smooth	long	2	3	spinose	filiform	*I. eione*

KG 2 – characters

1. P1 Enp-1, inner edge
   n - number of setae

2. Anal operculum
   A - lateral corners produced as a stout, dentiform process; operculum edge otherwise naked
   B - lateral corners with 2 dentiform processes; operculum edge otherwise naked
   C - lateral corners with a large, dentiform process that is recurved medially so that the tips almost meet; operculum edge narrow, naked except for a small, spiniform process immediately adjacent to the large, recurved process
   D - lateral corners with a group of 3 short, dentiform processes; operculum edge otherwise naked
   E - lateral corners with 1 large, spiniform process; operculum edge with small teeth flanked on either side by 1 larger tooth
   F - lateral corners with 1 large, spiniform process; operculum edge with 6–8 small teeth

3. P1 endopod
   n - ratio of maximum length to maximum breadth of Enp-1

4. P1 endopod
   n - ratio of maximum length of Enp-1 to Enp-2

5. Female P5
   2se - with 2 setae
   3se - with 3 setae
   1se1sp - with 1 seta and 1 spine
   1se2sp - with 1 seta and 2 spines
   2se1sp - with 2 setae and 1 spine
   3se1sp - with 3 setae and 1 spine
   1se3sp - with 1 seta and 3 spines
   4se1sp - with 4 setae and 1 spine (though this is very small and may be only a spinule)
   uk - female unknown

6. Male P5
   character states as female

KG 2

P1 Enp-1 inner setae	Anal Op	P1 Enp-1 l/b	P1 Enp-1/ Enp-2	Female P5 setae	Male P5 setae	
0	A	9	4.5	2se	uk	*Psammopsyllus longipes*
0	A	7.5	2.5	uk	2se1sp	*P. arganoi*
0	A	7	3.5	2se1sp	2se1sp	*P. operculatus*[1, 2, 3]
0	A	6	3	1se1sp	2se	*P. operculatus*[1, 2, 4]
0	A	6	3	uk	2se	*P. operculatus*[1, 2, 5]
0	A	6	1.2	3se	3se	*P. pori*[6]
0	A	5	4	1se1sp	3se	*P. delamarei*[7]
0	A	5	3	2se1sp	uk	*P. operculatus*[1, 2, 8]
0	A	5	3	2se1sp	1se1sp	*P. cornifer*
0	B	7	3.5	uk	2se1sp	*P. operculatus*[1, 2, 9]
0	B	?(<6)	?	3se	3se	*P. falciseta*
0	C	7	3.5	3se	3se	*P. operculatus*[1, 2, 10]
0	E	7	3.5	1se1sp	2se1sp	*P. operculatus*[1, 2, 11]
0	E	5	4	3se	2–3se	*P. stri*[1, 2, 12]
0	E	5	3	2se1sp	2se1sp	*P. brevipes*
0	E	?	?	2se1sp	1se1sp	*P. limnicola*[13]
0	F	9(7)?[14]	3.5	2se1sp	2se1sp	*P. ertunci*[1, 2, 14]
0	F	7	3.5	2se1sp	2se1sp	*P. operculatus*[1, 2, 15]
0	F	6	4	2se1sp	2se1sp	*P. stri*[1, 2, 16]
0	F?	7	3.5	1se1sp	2se1sp	*P. operculatus*[1, 2, 17]
1	A	6	5	3se	2se1sp	*P. arenarius*[18]
1	A	8	4.5	1se2sp	3se1sp	*P. maricae*
1	D	6	4	2se1sp	1se2sp	*P. tridentatus*
1	E	8	4	2se1sp	1se1sp	*P. imamurai*

1. *Psammopsyllus operculatus* was originally described from Western Australia and has subsequently been reported from tropical and warm temperate coasts around the world.

   These reports usually are without either comment or supplementary description but Cottarelli, Puccetti & Saporito (1984) describe a wide range of variation, especially in P5, caudal ramus and anal operculum in material from Mexico, Cuba, Sierra Leone, Italy, Somalia, Celebes and the Philippine Islands. This must place doubts on the conspecificity of all these populations.

   I have attempted to include this variability within this key, but it is imperative that any identification to *P. operculatus* is confirmed by consulting the literature.
2. *Psammopsyllus operculatus*, *P. ertunci* and *P. stri* form a closely similar set of species. They are compared by Karytuğ & Sak (2005b).
3. Sea of Mamara (Noodt 1955c).
4. Celebes and Phillipine Islands (Cottarelli, Puccetti & Saporito 1984).
5. Western Australia (Nicholls 1945b).
6. *Psammopsyllus delamarei* may also be distinguished on the ellipsoidal shape of the caudal ramus in dorsal and ventral aspect.
7. The comparatively long P1 Enp-2 is the chief distinguishing feature of *P. pori*.
8. Ghana (Chappuis & Rouch 1960a).
9. Somalia (Cottarelli, Puccetti & Saporito 1984).
10. Mexico (Cottarelli, Puccetti & Saporito 1984).
11. Sierra Leone (Cottarelli, Puccetti & Saporito 1984).
12. Hawaii (Kunz 1993).

13. *Psammopsyllus limnicola* is unique in the genus in the presence of a posteriorly directed spiniform projection at the base of the dorsal aspect of the caudal ramus.
14. Text states that P1 Enp-1 is 9 times as long as broad but measurements of the illustration give only 7.5 times as long as broad.
15. Italy and Cuba (Cottarelli, Puccetti & Saporito 1984).
16. Panama (Mielke 1983b).
17. Sardinia (Cottarelli, Puccetti & Saporito 1984).
18. *Psammopsyllus arenarius* is unique in the genus in lacking the very long, strong, multi-barbed seta on P2 endopod.

Family Pseudotachidiidae

KG 0 – characters

1. P1
   n:n - number of segments in exopod and endopod

2. P2–P4 exopod
   n:n:n - number of segments

3. P4 endopod
   n - number of segments

4. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

5. Antenna exopod
   n - number of segments

KG 0

P1 segs	P2–P4 Exp segs	P4 Enp segs	P2–P4 Exp-3 setae	A2 Exp segs	
3:3	3:3:3	3	7:8:8	3	KG 1 (p. 684)
3:3	3:3:3	3	7:8:8	2	KG 2 (p. 685)
3:3	3:3:3	3	7:(8?):7	3	*Pseudotachidius coronatus*
3:3	3:3:3	3	7:7:7	3	KG 3 (p. 686)
3:3	3:3:3	3	6:6:6	3	*Pseudotachidius minutus*, *P. vikingus* female[1]
3:3	3:3:3	3	6:6:5	3	*P. abyssalis*
3:3	3:3:3	2	5:6:6	1	*Carolinicola galapagoensis*
3:3	3:3:3	3	5:5:5[2]	3	*Pseudotachidius similis*[2]
3:2	3:3:3	3	7:8:8	3	KG 4 (p. 687)
3:2	3:3:3	3	7:8:8	2	KG 5 (p. 688)
3:2	3:3:3	3	7:8:8	1	*Paradanielssenia biclavata*
3:2	3:3:3	3	7:7:8	3	KG 6 (p. 691)
3:2	3:3:3	3	7:7:7	3	*Fladenia robusta*
3:2	3:3:3	3	7:7:6	2	*Pseudomesochra minor*
3:2	3:3:3	3	7:6:7	3	*Danielssenia spitsbergensis*
3:2	3:3:3	3	6:8:8	3	*Paradanielssenia kunzi*
3:2	3:3:3	3	6:7:7	3	KG 7 (p. 692)
3:2	3:3:3	3	6:7:7	2	KG 8 (p. 692)
3:2	3:3:3	3	6:7:6	2	*Pseudomesochra perplexa*
3:2	3:3:3	3	6:6:7	3	*Danielssenia reducta*
3:2	3:3:3	3	6:6:6	2	KG 9 (p. 693)
3:2	3:3:3	3	6:6:5	3	*Micropsammis noodti*, *M. galapagoensis* [3]
3:2	3:3:3	3	6:6:4	3	*Leptotachidia iberica*
3:2	3:3:3	3	5:4:4	3	*Telopsammis secunda*
3:2	3:3:3	3	4:6:6	2	*Pseudomesochra crispata*
3:2	3:3:3	2	7:8:8	3	KG 10 (p. 693)
3:2	3:3:3	2	6:6:6	3	KG 11 (p. 694)

3:2	3:3:3	2	6:6:6	1	*Parananopus sarsi*
3:2	3:3:3	2	6:6:5	2	*P. bahusiense*
3:2	3:3:3	2	6:5:5	2	*Pseudomesochra longifurcata*
3:2	3:3:3	2	5:6:7	3	*Paranannopus variabilis* male
3:2	3:3:3	2	5:6:6	3	*P. variabilis* female, *P. arndwilleni* male[4]
3:2	3:3:3	2	5:6:6	1	*Carolinicola trisetosa*
3:2	3:3:3	2	5:5:5	2	*Pseudomesochra divaricata*
3:2	3:3:3	2	5:4:5	2	KG 12 (p. 694)
3:2	3:3:3	2	3:3:3	3	KG 13 (p. 695)
3:2	3:3:3	2	3:3:3	1	*Cylindronannopus elongatus*
3:2	3:3:3	1	6:6:7	2	*Paranannopus minutus*
3:2	3:3:3	1	6:6:6	3	*P. atlanticus*
3:2	3:3:3	1	6:6:5	3	*P. singulosetosus*
3:2	3:3:3	1	5:6:6	3	*P. philistinus*
3:2	3:3:3	1	5:5:5	2	*P. echinipes*
3:2	3:3:3	1	3:3:3	3	*P. longithorax*
3:2	3:3:3	0	6:6:6	3	*P. denticulatus*
3:2	3:3:3	0	4:5:5	2	*P. caheti*
3:2	3:3:3	0	4:5:5	1	*P. abyssi*
3:2	3:3:3	0	4:4:5	2	KG 14 (p. 695)
3:2	3:3:3	0	4:4:4	3	*Paranannopus plumosus*
3:2	2:1:1	0	2:2:2	3	*P. reductus*
3:2	1:1:1	0	3:2:3	3	*P. uniarticulatus*
2:2	3:3:3	1	4:4:5	2	KG 15 (p. 696)
2:2	3:3:3	0	4:4:5	2	*Apodonsiella indica* male[5]

1. In *P. minutus* the female P5 endopod bears 2 spines; in *P. vikingus* it bears 3. The male is unknown in *P. minutus*; see KG 1 (p. 684) for the male of *P. vikingus*.
2. This setation of P2–P4 Exp-3 is debatable. T. Scott (1903) states that P2–P4 "are somewhat similar to the same appendages in *Pseudotachidius coronatus*" but provides an illustration of P4 in which Exp-3 has only 5 setae and spines and states that P2 and P3 "do not appear to differ greatly from this".
3. In *M. noodti* P4 Enp-2 bears an inner seta; in *M. galapagoensis* it is naked. Females may also be distinguished on the total number of seta on P5 (8 in *M. noodti*, 5–6 in *M. galapagoensis*).
4. The male of *P. arndwilleni* is characterised by the complete atrophy of mandible, maxillule and maxilla. Willen (2005) believes this species is closely related to *P. variabilis* but the condition of these mouthparts is unknown in the male of this species. The female of *P. arndwilleni* is unknown.
5. Female unknown.

KG 1 – characters

1. P1 endopod, length relative to exopod
    - A - endopod extends beyond end of exopod; Enp-1 extends beyond Exp-1
    - B - endopod extends beyond end of exopod; Enp-1 extends approximately to end of Exp-1
    - C - endopod extends approximately to end of exopod; Enp-1 extends approximately to end of Exp-1

2. P2–P4 Enp-2, inner edge
    - n - number of setae

3. Female antennule

n - number of segments

uk - female unknown

na - not applicable

4. Female P5

d:n:n -exopod distinct from basis: number of setae and spines on endopod: number of setae and spines on exopod

f:n -exopod fused to basis: total number of setae and spines on P5

uk -female unknown

na -not applicable

5. Male P5

d:n:n -exopod distinct from basis: number of setae and spines on endopod: number of setae and spines on exopod

f:n -exopod fused to basis: total number of setae and spines on P5

uk -male unknown

KG 1

P1 Enp/ Exp	P2–P4 Enp-2 inner setae	Female A1 segs	Female P5 Exp	Male P5 Exp	
A	2:1:1	7	d:5:7	d:2:7	*Domnuia larsi*
A	2:1:1	7	d:6:5	uk	*Iodomene borealis*[1]
A	(2:1:1)[1]	7	d:5:5	uk	*I. pusilla*[1]
B	2:1:1	7	d:5:5	uk	*I. ferrieri*
B	2:1:1	6	d:4:4	d:2:4	*Pseudotachidius brevisetosus*
B	2:1:1	4	d:5:5	uk	*P. peruanus*
C	1:1:1	5	f:6	uk	*P. ibericus*
C	1:1:1	5	d:4:5	d:2:5	*P. jubanyensis*
C	1:1:1	na	na	f:6	*P. vikingus* male[2]
B	1:?:?	uk	uk	d:2:5	*Idomene australis*
C	?:2:?	8	d:4:4	uk	*Pseudotachidius* (?) *minimus*

1. Setation of P3 and P4 is unknown in *I. pusilla* but most probably has this formula. It can also be distinguished from *I. borealis* by the form of the P5 endopod (which extends far beyond the exopod in *I. pusilla*).
2. See KG 0 (p. 683) for female.

KG 2 – characters

1. Antennule, plumose setae and spines

few - either absent or restricted to segment 1, or, if present on other segments, usually only 1 per segment

abundant - large numbers present on all, or almost all, segments

2. Mandible endopod, inner edge

spines - with *n* stout spines, plumose on outer edge only

setae - with setae only—usually biplumose

3. P1 Enp-1

> (n) - extends beyond end of exopod; (*n* times longer than broad)

≈ (n) - extends approximately to end of exopod; (*n* times longer than broad)

< (n) - does not extend to end of exopod; (*n* times longer than broad)

4. Female P5

d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod

uk - female unknown

5. Male P5

d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod

uk - male unknown

KG 2

A1 setae	Mandible Enp inner setae	P1 Enp1/ Exp	Female P5	Male P5	
few	4 spines	> (2)	d:5:5	d:2:6	*Idomene forficata*
few	3 spines	> (2.5)	d:5:5	d:2:6	*I. scotti*
few	setae	< (2.5)	d:5:4	d:2:6	*I. antarctica* [*sensu* Giesbrecht 1902]
few	setae	< (2.5)	d:4:3	uk	*I. antarctica* [*sensu* Brady 1910]
few	setae	> 2.5)	d:5:5	uk	*Dactylopodella janetae*
few	setae	> (2.5)	d:4:5	d:2:5	*D. rostrata*
abundant	setae	> (2.5)	d:5:5	d:2:6	*Idomene cookensis*
abundant	setae	≈ (2)	d:5:5	uk	*I. intermedia*
abundant	setae	≈ (2)	f:5:5	uk	*I. coronata*

KG 3 – characters

1. Antennule setae

plumose - most (or all) setae and spines plumose

simple - most (or all) setae and spines simple, non-plumose

2. P1 Exp-2

long - longer than broad

short - about as broad as long

3. P1 Enp-3

n - number of setae and spines

4. P5 endopod setae

long - all setae and spines elongate—none shorter than length of exopod

short - only 1 seta is elongate—all others are shorter than length of exopod

KG 3

A1 setae	P1 Exp-2 l/b	P1 Enp-3 setae	P5 Enp setae	
simple	long	4	long	*Idomene antarctica* [*sensu* Dahms & Schminke 1992]
plumose	short	3	short	*Pseudotachidius coronatus*

KG 4 – characters

1. P2–P4 endopod, distal segment
   n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-2, inner edge
   n:n:n - number of setae on P2, P3 and P4
   na - not applicable (Enp less than 3 segments)

3. Female antennule
   n - number of segments
   na - not applicable

4. Female P5
   d:n - exopod distinct from basis: number of setae and spines on exopod
   f:n - exopod fused to basis: total number of setae and spines on P5
   na - not applicable

5. Male P5
   d:n - exopod distinct from basis: number of setae and spines on exopod
   f:n - exopod fused to basis: total number of setae and spines on P5
   uk - male unknown
   na - not applicable

KG 4

P2–P4 Enp distal seg setae	P2–P4 Enp-2 inner setae	Female A1 segs	Female P5	Male P5	
6:6:5	na:1:1	5	f:6	uk	*Pseudotachidius bipartitus pacificus*
5:6:5	2:1:1	7	d:5:5	uk	*Idomene borealis*
5:6:5	2:1:1	6	d:5:6	uk	*I. kabylica*
5:6:5	2:1:1	6	d:5:5	d:2:5	*Jonesiella fusiformis*
5:6:5	2:1:1	5	d:5:5	uk	*Prionos ornata*[1]
5:6:5	2:1:1	5	d:5:5	na	*Jonesiella eastwardae* female[1]
5:6:5	2:1:1	5	f:7	uk	*Pseudotachidius horikoshii*
5:6:5	2:1:1	4	f:7	f:7	KG 4/1 (p. 688)
5:6:5	1:1:1	6	d:5:5	d:2:5	*Archisenia sibirica*[2]
5:6:5	1:1:1	na	na	d:2:5	*Jonesiella eastwardae* male[2]
5:6:5	1:1:1	6	d:5:4	d:0:4	*Sentiropsis minuta*
3–5[3]:6:5	1:1:1	4	d:5:4	d:2:4	*Paradanielssenia kathleenae*[3]

5:5:5	1:1:1	6	d:5:5	d:2:5	*Peltisenia aberrans*[4]
5:5:5	1:1:1	4	d:5:5	d:2:5	*Danielssenia similis*[4]
4:6:4–5	2:1:1	5	f:6	f:6	*Pseudotachidius bipartitus* s. str.
4:4:4	2:1:1	4	f:10	uk	*Bathypsammis longifurca*
3–4[5]:4:4	1:1:1	4	d:5:4	d:2:4	*Paradanielssenia christineae*[5]
?:5:?	?:1:?	7	d:5:5	uk	*Idomene novaezealandiae*
?:?:4	?:?:1	6	f:4:3	uk	*Pseudomesochra brucei*

1. These species are distinguished on a large number of characters (see Huys & Gee 1992, 1996b). Prominent among these is the shape of the rostrum, which in dorsal view is subtriangular in *Prionos*, with the base wider than the apex, and subcircular in *Jonesiella*, with the base narrower than the apex and the sides convex.
2. Males are distinguished by the size of the apophysis formed at the outer distal corner of P2 Enp-2. In *A. sibirica* this is very long, extending far beyond the end of Enp-3. In *J. eastwardae* it does not reach the end of Enp-3.
3. Female P2 Enp-3 bears 5 setae and spines. Male has 1 very long seta and 2 short and weak setae (originating very adjacent and easy to miss) and a spine fused to the outer distal corner.
4. Males of these species may be distinguished by the P2 Enp-2 which bears a long apophysis in *D. similis.*
5. Female P2 Enp-3 bears 4 setae and spines. Male as *P. kathleenae* (see Note 3 above).

KG 4/1 – characters

1. Female P5 endopod, spiniform projection adjacent to, and internal to, the outer spine
   - wd - well developed; extends to about a quarter of the length of the outer spine
   - rud - rudimentary

2. Male P3 Enp-2, apophysis
   - wd - a massive curved unguiform projection that extends well into the distal half of Enp-3
   - weak - a small spiniform projection that extends only about a quarter of the length of Enp-3

KG 4/1

Female	Male	
P5	P3	
Enp	Enp-2	
wd	weak	*Anapophysia borealis*
rud	wd	*A. segonzaci*

KG 5 – characters

1. P2 endopod
   - n - number of segments

2. P1 exopod
   - n:n:n - number of setae on inner edge of Exp-1: number of setae on inner edge of Exp-2: total number of setae and spines on Exp-3

3. P2–P4 endopod, distal segment
   - n:n:n - number of setae and spines on P2, P3 and P4

4. P2–P4 Enp-2, inner edge
   - n:n:n - number of setae on P2, P3 and P4
   - na - not applicable (endopod less than 3 segments)

5. P5

distinct - exopod distinct from basis

fused - exopod fused to basis

KG 5

P2 Enp segs	P1 Exp setae	P2–P4 Enp distal seg setae	P2–P4 Enp-2 inner setae	Female P5	
2	0:1:5	7/5[1]:6:5	na:1:1	distinct	KG 5/1 (p. 689)
3	0:1:5	5:6:5	2:1:1	distinct	KG 5/2 (p. 690)
3	0:1:5	5:6:5	1:1:1	distinct	*Idomene parasimulans*
3	0:1:4	5:5:5	1:1:1	fused	*Pseudomesochra similis*, *P. media*[2]
3	0:1:4	5:4:4	1:1:1	fused	KG 5/3 (p. 691)
3	0:0:4	5:5:4	1:1:1	fused	*Pseudomesochra meridianensis*

1. 7 in the female and 5 in the male.
2. Female P5 bears a total of 7 setae and spines in *P. similis* but only 6 in *P. media.*

KG 5/1 – characters

This key relies largely on data provided by Moore (1976a: Table 1), who, along with Sars (1904–1911) and Vervoort (1962), should be consulted before confirming an identification.

1. Cephalic shield

n - ratio of length (in mid-dorsum from base of rostrum to distal edge of cephalic shield) to maximum breadth

2. Abdomen somites, spinule rows on dorsum

present *or* absent

3. Antenna Exp-2

n - number of setae and spines on distal edge

4. P1 endopod, length relative to exopod

n - ratio of length of endopod to length of exopod

5. Female P2 Enp-2, inner edge

notch - with a prominent marginal notch about halfway along edge

absent - without a notch

KG 5/1

Cephalic shield l/b	Abdomen somites dorsal spinule rows	A2 Exp-2 apical setae	P1 Enp/ Exp	Female P2 Enp-2 inner edge	
1	absent	3	1.4	notch	*Dactylopodella flava*
1	absent	2	1.4	notch	*D. clypeata*
1.3	present	3	2	absent	*D. vervoorti*

KG 5/2 – characters

1. P1 Enp-2, form of 2 outermost setae
   - A - a short outer fimbriate claw (about as long as Enp-2) and a geniculate(?) seta about twice as long as the claw.
   - B - a long, outer, fimbriate claw (2–4 times as long as Enp-2) and either a second claw or a geniculate(?) seta (the distinction is not obvious in some illustrations) as long as or slightly longer than the outer claw.
   - C - a long, outer, fimbriate claw (≈3 times as long as Enp-2) and a short, simple, second claw; (without an inner filiform seta?)

2. Female antennule
   - n - number of segments

3. Female P5 endopod
   - palisade1 - endopod truncate distally; with broad, spatulate, parallel-sided setae that are tapered or rounded only towards the extreme apex; setae set very close together and approximately equal in length; the appearance has been likened to a "palisade" or "picket fence". Endopod does not extend to the middle of exopod; palisade setae long, extending well beyond end of exopod.
   - palisade 2 - as palisade 1 but endopod extends at least to end of exopod and palisade setae are very short
   - palisade 3 - as palisade 1 but endopod seta I terminates in a long flagellar portion
   - truncate - endopod truncate distally, but setae are slender, less closely set together and begin to taper before mid length, resulting in substantial gaps between them being always visible. Endopod extends to about the middle of exopod and terminal setae extend maximally to just beyond the end of exopod.
   - rounded 1 - endopod rounded distally; setae slender, usually finely plumose; endopod extends to middle of exopod
   - rounded 2 - endopod rounded distally; setae slender, usually finely plumose; endopod extends approximately to end of exopod
   - rounded 3 - endopod rounded distally; setae slender, usually finely plumose; endopod barely reaches middle of exopod

4. Female P5
   - n:n - number of setae on endopod and exopod

5. Male P5
   - n:n - number of setae on endopod and exopod
   - uk - male unknown

KG 5/2

P1 Enp-2	Female A1 segs	Female P5 Enp	Female P5 setae	Male P5 setae	
A	7	truncate	5:5	uk	*Idomene purpurocincta* [*sensu* Norman & T. Scott 1906]
B	7	truncate	5:5	uk	*I. purpurocincta* [*sensu* Sewell 1940]
B	7	rounded 1	5:5	uk	*I. purpurocincta* [*sensu* Vervoort 1964]
B	7	rounded 2	5:5	2.5	*I. purpurocincta* [*sensu* Lang 1965a]

B	7	rounded 2	5:6	uk	*I. pectinata* [*sensu* T. Scott 1903]
B	7	rounded 3	5:6	3:6	*I. pectinata* [*sensu* Kunz 1963a]
B	6	palisade 2	6:5	uk	*I. laticaudata* [*sensu* Thompson & A. Scott 1903]
(B)?	7	palisade 2	5:5	2:5	*I. laticaudata* [*sensu* Wells 1967]
B	6	palisade 1	5:5	uk	*I. maldivae* [*sensu* Sewell 1940]
B	6	palisade 1	5:6	uk	*I. maldivae* [*sensu* Wells & Rao 1987]
B	6	?	5:5	uk	*I. simulans* [*sensu* Brady 1910]
B	6	palisade 3	5:5	2:5	*I. simulans* [*sensu* Kunz 1963a]

KG 5/3 – characters

1. Maxilliped endopod
   present - endopod present as a minute segment with 1 terminal seta; basis with 1 seta
   absent - endopod entirely absent; basis with 1 seta

2. Female P5, inner seta of exopod portion
   long - at least as long as setae of endopod portion
   short - much shorter than endopod setae—extends only slightly beyond apex of endopod

KG 5/3

Maxilliped Enp	Female P5	
present	short	*Pseudomesochra gemina*
present	long	*P. laptevensis*[1]
absent	long	*P. tatianae*[1]

1. Male unknown.

KG 6 – characters

1. P3–P4 Enp-3
   n:n - number of setae and spines on P3 and P4

2. Female P2–P4 Enp-2, inner edge
   n:n:n - number of setae on P2, P3 and P4

3. Female P5
   n:n - number of setae and spines on endopod and exopod

4. Male P5
   n:n - number of setae and spines on endopod and exopod
   uk - male unknown

5. Male P2 Enp-2, inner edge
   n - number of setae

KG 6

P3–P4 Enp-3 setae	Female P2–P4 Enp2 inner setae	Female P5 setae	Male P5 setae	Male P2 Enp-2 inner setae	
6:5	1:1:1	5:5	2:5	0	*Afrosenia spinipes*
5:4	1:1:1	5:5	2:5	1	*Danielssenia typica*
4:4	1:1:1	2:4	2:4	1	*D. quadriseta*
4:4	0:1:1	5:4	uk	uk	*Mucrosenia kendalli*

KG 7 – characters

1. P1 Exp-3
   n - number of setae and spines

2. Female antennule
   n - number of segments

3. Female P2–P4 Enp-3
   n:n:n - number of setae and spines on P2, P3 and P4

4. Female P5
   n - total number of setae and spines

5. Male P5
   n - total number of setae and spines
   uk - male unknown

KG 7

P1 Exp-3 setae	Female A1 segs	Female P2–P4 Enp-3 setae	Female P5 setae	Male P5 setae	
5	4	5:5:4	10	7	*Psammis longisetosa*
5	4	5:5:4	11	uk	*Psammis longipes*
4	4	5:4:4	10	uk	*Psammis kliei*[1]
4	6	5:4:3	8	uk	*Pseudomesochra beckeri*

1. Usually placed *incertae sedis* in *Mucrosenia.*

KG 8 – characters

1. Female antennule
   n - number of segments

2. P1 exopod
   n:n:n - number of setae on inner edge of Exp-1: number of setae on inner edge of Exp-2: total number of setae and spines on Exp-3

3. P1 Enp-1, inner edge
   n - number of setae

4. Female P2–P4 Enp-3
   n:n:n - number of setae and spines on P2, P3 and P4

5. Female P5
   n - total number of setae and spines

KG 8

Female A1 segs	P1 Exp setae	P1 Enp-1 inner setae	Female P2–P4 Enp-3 setae	Female P5 setae	
6	0:1:4	0	5:5:4	7	*Pseudomesochra scheibeli*[1]
6	0:0:4	1	5:5:4	6	*P. aberrans*[1]
5	0:0:4	1	5:4:3	6	*P. abyssalis*[1]

1. Male unknown.

KG 9 – characters

1. P1 Exp-2, inner edge
   n - number of setae

2. P4 Enp-3
   n - number of setae and spines

3. Female P5
   n - total number of setae and spines

KG 9

P1 Exp-2 inner setae	P4 Enp-3 setae	Female P5 setae	
1	3	6	*Pseudomesochra latifurca*[1]
0	4	7	*P. gertwilleni*[1]

1. Male unknown.

KG 10 – characters

1. P2–P4 endopod
   n:n:n - number of segments in P2, P3 and P4

2. P2–P4 endopod, distal segment
   n:n:n - number of setae and spines on P2, P3 and P4

3. Female P5
   plate:n - the pair of P5 fused to a single plate; endopod and exopod not easily recognisable: total number of setae and spines on the pair of P5
   pair:n - the pair of P5 distinct; endopod vestigial and fused to basis; endopod lobe prominent: total number of setae and spines on each P5
   uk - female unknown

4. Male P5

plate:n - the pair of P5 fused to a single plate; endopod and exopod not easily recognisable: total number of setae and spines on the pair of P5

uk - male unknown

KG 10

P2–P4 Enp segs	P2–P4 Enp distal seg setae	Female P5	Male P5	
3:3:2	5:5:5	plate:8	plate:8	*Paranannopus langi*
3:3:2	5:4:6	plate:10	uk	*Paranannopus wellsi*
3:3:2	5:5:4	uk	plate:10	*Paranannopus hicksi*
3:3:2	4:4:4	uk	plate:8	*Paranannopus kunzi*
2:2:2	4:4:5	pair:7	uk	*Pseudomesochra tamara*

KG 11 – characters

1. Female antennule

n - number of segments

2. Female P2–P4 Enp-2

n:n:n - number of setae and spines on P2, P3 and P4

KG 11

Female A1 segs	Female P2–P4 Enp-2 setae	
6	4:3:3	*Paranannopus truncatus*[1]
6	3:3:2	*P. trisetosus*[1]
5	2:2:2	*P. triarticulatus*[1]

1. Male unknown.

KG 12 – characters

1. P2–P4 endopod

n:n:n - number of segments in P2, P3 and P4

2. P3–P4 endopod, distal segment

n:n - number of setae and spines on P3 and P4

3. P2–P3 Enp-2, inner edge

n:n - number of setae on P2 and P3

na - not applicable (endopod less than 3 segments)

4. Female P5

n:n - number of setae and spines in endopod and exopod

5. Male P5
n - total number of setae and spines
uk - male unknown

KG 12

P2–P4 Enp segs	P3–P4 Enp distal seg setae	P2–P3 Enp-2 inner setae	Female P5 setae	Male P5 setae	
3:3:2	3:3	1:2	4:4	5	*Xylora bathyalis*
3:3:2	3:3	1:2	3:4	4	*X. neritica*
3:3:2	3:3	1:1	4:4	5	*X. longiantennulata*
2:2:2	2:2	na.na	4:4	uk	*Oligoxylora cooksoni*

KG 13 – characters

1. P2–P4 endopod
n:n:n - number of segments in P2, P3 and P4

2. P2–P4 endopod, distal segment
n:n:n - number of setae and spines on P2, P3 and P4

3. P2–P4 Exp-2, inner edge
n:n:n - number of setae on P2, P3 and P4

4. P2–P4 Exp-1, inner edge
n:n:n - number of setae on P2, P3 and P4

5. P5
n - total number of setae

KG 13

P2–P4 Enp segs	P2–P4 Enp distal seg setae	P2–P4 Exp-2 inner setae	P2–P4 Exp-1 inner setae	P5 setae	
3:3:2	1:2:1	0:0:0	0:0:0	3	*Cylindronannopus primus*
3:3:2	1:1:1	1:1:1	0:1:1	2	*C. bispinosus* male
3:2:2	1:1:1	1:1:1	0:1:1	2	*C. bispinosus* female

KG 14 – characters

1. Female P2–P4 endopod
n:n:n - number of segments

2. Male P2–P4 endopod
n:n:n - number of segments

3. Caudal ramus, in dorsal view
n - ratio of maximum length to maximum breadth

4. Antenna exopod
n - total number of setae

5. Female P5
n - total number of setae on exopod and basis

KG 14

Female P2–P4 Enp segs	Female P2–P4 Enp segs	CR l/b	A2 Exp setae	Female P5 setae	
2:2:0	3:3:0	≈1.2	5	4	*Pseudonsiella aotearoa*
2:2:0	3:3:0	≈2.5	4	5	*P. longicaudata*

KG 15 – characters

1. P1 Enp-2, terminal claws
simple - outer edge naked, without accessory spinules
spinulose - outer edge spinulose

2. Female P2–P4 endopod, distal (or only) segment
n:n:n - number of setae on P2, P3 and P4

3. Female P5
n - total number of setae

4. Male P4 endopod, distal (or only) segment
n - number of setae

5. Male P2 Enp-3, distal unguiform projection
A - immediate subapical portion bispinulose
B - with a few spinules on outer edge only, some distance below apex
C - naked; without accessory spinules

KG 15

P1 Enp-2 claws	Female P2–P4 Enp distal seg setae	Female P5 setae	Male P4 Enp distal seg setae	Male P2 Enp-3	
simple	4:3:1	9	1	C	*Donsiella limnoriae*[1]
simple	2:2:1	9	2	C	*D. victoriae*
simple	2:2:1	8	1	C	*D. anglica*[1]
simple	2:1:2	8	2	A	*D. bisetosa*
spinulose	3:3:2	9	2	B	*D. phycolimnoriae*

1. Data from the redescription by Hicks (1988a).

Family Rhizotrichidae

KG 0 – characters

1. P2–P4 exopod
   n:n:n - number of segments in P2, P3 and P4

2. P2–P4 exopod, distal segment
   n:n:n - number of setae and spines on P2, P3 and P4

3. P2–P4 endopod, distal (or only) segment
   n:n - number of setae and spines on P2 and P4

4. Female P5
   d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod

5. Male P5
   d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod
   uk - male unknown

Nam & Lee (2005) provide a dichotomous key to *Rhizothrix.*

KG 0

P2–P4 Exp segs	P2–P4 Exp distal seg setae	P2–P4 Enp distal seg setae	Female P5	Male P5	
3:3:3	5:5:5	4:4:4	d:5:3	f:1:3	*Rhizothrix quadriseta*
3:3:3	4:4:4	4:4:4	d:5:5	f:1(2?):3	*R. wilsoni*
3:3:3	4:4:4	3:3:4	d:5:5	f:2:3	*R. pubsecens*
3:3:3	4:4:4	3:3:4	f:5:5	f:2:3	*R. gracilis*
3:3:3	4:4:4	3:3:4	f:5:5	uk	*R. tenella*
3:3:3	4:4:4	3:3:3	d:5:5	f:1–2:3	*R. curvata*
3:3:3	4:4:4	3:3:3	d:5:5	f:0:3	*R. spinosa*
3:3:3	4:4:4	3:3:3	d:5:5	uk	*R. scotti*
3:3:3	4:4:4	3:3:3	f:5:5	f:2:3	*R. gracilis*
3:3:3	4:4:4	3:3:3	d:5:3	f:1–2:3	*R. curvata*
3:3:3	4:4:4	3:3:3	f:4:5	f:1:1	*R. sejongi*
3:3:3	4:4:4	1:1:1–2	d–f:5:5	f:2:3	*R. minuta*
3:3:3	3:3:3	3:3:3	d:5:5	f:2:3	*R. reducta* s. str.
3:3:3	3:3:3	2:2:2	d:5:5	f:2:2	*R. reducta noodti*
2:2:2	4:4:4	3:3:3	d:3:5	d:2:3	*Tryphoema riedli*
2:2:2	4:4:3	3:3:3	d:4:5	d:6[1]	*T. porca*[1]
2:2:2	4:3:4	2:3:3	d:5:5	uk	*T. scilloniensis*
2:2:2	4:3:3	2:3:3	d:5–6:4–5	f:2:3	*T. bocqueti*
2:2:2	3:3:3	2:3:3	d:3:5	f:2:3	*T. lusitanica*
2:2:2	3:3:3	1:1:1	d:5:6	f:2:3	*T. ramabula*

1. P5 a simple plate with no distinction between baseoendopod and exopod.

Family Rhynchothalestridae

KG 0 – characters

1. P2–P4 Exp3
   n:n:n - number of setae and/or spines on P2, P3 and P4

2. A2 exopod
   n - number of segments

3. P4 Enp-2, inner edge
   n - number of setae

4. Female P5 baseoendopod
   n - ratio of maximum length of baseoendopod (from inner proximal corner of basis to end of endopod) to maximum breadth of basis

5. Male P5 exopod, origin of outermost seta
   distal - in distal half of outer edge
   proximal - in proximal half of outer edge
   uk - male unknown

KG 0

P2–P4 Exp-3 setae	A2 Exp segs	P4 Enp-2 inner setae	Female P5 Benp l/b	Male P5 Exp outer seta	
7:8:8	3	2	0.9	distal	*Rhynchothalestris helgolandica*[1, 3]
7:8:8	3	2	1.4	proximal	*R. campbelliensis*[2, 3]
7:8:8	3	1	0.8	uk	*R. tenuis*[3]
7:8:7	2	2	≈1.0	uk	*Peltthestris tripartita*[3]

1. Data from the redescription by Huys (1990a).
2. Data from the redescription by Pallares (1968a).
3. These genera are also distinguished on the number of setae and spines on the female P5 exopod—6 in *Rhynchothalestris*, 5 in *Peltthestris*.

Family Superornatiremidae

KG 0 – characters

1. P1 Enp-2, outer edge
   n - number of spines

2. P1 Exp-3
   n - total number of setae and spines

3. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

4. Antenna exopod
   n:n - number of segments: total number of setae and spines

5. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

6. Male P5
   A - endopod with 1 seta; exopod with 1 segment and 4 setae and spines
   B - endopod without setae; exopod with 2 segments and a total of 6 setae and spines
   C - endopod without setae; exopod with 2 segments and a total of 4 setae and spines
   uk - male unknown

KG 0

P1 Enp-2 outer spines	P1 Exp-3 setae	P2–P4 Exp-3 setae	A2 Exp segs/ setae	CR l/b	Male P5	
2	7	7:8:8	3:6	1.1	A	*Superornatiremis mendai*
2	7	7:8:7	3:6	1.1	A	*S. mysticus*
1	7	7:8:8	3:6	<1	uk	*Intercrusia problematica*
1	6	?:8:8	3:6	2	uk	*I. garciai*
1	6	7:8:8	4:6	3.8	C	*Neoechinophora fosshageni*
1	6	7:8:8	3:6	≈1.5	C	KG 1
1	6	7:7:7	4:6	2.2	C	*Neoechinophora jaumei*
?	?	?	2:5	1.4	C	*N. karaytugi*
1	5	6:6:6	4:6	1.4	B	*Gideonia noncavernicola*

KG 1 – characters

1. Female P5
   n:n - number of setae and spines on endopod and exopod

2. Female P5, shape
   ovoid *or* rectangular

3. Male P6
   distinct - left P6 articulates with segment; right P6 fused to segment
   fused - both P6 fused to segment

KG 1

Female	Female	Male	
P5	P5	P6	
setae	shape		
2:4	rectangular	fused	*Neoechinophora xoni*
1:4	ovoid	distinct	*N. daltonae*

Family Tachidiidae

KG 0 – characters

1. P1
   n:n - number of segments in exopod and endopod

2. P4
   n:n - number of segments in exopod and endopod

3. P2–P4 exopod, distal segment
   n:n:n - number of setae and spines on P2, P3 and P4

4. P2–P4 Exp-1, inner edge
   n:n:n - number of setae on P2, P3 and P4

5. P1 exopod and endopod, distal segment
   n:n - number of setae and spines on exopod and endopod

KG 0

P1 segs	P4 segs inner setae	P2–P4 Exp distal seg setae	P2–P4 Exp-1 inner setae	P1 Exp & Enp distal seg setae	
3:3	3:3	6:7:5	0:0:0	6:5	*Microarthridion berberum*
3:3	3:3	6:6:6	1:1:1	5:5	*Sinotachidius vicinospinalis*
3:3	3:3	6:6:5	1:1:1	6:5	*Geeopsis incisipes*
3:3	3:3	6:6:5	1:1:1	5:5	*Tachidius discipes*
3:3	3:3	6:6:5	1:1:1	5:4	KG 1
3:3	3:3	6:6:5	0:0:0	6:5	KG 2
3:3	2:2	6:6:4	0:0:0	6:5	*Cithadius cyathurae*
2:2	3:3	6:6:5	1:1:1	7:5–6[1]	*Euterpina acutifrons*

1. Female has 6 normal setae and spines but in the male the outermost seta is vestigial.

KG 1 – characters

1. A2 exopod
   n:n - number of setae on 1st and 2nd segments

2. P1 basis, inner spine
   short - does not extend to the end of Exp-2
   long - extends to at least the end of Exp-2

3. Caudal ramus, dorsolateral spinule row
   present *or* absent

KG 1

A2 Exp setae	P1 basis inner spine	CR spinule row	
1:2	short	present	*Neotachidius triangularis*[1]
1:3[2]	short	present	*N. coreanus*[1, 2]
1:3[3]	long	absent	*N. parvus*[1, 3]

1. Huys, Ohtsuka, Conroy-Dalton, & Kikuchi (2005) provide a comparison of the species of *Neotachidius.*
2. The lateral seta on Exp-2 is well developed.
3. The lateral seta on Exp-2 is thin and weak.

KG 2 – characters

1. P2–P4 Enp-2, inner edge
   n:n:n - number of setae

2. Female antennule
   n - number of segments

3. Female P5*
   n+(n) - with a total of *n* well developed and (*n*) minute or vestigial setae

* P5 is reduced to a small plate (fused or articulated with the vestigial basis) separated by some distance from a well developed pedestal. The pedestal is the remnant outer peduncle of the basis and always bears a long, plumose seta. This character includes this seta.

4. Female P5 exopod
   l=b - exopod portion well developed; about as long as broad
   b>>l - exopod portion not well developed; much broader than long

5. Male P5*
   n+(n) - with a total of *n* well developed setae and (*n*) minute or vestigial setae

* P5 is reduced to a small plate (fused or articulated with the vestigial basis) separated by some distance from a well developed pedestal. The pedestal is the remnant outer peduncle of the basis and always bears a long, plumose seta. This character includes this seta.

KG 2

P2–P4 Enp-2 inner setae	Female A1 segs	Female P5 setae	Female P5 Exp l/b	Male P5 setae	
2:2:1	6	4+(0)	l≈b	3+(2)	*Microarthridion littorale*
2:2:1	6	4+(1)	l≈b	4+(1)	*M. litospinatus*
2:2:1	5	4+(0)	b>>l	5+(0)	*M. laurenticum*
2:1:1	6	5+(0)	l≈b	4(5?)+(0)	*M. reductum*
1:2:1	6	5+(0)	b>>l	5+(0)	*M. fallax*

Family Tegastidae

Identification to family is simple—this is the only harpacticoid family characterised by prominent lateral compression accompanied by massive ventral extensions of the cephalic shield and of the pleurites of the anterior urosome. The body shape is often described as “amphipod-like”.

At the moment identification to genus is almost equally as simple, with most genera being easily distinguished on the number of segments in P1–P4. But it is unlikely that this simple system will survive a phylogenetic analysis as it appears to be at odds with trends in the maxilliped, the female P5 and the anterior somites of the urosome.

Identification to species also should be simple—the complexities of the structure of the cephalic shield, maxilliped (which in both sexes usually is a massive grasping organ), urosome and female P5, together with the ornamentation of the body, potentially provide a multitude of species specific characters. Unfortunately, the value of these characters has only recently been recognised and they are not adequately described for many species.

Therefore, because the descriptions of many species are inadequate in modern terms, identification to species level is fraught with difficulty. Further, it is quite certain that many more species are awaiting discovery and description. Thus, all determinations arrived at with these keys must be compared rigorously with descriptions and great care must be taken in assigning specimens to a known species, especially where the specimens come from regions markedly outside the known distribution of the species.

The most comprehensive descriptions to date are by Ilse Bartsch (1993, 1994, 1995, 1999) for species of *Syngastes*, in the course of which she has developed a terminology that may be able to be extended to the rest of the family when its phylogeny is better understood. I have added to this terminology but I emphasise that the use of a common terminology in the several genera cannot at this stage imply homology.

Notes on specific characteristics

Female P5 and urosome: The pleurites of the genital double-somite (Gds) are expanded ventrally to form, with the sternites, the floor of a brood chamber in all species of the family except *Tegastes cnidicus* and *Smacigastes micheli*, although the degree of development and the exact shape of this structure varies widely. The somite bearing the P5 may be fused to the Gds, but its pleurites are not expanded. In *Parategastes*, *Syngastes* and most species of *Tegastes* the endopod of P5 is massive and provides the chamber with lateral walls that enclose the egg mass. In the remaining species the P5 is not massively enlarged and lateral protection for the eggs is provided by all of P1–P5.

When observed in lateral view (most descriptions illustrate and describe only this aspect) the Gds pleurites may taper towards an apparently *ventral edge*, which may or may not be demarcated at its posterior corner (the *distal posterior corner* of the Gds expansion) from the *posterior edge* by a small or large spiniform, unguiform or rounded projection (the *lateral cone* of Bartsch 1999).

The anterior corner of the ventral edge usually is simply rounded but may also be slightly unguiform or show some other prominent feature. The *ventral edges* of the pleurites are linked together seamlessly by a sternite that usually shows no distinguishing characteristics in lateral or ventral view, except in some species of *Syngastes* where it is a small rounded or plate-like knob, which when visible in lateral view is termed the *ventromedian cone* by Bartsch (1999).

The *posterior edge* may be straight, arcuate or with a distinct change in angle somewhere along its length. I have termed this change in angle the *posterior cone*; it may be simple or be developed as a small or large spiniform or unguiform projection. Some illustrations imply that the posterior cone is the terminating point of a lamellar outgrowth of the lateral surface of the pleurite which, where she can recognise this, Bartsch (1999) calls the *midventral lamella*.

There can be more than one posterior cone, in which case the most dorsal is usually at, or close to, the junction of the posterior edge with the pleurite of urosomite 3 (the *proximal posterior corner* of the Gds expansion). Bartsch (1999) terms this the *postero-ventral cone* and it may be small or sufficiently long to reach or extend beyond the level of the caudal rami.

In several species the entire pleurite expansion may be angled posteriorly sufficiently to allow the ventral edge to lie at or beyond the level of the caudal rami. In a few species the pleurite expansion does not taper and does not progress posteriorly and thus appears as a rectangular expansion from the ventral surface of the Gds.

Urosomites 3–5 often are small and may be telescoped together (at least post mortem) into an even smaller mass. They also may be overlain by the expanded Gds and thus not normally be visible in lateral view, so that the caudal rami appear to spring from the Gds. However, in some species these somites are large and always visible, although they appear in some illustrations to be fused into a single unit.

Male P5 and urosome: The male P5 is small and consists of a basis and a single segmented exopod—there is no trace of an endopod. As in the female, the segment bearing the P5 and the first two urosomites may form a fused triple somite. The pleurites of the triple somite are expanded ventrally, but in a form different from that of the female. They enclose a space usually referred to as the *spermatophore reservoir*.

Apparently arising from the ventral side of the male genital triple somite are structures that presumably control the aperture of the reservoir—termed *valves* by Fiers (1986a). I cannot find a description that provides all the information needed to deduce how they operate—the number of valves, their spatial relationship to one another, the associated musculature, their configuration in lateral view when closed and when partially and fully open—or even if they can be opened and closed.

It may be an important fact that variability in the configuration of the valves has not been reported in the few species for which numerous males have been collected.

The most detailed anatomical descriptions are those by Humes (1981a) for *Tegastes cnidicus*, Bartsch (1995) for *Syngastes dentipes*, Fiers (1986a) for *Feregastes wellensi*, Cottarelli & Baldari (1987a) for *Arawella alexandri* and Ivanenko & Defaye (2004) for *Smacigastes micheli*. None of these provide information on the mode of action of the valves—except, perhaps, in *Arawella* where there appear to be no valves and the reservoir may be permanently open.

These descriptions do demonstrate that the anatomy differs between genera. Other descriptions indicate that it differs within genera. A thorough microanatomical study is a necessary prerequisite to a phylogenetic analysis of the family.

Some insight into the mode of operation may be deduced from the illustrations of *Syngastes gibbus* and *S. langi* by Geddes (1968c). These seem to show a spermatophore emerging from the reservoir and could indicate that both the intermediate projection and anterior operculum (terms from Bartsch, 1994) swivel on anterior hinges while the posterior valve remains fixed.

In these keys the anatomy of the spermatophore reservoir is used only for *Syngastes* (KG 3).

Maxilliped: The basis of the maxilliped varies from a simple elongate segment whose inner edge (or "palm") is straight or weakly convex with a simple row of setules to forms in which the grasping function is enhanced by the increased girth of the proximal part (and its associated musculature) and complexity of the armature of the inner edge, which may have stout spinules, denticles and spines of various shapes, several rows of setules and a mushroom-like stalked structure distally (the *scaphoid* of Lang 1965a; *tongue-like process* of Bartsch 1994; *spinulose pad* of Huys, Gee, Moore & Hamond 1996).

These complexities are not used extensively in these keys but undoubtedly offer species specific characteristics which are useful in checking identifications.

KG 0 – characters

1. P1–P4 exopod
   n:n:n - number of segments in P1, P2, P3 and P4

2. P1–P4 endopod
   n:n:n - number of segments in P1, P2, P3 and P4

3. Female P5
   fused - baseoendopod and exopod fused together; endopod and internal part of baseoendopod expanded as a massive foliaceous plate so that the pair of P5 form the sides of a large brood pouch (exopod may still be recognisable and bear small setae but is dwarfed by the baseoendopod)
   distinct 1 - baseoendopod and exopod quite distinct; endopod and internal part of baseoendopod may be enlarged, even foliaceous, and form the sides of a brood pouch, but exopod always is well developed, with relatively large setae
   distinct 2 - baseoendopod and exopod distinct; endopod vestigial, asetose

KG 0

P1–P4 Exp segs	P1–P4 Enp segs	P5 female	
1:3:3:3	1:3:3:3	distinct 1	KG 1 (p. 705)
1:3:3:3	1:3:3:2	distinct 1	*Feregastes wellensi*
1:2:2:3	1:3:3:3	distinct 1	*Parategastes* (KG 2) (p. 712)
1:2:2:3	1:3:3:2	fused	*Syngastes*[1] (KG 3) (p. 713)
1:2:2:3	1:2:2:2	distinct 2	*Arawella alexandri*

1. *Syngastes* is also characterised by the P4 Enp-1 being an obvious amalgamation of 2 segments with the first forming a broad lamellar structure, usually with a seta just proximal to the distal inner corner. The second element usually is a slender cylinder without setae, though there may be 1 or 2 spinules.

KG 1 – characters

1. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-3
   n:n:n - number of setae on P2, P3 and P4

3. P2–P4 Exp-1, inner setae
   n:n:n - number of setae on P2, P3 and P4

4. P2–P4 Enp-1, inner setae
   n:n:n - number of setae on P2, P3 and P4

5. Antenna exopod
   n - number of segments

KG 1

P2–P4 Exp-3 setae	P2–P4 Enp-3 setae	P2–P4 Exp-1 inner setae	P2–P4 Enp-1 inner setae	A2 Exp segs	
6:7:7	5:6:5	1:1:0	1:1:1	2	KG 1/1 (p. 706)
6:7:7	5:6:5	1:1:0	1:1:1	1?2?	*Tegastes perforatus*[1]
6:7:7	5:6:5	1:1:0	1:1:1	1	KG 1/2 (p. 708)
?:7:7	?:6:5	?:1:0	?:1:0	?	*Tegastes minutus* (see KG 1/2)
6:7:7	5:6:5	1:0:0	1:1:1	2	KG 1/3 (p. 709)
6:7:7	5:6:5	1:0:0	1:1:1	?	*Tegastes longimanus* (see KG 1/3)
6:7:7	5:6:5	0:0:0	1:1:1	1?2?	*T. elenae*[2]
6:7:7	5:6:5	0:0:0	1:1:1	1	KG 1/4 (p. 709)
?:?:7	?:?:5	?:?:0	?:?:1	2	*Tegastes brasiliensis*[3]
6:7:7	5:6:4	0:0:0	1:1:1	?	*T. dalmatinus*
6:7:7	5:5:4	1:1:0	1:1:0	1	*T. satyrus*
6:7:6	5:6:4	1:1:0	1:1:1	1	KG 1/5 (p. 710)
6:7:6	4:6:4	1:1:0	1:1:1	1	*Tegastes gemmeus*
?:?:6	?:?:4	?:?:0	?:?:1	2	*Tegastes* sp. (? *neapolitanus*) Pesta, 1959[4]
?:?:6	?	?	?	1	*T. areolatus* (see KG 1/6)
6:7:5	4:6:4	1:1:0	1:1:1	1	*T. georgei*
?	?	?	?	1–2	KG 1/6 (p. 711)[5]

1. Antenna exopod is "indistinctly two-segmented" (Lang 1965a); see KG 1/1 (p. 706) and 1/2 (p. 708).
2. Antenna exopod is "bi-articulé dont les articles ne sont pas clairement délimités" (Marcus 1963), although the illustration does not show this condition. *Tegastes elenae* may be unique in the genus in having a total of 7 (cf. 6) setae and spines on P1 exopod. Marcus gives an illustration that shows this and depicts the exopod as being bifid at the tip, with 2 setae on the outer prong. She does not comment on either feature, even though such a bifid condition would usually be attributed to a teratogenic abnormality and one would have expected her to confirm the status of this condition by commenting on the P1 of all 10 specimens. See also KG 1/4 (p. 709).
3. The description of this species is of very poor quality—especially the illustrations—and it is highly improbable that specimens can be attributed to it with any degree of certainty.
4. This species is described in a very brief format and from only 2 females. Pesta points to differences from *T. neapolitanus*, but the description of that species is itself inadequate.
5. The setation of at least 5 species (*Tegastes andrewi*, *T. neapolitanus*, *T. pulcher*, *T. riedli* and *T. seurati*) is so imperfectly known that I am forced to include a "catch-all" codon in this high level key.

KG 1/1 – characters

1. Maxilliped

A - massive in relation to body size. Basis short, approximately as long as broad, with the extreme proximal part of inner side a long, narrow, rounded cone with 4 short stout apical spines. Endopod claw very stout and approximately as long as the basis.

B - very large and prominent. Basis short and stout, approximately 1.5 times as long as broad, with the proximal half of inner side very strongly prominent—convex and with stout spinules. Endopod claw very stout, blunt and short—slightly more than half the length of the basis.

C - basis slender, 2–3 times as long as broad with proximal quarter of inner side strongly convex, with long spinules. Endopod claw at least ¾ the length of the basis

D - basis slender, approximately twice as long as broad with proximal half of inner side weakly convex and grading into a short, straight distal part; spinules throughout both parts. Endopod claw slender, not quite as long as the basis.

E - basis slender, approximately twice as long as broad with proximal half of the inner side weakly convex; small spinules along the entire edge. Endopod claw approximately ¾ times the length of the basis.

F - basis slender, approximately twice as long as broad with the whole inner side a smooth convex curve with 2 longitudinal rows of long, stout spinules on the distal part. Endopod claw approximately ⅔ the length of the basis.

2. Female urosome, lateral view

uk - female unknown

A - pleurites of genital somites form a massive, broad, rectangular plate; anterior corner of ventral edge rounded; proximal posterior corner unguiform and some distance from caudal rami; urosomites 3–5 large, visible in lateral view, apparently fused into an undifferentiated mass

B - pleurites as in A; urosomites 3–5 distinct but very small, telescoped together (at least post mortem) and hidden beneath pleurites; not visible in lateral view

C - pleurites of genital somites form a massive, broad, rectangular plate; anterior and posterior corners of ventral edge with relatively short, stout unguiform process; proximal posterior corner some distance from caudal rami; urosomites 3–5 distinct, visible in lateral view

D - pleurites of genital somites form a massive, broad, rectangular plate; anterior and posterior corners of ventral edge drawn out into a long, mucroniform process; proximal posterior corner adjacent to caudal rami; urosomites 3–5 fused into an undifferentiated mass, visible in lateral view

E - pleurites of urosomites not, or only slightly, expanded

3. Female P5 baseoendopod, shape of inner portion

uk - female unknown

rect - nearly rectangular; outer proximal corner sharply rounded; outer edge of endopod approximately straight from origin of seta I to seta III and approximately parallel to inner edge; apex (area between origins of setae IV and V) wide

triang - triangular from the broad base to very narrow apex (setae IV and V are adjacent); articulation of basis with segment at almost a right angle to the orientation of the endopod; inner edge of basis (from articulation to origin of seta I) long and moderately convex; inner edge of endopod straight, outer edge weakly convex

ovoid - outer edge a smooth convex arc from base of basis to apex of endopod; inner edge of endopod weakly convex, apex rounded

arcuate - relatively narrow (base of endopod only about twice as broad as its apex); outer edge a smooth moderately convex arc from base of basis to apex of endopod; inner edge of endopod approximately straight

4. Female P5

long - exopod extends approximately to the apex of the endopod

short - exopod much shorter than endopod

uk - female unknown

5. Female antennule

n - number of segments

uk - female unknown

KG 1/1

Mxp	Female urosome	Female P5 Benp	Female P5 Exp/Enp	Female A1 segs	
A	A	rect	long	8	*Tegastes knoepffleri*
B	B	triang	short	8	*T. grandimanus*[4]
C?	?	ovoid	long	7	*T. pygmaeus*[5]
C	D	ovoid	long	7	*T. porosus*[4]
C	E	arcuate	long	8	*Smacigastes micheli*[1]
C	uk	uk	uk	uk	*Tegastes edmondsoni*[3, 5]
D	?	triang	long	8	*T. fernandici*
D	uk	uk	uk	uk	*T. perforatus*[3]
E	C	triang	long	8	*T. falcatus*[2]
F	?	triang	long	8	*T. tenuis*[5]

1. This species is unique in the family in the elongate caudal ramus (2.4 times as long as broad; in all other species it is twice as long as broad at most) and the 10-segmented male antennule.
2. *Tegastes falcatus* may also be recognised by the distinctive short lancet-like (or narrowly foliaceous) terminal seta of the caudal ramus.
3. Female unknown.
4. Male unknown.
5. Very imperfectly described species.

KG 1/2 – characters

1. Maxilliped basis
   - A - proximal part of inner side weakly convex grading into straight distal part; spinules along the whole length of the inner side, longer in the proximal part
   - B - proximal part of inner side strongly conical, with spinules apically, abruptly demarcated from the concave distal part, which bears long setules

2. Urosome, lateral view
   - A - pleurites of genital somites form a massive, broad, rectangular plate; anterior and posterior corners of ventral edge produced as a rounded knob; proximal posterior corner unguiform and some distance from the caudal rami. Urosomites 3–5 distinct, large, visible in lateral view (Male unknown)
   - B - pleurites of genital somites form a massive, broad, rectangular plate; adjacent to the caudal rami and drawn out into a long, narrow spur that extends far beyond the end of the caudal rami. Urosomites 3–5 visible in lateral view, apparently fused into an undifferentiated mass (Male is similar to female but urosomites 3–5 appear to be smaller and less visible in lateral view)
   - C - pleurites of genital somites form a broad semicircular plate in which the ventral edge is undifferentiated from the posterior edge. Urosomites 3–5 large, distinct, visible in lateral view (Male unknown)
   - D - pleurites of male genital somites not expanded (Female unknown)

KG 1/2

Mxp basis	Urosome	
A	A	*Tegastes clausi*
A	B	*T. calcaratus*
A	D	*T. perforatus*
B	C	*T. minutus*

KG 1/3 – characters

1. Maxilliped basis
   - A - very slender, approximately 4 times as long as broad; inner side a smooth weakly convex curve with all spinules relatively short
   - B - proximal part of inner side strongly convex, abruptly demarcated from the concave distal part; proximal part with 3–4 long, stout spinules apically and shorter spinules distally

   .

2. Cephalic shield; site of fusion of P1 bearing segment
   - rib - site marked by an internal rib
   - not - site unmarked

3. Female urosome, lateral view
   - A - pleurites of genital somites form a massive, broad, rectangular plate; anterior corner of ventral edge a rounded knob proximal posterior corner unguiform and some distance from the caudal rami. Urosomites 3–5 distinct (?) but small and telescoped together (at least post mortem), hidden beneath pleurites and not visible in lateral view
   - B - pleurites as in A. Urosomites 3–5 distinct, visible in lateral view
   - C - pleurites of genital somites form a massive, broad, rectangular plate; anterior and posterior corners of ventral edge produced as a blunt spiniform process. Urosomites 3–5 distinct but small and telescoped together (at least post mortem), partially hidden beneath pleurites but visible in lateral view

4. Female P5 exopod
   - n - number of setae

5. Female antennule
   - n - number of segments

6. Male urosome, lateral view
   - n - number of unguiform projections on the posterior edge of the spermatophore reservoir
   - uk - male unknown

KG 1/3

Mxp	Cephalic shield	Female urosome	Female P5 Exp setae	Female A1 segs	Male urosome	
A	rib	A	5	8	1	*Tegastes nanus*
A	not	B	?	8	3	*T. flavidus*
B	rib	C	4	6	uk	*T. longimanus*

KG 1/4 – characters

1. Antenna Enp-2, outer distal corner
   - normal - without projections
   - mucro - with a mucroniform projection

2. P4 Exp-3, inner setae
   - proximal - proximal seta modified—elongate, thickened, barbed outer side, plumose inner side. Medial and distal setae elongate, bi-plumose

medial - medial seta modified—elongate, thickened. barbed outer side, naked inner side. Proximal seta elongate, bi-plumose; distal seta smaller, naked

I–II - both proximal and medial setae modified—elongate but not thickened; distal seta elongate, bi-plumose

3. Antennule

n:n - number of segments in female and male

4. Male P5

n - ratio of length of exopod and baseoendopod

KG 1/4

A2 Enp-2	P4 Exp-3 mod seta	A1 segs	Male P5 Exp/Benp	
normal	medial	8:8	4	*Tegastes elenae*[1]
mucro	proximal	6:7	1	*T. paulipes*
mucro	I–II	7:8	2	*T. cnidicus*[2]

1. See KG 1 note 2 (p. 706).
2. *Tegastes cnidicus* differs from all other *Tegastes* species in the following characters
   - in both sexes the last 3 urosomites are large and of normal development;
   - the female genital somites are not expanded ventrally;
   - the female P5 baseoendopod is not expanded.

   Thus a brood pouch is not formed and it seems that the eggs are nursed by P1 and P2 alone. Only *T. satyrus* approaches this condition, but in this species the female genital double-somite is swollen, if not prominently expanded ventrally.

KG 1/5 – characters

1. P4 Exp-3, distal inner seta

sabre - shaped like the sword with a smoothly curved outer edge leading to a sharp point; a few small spinules at the distal outer edge

dentate - not curved; stout, with a complex, pectinate, distal end that includes a long, hook-like proximaltooth separated by some distance from the distal comb of shorter teeth

2. Antenna Enp-1

n - number of setae

3. Mandible endopod

n - number of setae

4. Maxilla, distal endite

n - number of setae

KG 1/5

P4 Exp-3 distal inner seta	A2 Enp-1 setae	Mandible Enp setae	Maxilla distal endite setae	
sabre	1	3	3	*Tegastes acroporanus*[1]
dentate	0	2	2	*T. singularisaetus*[1]

1. These species are very similar morphologically and perhaps ecologically since both inhabit the scleractinian coral *Acropora*, though in widely separated localities. They appear to be separable only on the fine details used in this key, but it must be noted that a lack of clarity in some of the illustrations of *Tegastes singularisaetosus* makes comparison with *T. acroporanus* rather difficult.

KG 1/6 – characters

1. Antenna exopod
   n - number of segments

2. Cephalic shield; site of fusion of P1 bearing segment
   rib - site marked by an internal rib
   not - site unmarked

3. Female urosome, lateral view
   A - pleurites of genital somites form a massive rectangular plate extending ventrally but not posteriorly; ventral edge not clearly demarcated from anterior and posterior edges but with a small conical projection medially. Urosomites 3–5 visible in lateral view.
   B - pleurites of genital somites form a truncated triangular plate that extends ventrally but not markedly posteriorly; ventral edge narrow—anterior corner rounded, posterior corner weakly unguiform. Urosomites 3–5 visible in lateral view.
   C - pleurites of genital somites form a triangular plate that extends posteriorly to beyond the caudal rami; ventral edge appears to consist only of the apex of the triangle. Urosomites 3–5 visible in lateral view.
   D - pleurites of genital somites not completely described; there is a large unguiform projection that may be at the posterior corner of the ventral edge; posterior edge may be complexly curved. Urosomites 3–5 visible in lateral view.

4. Female P5 baseoendopod, shape of inner portion
   tri - triangular
   narrow - rectangular; total length about 5 times as long as the breadth at the articulation of exopod; this breadth much less than the dorsal-ventral depth of the urosome
   broad - rectangular; total length only about twice as long as the breadth at the articulation of exopod; this breadth about the same as the dorsal-ventral depth of the urosome

KG 1/6

A2 Exp segs	Cephalic shield	Female urosome	Female P5 Benp shape	
2	p	C	tri	*Tegastes neapolitanus*[1]
2	a	C	narrow	*T. riedli*[1]

1	p	A	tri	*T. areolatus*[1]
1	?	D	tri	*T. pulcher*[1]
1	?	B	?	*T. andrewi*[1]
?	p	C	broad	*T. seurati*[1]

1. Male either unknown or very imperfectly described.

KG 2 – characters

1. P2–P4 Enp-3
   n:n:n - number of setae on P2, P3 and P4

2. P2–P4 Enp-2, inner setae
   n:n:n - number of setae on P2, P3 and P4

4. P4 Exp-3, number and type of setae on inner edge
   3:wd A - 3 setae; distal seta well developed, about as long as both proximal setae
   3:wd B - 3 setae; distal seta well developed, about as long as the proximal seta but much shorter than the middle seta
   3:rud - 3 setae; distal seta very thin and weak, barely reaching to the end of the segment
   2 - setation of inner edge apparently represented by only the 2 very long proximal setae (it is possible that a small distal seta has been overlooked)

5. P1, length of rami relative to length of basis
   long - exopod or endopod longer than basis
   medium - exopod or endopod approximately as long as basis
   short - exopod or endopod shorter than basis

KG 2

P2–P4 Enp-3 setae	P2–P4 Enp-2 inner setae	P2–P4 Enp-1 inner setae	P4 Exp-3 outer setae	P1 rami/basis	
5:6:3	2:2:1	1:1:1	2	medium	*Parategastes sphaericus* [*sensu* Sars 1904][1]
5:6:3	2:2:1	1:1:1	3:rud	medium	*P. sphaericus* [*sensu* Huys, Gee, Moore & Hamond 1996][1]
5:6:3	2:2:1	1:1:1	2	long	*P. sphaericus*[1, 2]
5:6:3	2:2:1	1:1:1	3:rud	long	*P. caprinus*
5:6:3	2:2:2	1:1:1	2	medium	*P. herteli*
5:6:5	2:2:2	1:1:1	3:wd A	short	*P. conexus*
5:6:6	2:2:2	1:1:1	3:wd B	short	*P. chalmersi*
5:7:3	2:2:2	1:1:0	2	long[2]	*P. coetzeei*[3]
6:6:3	2:2:1	1:1:1	2	medium	*P. sphaericus similis* Sewell 1924[1]

1. *Parategastes sphaericus* (the type species of the genus) is very imprecisely defined. The original description is poor and it may prove impossible to reconcile any of the later descriptions with it. Lang (1948) recognised this, commenting that he was inhibited in raising the varieties *similis* and *punicus* to species rank because of the "variability" of *P. sphaericus*—which is really a polite way of alluding to the problems caused by its inadequate description.
2. All authors except Sars, Sewell and Huys *et al.* Includes *P. sphaericus punicus* Monard (1935b).
3. In *P. coetzei* the endopod is longer than the basis; exopod is approximately equal to the basis; exopod is approximately 1.4 times as long as endopod (in all other species exopod is approximately as long as the endopod).

KG 3 – characters

Species specific characters abound in *Syngastes.* In addition to those used in this key they can be found in

- body ornamentation with pits, pustules, sensilla, etc.
- size and shape of the cephalic shield
- maxilliped
- the precise nature of the modified seta on the inner edge of P4 Exp-3
- the precise form of P4 Enp-1
- caudal ramus
- mouthparts.

Unfortunately in most species these structures are less than comprehensively described and inadequately illustrated. Thus, this key does not always identify to the single species level and requires the user to make comparisons with (and interpret) the available literature.

Note for characters 4 and 5: It is difficult to describe the complexities of the urosome and any determination must be checked against adequate illustrations in the literature. The terminology used is developed from that of Bartsch, as explained in the introductory notes to the family.

Note for character 5: From Bartsch's (1993, 1994, 1995, 1999) studies it seems likely that there are three sets of valves to the spermatophore reservoir in *Syngastes*—she calls them the "anterior operculum", "posterior valve" and "intermediate projection".

From the best available description (Bartsch 1995, for *S. dentipes*) it seems probable that the anterior operculum and posterior valve are single structures but it is unclear whether the intermediate projection is single or paired and where it, or they, originate.

Most authors illustrate the reservoir only in lateral view. A common form is a three-pronged structure. Following Bartsch, I interpret these as three separate valves even where the illustration makes them appear fused together. In some species the valves—especially the intermediate projection—are not acutely pointed and the boundaries between them are less obvious. I have interpreted these with reference to Bartsch's scheme.

Unfortunately some illustrations appear to be from orientations slightly misplaced from the true lateral, which makes their interpretation difficult. It is extremely important to bear in mind that in this key the configuration of the valves is based on illustrations in the literature which (if the valves really are movable elements) may be describing only one of the possible states of orientation—for example, perhaps fully closed in *Syngastes craterifer* and fully open in *S. gibbus*.

1. P1 exopod

rect - usually approximately rectangular in shape; if curved then the curve is slight and often affects only the inner side. Usually approximately as long as the endopod with setae well developed.

curved - strongly curved and at most half as long as endopod; at least some of the setae very reduced in size.

2. P2–P4 Exp-1, inner setae

n:n:n - number of setae on P2, P3 and P4

3. Female antennule

n - number of segments

4. Female urosome in lateral view*

uk - female unknown

A - posterior edge approximately straight or smoothly curved; posterior cones absent or so weak as to hardly disturb the smooth flow of the edge; distal posterior corner smoothly rounded; ventral edge almost nonexistent, lateral cone absent

B - as A but with a small, weakly unguiform lateral cone; ventral edge distinguishable but very short

C - as B but with a large, unguiform, lateral cone

D - as A but with a well developed, conical, lateral cone; ventral edge long, concave

E - posterior edge with a large, conical, postero-ventral cone; lateral cone of similar size but unguiform; posterior edge almost smooth between these cones; ventral edge very short, sternite (ventro-median cone) possibly visible in lateral view

F - posterior edge with a prominent, posterior cone midway between proximal and distal posterior corners; distal part of posterior edge convex; lateral cone small, unguiform; ventral edge very short

G - as F but with a small, ventro-posterior cone and with distal part of posterior edge straight

H - posterior edge with 2 weak, posterior cones, the distal the most prominent; lateral cone broad, weakly unguiform; sternite (ventro-median cone) visible in lateral view; ventral edge long, convex

I - as G but with ventral edge concave

J - posterior edge with 3 weak, posterior cones, the most distal the most prominent (it is probable that this represents the posterior end of a lamella); lateral cone small and weakly unguiform; ventral edge short

K - posterior edge with a large,l postero-ventral cone and a weaker cone midway towards distal posterior corner; lateral cone massively unguiform; sternite (ventromedian cone) visible in lateral view; ventral edge very short

L - very similar to K but with only a small, unguiform lateral cone; postero-ventral cone very large

M - posterior edge with a very large, unguiform postero-ventral cone and a weak cone midway towards the distal posterior corner; ventral edge very narrow and overlain in lateral view by the very prominent sternite (ventromedian cone); lateral cone very weak

N - ventral edge short; lateral cone small; posterior edge as 2 arcs—the proximal linking to an expanded proximal corner that extends beyond the level of the caudal rami

O - posterior edge with a large, unguiform posterior cone; lateral cone conical; ventral edge short; a large, setulose, curved, dagger-shaped lamella arises from the lateral surface of the pleurite just anterior to the proximal posterior corner and extends to the level of the dorsal surface of the urosome

P - as O but with the posterior, cone conical or weakly unguiform; lateral blade extends dorsally only to just beyond the level of the proximal posterior corner

* See comments on this character in the introductory notes to this KG.

5. Male urosome and spermatophore reservoir in lateral view*

uk - male unknown

A1 - valves appear as 3 finely pointed, sharp prongs—none unguiform; posterior edge straight; lateral cone small, unguiform

A2 - valves appear as 3 finely pointed, sharp prongs—none unguiform; posterior edge composed of 2 straight lines with a very obtuse angle between them; posterior cone weak; lateral cone a small rounded projection

A3 - valves appear as 3 finely pointed, sharp prongs—none unguiform; posterior edge strongly concave; lateral cone large, unguiform

A4 - valves appear as 3 finely pointed sharp prongs—none unguiform; posterior edge convex; lateral cone not present

A5 - valves appear as 3 finely pointed, sharp prongs—none unguiform; posterior edge of 2 convex arcs; lateral cone not present

B1 - anterior operculum and intermediate projection are finely pointed, sharp prongs; posterior valve unguiform; posterior edge straight; lateral cone large, unguiform

B2 - anterior operculum and intermediate projection are finely pointed, sharp prongs; posterior valve unguiform; posterior edge strongly concave; lateral cone large, unguiform

C - anterior operculum a finely pointed, sharp prong; posterior valve unguiform; intermediate projection terminates in 2 closely opposed, blunt lappets that gives the structure the appearance of a dolphin's head; posterior edge straight; lateral cone small, unguiform.

D - anterior operculum beak-like, narrow; intermediate projection a finely pointed, sharp prong; posterior valve broad with a bidentate tip; posterior edge straight; lateral cone unguiform, very broad at base

E - anterior operculum sharply pointed; posterior valve a broad shelf; intermediate projection a broad structure filling the space between the other valves, and with a concave distal edge; posterior edge strongly concave; lateral cone large, unguiform

F - anterior operculum triangular, terminates in 2 short spines; intermediate projection (which appears to be in 2 parts) and posterior valve simple structures, broad at apex; posterior edge strongly concave; lateral cone large, unguiform

G - anterior operculum very large, beak-like, extending entire antero-posterior length of the reservoir; posterior valve an acutely pointed process that is not demarcated from the posterior edge of the pleurite; intermediate projection not visible in lateral view; posterior edge of 2 convex arcs; lateral cone not present

H - anterior operculum thick, beak-like, relatively blunt; intermediate projection tongue-like; posterior valve small, thin , relatively blunt; posterior edge composed of 2 straight lines with a very obtuse angle between them; posterior cone unguiform; lateral cone a small rounded projection

I - anterior operculum a large, deep hood; intermediate projection simple structures, broad at apex; posterior edge straight; lateral cone small, unguiform

* See comments on this character in the inttroductory notes to this KG.

KG 3

P1 Exp	P2–P4 Exp-1 inner setae	Female A1 segs	Female urosome	Male urosome	
rect	2:2:0	8	K	H	*Syngastes gibbus*
rect	2:2:0	7	C	I	*S. langi*
rect	2:2:0	7	C	E	*S. spinifer*
rect	2:2:0	7	E	F	*S. australiensis*
rect	2:2:0	5	L	B1	*S. gibbosus*
rect	1:1:0	8	H	?	*S. pietschmanni*[1]
rect	1:1:0	8	I	uk	*S. glomeratus*
rect	1:1:0	7	P	uk	*S. donnani*
rect	1:1:0	7	A	A4	*S. foveatus*
rect	1:1:0	7	A	A2	*S. porellus*
rect	1:1:0	7	D	uk	*S. tanzaniae*
rect	1:1:0	7	?	A1	*S. gregoryi*[2]
rect	1:1:0	6	O[3]	uk	*S. imthurni*[3]
rect	1:1:0	6	G[4]	uk	*S. imthurni*[4]

rect	1:1:0	6	F	uk	*S. twynami*
rect	?:1:0	6	B	uk	*S. clausi*
rect	1:1:0	5	J	C	*S. cornalinus*[5]
rect	1:1:0	5	N	A1	*S. dentipes*
rect	1:1:0	5	M	B2	*S. subgibbus*
rect	1:1:0	5	?	uk	*S. macrognathus*[6]
rect	1:1:0	uk	uk	D	*S. serratus*
rect	1:1:?	uk	uk	A3	*S. latus*
curved	1:1:0	7	A	uk	*S. kunzi*
curved	1:1:0	7	A	G	*S. craterifer*
curved	1:1:0	7	?:?[7]	A5	*S. parilis*[7]
curved	?:?:0	7	?	uk?	*S. indicus*[8]

1. *Syngastes pietschmanni* can be readily distinguished by the absence of an outer spine on P4 Exp-1.
2. I cannot understand what Pesta (1932) means by his text description of the female urosome—he does not provide an illustration.
3. The main form described by Thompson & Scott (1903: Plate IV, Fig. 1).
4. A "smaller form" described by Thompson & Scott (1903: Plate IV, Fig. 2); it must represent a different species.
5. Male data from Pesta (1959).
6. The female urosome is undescribed.
7. Bartsch (1994) describes the female urosome only as—"Scoop-like genital somite ending with rounded, slightly axe-shaped knob". In her illustration in lateral view the ventral edge is obscured by the P5 baseoendopod.
8. Sewell (1940), who describes *S. indicus* from a single female, provides a lateral view of the whole animal in which the P5 baseoendopod obscures the genital double-somite. He also gives an illustration of the "abdomen of female" in lateral view which shows the ventral edge to be very broad and with 3 acutely pointed lappets. No other species has this condition in the female, though it is common in the male (character 5, state A in this key). Sewell's illustration of antennule and P5 certainly seem to be of a female. The matter cannot be resolved until the species is redescribed.

Family Tetragonicipitidae

Many of the features that best characterise species in this family are located in the caudal ramus (which often is sexually dimorphic) and are very difficult to describe in the concise form that a key demands. Identifications made with the keys that follow must be checked against a good description. Fiers (1995) and Boxshall & Halsey (2004) provide a dichotomous key to genus level.

KG 0 – characters

1. Cephalic shield, posterior lateral corner

    unguiform - distal edge with a posteriorly directed unguiform process

    absent - distal edge with an unguiform process

2. Antennule, large unguiform projection*

    absent - absent or present only as a small knob

    seg 1 - present on segment 1

    seg 2 - present on segment 2

* This process usually is similar in both sexes, but may be reduced in the male while well developed in the female; in this situation the male is in KG 7 (male), p. 733.

3. P1 endopod

    n - number of segments

4. P2–P4 endopod

    n:n:n - number of segments

KG 0

Cph shield	A1 proj	P1 Enp segs	P2–P4 Enp segs	
unguiform	seg 1	2	2:2:2	KG 1 (p. 717)
absent	seg 1	2	2:2:2	KG 2 (p. 718)
absent	seg 2	3	2:2:2	*Protogoniceps hebraeus*
absent	seg 2	2	2:2:2	KG 3 (p. 719)
absent	seg 2	2	2:2:1	KG 4 (p. 726)
absent	absent	3	2:2:2	KG 5 (p. 727)
absent	absent	2	2:3:2	KG 6 (p. 728)
absent	absent	2	2:2:2	KG 7 (p. 728)
absent	absent	2	2:2:1	KG 8 (p. 736)
absent	absent	2	2:1:1	KG 9 (p. 736)

KG 1 – characters

1. Anal somite, distal edge

    simple - without ornamentation of large spines

    complex - with 2 large and 2 small spines; at least the large spines are multidentate

2. Antennule, segment 1, unguiform projection

    forwards - approximately straight, with a slight forward curve distally

backwards - approximately straight, with a slight backward curve distally
hooked - with a significant forward recurve

3. Female caudal ramus, outer edge
plain - a simple edge, without projections; ramus about 4 times as long as broad
dentate 1 - with a large multidentate projection and a distal, very short, conical pedestal with an apical seta
dentate 2 - with a large multidentate projection and a distal, long, conical pedestal with an apical seta and a proximal dentiform projection
keel - with a large multidentate projection and a distal, small, conical pedestal with an apical seta and with the entire outer edge edge expanded as a wide, thin keel covering (in dorsal view) the several projections of the edge

4. Male P2 Enp-2, inner seta
filiform *or* sickle-shaped

KG 1

Anal somite	A1 seg 1	Female CR	Male P2 Enp-2	
simple	forwards	plain	filiform	*Laophontella typica*[1]
complex	backwards	dentate 1	filiform	*L. horrida* s. str.[1]
complex	backwards	dentate 2	sickle-shaped	*L. horrida dentata*[1]
complex	hooked	keel	filiform[1]	*L. horrida namibiensis*[1, 2]

1. The taxonomy of the genus *Laophontella* is complex. See Wells & Rao (1987) and Mielke (1992b) for a discussion.
2. It seems certain that Kunz (1994b: Figs 5C and 5D) has transposed P2 and P3.

KG 2 – characters

1. P2–P4 Exp-3
n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-2
n:n:n - number of setae on P2, P3 and P4

3. Female P5
d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod
na - not applicable

4. Male P5
d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod
uk - male unknown
na - not applicable

KG 2

P2–P4 Exp-3 setae	P2-.P4 Enp-2 setae	Female P5	Male P5	
6:7:7	4:4:4	d:5:4	d:3:6	*Tetragoniceps prima*
6:6:7	3:3:3	d:5:6	uk	*T. pacificus*
6:5:7	3:3:3	d:4:5	d:3:5	*T. bergensis*
6:5:4	3:3:?	f:5:5	d:3:5	*T. longicaudata*
5:5:5	3:3:3	f:5:4	na	*T. bookhouti* female
5:5:5	2:3:3	na	d:3:3	*T. bookhouti* male
5:4:7	3:3:3	d:4:6	uk	*T. truncata*
5:4:6	3:3:3	d:5:4	na	*T. galapagoensis* female
5:4:6	3:3:2	na	d:3:3	*T. galapagoensis* male
4:4:5	3:3:3	f:4–5:6	f:3:1–2	*T. malleolatus*
4:3:5	3:3:3	d:4:4	na	*T. unguis* female
4:3:5	3:3:2	na	d:3:3	*T. unguis* male
5:?:6	2:?:3	d:4:3	uk	*T. arenicolus*
?:5:6	?:3:3	d:4:5–6	d:2:6	*T. scotti*
?:?:7	?:?:2	f:5:4	uk	*T. dubius*
?:?:?	?:?:?	d:5:6	uk	*T. brevicauda*

KG 3

This key contains species of *Phyllopodopsyllus.* In this genus sexual dimorphism often is expressed in the caudal ramus and in setation of P2–P4. For this reason separate keys are provided for females (p. 719) and males (p. 723) .

The terminal setae and the apical portion of the caudal ramus may be modified. The base of the principal seta can be bulbous and the seta may be reduced to this basal portion only. Other terminal setae may be reduced and fused to the base of the principal seta. The apex of the ramus may have one or more rounded or lamellate excresences.

While these structures may prove to be important in understanding the phylogeny of the genus, at this time they are not very useful for key construction as considerable variation exists both between and within species. For this reason these striking modifications have been used in these keys only where these limitations can be shown not to apply. That does not deny their potential importance.

Any identification arrived at by the use of these keys should be checked against the descriptions and a careful note taken of the degree of resemblance in these structures between the observer's specimens and the species description before a judgement is made on conspecificity.

KG 3(female) – characters

1. P2–P4 Exp-3

    n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Exp-2, inner edge

    n:n:n - number of setae on P2, P3 and P4

3. P2–P4 Enp-2

    n:n:n - number of setae and spines on P2, P3 and P4

4. P2–P4 Enp-1, inner edge

    n:n:n - number of setae on P2, P3 and P4

A dichotomous key to *Phyllopodopsyllus* is provided by Karanovic, Pesce & Humphreys (2001).

KG 3(female)

P2–P4 Exp-3 setae	P2–P4 Exp-2 setae	P2–P4 Enp-2 setae	P2–P4 Enp-1 inner setae	
5:6:7	0:0:1	3:3:3	1:1:1	KG 3/1(female) (p. 720)
5:6:7	0:0:1	3:3:3	0:1:1	KG 3/2(female) (p. 721)
5:6:7	0:0:1	3:3:3	0:0:1	*Phyllopodopsyllus bermudae*
5:6:7	0:0:1	3:2:2	1:1:1	*P. parabradyi*
5:6:6–7	0:0:0	3:2–3:2	0:1:1	*P. wellsi*[1]
5:6:6	0:0:1	3:3:3	1:1:1	*P. mielkei californicus*
5:6:6	0:0:1	3:3:3	0:1:1	KG 3/3(female) (p. 722)
5:6:6	0:0:1	3:3:2	0:0:1	*Phyllopodopsyllus minutus*
5:6:6	0:0:1	3:2:3	0:1:1	*P. longicaudatus*[2]
5:6:5	0:0:1	3:3:3	0:1:1	*P. furciger* [*sensu* Por 1964a]
5:5:5	0:0:1	3:2:3	0:1:1	*P. langi*
4:5:5	0:0:0	3:3:3	1:1:1	*P. medius*
4:4:7	0:0:1	3:3:3	1:1:1	*P. ancylus*
4:4:7	0:0:1	2:2:2	0:0:1	*P. hartmannorum*
4:4:7	0:0:0	3:3:3	1:1:1	KG 3/4(female) (p. 723)
4:4:7	0:0:0	3:3:3	0:1:1	*Phyllopodopsyllus simplex*
4:4:6	0:0:1	3:3:3	1:1:1	*P. pauli*
4:4:6	0:0:1	3:3:3	0:0:1	*P. laticauda*
4:4:6	0:0:0	3:3:2	1:0:1	*P. bahamensis*
4:4:6	0:0:0	3:2:3	0:1:1	*P. borutzkyi*
4:4:6	0:0:0	2:3:3	1:1:1	*P. paraborutzkyi*
4:4:5	0:0:0	3:3:2	0:1:1	*P. tenuis*
4:4:5	0:0:0	2:2:2	0:1:1	*P. hermani*
4:3:6	0:0:0	3:3:3	1:1:1	*P. kunzi*

1. Data from Karanovic, Pesce & Humphreys (2001) and Karanovic (2006).
2. Data from Vervoort (1964). The original description of *P. longicaudatus* is from a single male. Vervoort (1964) found 2 females and an immature male. He assigns his females to *P. longicaudatus* because of the great similarity of their distinctive caudal ramus with that of the male of the original description, but the gross sexual dimorphism of the caudal ramus that is displayed by many species of *Phyllopodopsyllus* means that his decision requires confirmation. The immature male is not helpful since Vervoort's illustrations do not conform to his statement that its "furcal structure [is] as in adult female", and thus similar to that of the male of the original description.

KG 3/1(female) – characters

1. Rostrum

median - with a long median seta in addition to very short lateral setae

lateral - with short lateral setae only

2. Caudal ramus

short tri - a slender triangle in dorsal view; about 2⅔ times as long as broad, the base about 3 times as broad as the apex

long tri - a slender triangle in dorsal view; about 3 times as long as broad, the base about twice as broad as the apex

short cyl - approximately cylindrical; about 2.5 times as long as broad
long cyl - approximately cylindrical; about 3.5 times as long as broad

KG 3/1(female)

Rostrum	CR	
median	short tri	*Phyllopodopsyllus crenulatus*
lateral	long tri	*P. mielkei* s. str.[1]
lateral	short cyl	*P. setouchiensis*[1]
lateral	long cyl	*P. galapagoensis*[1]

1. Mielke (1992b: p. 20) believes these species "probably … belong to one and the same species". Mielke does not believe *P. mielkei californicus* (see KG 3(female), p. 719) is related and was probably unaware of the existence of *P. crenulatus*.

KG 3/2(female) – characters

1. Antennule, segment 2, inner distal corner
   square - without a large unguiform projection
   ungui - with a large distally directed unguiform projection

2. Antennule, segments 3–4
   short - approximately as long as broad
   long - approximately twice as long as broad

3. Caudal ramus
   A - elongate and slender, approximately 6 times as long as the maximum breadth in dorsal view; without a dorsal keel; even taper from base to apex, base about twice as wide as apex; principal terminal seta filiform or, at most, slightly bulbous at base
   B - similar to A, but more robust; only 3–4 times as long as the maximum breadth in dorsal view; inner proximal corner wider dorsal than ventral; principal terminal seta with an elongate smoothly bulbous base, about twice as long as broad
   C - outer edge straight, inner edge strongly convex; without a dorsal keel; approximately twice as long as the maximum breadth in dorsal view; base and apex approximately equal width; principal terminal seta with a contorted bulbous base that is about 3 times as long as broad
   D - very similar to C, but less well described so that comparison is made difficult; the description does not allude to a dorsal keel and the illustrations give no evidence that it is present; basal width appears to be about twice that at apex and the base of the principal terminal seta less contorted than in C
   E - very similar to C, but less well described so that comparison is made difficult; outer edge straight, inner edge triangular, widest point about the middle; the description does not allude to a dorsal but the illustration gives some evidence that it exists; approximately twice as long as maximum breadth in dorsal view; base and apex approximately equal in width; principal terminal seta with a contorted bulbous base that is about 3 times as long as broad
   F - with a prominent dorsal keel of even height throughout its length, asetose; 2–2.5 times as long as the maximum breadth in dorsal view; slightly tapering, inner and outer edges approximately straight, width at base approximately 1.5 times that at apex; a transverse row of very long spinules midway along inner edge; principal terminal seta with a compact, smooth, bulbous base about 1.5 times as long as broad
   G - with a prominent setose dorsal keel of even height throughout its length; inner and outer edges

semi-parallel but weakly curved, inner side convex and outer side concave; approximately 4 times as long as the maximum breadth in dorsal view; principal terminal seta with a compact, smooth, bulbous base about as broad as long

H - (description available only for lateral view) pyriform in lateral view; prominent convex dorsal and ventral keels; dorsal keel setose; principal terminal seta with a compact smooth, bulbous, base about as broad as long

KG 3/2(female)

A1 seg 1	A1 segs 3–4	CR	
square	long	F	*Phyllopodopsyllus pallaresae*
square	short	A	*P. curtus*
square	short	B	*P. stigmosus*
square	short	G	*P. furciger*[1, 2]
square	short	H	*P. furciger*[1, 3]
ungui	short	C	*P. yucatanensis*
ungui	short	D	*P. parafurciger carolinensis*
ungui	short	E	*P. parafurciger* s. str.

1. Specimens of *P. furciger* in which P4 Exp-3 has 7 setae and spines are recorded by Bodin (1964) and Mielke (1989a). Bodin's specimens apparently differ from the original description only in this character but Mielke's show other differences.
2. The majority of specimens recorded by Mielke (1989a) have a caudal ramus of this type.
3. Mielke (1989a) records material from one location that has this type of caudal ramus.

KG 3/3(female) – characters

1. Caudal ramus

short - maximum length in dorsal view approximately twice the width at base and 3 times width at apex; proximal half of inner side with a wide rounded lamellate projection, about half the width of the ramus at that point, fringed with setules; without a dorsal keel

long 1 - long and slender, approximately 4 times as long as the maximum breadth in dorsal view, tapering to an apex that is about half the width of the base; without a dorsal keel; inner side very weakly convex, naked; outer edge with only 1 seta; dorsal articulated seta absent

long 2 - long and slender, approximately 4 times as long as the maximum breadth in dorsal view, tapering to an apex that is about half the width of the base; approximately 10 times as long as the breadth at the apex; prominent dorsal keel; inner side very weakly convex, naked; outer edge with 2 setae; dorsal articulated seta present

long 3 - long and slender, approximately 3 times as long as the maximum breadth in dorsal view, tapering to an apex that is about half the width of the base; approximately 7 times as long as the breadth at the apex; prominent dorsal keel; inner side weakly convex, naked, apogee of curve midway along ramus; outer edge with 2 setae; dorsal articulated seta present

long 4 - approximately 3 times as long as the maximum breadth in dorsal view, tapering to an apex that is about half the width of the base; approximately 7 times as long as the breadth at the apex; prominent dorsal keel; inner side strongly convex, setose, apogee of curve midway along ramus; outer edge with 2 setae; dorsal articulated seta present

2. Anal operculum

naked *or* setulose

KG 3/3(female)

CR	Anal operculum	
short	naked	*Phyllopodopsyllus bradyi*
long 1	setulose	*P. minor*[1]
long 2	setulose	*P. furciger* [*sensu* Kunz 1995a]
long 3	setulose	*P. furciger* [*sensu* Sars 1907]
long 4	setulose	*P. furciger* [*sensu* Sewell 1940]

1. Although the form and setation of P2–P4 are not described, *P. minor* is included in this key because of the statement in the original description that "the 5 pairs of natatory legs are much the same as those of *T. bradyi*". Also note that the description of the caudal ramus given in this key is based on a small illustration only; the proportions thus are likely to be somewhat inaccurate. The setation given also requires confirmation; if accurate, it is unique in the genus.

KG 3/4(female) – characters

1. Caudal ramus
   - A - with a medioventral hyaline keel; principal terminal seta consist of a large bulbous base and a terminal filiform portion
   - B - possibly with a lateral keel (description is silent on this feature; the illustration gives a hint that it may be present): principal terminal seta reduced to a large bulb without a terminal filiform portion

2. Antennule
   - n - number of segments

3. Antennule, segment 2
   - > - unguiform projection longer than width of segment
   - < - unguiform projection shorter than width of segment

KG 3/4(female)

CR	A1 segs	A1 seg 2	
A	9	<	*Phyllopodopsyllus carinatus*
B	8	>	*P. danielae*

KG 3(male) – characters

1. P2–P4 Exp-3
   - n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Exp-2, inner edge
   - n:n:n - number of setae on P2, P3 and P4

3. P2–P4 Enp-2
   - n:n:n - number of setae and spines on P2*, P3 and P4

* Outer seta of P2 Enp-2 may be free or be represented by a spine fused to the distal edge of the segment.

4. P2–P4 Enp-1, inner edge
   - n:n:n - number of setae on P2, P3 and P4

KG 3(male)

P2–P4 Exp-3 setae	P2–P4 Exp-2 setae	P2–P4 Enp-2 setae	P2–P4 Enp-1 inner setae	
5:6:7	0:0:1	3:3:2	0:1:1	*Phyllopodopsyllus pallaresae*
5:6:7	0:0:1	3:3:2	0:0:1	*P. bermudae*
5:6:7	0:0:1	3:2:2	1:1:1	*P. parabradyi*
5:6:7	0:0:1	3:2:2	0:1:1	KG 3/1(male) (p. 724)
5:6:6	0:0:1	3:3:3	0:1:1	*Phyllopodopsyllus chavei*
5:6:6	0:0:1	3:3:2	1:1:1	KG 3/2(male) (p. 725)
5:6:6	0:0:1	3:3:2	0:1:1	KG 3/3(male) (p. 725)
5:6:6	0:0:1	3:3:1	0:0:1	*Phyllopodopsyllus minutus*
5:6:6	0:0:1	3:2:2	0:1:1	*P. longicaudatus*
5:6:5	0:0:0	3:2–3:2	0:1:1	*P. wellsi*
5:5:6	0:0:1	2:2:2	0:0:0	*P. bradyi*
5:5:5	0:0:1	3:3:2	0:1:1	*P. langi*
4:5:5	0:0:0	3:3:3	0:0:1	*P. medius*
4:4:7	0:0:0	3:3:2	1:1:1	*P. danielae*
4:4:6	0:0:1	3:3:2–3[1]	1:1:1	*P. pauli*[1]
4:4:6	0:0:1	3:3:2	1:1:1	KG 3/4(male) (p. 726)
4:4:6	0:0:0	3:3:2	1:1:1	*Phyllopodopsyllus carinatus*
4:4:6	0:0:0	3:3:2	0:0–1:1	*P. simplex*
4:4:6	0:0:0	3:2:2	0:1:1	*P. borutzkyi*
4:4:6	0:0:0	2:3:2	1:1:1	*P. paraborutzkyi*
4:4:5	0:0:0	3:3:2	0:1:1	*P. tenuis*
4:4:5	0:0:0	3:2:2	0:1:1	*P. hermani*
4:3:5	0:0:0	3:3:2	1:1:1	*P. kunzi*

1. The original description (Crisafi 1961) states that there are 2 setae on the male P4 Enp-2. Apostolov's (1968b) description of *P. ponticus* states that there are 3 setae but later (Apostolov 1973e) he illustrates only 2 setae and declares that *P. ponticus* is synonymous with *P. pauli*. Marinov (1974b) describes only 2 setae but Kunz (1974a) describes 3. See also KG 3/4(male) (p. 726).

KG 3/1(male) – characters

1. Antennule, segment 4
   - swollen - somewhat ovoid in dorsal view; about 1.5 times as long as broad
   - slender - apparently unmodified, cylindrical; 3–4 times as long as broad

2. Caudal ramus, in dorsal view
   - n - ratio of maximum length to maximum breadth

3. P1 Enp-1, length relative to exopod
   - short - exopod extends into distal quarter of Enp-1
   - long - exopod extends only to about halfway along Enp-1

4. P2 endopod, length relative to exopod
   - short - endopod extends approximately to the end of Exp-2
   - long - endopod extends to about the middle of Exp-3

KG 3/1(male)

A1	CR	P1	P2	
seg 4	l/b	Enp-1/ Exp	Enp/ Exp	
swollen	≈7	short	short	*Phyllopodopsyllus parafurciger*
slender	≈6	long	long	*P. curtus*

KG 3/2(male)

This KG contains only *Phyllopodopsyllus mielkei* s. str., *P. crenulatus* and *P. galapagoensis* whose males are so similar that I cannot distinguish between them on the basis of the published descriptions.

The fine structure of the ornamentation of the body may prove useful, but the descriptions of *P. crenulatus* and *P. mielkei* s. str. are not detailed enough to establish this.

Mielke (1992b: p. 20) believes *P. mielkei* s. str. and *P. galapagoensis* "probably … belong to one and the same species". He was probably unaware of the existence of *P. crenulatus*.

KG 3/3(male) – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. Antennule, segment 2, inner distal corner
   square - without a large unguiform projection
   ungui - with a large, forward-directed, unguiform projection

3. P1 Enp-1, length relative to exopod
   short - exopod extends to ¾ the length of Enp-1 at most
   long - exopod extends nearly to the end of Enp-1

4. P2–P3 Enp-1, length relative to Enp-2
   short - Enp-1 at most as long as Enp-2
   long - Enp-1 about 1.5 times as long as Enp-2

5. P3 Enp-1, inner seta
   short - extends only to about the end of Enp-2
   long - extends past the end of Exp-2, approximately to the end of Enp-2 outer spine

KG 3/3(male)

CR	A1	P1	P2–P3	P3	
l>b	seg2	Enp-1/ Exp	Enp-1/ Enp-2	Enp-1 inner seta	
≈3.5	square	short	short	long	*Phyllopodopsyllus stigmosus*
≈7–8	ungui	short	short	long	*P. yucatanensis*
≈6	square	short	short	long	*P. furciger* [*sensu* Mielke 1989a]
≈6	square	long	long	short	*P. furciger* [*sensu* Kunz 1995a]

KG 3/4(male) – characters

1. P1 Enp-1, length relative to exopod
   short - exopod extends to ¾ the length of Enp-1 at most
   long - exopod extends nearly to the end of Enp-1

2. P4 Enp-1, length relative to Enp-2
   short - Enp-1 about half as long as Enp-2
   long - Enp-1 almost as long as Enp-2

3. P3 Enp-2, outer seta
   spiniform - transformed to a long spine fused to segment edge; outer edge with a subterminal unguiform projection
   setiform - small and weak; outer edge without a projection

KG 3/4(male)

P1 Enp-1/ Exp	P4 Enp-1/ Enp-2	P3 Enp-2	
short	short	spiniform	*Phyllopodopsyllus ancylus*
long	long	setiform	*P. pauli*[1]

1. The original description (Crisafi 1961) states there are only 2 setae on the male P4 Enp-2. Apostolov (1968b: as *P. ponticus*) states that there are 3 setae but later (Apostolov 1973e) illustrates only 2 setae but declares that *P. ponticus* is synonymous with *P. pauli*. Marinov (1974b) describes 2 setae but Kunz (1974a) describes 3. See also KG 3(male) (p. 723).

KG 4 – characters

1. Last thoracic somite and abdomen somites 1–2, distal dorsolateral corner
   all - dorsolateral corner an unguiform projection
   abd1 - dorsolateral corner unguiform only on abdomen somite 1

2. Caudal ramus, in dorsal view
   short - approximately 2.5 times as long as the maximum breadth; outer edge straight, inner edge strongly convex
   long - 5 times as long as maximum breadth; very slender, tapering, sides approximately straight

3. P2–P4 endopod, distal segment
   n:n:n - number of setae and spines

KG 4

Thorax & Abdomen	CR	P2–P4 Enp setae	
all	long	3:3:2	*Phyllopodopsyllus opisthoceratus*
abd1	short	3:2:2	*P. geddesi*

KG 5 – characters

1. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-2
   n:n:n - number of setae on P2, P3 and P4

3. Female P5
   n - number of setae on endopod
   uk - female unknown

4. Male P5
   distinct - basis and exopod distinct
   fused - basis and exopod fused together
   uk - male unknown

5. Female antennule
   n - number of segments

KG 5

P2–P4 Exp-3 setae	P2–P4 Enp-2 setae	Female P5 Enp setae	Male P5	Female A1 segs	
5:6:7(6)[1]	4:4:4	5	distinct	9	*Mwania phytocola*[1]
5:5:8	3:3:3	5	distinct	9	*Paraschizopera menaiensis*
4:4:7	3:4:4	5	uk	9	*P. trifida*
4:4:6	3:4:4	uk	distinct	?	*P. beckeri*
4:4:4	2:2:2	3–4	fused	8	KG 5/1
3:4:4	2:2:2	2	fused	8	*Pteropsyllus trisetosus*[2]

1. P4 Exp-3 has 7 setae and spines in the female but only 6 in the male.
2. *Pteropsyllus trisetosa* also is distinctive in the female caudal ramus and male P4 (Mielke 1989a).

KG 5/1 – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. Anal somite, distal edge, dorsal
   lappets - with a pair of median lappets
   plain - without lappets

KG 5/1

CR l/b	Anal somite	
2–3	plain	*Pteropsyllus consimilis*
1	plain	*P. plebeius* s. str.
1	lappets	*P. plebeius furcatus*

KG 6 – characters

1. P4 Exp-3
   n - number of setae and spines

2. P2 Enp-2, outer seta
   distinct - articulated with the segment
   fused - fused to segment

3. P3 Enp-3, outer seta
   short - about 1.5 times as long as the inner seta
   long - about 3 times as long as the inner seta

4. P5 exopod, origin of setae III–IV
   A - both setae terminal
   B - seta III terminal, seta IV subterminal on outer side

5. P6 setae
   equal - all 3 setae of approximately equal length
   unequal - middle seta about twice as long as the inner or the outer setae

KG 6

P4 Exp-3 setae	P2 Enp-2 outer seta	P3 Enp-3 outer seta	P5 Exp setae III–IV	P6 setae	
5(6?)[1]	distinct	short	B	equal	*Phyllopodopsyllus longipalpatus madagascarensis* male[1, 2]
6	fused[2]	long	A	unequal	*P. l. hawaiiensis* male[1, 3]

1. Wells & Rao (1987) provide a discussion of *P. longipalpatus* and its subspecies. See KG 7/4(male) (p. 723) for *P. longipalpatus* s. str. and KG 7(female) (p. 729) for the female of all three subspecies.
2. In the original description the text states that the P4 Exp-3 is "comme chez la femelle" (i.e. with 6 setae and spines) but the illustration shows only 5 (Chappuis 1954b). Wells & Rao (1987) suspect that Chappuis overlooked the presence of a slender seventh seta in the female and a sixth in the male.
3. Kunz's (1984b: Abb. 7D) orientation of this appendage is incorrect.

KG 7

This key contains species of *Phyllopodopsyllus.* In this genus sexual dimorphism often is expressed in the caudal ramus and in setation of P2–P4. For this reason separate keys are provided for females (p. 729) and males (p. 733).

The terminal setae and the apical portion of the caudal ramus may be modified. The base of the principal seta can be bulbous and the seta may be reduced to this basal portion only. Other terminal setae may be reduced and fused to the base of the principal seta. The apex of the ramus may have one or more rounded or lamellate excresences.

While these structures may prove to be important in understanding the phylogeny of the genus, at this time they are not very useful for key construction as considerable variation exists both between and within species. For this reason these striking modifications have been used in these keys only where these limitations can be shown not to apply. That does not deny their potential importance.

Any identification arrived at by the use of these keys should be checked against the descriptions and a careful note taken of the degree of resemblance in these structures between the observer's specimens and the species description before a judgement is made on conspecificity.

KG 7(female) – characters

1. P5

   foliose - baseoendopod and exopod fused together and expanded as a massive domed plate that extends beyond the end of the genital somite; the pair of P5 form a brood pouch (Fig. 95)

   non-fol - exopod usually articulated with baseoendopod and always recognisable; P5 may be elongate but the pair do not form a brood pouch

2. P2–P4 Exp-3

   n:n:n - number of setae and spines on P2, P3 and P4

3. P2–P4 Exp-2, inner edge

   n:n:n - number of setae on P2, P3 and P4

4. P2–P4 Enp-2

   n:n:n - number of setae on P2, P3 and P4

5. P2–P4 Enp-1, inner edge

   n:n:n - number of setae on P2, P3 and P4

A dichotomous key to *Phyllopodopsyllus* is provided by Karanovic, Pesce & Humphreys (2001).

KG 7(female)

P5	P2–P4 Exp-3 setae	P2–P4 Exp-2 inner setae	P2–P4 Enp-2 setae	P2–P4 Enp-1 inner setae	
foliose	5:6:7	0:0:1	3:3:3	1:1:1	KG 7/1(female) (p. 730)
foliose	5:6:7	0:0:1	3:3:3	0:0:1	KG 7/2(female) (p. 730)
foliose	5:6:6	0:0:1	3:3:3	1:1:1	*Phyllopodopsyllus gracilipes*
foliose	5:5:7	0:0:1	3:3:3	1:1:1	*P. thiebaudi*
foliose	5:5:7	0:0:1	3:3:3	0:0:1	*P. gertrudi* s. str.
foliose	5:5:7	0:0:0	3:3:3	1:1:1	*P. alatus*
foliose	4:4:7	0:0:1	3:3:3	1:1:1	KG 7/3(female) (p. 731)
foliose	4:4:7	0:0:1	3:3:3	0:0:1	*Phyllopodopsyllus punctatus*[1]
foliose	4:4:7	0:0:0	3:3:3	1:1:1	KG 7/4(female) (p. 731)
foliose	4:4:7	0:0:0	2:2:2	0:0:0	*Phyllopodopsyllus longipalpatus*[2]
foliose	4:4:6	0:0:1	3:3:3	1:1:1	*P. hardingi*
foliose	4:4:6	0:0:0	2:2:3	0:0:0	*P. xenus*
foliose	4:4:6	0:0:0	2:2:2	0:0:1	*P. paraxenus*
foliose	4:4:6	0:0:0	2:2:2	0:0:0	*P. biarticulatus*, *P. longipalpatus* s. str.[3]
non-fol	6:7:8	1:1:1	4:4:4	1:1:1	KG 7/5(female) (p. 732)
non-fol	5:6:7	1:1:1	4:4:4	1:1:1	*Neogoniceps martinezi*
non-fol	5:6:7	1:1:1	3:4:4	1:1:1	*Diagoniceps* (?) *monodi*
non-fol	5:6:7	1:1:1	3:3:4	1:1:1	*Godianiceps maya*
non-fol	5:5:7	1:1:1	3:3:4	1:1:1	KG 7/6(female) (p. 732)
non-fol	5:5:7	0:0:1	3:3:3	0:1:1	*Odaginiceps xamaneki*
non-fol	5:5:6	0:0:0	3:3:2	0:0:1	*O. clarkae*
non-fol	5:4:7	0:0:0	3:3:3	0:1:1	*O. immanis*
non-fol	4:4:6	0:0:0	3:3:2	0:0:1	*O. elegantissima*

1. *Phyllopodopsyllus punctatus* also shows a much reduced mandible exopod and lacks an inner seta on P1 Enp-1, characteristics shared only with *P. longipalpatus* and *P. biarticulatus*, although in *P. mossmani* the mandible exopod may be reduced or absent.

   Note that there is a high level of variability and abnormality in *P. punctatus* which involves, *inter alia*, setation of P2–P4 in both sexes (Kitazima 1981).
2. See Kunz (1984b) and Wells & Rao (1987) for discussions of *P. longipalpatus* and its subspecies. See also notes 1 and 3.
3. This subspecies is included here because in the original description the female P4 Exp-3 bears 6 setae and spines. Subsequent redescriptions either do not mention P4 (Kunz 1984a) or describe 7 setae and spines (Wells & Rao 1987). Both other subspecies have 7. See also note 2 above.

KG 7/1(female) – characters

1. Caudal ramus, in dorsal view

   A - elongate, 4–5 times as long as maximum breadth; inner side with a minutely setose keel

   B - as A but only 2.7 times as long as broad

   C - flask shaped, widest near to proximal edge, curving to a slender neck that occupies the distal third; inner side with a group of strong spinules about the mid-point; with an oblique dorsal keel from outer proximal corner to about the mid-point of inner side; approximately 3 times as long as broad

2. P1 Enp-1, length relative to exopod

   short - exopod extends to approximately the end of Enp-1

   long - exopod extends only about ⅔ the length of Enp-1

KG 7/1(female)

CR	P1 Enp-1/Exp	
A	short	*Phyllopodopsyllus briani* [*sensu* Petkovski 1955c: Marinov 1971]
B	short	*P. briani* [*sensu* Kunz 1974]
C	long	*P. petkovskii*

KG 7/2(female) – characters

1. P1 Enp-1, length relative to exopod

   short - exopod extends to approximately the end of Enp-1

   long - exopod extends only about ⅔ the length of Enp-1

2. P2 endopod, length relative to exopod

   short - endopod extends about halfway along Exp-2

   long - endopod extends to about the end of Exp-2

3. P2 endopod, length relative to exopod

   short - endopod extends at most a quarter of the length of Exp-2

   long - endopod extends about halfway along Exp-2

4. Rostrum

   acute - triangular; apex slightly rounded

   round - small and broad, apex semicircular

KG 7/2(female)

P1 Enp-1/ Exp	P2 Enp/ Exp	P3 Enp/ Exp	Rostrum	
short	long	long	acute	*Phyllopodopsyllus angolensis*[1]
long	short	long	acute	*P. aegypticus*[1]
long	short	short	round	*P. gertrudi costaricensis*[1]

1. These species are very similar and share several probable apomorphies. The caudal ramus has a characteristic form but possibly shows some significant differences between the species.
   Any identification must be confirmed by comparing the original and subsequent descriptions of all three species (Kunz 1984b; Mielke 1989a, 1992b; Wells & Rao 1987).

KG 7/3(female)

This KG contains only *Phyllopodopsyllus hibernicus* and *P. laspalmensis*. I cannot distinguish between them on the basis of their published descriptions. They appear to be identical in all characters where sufficient detail is described. Unfortunately the caudal ramus is not well described or illustrated.

KG 7/4(female) – characters

From the published descriptions it seems that the only reliable distinguishing feature for the species in this key is the caudal ramus, but this is mainly because the descriptions of *Phyllopodopsyllus berrieri* and *P. tristanensis* are not good enough to enable an adequate comparison of other features to be made.

1. Caudal ramus, in dorsal view
   - A - irregularly shaped, laterally compressed, width in ventral view greater than in dorsal view, but apparently without a pronounced dorsal ridge or keel; 2–2.5 times as long as maximum breadth
   - B - elongate, about 3.5 times as long as maximum breadth; taper from base to apex, especially in distal half; a dorsal keel in proximal half
   - C - similar to B in general form?; about twice as long as maximum breadth

2. Mandible exopod
   - large - well developed, almost as long as endopod; with 3–4 setae
   - small - less than half the length of endopod; with 1–2 setae only
   - absent - entirely absent or, possibly, represented by a single seta

KG 7/4(female)

CR	Mandible Exp	
A	large	*Phyllopodopsyllus mossmani* s. str. [*sensu* T. Scott 1912, Pallares 1982]
A	small	*P. mossmani chiloensis*
A	absent	*P. mossmani* s. str. [*sensu* Kunz 1951, as *Paraphyllopodopsyllus trichophorus*]
B	large (?)	*P. berrieri*[1]
C	?	*P. tristanensis*[2]

1. The mandible is not fully described but it is said to “possède deux lobes” and the mouthparts in general are described as “primitif” (Monard 1936).
2. *Phyllopodopsyllus tristanensis* is very inadequately described and is included in this key only because Wiborg (1964) compares it, briefly, with *Paraphyllopodopsyllus trichophorus*, a synonym of *Phyllopodopsyllus mossmani*.

KG 7/5(female) – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. P1 Enp-1, length relative to exopod
   short - exopod only slightly longer than Enp-1
   long - exopod extends only to slightly more than halfway along Enp-1

3. P4 Exp-1, inner seta
   filiform - slender, elongate; extending almost to the middle of Exp-2
   bulb - reduced to a minute bulb that barely extends to the end of Exp-1

4. P4 endopod, length relative to exopod
   short - significantly shorter than Exp-1
   long - approximately as long as Exp-1

KG 7/5(female)

CR l/b	P1 Enp-1/ Exp	P4 Exp-1 inner seta	P4 Enp/ Exp	
≈2.6	short	filiform	short	*Aigondiceps bocki*
≈4.5	long	bulb	long	*A. kunzi*

KG 7/6(female) – characters

1. Caudal ramus, inner edge
   ungui - with a blunt unguiform projection in distal half
   plain - inner edge smooth

2. P1 Enp-1, length relative to exopod
   short - exopod extends approximately to the end of Enp-1
   long - exopod extends only to about halfway along Enp-1

3. P2–P3 endopod, length relative to exopod
   short - endopod extends only to about halfway along Exp-2
   long - endopod extends to the end of Exp-2

4. P5
   A - exopod: origin of seta I on the inner edge opposite to the gap on the outer edge between origins of setae III and IV
   endopod: setae IV and V approximately equal length; seta III extends to the end of seta IV
   B - exopod: origin of seta I proximal to the origin of seta IV
   endopod: seta IV at least 3 times as long as seta V; seta III extends only halfway along seta IV

KG 7/6(female)

CR	P1 Enp-1/ Exp	P2–P3 Enp/ Exp	P5	
ungui	short	short	A	*Diagoniceps laevis*[1]
plain	long	long	B	*D. mexicana*

1. Data from the redescription by Fiers (1995).

KG 7(male) – characters

1. P2–P4 Exp-3
   n - number of setae and spines on P2, P3 and P4

2. P2–P4 Enp-2
   n - number of setae on P2, P3 and P4

3. P5
   n:n - number of setae on endopod and exopod

KG 7(male)

P2–P4 Exp-3 setae	P2–P4 Enp-2 setae	P5 setae	
6:7:7	4:4:4	3:6	*Aigondiceps brevicauda*
6:7:7	4:4:4	3:4	*A. bocki*
5:6:7	3:4:4	3:5	*Diagoniceps* (?) *monodi*
5:6:7	3:3:2	3:5	*Phyllopodopsyllus aegypticus*
5:6:6	3:3:4	3:4	*Godianiceps maya*
5:6:6	3:3:2	3:5	KG 7/1(male) (p. 733)
5:6:5	4:4:4	3:5	*Neogoniceps martinezi*
5:5:6	3:3:4	3:6	KG 7/2(male) (p. 734)
5:5:6	3:3:3	3:6	*Odaginiceps xamaneki*
5:5:6	3:3:2	3:6	*O. clarkae*
5:5:6	3:3:2	3:5	*Phyllopodopsyllus thiebaudi*
5:5:6	3:3:2	3:4	*P. alatus*
5:5:5	3:3:2	3:5	*P. gertrudi* s. str.
5:4:6	4:4:4	3:(1.5)	*Tetragoniceps santacruzensis*[1]
5:4:6	3:3:3	3:6	*Odaginiceps immanis*
4:4:6	3:3:3	3:5	*Phyllopodopsyllus berrieri* [*sensu* Kunz 1983][2]
4:4:6	3:3:2	3:5	KG 7/3(male) (p. 735)
4:4:6	3:3:2	3:4	KG 7/4(male) (p. 735)
4:4:6	3:3:2	2:4	*Phyllopodopsyllus xenus*
4:4:6	2:3:2	3:4	*P. biarticulatus*[3]
4:4:6	2:2:2	3:5	*P. paraxenus*
4:3:5	2:2:3	3:4	*Tetragoniceps brownei*

1. The P5 exopod is 2-segmented.
2. Kunz states that P4 endopod has 2 segments. Pesta (1959) describes only 1 segment. See also KG 8 (p. 736).
3. *Phyllopodopsyllus biarticulatus* has only 2 segments in P1 exopod, a unique feature in the genus. It also has a much reduced mandible endopod and lacks an inner seta on P1 Enp-1. These last two characteristics are shared only by *P. longipalpatus* and *P. punctatus* (see KG 7/4(male), p. 735), but note that in *P. mossmani chiloensis* the mandible endopod is reduced.

KG 7/1(male) – characters

1. Caudal ramus, in dorsal view
   A - elongate, 4–5 times as long as maximum breadth; inner side with a minutely setose keel; principal terminal seta filiform

B - as A but only 2.7 times as long as broad
C - flask shaped, approximately 4 times as long as broad; widest near to proximal edge, curving to a slender neck that occupies the distal half; with an oblique dorsal keel from proximal mid-dorsal edge to about the mid-point of inner side but without a bunch of spinules at its distal end; principal terminal seta filiform
D - 2–2.5 times as long as broad; outer side straight, inner side convex; with an oblique dorsal keel from proximal mid-dorsal edge to about the mid-point of inner side and with a bunch of long fine spinules at its distal end; principal terminal seta with a bulbous base
E - 3–4 times as long as broad; outer side straight, inner side convex; dorsal keel absent or indicated only by a slight ridge; principal terminal seta filiform
F - conical, 1.6 times as long as broad in dorsal view, base about twice as wide as apex; without a keel; principal terminal seta filiform

2. P1 Enp-1, length relative to exopod
short - exopod extends to approximately the end of Enp-1
long - exopod extends only about ⅔ the length of Enp-1

3. P2–P3 Enp-1, inner edge
n:n - number of setae on P2 and P3

KG 7/1(male)

CR	P1 Enp-1/ Exp	P2–P3 Enp-1 inner setae	
A	short	1:1	*Phyllopodopsyllus briani* [*sensu* Petkovski 1955c, Marinov 1971]
B	short	1:1	*P. briani* [*sensu* Kunz 1974a]
C	long	1:1	*P. petkovskii*
D	long	1:1	*P. gracilipes*
E	long	0:0	*P. gertrudi costaricensis*
E	long	1:1	*P. setouchiensis*
F	short	0:0	*P. angolensis*

KG 7/2(male) – characters

1. P1 Enp-1, length relative to exopod
short - exopod extends approximately to the end of Enp-1
long - exopod extends only to about halfway along Enp-1

2. P3 Exp-1, unguiform process at outer distal corner
short - very small; does not extend to a quarter of the length of Exp-2
long - very long; extends well into distal half of Exp-2

KG 7/2(male)

P1 Enp-1/ Exp	P3 Exp-1	
short	long	*Diagoniceps laevis*[1]
long	short	*D. mexicana*

1. Data from the redescription by Fiers (1995).

KG 7/3(male) – characters

It is difficult to separate the species in this key as the descriptions of *Phyllopodopsyllus hardingi* and *P. tristanensis* are not good enough to enable an adequate comparison to be made with the generally excellent redescription of *P. mossmani* by Pallares (1982) (and even this account does not give the required amount of detail on the structure of the male caudal ramus).

Treat identifications arrived at with this key with utmost caution.

1. Caudal ramus, in dorsal view
   - A - conical, base twice as wide as apex; apparently with a dorsal keel; 2.5 times as long as maximum breadth
   - B - conical, base 3 times as wide as apex (?); apparently without a dorsal keel; approximately 3 times as long as maximum breadth
   - C - flask-shaped; bulbous proximal third tapering sharply to a narrow neck that occupies the distal third; approximately 2.5 times as long as maximum breadth

2. P2 endopod, length relative to exopod
   - long - endopod extends to about the middle of Exp-3
   - short - endopod extends only to about the end of Exp-2

KG 7/3(male)

CR	P2 Enp/Exp	
A	long	*Phyllopodopsyllus mossmani*[1]
B	short	*P. hardingi*
C	?	*P. tristanensis*[2]

1. Data from Pallares (1982).
2. *Phyllopodopsyllus tristanensis* is very inadequately described and is included in this key only because Wiborg (1964) compares it, briefly, with *Paraphyllopodopsyllus trichophorus*, a synonym of *Phyllopodopsyllus mossmani*.

KG 7/4(male) – characters

1. P1 Enp-1, inner edge
   - n - number of setae

2. P2–P4 Exp-2, inner edge
   - n:n:n - number of setae on P2, P3 and P4

3. P2–P4 Enp-1, inner edge
   - n:n:n - number of setae on P2, P3 and P4

4. P6
   - n - number of setae

KG 7/4(male)

P1 Enp-1 inner setae	P2–P4 Exp-2 inner setae	P2–P4 Enp-1 inner setae	P6 setae	
1	0:0:0	1:1:1	2	*Phyllopodopsyllus mossmani chiloensis*

0	0:0:1	0:0:1	3	*P. punctatus*[1]
0	0:0:0	0:0:0	3	*P. longipalpatus* s. str.[2]

1. Kitazima (1981), in the only record of *P. punctatus*, records a rather high level of variability and abnormality. This involves, *inter alia*, setation of P2–P4 in both sexes.
2. See Kunz (1984b) and Wells & Rao (1987) for discussions of this species and its subspecies. See KG 6 (p. 728) for the male of the other 2 subspecies. See also the notes to KG 7(female) (p. 729).

KG 8 – characters

1. Caudal ramus

conical - conical, elongate; with smooth sides; 5 times as long as maximum breadth; all setae slender, filiform

globular - globular; sub-circular in dorsal view; with several small unguiform processes and with at least 2 heavily pectinate spines; principal terminal seta with a globular (female) or spiniform (male) basal part and a distal whiplash portion

2. Anal operculum

naked - without ornamentation (or possibly with numerous fine setules)

dentate - with about 10 large dentate projections

3. P1 exopod

n - number of segments

4. P2–P4 Exp-3

n:n:n - number of setae and spines on P2, P3 and P4

5. P2–P4 endopod, distal or only segment

n:n:n - number of setae on P2, P3 and P4

KG 8

CR	Anal operculum	P1 Exp segs	P2–P4 Exp-3 setae	P2–P4 Enp distal seg setae	
conical	naked	3	4:4:7	3:3:4	*Phyllopodopsyllus berrieri* [*sensu* Pesta 1959][1]
globular	dentate	2	3:2:2	3:1:1	*Oniscopsis robinsoni*

1. Pesta (1959) states that P4 endopod has only 1 segment while Kunz (1983) describes 2 segments. See also KG 7(male) (p. 733).

KG 9 – characters

It is difficult to distinguish between the species of *Oniscopsis*, especially between *O. pauliani* and *O. inabai*, partly because of the poor quality of the descriptions of *O. pauliani* and partly because of the extent of variability between and within individuals.

It is essential that any identification arrived at with this key be checked against the descriptions.

1. P2–P4 Exp-3

n:n:n - number of setae and spines on P2, P3 and P4

2. P2 Enp-2
n:n - number of setae in female and male

3. P4 Exp-2, inner edge
n - number of setae

KG 9

P2–P4 Exp-3 setae	P2 Enp-2 setae setae	P4 Exp-2 inner	
3:3:2	3:3	0	*Oniscopsis pauliani*[1]
3:2:2	3:3	1	*O. pauliani*[2]
3:2:2	3:3	0	*O. inabai*
3:2:2	3:2	0	*O. pauliani* [*sensu* Chappuis 1954b]
2:2:2	2:2	0	*O. dimorphus*

1. The Hong Kong material of Cottarelli, Saporito & Puccetti (1985a).
2. *Sensu* Cottarelli, Saporito & Puccetti (1985a)—all material except that from Hong Kong.

Family Thalestridae

KG 0 – characters

1. Body shape

A - markedly dorsoventrally compressed; strongly ovoid (male) or "racetrack" (female) in outline (Figs 32–33). Metasome/urosome boundary not marked by a prominent constriction; epimeral plates, when viewed from dorsum, not obviously pointed posteriorly. Caudal rami enclosed laterally by epimera of penultimate somite.

B - markedly dorsoventrally compressed; ovoid to weakly pyriform in outline; greatest width at posterior edge of cephalic shield. Urosome distinctly narrower than metasome; the backwardly projecting posterior corner of at least the metasomal epimeral plates visible in dorsal view. Caudal rami not enclosed laterally.

C - markedly dorsoventrally compressed; weakly pyriform in outline; greatest width just anterior to posterior edge of cephalic shield, with an even taper to the caudal rami (especially in the male). Metasomites without prominent epimera in dorsal view. Caudal rami not enclosed laterally.

D - not markedly dorsoventrally compressed; body almost linear or slightly fusiform or tapering slightly from posterior cephalic shield.

2. P1

n:n - number of segments in exopod and endopod

3. P3–P4 Enp-2, inner edge

n:n - number of setae on P3 and P4

4. Antenna exopod

n - number of segments

KG 0

Body shape	P1 segs	P3–P4 Enp-2 inner setae	A2 Exp segs	
A	3:3	1:1	3	*Paramenophia platysoma*
A	3:3	1:1	2	KG 1 (p. 738)
B	3:3	1:1	2	KG 2 (p. 739)
C	3:3	1:1	2	*Amenophia orientalis*
D	3:3	1:1	2	KG 3 (p. 740)
D	3:2	2:1	1–2	KG 4 (p. 744)
D	3:2	1:1	1	*Eudactylopus krusadensis*

KG 1 – characters

1. Female P5 exopod

n - number of setae

2. Male P5 endopod

2 - with 2 well developed setae, 1 spinule adjacent to outer seta and a fringe of setules between this seta and the exopod

1 - with only 1 seta, with an adjacent spinule; without setule fringe

3. Male P6

5 - with a total of 5 setae—2 medially, 3 at outer corner

3 - with 3 setae at outer corner only

KG 1

Female P5 Exp	Male P5 Enp	Male P6	
6	2	5	*Paramenophia platysoma*
4	1	3	*P. chilensis*

KG 2 – characters

Identifications obtained with this key must be treated with caution. The females of *Amenophia peltata* and *A. pulchella* are very similar and the male is unknown in *A. pulchella*. The character states are from Sars (1906) and must be used carefully.

Size is unreliable as an absolute measure as the degree of compression of the specimen by the mounting technique used can easily mislead. The small differences in P1 may not be viable characters. Colour is of no value in preserved material and it is not known if it is influenced by ecological factors, e.g. diet.

Further, *A. ovalis* is not adequately described.

1. Female body size (size of the male is unknown)

n - size in mm as quoted by Brady (1880) and Sars (1906).

2. P1, relative length of exopod and endopod*

long - exopod extends beyond endopod

short - exopod does not reach the end of the endopod

* These differences are relatively small and require the P1 to be correctly aligned in the preparation.

3. P1 Enp-1, origin of inner seta

middle - origin about the middle of the segment

proximal - origin at about ⅓ the length of the segment

4. Colour of transverse bands on metasome

v - violet

p - pink-orange

uk - unknown

KG 2

Female body size	P1 Exp/Enp	P1 Enp-1 inner seta	Colour	
0.74	long	middle	v	*Amenophia peltata*
0.50	short	middle	p	*A. pulchella*
0.75	short	proximal	uk	*A. ovalis*

KG 3 – characters

1. P1

   A - Exp-2 and Enp-1 elongate, often very narrow (3–9 times as long as broad) and always much longer than the other segments; exopod and endopod approximately the same length, more or less rectangular; Exp-2 usually curved.

   B - similar to A but exopod significantly shorter than endopod.

   C - similar to A but exopod significantly longer than endopod.

2. Female antennule

   n - number of segments

3. Male P2 endopod

   n - number of segments

KG 3

P1	Female A1 segs	Male P2 Enp segs	
A	9	2	KG 3/1 (p. 740)
B	9	2	KG 3/2 (p. 741)
B	8	2	*Parathalestris incerta* [*sensu* Pallares 1968a]
C	9	2	KG 3/3 (p. 742)

KG 3/1 – characters

Additional, but subtle, species specific characters are most likely to be found in the male P2 Enp-2.

1. Caudal ramus

   n - ratio of maximum length to maximum breadth

2. Maxilliped

   straight:short - Inner edge of basis straight or convex: endopod claw shorter than basis

   straight:equal - Inner edge of basis straight or convex: endopod claw approximately as long as basis

   concave:short - Inner edge of basis concave or with an obtuse angle between a short proximal and a long distal portion: endopod claw shorter than basis, fitting into a groove alongside the broader proximal part of basis

3. P1 Enp-1

   n - ratio of length (in midline of anterior surface) to maximum breadth

4. Female P5, length (excluding the setae)

   short - extends only to about halfway along the genital double-somite

   medium - extends to beyond halfway but not beyond the end of the genital double-somite

   long - extends far beyond the distal edge of the genital double-somite

5. Male P5

   n:n - number of setae on endopod and exopod

   uk - male unknown

KG 3/1

CR l/b	Maxilliped basis & claw	P1 Enp-1 l/b	Female P5	Male P5 setae	
≥4	straight:short	≈4	short	3:6	*Parathalestris croni*
≈3	concave:short	7.5	short	3:6	*Thalestris gibba*
≈2	concave:short	4.5	medium	?	*Parathalestris jacksoni*
1.5	concave:short	3.5	medium	3:6	*P. areolata*
≤1	straight:short	7.5	long	3:6	*Thalestris frigida*
≤1	straight:short	6.5	?	3:6	*Parathalestris similis*
≤1	straight:short	≈6	short	3:6	*P. dovi*
≤1	straight:short	5.5	medium	3:6	*P. harpactoides*[1]
≤1	straight:equal	5.5	medium	3:6	*P. cambriensis*[1]
≤1	straight:short	≈5	medium	3:5	*P. parviseta*[2]
≤1	straight:short	≈5	short	3:6	*P. irelandica*
≤1	straight:short	≈4	?	3:6	*P. similis* [*sensu* Wiborg 1964][3]
≤1	straight:?	≈4	medium?	3:6	*P. vinosa*[3]
≤1	straight:?	≈4	medium?	1?[3]:5	*Eudactylopus atlanticus* [*sensu* Por 1964a, as *E. latipes*][4]
≤1	concave:short	≈5	long	3:7	*Thalestris longimana*
≤1	concave:short	4.5	medium	3:6	*Parathalestris bulbiseta*

1. Females are almost inseparable (Wells 1964) but males can be differentiated on the P5 exopod which is rectangular and twice as long as broad in *P. harpactoides* and pyriform and 1.5 times as long as broad in *P. cambriensis.* Wells also states that setation of antenna exopod is 2.3 in *P. cambriensis* (1.4 in *P. harpactoides*).
2. The middle seta of the male P5 endopod is minute.
3. Males may be differentiated on P2 Enp-2. In *P. vinosa* the distal edge is transformed to a long, mucroniform projection and the innermost setae on the inner edge is a stout, mucroniform spine. In *P. similis* the terminal edge does not project and the innermost seta is filiform.
4. Male P5 endopod carries 1 small seta and 2 very small structures whose true nature—rudimentary setae or only spinules – cannot be ascertained from the description.

KG 3/2 – characters

1. Maxilliped
   straight - inner edge of basis straight or convex
   concave - inner edge of basis concave or with an obtuse angle between a short proximal and a long distal portion

2. P1 Enp-1
   n - ratio of length (in midline of anterior surface) to maximum breadth

2. P5 baseoendopod, transverse row of large broad spinules
   present *or* absent

3. Female P5
   n:n - number of setae on endopod and exopod
   uk - female unknown

4. Male P5
   n:n - number of setae on endopod and exopod
   uk - male unknown

KG 3/2

Maxilliped basis	P1 Enp-1 l/b	P5 Benp spinules	Female P5 setae	Male P5 setae	
straight	≈3[1]	absent	5:6	3:6	*Thalestris normani*[1]
straight	4–5	present	5:6	3:6	*Parathalestris clausi*
straight	4–5	absent	5:6	3:6	*P. patagonica*[2]
straight	4–5	absent	uk	3:6	*P. incerta* [*sensu* Lang 1936b)[2]
straight	4–5	absent	6:7	3:6	*P. paraharpactoides*
straight	>6	absent	5:6	3:6	*P. intermedia*
concave	4–5	absent	5:6	3:5	*P. hibernica*
concave	5–6	absent	5:6	3:7	*P. aurantiaca*

1. The description is poor and the illustration of P1 very small, but *T. normani* may be distinguished from other species in this key by the form of the rostrum. In *Thalestris* this is fused to the cephalic shield, without a suture, while in *Parathalestris* it is clearly distinct and probably articulates with the cephalic shield. These features are best seen in lateral view or in dorsal view with the specimen slightly squashed.
2. Males are very similar but may be distinguished on the form of the spine at the inner distal corner of P1 basis. In *P. patagonica* this is long (extending almost to the origin of the inner seta of Enp-1), blunt and weakly curved. In *P. incerta* it is very short (barely reaching the origin of the endopod), sharp and strongly curved.

KG 3/3 – characters

1. Caudal ramus
   n - ratio of maximum length to maximum breadth

2. Maxilliped
   straight - inner edge of basis straight or convex
   concave - inner edge of basis concave or with an obtuse angle between a short proximal and a long distal portion

3. P1 Enp-1
   n - ratio of length (in midline of anterior surface) to maximum breadth

4. Female P5
   short - extends only to about halfway along the genital double-somite
   equal - extends to about the distal edge of the genital double-somite
   long - extends to at least the last urosomite

5. Male P5
   n:n - number of setae on endopod and exopod
   uk - male unknown

KG 3/3

CR l/b	Mxp basis	P1 Enp1 l/b	Female P5	Male P5 setae	
≈2	concave	≈4	equal	3:6	*Thalestris gigas*
1.5	concave	≈4	short	3:6	*Parathalestris verrucosa*
1.3	straight?	≈4	?	3:7	*P. ganio*[1]

≤1	straight	≈5	short	?	KG 3/3/1
≤1	straight	≈5	short	uk	KG 3/3/1
≤1	straight	≈4	short?	3:5	KG 3/3/1
≤1	straight	≈7	long	3:5	*Phyllothalestris sarsi*
≤1	straight	≈4	long	3:5	*P. mysis*, *P. harringtoni*[2]
≤1	straight	≈3	equal	3:5	KG 3/3/2
≤1	straight	≈3	?	uk	KG 3/3/2
≤1	concave	≈6	long	3:6	*Thalestris rufoviolascens*, *Parathalestris pacificus*[3]
≤1	concave	≈5	short	3:5	*P. infestus*
≤1	concave	≈5	long	3:6	*P. californica*

1. Data from the redescription by Pallares (1975b).
2. Sewell (1940) raises *P. mysis* f. *harringtoni* to species rank; the morphological differences are minimal.
3. These species are very similar but may be distinguished on the form of the Rostrum. In *Thalestris* this is fused to the cephalic shield, without a suture, while in *Parathalestris* it is clearly distinct and probably articulates with the cephalic shield. These features are best seen in lateral view or in dorsal view with the specimen slightly squashed.

KG 3/3/1 – characters

1. P1, relative length of endopod
   - long - endopod reaches to end of Exp-2
   - short - endopod much shorter than Exp-2

2. Pseudoperculum
   - triang - triangular, distal edge irregular, possibly with 2 lobes at midline
   - lobed - with 4 or 5 large lobes

3. Female P5 endopod, length relative to exopod
   - long - endopod extends to the end of exopod
   - short - endopod much shorter than exopod

KG 3/3/1

P1 Enp	Pseud-operculum	Female P5 Enp/Exp	
long	triang	long	*Thalestris brunnea*
long	lobed	long	*T. purpurea*
short	lobed	short	*T. rhodymenae*

KG 3/3/2 – characters

1. Caudal ramus, setae IV and V
   - short - very short, about 3 times as long as the caudal ramus
   - medium - the longest seta about 10 times as long as the caudal ramus
   - long - the longest seta about 30 times as long as the caudal ramus

2. P1, relative length of endopod
   - short - endopod much shorter than Exp-2
   - medium - endopod reaches to just short of the end of Exp-2
   - long - endopod reaches to just beyond the end of Exp-2

3. Female P5

long - endopod extends to the end of exopod

short - endopod much shorter than exopod

4. Female P5 exopod, origin of outermost seta

middle - about the middle of the outer side

distal - about the middle of the distal half of the outer side

terminal - all setae very close to the extreme distal end of the exopod

KG 3/3/2

CR terminal setae	P1 Enp	Female P5 Enp/Exp	Female P5 Exp outer seta	
short	long	short	middle	*Parathalestris coatsi*
medium	short	short	distal	*P. affinis*
long	medium	long	terminal	*P. mourei*

KG 4 – characters

Many of the species of *Eudactylopus* can be distinguished only on fine points of detail which often are not well described.

These difficulties led Noodt (1955b) to place *E. striatus*, *E. fasciatus*, *E. australis* and *E. opima* sensu Sewell, 1940 as synonyms of *E. robustus*. Lang (1965a) disagreed.

This situation implies that identifications arrived at with this key should be treated with extreme caution and be checked against good descriptions.

1. P1, relative length of exopod

short - exopod extends to the end of Enp-1 at most, usually much shorter

long - exopod extends well beyond the end of the entire endopod

2. Female antennule

n:n - number of segments

uk - female unknown

3. Female P5 exopod, shape and proportions

(n = ratio of maximum length to maximum breadth)

droplet:n - droplet or tear shaped, with a very narrow articulation area and a broad, rounded terminal portion

oval:n - elongate oval

track:n - "racetrack" shaped (straight sides, semicircular basal and terminal portions)

square:n - broad and square

4. Male P2 endopod

1A - 2 segments, with point of fusion between 2nd and 3rd segments not very noticeable; segment 2 with a total of 6–7 setae of which 2 are modified (1 terminal and 1 subterminal on outer side); modified setae short, terminal setae plain but stout, outer seta with a spatulate apex. Relative length of exopod and endopod unknown.

1B - as 1A but endopod extends to just proximal of apex of Exp-3.

1C - as 1A but endopod extends to middle of Exp-3 at most.

2 - general form as 1A but with both modified setae originating on outer edge (terminal edge narrow and with only a small, weak seta); modified setae long (extending to about the end of Exp-3) distal modified seta needle sharp and highly contorted; proximal modified seta simple and without an inflated apex. Endopod extends to about the end of Exp-2

3 - general form as 1A but with only 1 modified seta, which is short and needle sharp.

4 - 2 segments, without trace of the point of fusion between 2nd and 3rd segments; segment 2 with a total of 5 setae of which the distal 3 are modified and very long (extending well beyond the end of Exp-3). Endopod extends to about the end of Exp-2.

5 - 2 segments, but with the division between former segments 2 and 3 very noticeable; segment 2 with 2 setae on basal portion and with 1 normal seta on inner edge of distal portion; terminally with 3 rather short modified setae. Endopod extends to about the end of Exp-2.

uk - male unknown

5. Male P5

d *or* f:n:n - exopod distinct from *or* fused to basis: number of setae and spines on endopod: number of setae and spines on exopod

uk - male unknown

KG 4

P1 Exp/Enp	Female A1 segs	Female P5 Exp	Male P2 Enp	Male P5 setae	
short	9	droplet:2.2	1A	d:2:5–6	*Eudactylopus robustus*
short	9	droplet:2.2	?	d:3:5	*E. opima* [*sensu* Sewell 1940][1]
short	9	droplet:2.4	uk	uk	*E. robustus* [*sensu* Geddes 1969][1]
short	9	droplet:1.6	1A	f:3:6	*E. australis*[2]
short	9	droplet:1.8	2	d:3:6	*E. spectabilis*[2]
short	9	?	1B	d:3:5	*E. striatus*[3]
short	9	droplet:2.8	1C	d:3.5	*E. fasciatus*
short	9	track:2.3	3	d:3:5	*E. lucayosi*[4]
short	7	square:1.4	2	f:3:6	*E. andrewi*
short	7	droplet:1.5	uk	uk	*E. atlanticus*[5]
long	9	oval:2.4	4	d:3:5	*Neodactylopus trichodes*
long	8	droplet:˜4	uk	uk	*N. cyclopoides*
long	8	?	uk	uk	*N. cyclopoides* [*sensu* Por 1967]
long	uk	uk	3	d:3:5	*N. anomala*

1. Lang (1965a) argues that Sewell's specimens are not *Plesiothalestris opima* Brian, 1928 (which species Lang (1948) had previously synonymised with *E. robustus*) but he relies solely on the accuracy of Brian's description and dismisses Sewell's comments, which are based on examination of material provided to Sewell by Brian. Geddes (1969) clearly also does not wish to disregard Sewell's opinions so easily.
2. It is probable that *E. australis* differs from all others in the relative size of the female genital somite, which appears to be about as long as the cephalic shield (measured in the middorsal line, and excluding the rostrum); in other species it is only at most ¾ the length of the shield.
3. The female is known only from a stage V copepodid.
4. In this species the outer distal corner of the caudal ramus is extended as a narrow pedestal about as long as a 1/4 of the ramus length.
5. Female description from Lang (1965a).

Superfamily Thalestroidea
genera incertae sedis

The monotypic genera *Flavia*, *Dactylopina*, *Mawsonella* and *Tisemus* are too inadequately described to consider in these keys. *Tisemus* is described rather better than the others but a lack of critical detail poses many problems that cannot be resolved without an expanded redescription (see Checklist Note 142, p. 88).

Family Thompsonulidae

KG 0 - characters

1. Female antenna
   n - number of segments

2. Anal operculum, spines
   few - about 15–20 large, broad spines
   many - about 40 small, fine spines

3. P2 basis, outer spine
   naked *or* pinnate

4. Female P5
   long - endopod extends beyond the apex of exopod
   short - endopod extends at most to apex of exopod

5. Male P4 Exp-3, inner setae
   n - number of setae on inner edge

KG 0

Female A1 segs	Anal operculum spines	P2 basis outer spine	Female P5 Benp	Male P4 Exp-3 inner setae	
6	few	naked	long	3	*Thompsonula curticauda*
5	few	naked	long	3	*T. hyaenae*
5	few	pinnate	short	2	*Caribbula fleegeri*
5	many	pinnate	short	2	*C. elongata*

Family Tisbidae

KG 0 – characters

1. Antenna exopod
   n - number of segments

2. P3–P4 endopod
   n:n - number of segments in P3 and P4

3. P2–P4 exopod, distal segment
   n:n:n - number of setae and spines on P2, P3 and P4
   na - not applicable (exopod absent)

4. P3–P4 endopod, distal segment
   n:n:n - number of setae and spines on P2, P3 and P4
   na - not applicable (endopod absent)

5. P3–P4 Enp-2, inner edge
   n:n:n - number of setae and spines on P2, P3 and P4
   na - not applicable (endopod less than 3-segs or absent entirely)

KG 0

A2 Exp segs	P3–P4 Enp segs	P2–P4 Exp distal seg setae	P3–P4 Enp distal seg setae	P3–P4 Enp-2 inner setae	
4	3:3	7:8:8	6:5	2:2	KG 1 (p. 749)
4	3:3	7:8:8	6:5	1:1	*Scutellidium hippolytes*, *S. boreale*[1]
4	3:3	7:8:8	5:5	1:1	*Drescheriella glacialis*
4	3:3	(7:7:7?)	(4:4?)	(2:2?)	*Machairopus lenticularis*[2]
4	3:3	6:8:8	6:5	2:2	KG 2 (p. 764)
3	3:3	7:8:8	6:5	2:2	KG 3 (p. 764)
3	3:3	7:8:?	5:?	1?:?	*Machairopus sarsi*[3]
2	3:3	7:8:8	6:5	2:2	*Tisbintra nankaurica*
2	3:3	7:8:8	5–6:5	1:1	*Sacodiscus humesi*
2	3:3	6:8:8	6:5	2:2	*Tisbintra jonesi*
1	3:3	7:8:8	6:5	2:2	*Octopinella tenacis*
1	3:3	7:8:8	6:5	1:1	KG 4 (p. 765)
1	3:3	7:8:7	6:5	2:2	*Yunona marginata*
1	3:3	7:8:7	5:5	1:1	*Neoscutellidium yeatmani*
1	3:3	6:7:7	5:5	2:1	*Sacodiscus ovalis*
1	2:2	6:7:7	5:5	na:na	*Genesis vulcanoctopusi*
1	2:2	6:6:6	4:4	na:na	KG 5 (p. 765)
1	2:2	6:6:6	3:3	na:na	*Brescianiana rotundata*
1	2:2	5:5:6	5:5	na:na	*Tripartisoma trapezoidalis*, *T. ovalis*[4]
1	2:2	5:5:5	3:3	na:na	*Cholidya polypi* male
1	1?:1?	3:3:1?	3:1?	na:na	*Cholidya polypi* female
1	0:0	4:na:na	na:na	na:na	*Avdeevia antarctica*

1. Itô (1976) distinguishes between these species (and between the subspecies of *S. hippolytes*) on the basis of very fine detail, including some (the orientation of some of the fimbriate spines on P1) which may be post-mortem artefacts.
2. In this species (which is placed in *Scutellidium* by Lang 1948) the P2–P4 are known only from one illustration in the original description of the female (the male is unknown) labelled simply as "Schwimmfuß". Its setal formula is exopod 0.0.322, endopod 1.2.220.

   Three other species of *Scutellidium* have only 4 setae on P2 Enp-3. None have this condition in P3–P4, and while all species have a total of 7 setae and spines on P2 Exp-3, *Machairopus lenticularis* is unique in the formula 322 (only *Scutellidium patellarum* has 2 outer spines and this species also has only 2 inner setae).

   This feature and the absence of fimbriated spines on P1 Exp-3 make it doubtful that *M. lenticularis* is referable to *Scutellidium* and make it inadvisable to guess at the setation of P3–P4.
3. Considered *incertae sedis* in *Scutellopsis* by Itô (1976).
4. See Avdeev (1983) for characteristics of the 2 species of this genus, which is a parasite of octopuses.

KG 1

Cautionary Notes: This key contains the majority of species of *Tisbe* and *Scutellidium*. Both are taxonomically difficult and beset with inadequately described species. Accordingly, sometimes it is inadvisable to attempt to key out to species level. Please read the notes below before using this key.

***Tisbe*:** The difficulties of identification of species of *Tisbe* are well known. Fortunately, the genus has been partially revised by Volkmann (1979c), who provides detailed descriptions for many species.

Tisbe is a common genus in marine phytal habitats world-wide. Traditionally, it was the view that some species have wide intra-specific variability. Unfortunately, this led to the production of species descriptions that ignored what later proved to be essential information and to assumptions that at least a few species were truly cosmopolitan in distribution, though perhaps polymorphic for several characters.

Modern opinion, based on statistical analysis of polymorphism and cross breeding experiments, is that this is unlikely and that the best explanation is that this "variability" is most probably due to inter-specific differences within mosaics of parapatric species. This situation is further complicated by the demonstration that several groups of sibling species exist (and, by implication, that others are likely to be discovered).

The result is that many records of many species must be doubtful, especially in the apparently cosmopolitan species. For example, *Tisbe furcata* is now thought to be confined to northwest Europe, and *T. gracilis* to occur only in the north Atlantic and Arctic.

To emphasise the caution that is necessary in using the older literature to identify *Tisbe* species I draw your attention to the following statements:

> "Identification of *Tisbe* species is notoriously difficult [requiring] extremely detailed observation, and sometimes even of cross-breeding experiments .... the number of times that different species have been lumped together under a single name can only be conjectured" (Bergmans 1979)

> "recent findings .... make it evident that little interspecific differentiation has occurred in the evolution of the genus *Tisbe* ..... the genus appears to be crowded with forms confusingly similar, occurring often in the same places, yet showing little evidence of interbreeding." (Volkmann 1979c: p. 125)

> "Since many species were wrongly identified, it is also apparent that their geographic range as given by Lang (1948) is highly unreliable. Most of the species described as cosmopolitan have a restricted distribution. There seem to exist very few truly cosmopolitan species (e.g. *T. holothuriae*); others may have worldwide occurrence, but within a limited latitudinal range. Some species seem to be endemic, but too little data are available to support these findings." (Volkmann 1979c: p. 129)

> "It is therefore fundamental that all morphological details be taken into consideration in the procedure of identifying a *Tisbe* specimen" (Volkmann 1979c: p. 126)

This last comment is reinforced by the discovery by Dahms, Lorenzen & Schminke (1991) that to arrive at the best solution it may be necessary to use both larval and adult characteristics in phylogenetic analyses of relationships between *Tisbe* species and by the possibility that integumental colour and its distribution may be an important species specific character (thus requiring examination of living animals).

One final illustration of the extent of the problem is provided by the independent redescriptions of the type species, *T. furcata*, from locations only 500 km apart (Bergmans 1979, Belgium; Dahms, Schminke & Pottek 1991, Helgoland, southern North Sea). There are differences between them. Many (e.g. the exact number of spinules on the surface of P5 exopod) may, or may not, be trivial but a few (e.g. the form and proportions of P1 endopod) may well represent something more serious.

Those unfamiliar with the genus *Tisbe* are urged to consult at least the following papers before beginning the task of species identification in this genus—Bergmans (1979), Dahms, Schminke & Pottek (1991), Volkmann (1979c), Volkmann-Rocco (1971) and Gómez, Puello-Cruz & González-Rodriguez (2004).

Scutellidium: In general terms the above remarks on *Tisbe* can be applied to *Scutellidium*, which also is a common member of phytal communities, though less so than *Tisbe*. It is also taxonomically difficult, with species being distinguished on small morphological or morphometric differences and with some species being described simply as variable while others have their variability recognised through subspecies.

Scutellidium has not received the same attention from geneticists as *Tisbe* but this makes it even more important that descriptions pay scrupulous attention to morphological and morphometric detail. Unfortunately, neither the genus nor the most common species have been revised, though Itô (1976) redescribes some species and provides a discussion on the taxonomy of the genus (p. 559 *et seq.*) that remains highly relevant as no new species have been described since that date. Branch (1975) provides comments on synonymies and gives a key to the species.

Construction of KG 1 and its subsidiary keys: Volkmann-Rocco (1972a: p. 224) has criticised the criteria employed to distinguish between *Tisbe* species and her remarks can be applied with only slightly less force to *Scutellidium*:

> "*Tisbe* is reputedly a difficult genus .... taxonomically. This is in part due to the small morphological differences between species, and also to the poor quality of the original descriptions and drawings. Moreover, too much importance has been placed upon proportions (length-width ratios of P5, P1, A1 segments), measurements being based on only 1 or 2 specimens. However, the relative and absolute length of the above segments varies considerably. Rather than these proportions it seems to me that an analysis of the genital field structures (undoubtedly the most specific character, although sometimes difficult to recognise), setation, and shape of the single segments, are the best criteria in *Tisbe* taxonomy."

However, there is a difference between the validity of criteria for separating species *taxonomically* and those for separating species in a *key for identification*.

The characters that Volkmann-Rocco castigates are useful in key construction, providing always that they take account of the known variability and that identification is verified by the relevant descriptions and informed by commentaries in the literature on such matters as probable distribution of the species.

Also, the genital field is very difficult to describe and interpret and is equally difficult to incorporate into verbal keys. Nevertheless, Volkmann is correct and her comment serves to reinforce again my constant injunction to check identifications arrived at with keys against the best available description.

KG 1 relies entirely on the form of the P1, which in *Tisbe* and *Scutellidium* is quite distinctive. Unfortunately the key also relies on the available descriptions, which may not always be reliable with respect to the detail used in this key. For example, character 1F is an unusual condition that if not supported by a positive statement in the description raises doubts that it has been misreported through faulty or inefficient observation.

KG 1 – characters

1. P1 Exp-3, number and form of spines and setae (numbered I to VI, from innermost to outermost)
   - A - 6 setae; all setiform and biplumose except that VI (and sometimes V) is shorter and tending towards spiniform; seta VI may be plumose only along the distal half of the inner edge
   - B - as A but with only 5 setae; all setae long and filiform.
   - C - 6 setae and spines; I–II originate at the inner distal corner and inner end of distal edge and typically are setiform, elongate, biplumose or plumose on inner side and setulose, spinulose or dentate on the outer side; III–VI always spiniform and fimbriate at the extreme distal part of the inner or outer edge.
   - D - 6 setae and spines; I–II setiform. II originates at inner distal corner and is elongate and usually plumose; origin of I in proximal part of the inner edge, often very close to the border with segment 2, on the posterior surface and transversely across this face (several authors illustrate this seta arising from the distal edge of segment 2)—this is often difficult to observe, which probably explains why it has not been illustrated for several species. III–VI always spiniform and densely fimbriate in the distal half of the outer edge.
   - E - as D but with spine VI a simple, biplumose spine.
   - F - as D but spines III–VI are naked.
   - G - 6 setae; I–II elongate, biplumose; III-VI elongate, variously ornamented, geniculate subapically, with 1 long setule at this junction.
   - H - 4 long, biplumose setae.

2. P1 endopod, armature of terminal portion
   - A - with 2 stout spines of similar length and a long, biplumose seta. Spines fimbriate along the distal ½ to ⅔ of inner edge; setules long, fine and set very close together; at extreme proximal and distal end they are progressively shorter thus giving a rounded edge to what has variously been called a “fringe” or “comb” or “brush” or “fan”.
   - B - with 2 stout spines of similar length and a small, weak, or minute (or absent?) seta. Spines with small, stout spinules on distal ½ to ⅔ of inner edge.
   - C - as B but with inner spine weakly denticulate.
   - D - as B but with both spines having a short subapical row of stout spinules on the inner edge; these spinules decrease markedly in length distad.
   - E - with 2 stout spines and a small, weak, plain seta that can be reduced to resemble a setule or (apparently) be absent. Outer spine recurved apically and either naked or with small spinules along its length. Inner spine longer than outer and with long setules distally that may form a short length of fimbriate border (much less than half the length of the spine) or a terminal tuft or be restricted to a few straggly “hairs” at the extreme apex.
   - F - as C but with inner spine naked.
   - G - with 1 very stout, short, recurved, naked spine and 1 stout, spinulose spine and with a short, unguiform projection of the medial distal edge.
   - H - with 1 long spine with a fimbriate distal inner edge and short, naked, sickle-shaped spine
   - J - with 2 very long spines and a long, biplumose seta. Outer spine weakly spinulose on outer edge. Inner spine bispinose.
   - K - with 1 very long, slender, grooved spine and a minute seta.
   - L - with 2 very long slender, naked spines and a short seta that can be reduced to a resemble a setule or (apparently) be absent. Inner spine geniculate close to its apex.
   - M - not as any of A–L. Endopod clearly of 2 short segments with a total armature of 4 long setae
   - N - not as any of A–L. Endopod clearly of 2 short segments with a total armature of 3 long setae and a short, broad, blunt spine.
   - O - not as any of A–L. Endopod clearly of 3 segments, the second elongate and the third very short; third segment with 2 long setae and a long, outer, curved spine; tip of outer seta bifid.

3. P1 basis, form of outer and inner spines

A - outer spine strongly built but of normal proportions, bidentate; extending to at least the middle of Exp-1. Inner spine strongly built but of normal proportions, bispinose, longer than outer spine; extends past the middle of Enp-1.

B - outer spine strongly built but of normal proportions, bispinose; extending to at least the middle of Exp-1. Inner spine strongly built but of normal proportions, bispinose; of varying length but seldom extending past the middle of Enp-1.

C - outer spine large, comma-shaped with a thick, often somewhat bulbous base tapering concavely to a flexible whiplash apical portion; usually densely fimbriate on both sides with long setules; usually extending to about the end of Exp-1. Inner spine short, stout, bispinose; extending to much less than halfway along Enp-1.

D - outer spine bispinose or bidentate with small teeth, small but stout; extending midway along Exp-1 at most. Inner spine stout at base, tapering to a naked whiplash terminal portion; outer side with long spinules, inner side naked.

E - outer spine bispinose, small but stout, not reaching the origin of Exp-1. Inner spine slender, setiform, naked; extending to about the middle of Enp-1.

F - outer spine slender, naked; extends into distal half of Exp-1. Inner spine slender, setiform naked; extending to about halfway along Enp-1.

G - outer and inner spines very weak and small, naked.

H - outer spine absent or very weak and small, naked. Inner spine slender, setiform naked; extending to about the middle of Enp-1.

J - outer spine weak, setiform, naked. Inner spine setiform; extending to at least the middle of Enp-2

K - outer spine setiform, long, bisetose; extending almost to the end of Exp-1. Inner spine well developed, bispinose; extending to the middle of Enp-1.

L - outer spine slender, setiform, naked; extending beyond Exp-1. Inner spine small, weak; extending about ¼ the length of Enp-1.

KG 1

P1 Exp-3 setae	P1 Enp terminal setae	P1 basis setae	
A	J	B	*Tisbe spinulosa*
A	K	L	*T. caymanensis*
A	L	F	*Idya cluthae* [*sensu* T. Scott1899][1]
A	M	G	*Tisbella rosea*
A	M	J	*Neotisbella gigas*
A	N	F	KG 1/1 (p. 753)
A	N	H	*Paraidya major*
A	O	A	KG 1/2 (p. 753)
B	N	H	*Paraidya minor*
C	C	B	*Tisbe pori*
C	D	B	KG 1/4 (p. 755)
C	D	D	*Tisbe antennulodenticulata*[2]
C	E	B	KG 1/3 (p. 754)
C	F	B	*Tisbe prolata*[3]
C	G	B	*T. japonica*[4]
C	H	B	*T. ramphigera* female[5]

D	A	C	KG 1/5 (p. 760)
D	A	K	*Scutellidium ligusticum*
E	A	C	*S. intermedium*
F	A	C	*S. strigosum*, *S. australe* [*sensu* Pallares 1968b), *Machairopus lenticularis*[6]
G	L	E	*Idya cluthae* [*sensu* Volkmann 1979c][1]
H	A	C	*Scutellidium major*
H	B	B	*Tisbe monozota*[7]

1. Usually considered as *incertae sedis* in *Tisbe.*
2. See Gómez, Puello-Cruz, & González-Rodriguez (2004) for numerous other characteristics that make this species unique within *Tisbe.*
3. *Tisbe prolata* displays numerous structures that have a wide, continuous range of morphometric characteristics (Waghorn 1979; Bradford & Wells 1983). Contemporary theory would probably reject this concept in favour of a set of sibling species. Also, Bradford & Wells report 2 very different types of form of the claws on P1 Exp-3, which probably is indicative that at least 2 species are currently included in this taxon. See also KG 1/3 (p. 753).
4. *Tisbe japonica* can also be distinguished by the very prominent convex swelling of the inner edge of P1 Enp-1 proximal to the origin of the inner seta.
5. See KG 1/3 (p. 754) for the male.
6. Females of the 3 species may be distinguished by the P5. In *S. australe* the exopod has a total of 5 setae, with 3 filiform setae on its distal edge. In *S. strigosum* the exopod also has a total of 5 setae and spines but the distal edge bears only 1 short curved spine. *Machairopus lenticularis* is described as having only 3 terminal and subterminal filiform setae. See note 2 to KG 0 (p. 749) for more information on *M. lenticularis.* The male is known only in *S. strigosum.*
7. Data from redescription by Gómez, Puello-Cruz, & González-Rodriguez. (2004).

KG 1/1 – characters

1. Penultimate somite, ornamentation of distal edge
   - naked - without ornamentation
   - setules - setules present dorsal and dorsolaterally

2. P1 Exp-1, outer spine
   - mono - spine with very short spinules on outer side only
   - bi - spine biplumose with very long setules

3. Female P5 exopod
   - n - ratio of maximum length to maximum breadth

KG 1/1

Penultimate somite distal edge	P1 Exp-1 outer spine	Female P5 Exp l/b	
naked	bi	≈4.7	*Tisbella timsae*
setules	mono	3.5–4	*T. alba*

KG 1/2 – characters

1. P1 endopod
   - short - endopod extends only a short way beyond the exopod (endopod about 1.3 times as long as exopod); Enp-2 approximately 2.6 times as long as broad
   - long - endopod extends far beyond exopod (endopod about 1.7 times as long as exopod); Enp-2 approximately 4.6 times as long as broad

2. Caudal ramus
n - ratio of maximum length to maximum breadth

KG 1/2

P1	CR	
Enp	l/b	
short	2.6	*Volkmannia forficula*
long	≈2	*V. attenuata*

KG 1/3 – characters

1. Caudal ramus, ratio of maximum length to maximum breadth*
   short - much broader than long (l/b ca. 0.5–0.7)
   long - approximately as long as broad (l/b ca. 0.8–1.2)

* (a) In most species of *Tisbe* the caudal ramus
- tapers markedly from base to apex
- the inner proximal corner often is expanded considerably medially
- the distal edge frequently (always?) has 1 or 2 setal peduncles.

(b) In this key the length *includes* these peduncles and the breadth *includes* the inner medial expansion; *be aware* that the axes of measurement often are not defined in descriptions and statements about this ratio can be misleading in terms of the context adopted here.

(c) These conditions make accurate measurement difficult (especially from printed illustrations) and the broad classes used here are guidelines only.)

2. Caudal ramus, setae
   normal - all setae filiform
   bulbous - 2 terminal setae with a bulbous basal portion

3. Female P5
   A - exopod with a prominent tubercle bearing a tube pore projecting from proximal part of inner edge; exopod with all 5 setae originating on distal edge; exopod approximately 3–4 times as long as broad. Longest seta of endopod extends beyond end of the exopod.
   B - as A but with the longest seta of endopod reaching only to the end of the exopod.
   C - exopod as A but approximately 7 times as long as broad. Longest seta of endopod extends to a point distinctly proximal to the end of the exopod.
   D - exopod with a tubercle as A but with only 2 or 3 setae originating on distal edge; exopod 2.5–3 times as long as broad. Longest seta of endopod reaches only to the end of the exopod
   E - as D but with exopod significantly less than twice as long as broad
   F - as E but with longest seta of endopod extending beyond end of the exopod
   G - exopod without tubercle or tube pore; only 2 seta originate on distal edge of exopod; exopod about twice as long as broad. Longest seta of endopod reaches only to the end of the exopod.

4. Male P5 exopod
   A - with 5 well developed filiform setae; 2.5–3 times as long as broad.
   B - as A but only about twice as long as broad.
   C - with 4 well developed, filiform setae (I–III & V) and a small or rudimentary seta (IV); about twice as long as broad.
   D - as C but significantly less than twice as long as broad.
   E - with 3 well developed, filiform setae (I, II, V), a small or rudimentary seta (IV) and a spatulate

seta (III); about twice as long as broad.
F - as E but only about as long as broad.
uk - male unknown

5. Male P6
2+1 - with filiform setae and 1 spatulate seta or spine
3 - with 3 filiform setae
uk - male unknown

KG 1/3

CR l/b	CR setae	Female P5	Male P5 Exp	Male P6	
long	normal	A	B	2+1	*Tisbe bermudensis*
long	normal	A	uk	uk	*T. elanitica*
long	normal	B	C	3	*T. trisetosa*
long	normal	C	A	2+1	*T. longipes*
long	normal	D	C	2+1	*T. perplexa*
long	normal	F	G	2+1	*T. histriana*[1]
long	normal	G	uk	uk	*T. angusta*[2]
long	bulbous	E	E	2+1	*T. tenella*[3]
short	normal	D[4]	F	2+1	*T. varipes*[4]
short	normal	na	D	2+1	*T. ramphigera* male[3]

1. *Tisbe histriana* has been reported from the Mediterranean and Black Seas and possibly from the Gulf of Aqaba and from Sydney, Australia, although confirmation of the latter two locations requires the finding there of males.
2. *Tisbe angusta* has been reported from the Atlantic coast from Norway to Brittany, the British Isles, Portugal and the eastern Mediterranean. Volkmann (1979c) believes that the species is confined to northern Europe, with the southern records being of *T. perplexa*, with an overlap in Brittany.
3. *Tisbe tenella* has been reported from Norway, Heligoland, mediterranean France and Algeria. Volkmann (1979c) places the Algerian record in *T. histriana* but does not comment on the French records.
4. Data from Marcus (1974a: Fig. 3f) and Volkmann (1979c). Marcus (1974a: Fig. 3e) also describes a female P5 of quite different shape and proportions. Volkmann considers *T. varipes* is a mixture of at least two species.
5. See KG 1 (p. 751) for the female.

KG 1/4 – characters

This key contains the majority of species of *Tisbe* and is at best only a guide to identification, allowing the elimination of obviously different species. In this genus there is eventually no substitute for the painstaking process of examining the appropriate literature in detail.

1. Caudal ramus, ratio of maximum length to maximum breadth*
short - much broader than long (l/b ca. 0.5–0.7)
medium - approximately as long as broad (l/b ca. 0.8–1.2)
long - at least 1.25 times as long as broad

* (a) In most species of *Tisbe* the caudal ramus
- tapers markedly from base to apex
- the inner proximal corner often is expanded considerably medially
- the distal edge frequently (always?) has one or two setal peduncles.

(b) In this key the length *includes* these peduncles and the breadth *includes* the inner medial expansion; *be aware* that the axes of measurement often are not defined in descriptions and statements about this ratio can be misleading in terms of the context adopted here.
(c) These conditions make accurate measurement difficult (especially from printed illustrations) and the broad classes used here are guidelines only.)

2. Female P5 exopod, ratio of maximum length to maximum breadth*
   A - <2.5 times as long as broad
   C - 4–6 times as long as broad
   D - 6–8 times as long as broad
   E - 8–10 times as long as broad

* Obtaining accurate measurements is difficult, especially from printed illustrations but also from actual specimens; the broad classes used here are guidelines only.

3. Female P5 endopod, longest seta
   short - extends to a point distinctly proximal to the end of the exopod
   medium - extends approximately to the end of the exopod
   long - extends beyond end of exopod, but distinctly less than twice the length of the exopod
   extreme - extends to a point approximately equal to or greater than twice the length of the exopod

4. Female P5 exopod, number and form of setae
   5 - 5 well developed setae
   4 - 4 well developed setae
   4+1v - 4 well developed setae and 1 very small or vestigial seta

5. Male P5 exopod, number and form of setae
   5f - 5 well developed, filiform setae
   4f - 4 well developed, filiform setae
   4f+1v - 4 well developed, filiform setae + seta IV very small or vestigial
   3f+2v - 3 well developed, filiform setae + setae I and IV very small or vestigial
   4f+1sp - 4 well developed, filiform setae + seta III well developed, broad, spatulate or spiniform
   3f+1sp - 3 well developed, filiform setae + seta III well developed, broad, spatulate or spiniform
   3f+1sp+1v - 3 well developed, filiform setae + seta III well developed, broad, spatulate or spiniform + seta IV very small or vestigial
   uk - male unknown

KG 1/4

CR l/b	Female P5 Exp l/b	Female P5 Enp longest seta	Female P5 Exp setae	Male P5 Exp setae	
short	B	long	5	4f+1sp	*Tisbe minor*
short	B	long	5	3f+1sp	*T. clodiensis* sibling group[1]
short	B	medium	5	4f	*T. tenera* [*sensu* Chislenko 1967][2]
short	B	medium	5	uk	*T. tenuimana*
short	C	long	5	uk	*T. longicornis*[3]

short	C	medium	5	uk	*T. coulli*
medium	B	short	5	4f+1v	*T. holothuriae* sibling group[4]
medium	B	short	5	uk	*T. varians* [*sensu* T. Scott 1912; see also Lang 1948]
medium	B	short	4	uk	*T. gracilipes*
medium	B	medium	5	3f+2v	*T. biminiensis*
medium	B	medium	4+1v	4f+1v	*T. reluctans* sibling group[5]
medium	B	long	5	4f+1sp	KG 1/4/1 (p. 758)
medium	B	long	5	3f+1sp+1v	KG 1/4/2 (p. 758)
medium	B	long	5	3f+1sp	*Tisbe lagunaris*
medium	B	long	5	uk	*T. wirkettisae*
medium	B	extreme	5	4f+1sp	*T. reticulata* sibling group[6]
medium	C	medium	5	3f+2v	KG 1/4/3 (p. 759)
medium	C	medium	5	uk	KG 1/4/4 (p. 760)
medium	C	long	5	4f+1sp	*Tisbe brigittevolkmannae*
medium	C	long	5	3f+1sp+1v	*T. carolinensis*, *T. ianthina*[7]
medium	C	long	5	3f+1sp	*T. gurneyi*[8]
medium	C	short	5	uk	*T. puelloi*
medium	D	short	5	uk	*T. elegantula*
medium	D	medium	5	4f+1v	*T. acanthifera* [*sensu* Vervoort 1964)
medium	D	medium	4+1v	3f+2v	*T. maraensis*
medium	D	long	5	3f+1sp+1v	*T. bocqueti*, *T. variana*[9]
medium	D	extreme	5	5f	*T. robusta*
medium	E	medium	5	4f+1sp	*T. ensifer*
medium	E	medium	4	uk	*T. longisetosa*
long	B	long	5	4f	*T. inflata*
long	B	long	4+1v	uk	*T. prolata*[10]
long	B	extreme	5	4f	*T. graciloides*[11]
long	C	medium	5	3f+2v	*T. cucumariae*
?	A	long	4	uk	*T. austrina*

1. *Tisbe clodiensis*, *dobzhanskii*; see Volkmann-Rocco & Battaglia (1972).
2. *Tisbe tenera* has been reported from the Arctic, the Atlantic coast from Norway to Portugal, Brazil (São Paulo), the Mediterranean Sea, Suez Canal, Bay of Bengal and Western Australia. There is a Tethyan ring to most of this distribution, but it is unlikely that Brazil is correct, and records south and east of the Bay of Bengal should be treated with circumspection.

   Also, Lang (1948) considers all Mediterranean records known at that time to be doubtful and Gurney (1927b) records "some differences … [from *tenera* of Sars] … but they are not greater than the differences between individuals from different stations in the [Suez] Canal". Contemporary taxonomists probably consider, *a priori*, his material to be a group of sibling species that does not include *tenera* s. str.
3. *Tisbe longicornis* has been reported from northwest Europe, the Mediterranean Sea, the eastern Indian Ocean, Sri Lanka and Chile. Treat discoveries outwith northwest Europe with caution; descriptions are available only from Scotland, Norway and the Mediterranean.
4. *Tisbe battagliai*, *holothuriae*, *pontina*, *remanei*; see Volkmann (1975).
5. *Tisbe persimilis, reluctans*; see Volkmann-Rocco & Fava (1969).
6. *Tisbe aragoi*, *marmorata*, *pentaenia*, *reticulata*; see Volkmann-Rocco (1973).
7. These 2 species are so similar that I cannot find satisfactory key characters to separate them; see the original descriptions (Volkmann, 1979a; Volkmann-Rocco 1972a). But also see note 3 of KG 1 (p. 753).
8. *Tisbe gurneyi* is said to lack setae on the male P5 endopod.
9. These species are distinguished from each other by a number of points of fine detail, especially in the caudal ramus and the female genital field; a comparison is given by Volkmann (1979a).

10. Described by Waghorn (1979) and Bradford & Wells (1983) as a species with numerous characters displaying a wide, continuous range of morphometric characteristics. Contemporary thought would probably reject this concept in favour of a set of sibling species. Also, Bradford & Wells report two very different types of form of the claws on P1 Exp-3, which probably is indicative that at least two species are currently included in this taxon. See also KG 0 (p. 748).
11. *Tisbe graciloides* has been reported from Norway, Sweden, England, Romania and Western Australia. The Romanian record is considered doubtful by its author, and it seems improbable that the Australian record is correct.

KG 1/4/1 – characters

1. Female P5 endopod
   - n - number of setae

2. Female P5 exopod, relative length of setae
   - A - setae I and II the longest setae; of equal length and twice as long as seta V. Setae III and IV equal in length and about 1.3 times as long as seta V
   - B - setae I–III the longest setae; of equal length and nearly twice as long as setae IV and V
   - C - setae II and III the longest setae; of equal length and more than twice as long as setae IV and V; seta I about 1.4 times as long as seta V

3. Male P5 exopod
   - n - ratio of maximum length to maximum breadth

KG 1/4/1

Female P5 Enp setae	Female P5 Exp setae	Male P5 Exp l/b	
3	A	2.4	*Tisbe celata*
3	B	2.25	*T. johnsoni*
2	C	4.3	*T. varians* [*sensu* Pallares 1968a]

KG 1/4/2 – characters

1. Female P5 exopod, setae I–IV
   - normal - setae filiform
   - bulbous - setae with a bulbous basal portion

2. Female P5 endopod
   - wd - with 3 well developed setae
   - red - with 1 well developed seta, 1 small and 1 rudimentary seta

3. Male P5 exopod, seta IV
   - small - small but easily distinguished
   - rud - rudimentary; very small and thin, easily overlooked so that exopod appears to have 4 setae only

4. Male maxilliped endopod

normal - with a large claw-like spine and a shorter filiform seta

mod - with a large claw-like spine and a hook-shaped spine

KG 1/4/2

Female	Female	Male	Male	
P5	P5	P5	maxilliped	
Exp	Enp	Exp	Enp	
setae	setae	setae		
normal	red	small	normal	*Tisbe furcata*[1]
bulbous	wd	rud	mod	*T. bulbisetosa* sibling group[1, 2]

1. Dahms, Schminke & Pottek (1991) discuss the phylogeny of the species included in this key.
2. *Tisbe bulbisetosa*, *dilatata*, *inflatiseta*; see Volkmann (1979c) and Checklist Note 474 (p. 102).

KG 1/4/3 – characters

1. P1 basis, inner spine

short - very small, does not reach the middle of Enp-1; set with short setules

long 1 - extends well into distal half of Enp-1; set with long, fine setules

long 2 - extends well into distal half of Enp-1; set with short setules

2. P1 Exp-2, inner seta

short - extending approximately to the end of Exp-3

long - extending well beyond end of Exp-3

3. P1 Enp-2, inner seta

short - very small, 12–15% the length of Enp-2; set with minute setules

long - moderate length, about ⅓ the length of Enp-2; set with long, fine setules

4. Female P5 endopod, relative length of inner and outer setae

I<<III - inner seta much shorter than outer

I˜III - inner and outer seta approximately equal

5. Male P1 Enp-1, inner edge

present - small pointed tubercle present

absent - small pointed tubercle absent

KG 1/4/3

P1	P1	P1	Female	Male	
basis	Exp-2	Enp-2	P5	P1	
inner	inner	inner	Enp	Enp-1	
spine	seta	seta	setae	tubercle	
short	long	long	I<<III	absent	*Tisbe gracilis*
long 1	short	short	I˜III	present	*T. acanthifera* [*sensu* Volkmann 1979c][1]
long 2	short	short	I˜III	present	*T. denticulata*

1. *Tisbe acanthifera* has been recorded from Bermuda, the Suez Canal and New Caledonia. Volkmann (1979c) considers it possibly cosmopolitan within warm temperate seas but there are some differences between Vervoort's (1962) original description and Volkmann's (1979c) redescription, on which she does not comment, despite her description being based partially on the holotype.

KG 1/4/4 – characters

1. P1 basis, inner spine
   short - very small, does not reach ⅓ the length of Enp-1; set with minute setules
   long - extends to midway along Enp-1; set with long spinules

2. P1 Enp-2
   n - ratio of maximum length to maximum breadth

3. P1 Exp-2, inner seta
   short - reaches only to a point well short of the end of exopod
   long - extending well beyond end of exopod

4. P1 Enp-3, setation
   normal - with 2 moderate length "claws" and a minute inner seta. Inner claw slightly longer than the outer, but less stout, and bearing a very small tuft of short setules at its extreme distal end. Claws 3–4 times the maximum length of Exp-3
   elongate - with 2 very long "claws" of very similar length and build and a long inner seta. Inner claw with a prominent tuft of long setules at its extreme distal end. Claws 5–6 times the maximum length of Exp-3.

5. Female P5 exopod, outer seta
   distal - clearly originates in the distal half of outer edge
   middle - origin approximately halfway along the outer edge

KG 1/4/4

P1 basis inner spine	P1 Enp-2 l/b	P1 Enp-2 inner seta	P1 Enp-3 setae	Female P5 Exp outer seta	
short	≈5	long	elongate	distal	*Tisbe finmarchica*[1]
long	8	short	normal	middle	*T. gigantea*[1]

1. Male unknown.

KG 1/5 – characters

1. P1, relative length of exopod and endopod
   long - exopod extends to the end of the endopod
   short - exopod extends to approximately the end of Enp-2 at most

2. P1 Exp-1, inner edge
   present - with a prominent acutely pointed spur
   absent - inner edge smooth; without a spur

3. P1 basis, inner edge
   seta - with a slender seta, probably always naked
   spine - with a short stout spine, often curved

4. P2 basis, length of seta on outer edge

short - extends to approximately the end of Exp-1 at most
medium - extends to approximately the end of Exp-2
long - extends at least to the end of Exp-3

5. P2 Enp-3

n - number of setae and spines

KG 1/5

P1 Exp/ Enp	P1 Enp-1 inner spur	P1 basis inner edge	P2 basis outer seta	P2 Enp-3 setae	
long	absent	spine	?	?	*Scutellidium digitatum*
short	present	spine	short	5	*Scutellidium longicauda* s. str.[1]
short	present	spine	medium	5	*Scutellidium l. acheloides*[1]
short	absent	spine	short	5	KG 1/5/1[2]
short	absent	spine	medium	5	KG 1/5/2[2]
short	absent	spine	?	5	KG 1/5/3[2]
short	absent	spine	absent?	5	*Scutellidium lamellipes*
short	absent	spine	short	4	*Scutellopsis armatus* [*sensu* Pallares, 1969]
short	absent	spine	medium	4	*Scutellopsis macrosetus*
short	absent	seta	medium	5	*Scutellidium deseadensis*
short	absent	seta	long	5[3]	*Scutellidium ringueleti*[3]

1. Data on *S. longicauda* s. str. are from the description by Itô (1976: p. 558) of Swedish material from the Karl Lang collection in Stockholm. A spur on P1 Enp-1 is not mentioned in the excellent description by Sars (1905) or in the partial descriptions of material from Ethiopia by Dussart (1974) and Argentina by Pallares (1968a). Neither is it in Steudel's (1970) description of *S. longicauda paranaense* from Brazil. The spur is very obvious in Itô's (1976) superb illustrations of subspecies *acheloides* and it is difficult to believe that observers of the experience of Sars and Pallares would have overlooked its presence.

   Scutellidium longicauda has been reported from locations throughout the Atlantic Ocean and the Mediterranean and Black Seas and from Chile, Japan and the Maldive Islands. The variability between descriptions makes it probable that not all the widespread records represent the true *S. longicauda.* See Itô (1976) for a discussion and for comparison of the several subspecies.
2. There are a number of species for which the ornamentation of P2–P4 is unknown and which show no unique features. Mostly these fall into KG 1/5/3 but the differences between them and those included in KG 1/5/1 and 1/5/2 are quite slight and it would still be worthwhile checking all material tentatively identified to a species in this set of KG against all others in the set.
3. The outermost seta is minute and easily overlooked. *Scutellidium ringueleti* is also characterised by the extremely swollen outer side of P2 Exp-1, which is extended as a strongly convex spinose lamella.

KG 1/5/1 – characters

1. Female P5 exopod

n - number of setae and spines

2. Female P5 exopod, seta I

filiform - slender seta
blade - a knife-shaped broad blade

3. Female P5 exopod, shape

ovoid I	- approximately ovoid, with seta I at apex
ovoid II	- approximately ovoid, with seta II at apex
truncate	- ovoid, but with truncate apex bearing setae I–III
semilunar	- inner side straight, outer side convex; seta I at apex

KG 1/5/1

Female P5 Exp setae	Female P5 Exp seta I	Female P5 Exp	
5	filiform	truncate	*Scutellidium australe* [*sensu* T. Scott 1912][1]
5	filiform	ovoid II	*Scutellidium antarcticum*[1]
4	blade	semilunar	*Scutellopsis armatus*[1]
2	filiform	ovoid I	*Scutellidium fucicolum*[1]

1. Male unknown.

KG 1/5/2 – characters

1. P2 Exp-1, ornamentation of outer edge

spinules	- spinules only
sp+set	- very stout spinules interspersed with long, stout setules
sp+spat	- spinules interspersed with spatulate setae
prox+dist	- long spinules in proximal quarter + long, fine setules in distal quarter
naked	- without ornamentation (except, possibly, at distal corner)

2. P2 Exp-2, ornamentation of outer edge

spinules	- spinules only
setules	- a dense cover of long, fine setules
naked	- without ornamentation (except, possibly, at distal corner)

3. P2 Enp-3, origin of inner setae

A	- proximal seta in proximal half of segment; distal seta opposite the outer seta
B	- proximal seta in middle of segment; distal seta opposite the outer seta
C	- proximal seta in distal half of segment opposite the outer seta
D	- proximal seta in middle of segment, proximal to origin of outer seta; distal seta at inner distal corner

4. P3–P4 basis, outer seta*

A	- slender setae, extending only to about end of Exp-1 at most
B	- very long, slender setae, especially on P4 where it extends beyond Exp-3
C	- short, slender seta on P3; absent on P4?
D	- absent on both P3 and P4?

* On P4, and sometimes P3, the outer seta may originate on the posterior face and be obscured in anterior view by the ramus.

5. Female P5 exopod, shape

ovoid 1	- ovoid, with seta I at apex widely separated from origin of seta II
ovoid 2	- ovoid, with seta I at apex and adjacent to origin of seta II
truncate	- ovoid, but with truncate apex bearing setae I–III
na	- not applicable

KG 1/5/2

P2 Exp-1 outer edge	P2 Exp-2 outer edge	P2 Enp-3 inner setae	P3–P4 basis outer seta	Female P5 Exp	
spinules	spinules	A	A[1]	ovoid 1	*Scutellidium longicauda* [*sensu* Pallares 1968a][1]
spinules	spinules	A	?	ovoid 1	*S. plumosum* [*sensu* Pallares 1969]
spinules	spinules	B	D	na	*S. plumosum* male [*sensu* Sewell 1940]
spinules	setules	B	D	ovoid 2	*S. plumosum* female [*sensu* Sewell 1940]
spinules	setules	C	A	truncate	*S. arthuri* [*sensu* Lang 1965a]
sp+set	setules	B	B	truncate	*S. caeneus*
sp+spat	setules	B	A	truncate	*S. arthuri* [*sensu* Itô 1976]
prox+dist	naked	D	C	truncate?	*S. arthuri* [*sensu* Vervoort 1964, as *S. dentipes*]
naked	spinules	B	D	truncate	*S. hirutai*

1. P3 only; condition in P4 unknown.

KG 1/5/3 – characters

1. Female P5 exopod, shape

ovoid	- ovoid, with seta I at apex
truncate	- ovoid, but with truncate apex bearing setae I–III

2. Male P5 exopod

n	- number of setae
uk	- male unknown

3. P2 Exp-1, ornamentation of outer edge

spinules	- spinules only
setules	- long, fine setules

4. P2 Exp-2, ornamentation of outer edge

spinules	- spinules only
setules	- long, fine setules

KG 1/5/3

Female P5 Exp	Male P5 Exp setae	P2 Exp-1 outer edge	P2 Exp-2 outer edge	
ovoid	3	spinules	spinules	*Scutellidium longicauda paranaense*
ovoid	3	?	?	*S. plumosum* [*sensu* Lang 1934]
ovoid	4	spinules	spinules	*S. lamellipes*

ovoid	4	spinules	setules	*S. arthuri* [*sensu* Monk 1941]
ovoid	4	?	?	*S. arthuri* [*sensu* Lang 1948]
truncate	4	?	?	*S. plumosum* [*sensu* Wiborg 1964]
truncate	?	?	?	*S. idyoides*
truncate	uk	?	?	*S. cockburni*
?	3	?	?	*S. plumosum* [*sensu* Brady 1899]

KG 2 – characters

1. Cephalic shield, in dorsal view
   short - broader than long; evenly rounded
   long - much longer than broad; anterior ⅓ triangular, posterior ⅔ parallel

2. Caudal ramus
   n - ratio of maximum length to maximum breadth

3. P1, exopod and endopod, distal segment, setation
   fimbriate - exopod with 2 and endopod with 4 fimbriate spines
   normal - without fimbriate spines

4. P5 exopod
   triang - sub-triangular; origin of outer seta in middle of outer edge
   rect - rectangular; all setae terminal or subterminal

KG 2

Cephalic shield	CR l/b	P1 setae	P5 shape	
short	≈1	fimbriate	triang	*Scutellidium patellarum*
long	>2	normal	rect	*Bathyidia remota*

KG 3 – characters

1. P1 endopod
   n - number of segments

2. P1 endopod, distal segment
   fimbriate - with 2 stout setae with fimbriate tips
   normal - without such setae

3. P1 Exp-3
   n - number of setae and spines

4. P5 exopod
   n:n - number of setae in female and male

5. Antenna Exp-1
   n - number of setae

KG 3

P1 Enp segs	P1 Enp distal seg	P1 Exp-3 setae	P5 Exp setae	A2 Exp-1 setae	
2	fimbriate	5	5:5	2	*Drescheriella racovitzai*
2	normal	6	5:5	1	*Tisbella pulchella*
3	normal	6	3:3	1	*Paraidya occulta*

KG 4 – characters

1. Thorax somite 4 (P5 bearing segment), dorsal distal edge
   concave *or* convex

2. P5 exopod
   ovoid:≈1.5 - ovoid shape: approximately 1.5 times as long as broad
   ±rect:≈3 - approximately rectangular: approximately 3 times as long as broad
   ±rect:≈2 - approximately rectangular: approximately twice as long as broad

3. P1 Enp-2
   straight - inner and outer edges approximately straight
   convex - inner and outer edges weakly convex
   vex/str - inner edge strongly convex: outer edge straight

KG 4

Thor-4 dorsum	P5 shape l/b	P1 Enp-2 shape	
concave	ovoid:≈1.5	convex	*Sacodiscus fasciatus*
concave	±rect:≈3	straight	*S. littoralis* male
convex	±rect:≈3	straight	*S. littoralis* female
?	±rect:≈2	vex/str	*S. australis*

KG 5 – characters

1. P1 Enp-2, inner edge
   n - number of setae

2. P1 Exp-3, proximal seta of outer edge
   fimbriate - filiform seta, fimbriate at tip
   plumose - spatulate spine; plumose on outer edge

3. P2–P3 Enp-1
   n - ratio of maximum length to maximum breadth

4. P4 Enp-1
   n - ratio of maximum length to maximum breadth

5. Male P4 endopod

n - number of segments

uk - male unknown

na - not applicable

KG 5

P1 Enp-2 inner setae	P1 Exp-3 seta	P2–P3 Enp-1 l/b	P4 Enp-1 l/b	Male P4 Enp segs	
1	fimbriate	≈2	≈2	3	*Cholidyella incisa*
0	fimbriate	≈2	≈2	3	*C. nesisi*
0	fimbriate	≤1.5	=1.5	na	*C. breviseta* female
0	fimbriate	≤1.5	≈2.5	2	*C. breviseta* male
0	plumose	≈2	≈2	uk	*C. intermedia*[1]

1. In *C. intermedia* there are 2 spatulate spines on the outer edge.

Family Zosimidae

KG 0 – characters

1. P2–P4 endopod
   n:n:n - number of segments in P2, P3 and P4

2. P2–P4 Exp-3
   n:n:n - number of setae and spines on P2, P3 and P4

3. P3–P4 endopod, distal segment
   n:n - number of setae on P3 and P4

4. P1 Enp-2
   n - number of setae and spines

KG 0

P2–P4 Enp segs	P2–P4 Exp-3 setae	P3–P4 Enp distal seg setae	P1 Enp-2 setae	
3:3:3	7:8:8	5:4	4	*Zosime incrassata*
3:3:3	7:8:8	4:4	2	*Z. reyssi*
3:3:3	7:7:7	4:4	4	KG 1
3:3:3	7:7:7	4:4	3	KG 2
3:3:3	6:6:6	3:3	3	*Zosime bathyalis*
3:2:2	7:7:7	4:2	3	*Peresime reducta*
3:2:2	7:7:7	4:2	2	*P. abyssalis*
2:2:2[1]	7:7(?):7	?:5	4	*Pseudozosime browni*[1]

1. This is the segmentation in the female; the male is unknown. In all other genera in this family the male P2 endopod has the same number of segments as the female, though distal segment setation is modified.

KG 1 – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. Female antennule
   n - number of segments

3. Female P5
   n - total number of setae and spines

4. Male P5
   n - total number of setae and spines
   uk - male unknown

KG 1

CR l/b	Female A1 segs	Female P5 setae	Male P5 setae	
≥3.5	7	8–9	uk	*Zosime paratypica*
≥3.5	6	9	uk	*Z. major*
≈3	6	8	7	*Z. typica*[1]
≈3	6	8	6	*Z. gisleni*[1]
≈2	6	7	7	*Z. pacifica*

1. According to the published illustrations, these species can be distinguished on the form of the dentate hyaline frill on the dorsal distal edge of the penultimate somite—plain sharp teeth in *Z. gisleni*, bifid in *Z. typica.* But the description of *Z. gisleni* is not complete and the illustrations are small and of poor quality.

KG 2 – characters

1. Caudal ramus, in dorsal view
   n - ratio of maximum length to maximum breadth

2. Female antennule
   n - number of segments

3. Female P5
   n - total number of setae and spines

4. Male P5
   n - total number of setae and spines
   uk - male unknown

KG 2

CR l/b	Female A1 segs	Female P5 setae	Male P5 setae	
≥4	6	9	uk	*Zosime erythraea*
≈3	6	9	uk	*Z. paramajor*
≈3	6	8	7	*Z. bergensis*
≈2	7	9	uk	*Z. atlantica*
≈2	7	7	6	*Z. valida*
≈2	6	9	uk	*Z. mediterranea*

Index to species in Keys to individual Families

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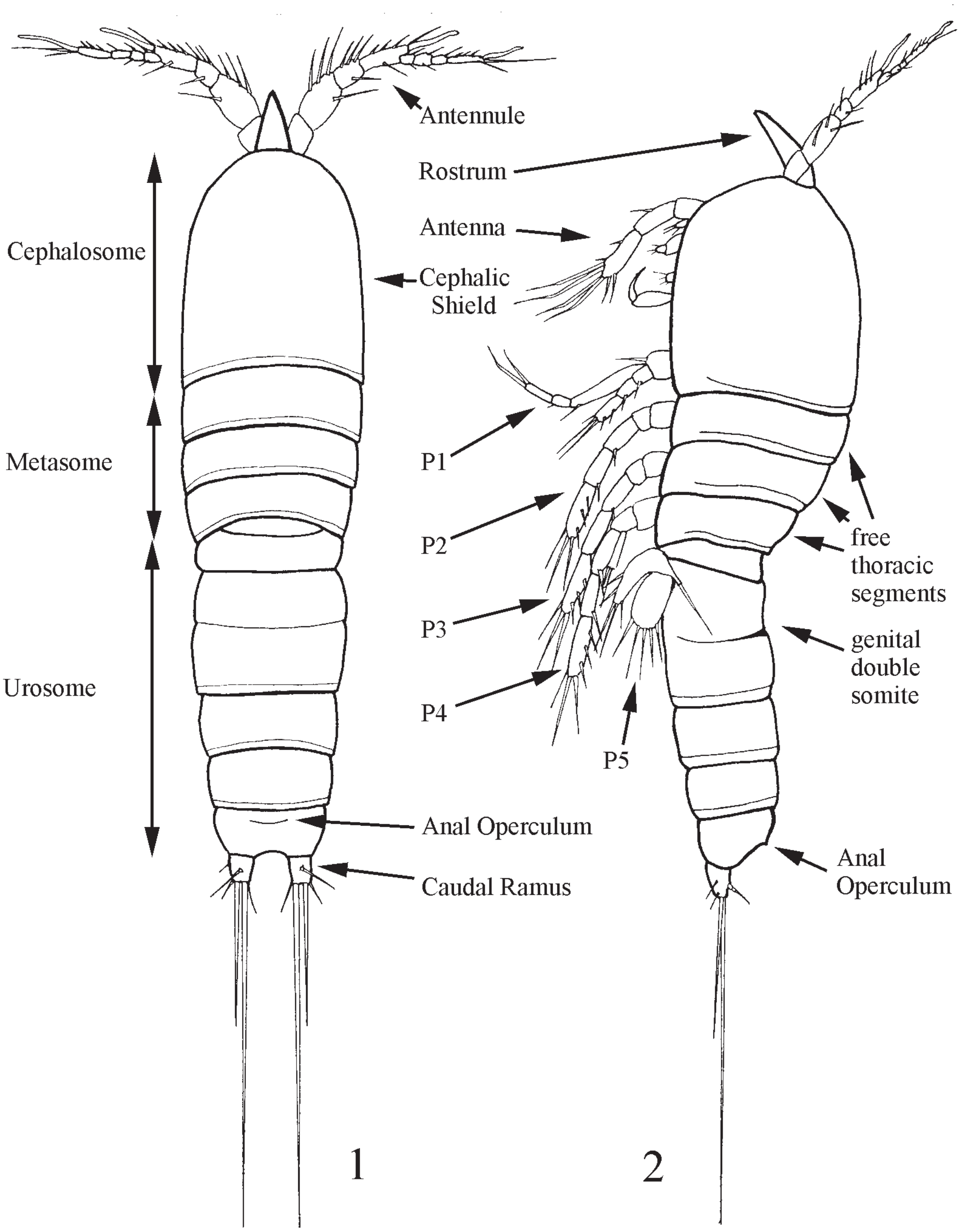
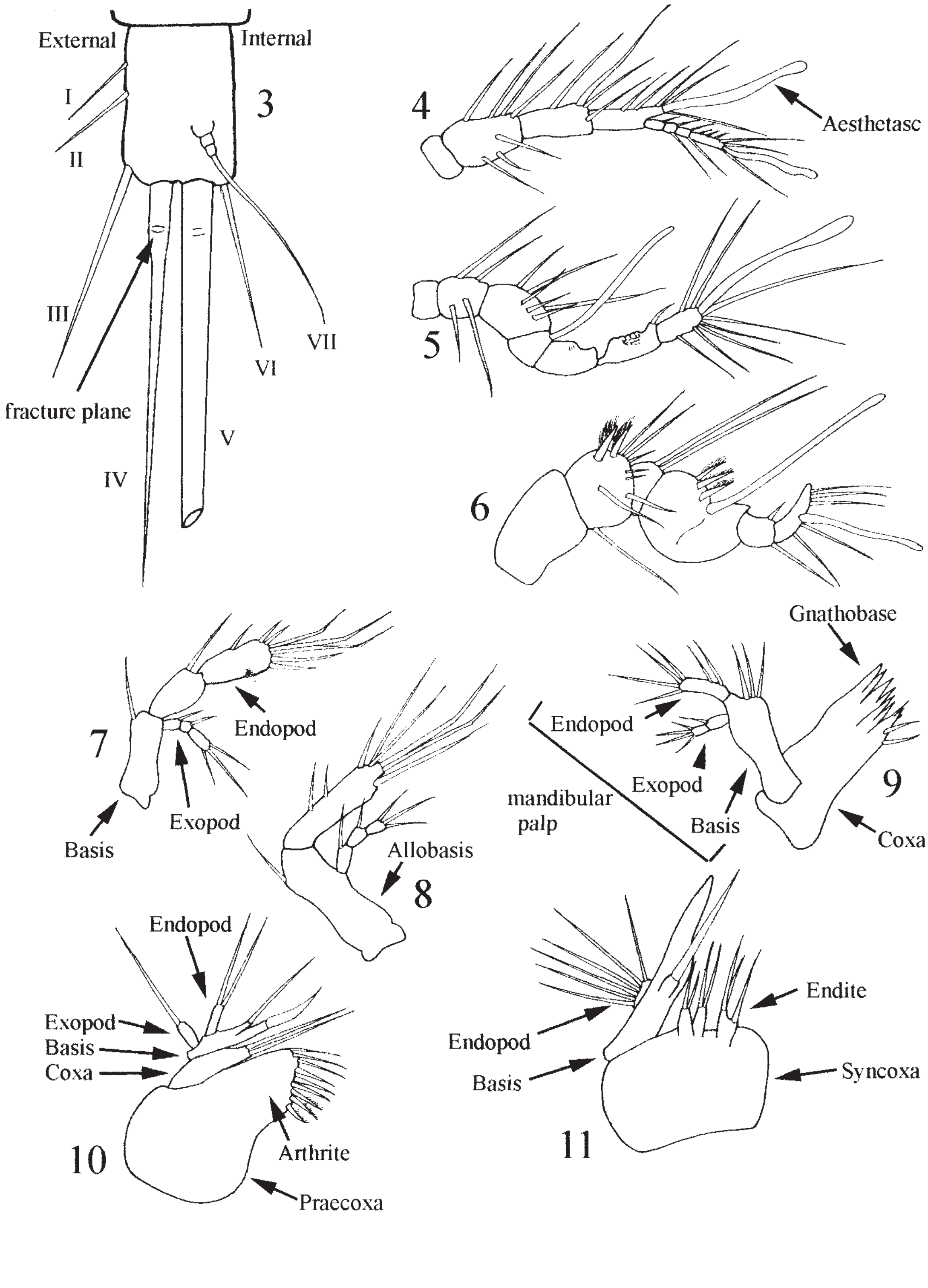
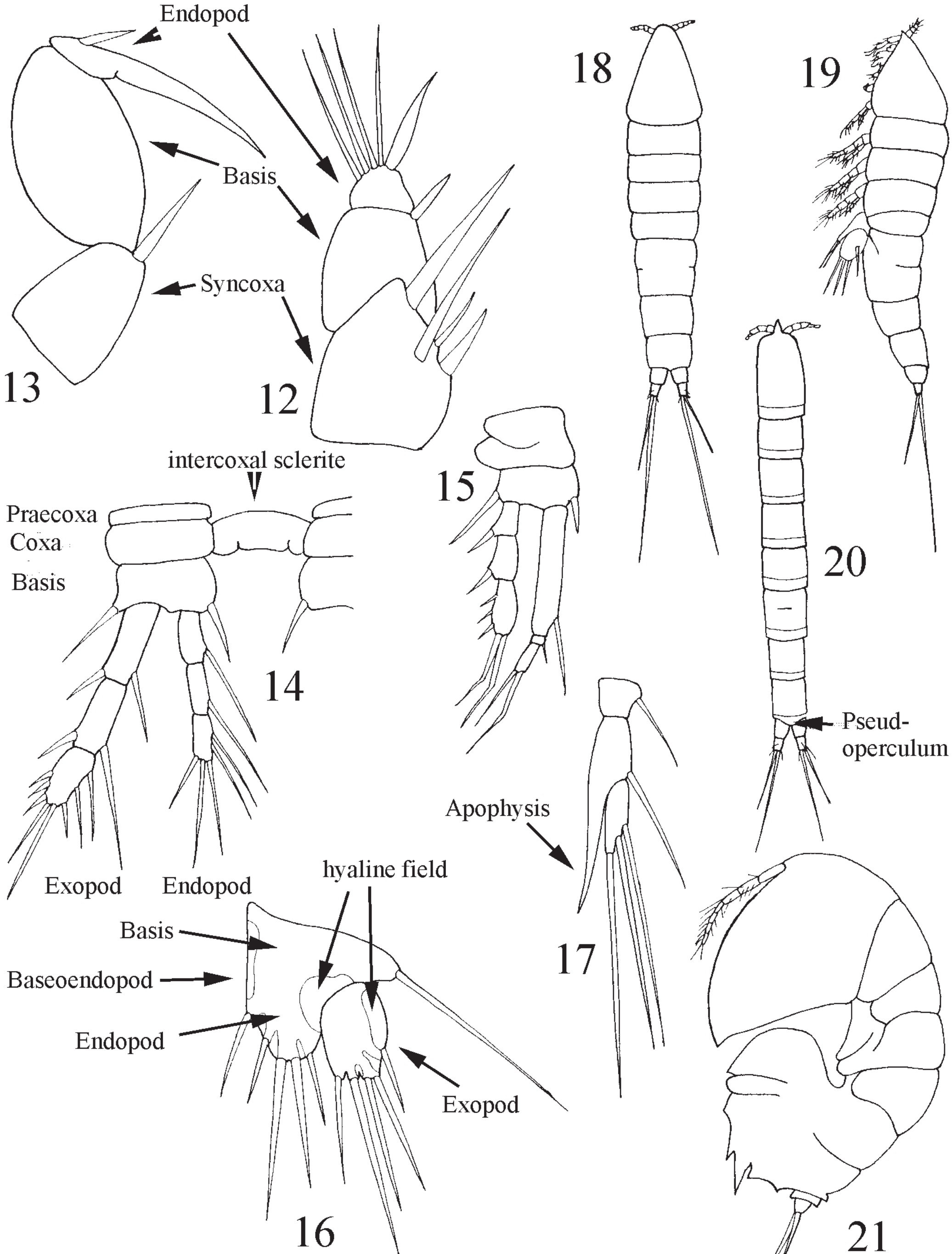


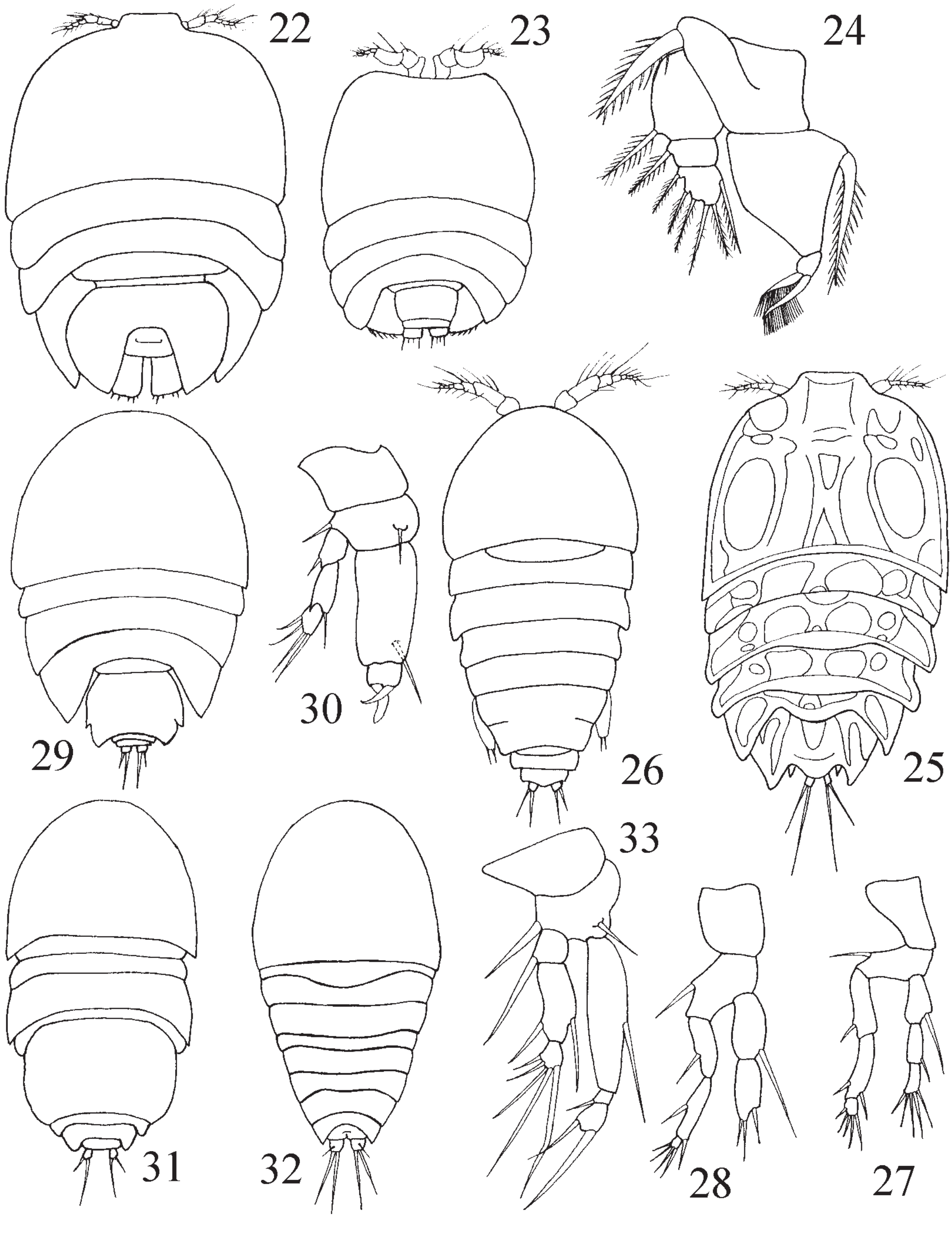
FIGURES 1–2: Diagram of a generalised female harpacticoid copepod in dorsal and lateral view (see Glossary (p. 104) for an explanation of the annotation).



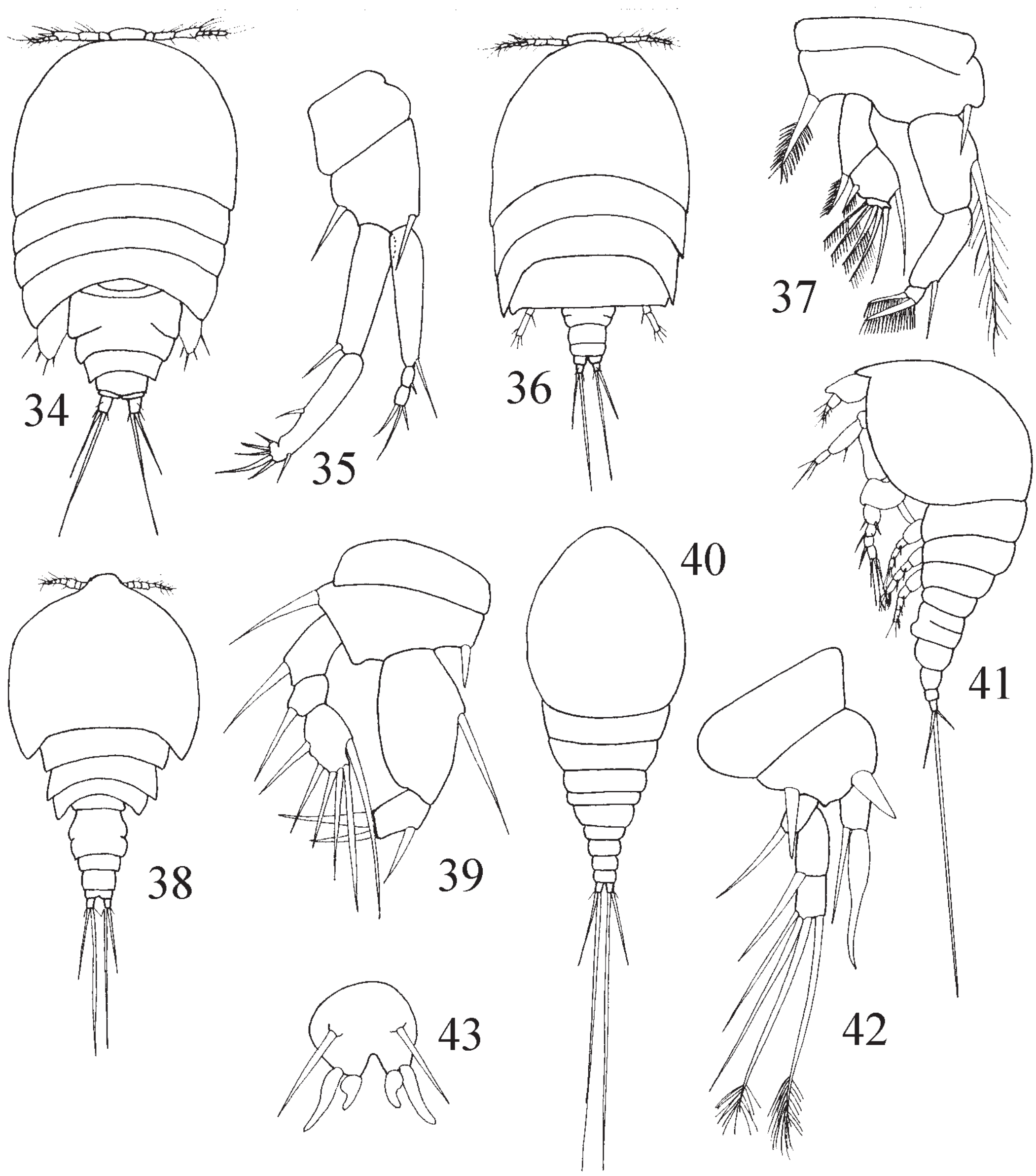
FIGURES 3–11: 3, diagram of a generalised left Caudal Ramus in dorsal view with setae numbered in accordance with the conventions of Huys & Boxshall (1991). 4–11, semi-diagrammatic representations of appendages — 4, female Antennule; 5, haplocerate male Antennule; 6, chirocerate male Antennule; 7, Antenna with Basis; 8, Antenna with Allobasis; 9, Mandible; 10, Maxillule; 11, Maxilla.



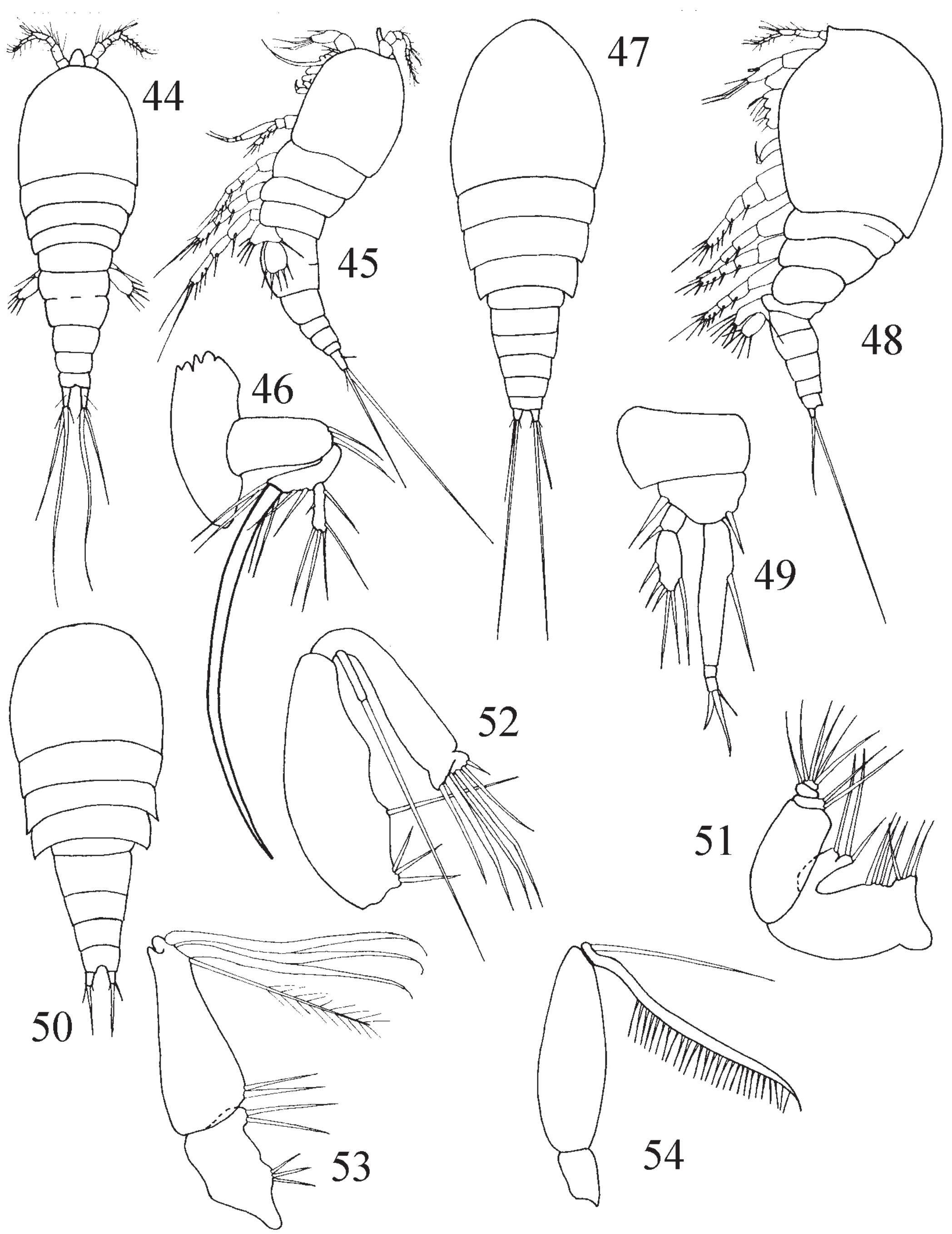
FIGURES 12–21: 12-20, semi-diagrammatic representations of appendages and body form — 12, stenopodial Maxilliped; 13, subchelate Maxilliped; 14, a generalised Pereiopod (swimming leg) with the full complement of segments in Protopod, Exopod and Endopod and with the intercoxal sclerite ("coupler") that links the pair of legs; 15, P1 with prehensile Endopod; 16, a generalised left P5 with the hyaline fields that are characteristic of some genera; 17, male P2 Endopod with apophysis; 18–19, the fusiform body shape in dorsal and lateral view; 20, the cylindrical body shape. 21, Tegastidae, female in lateral view (P1-P4 omitted).



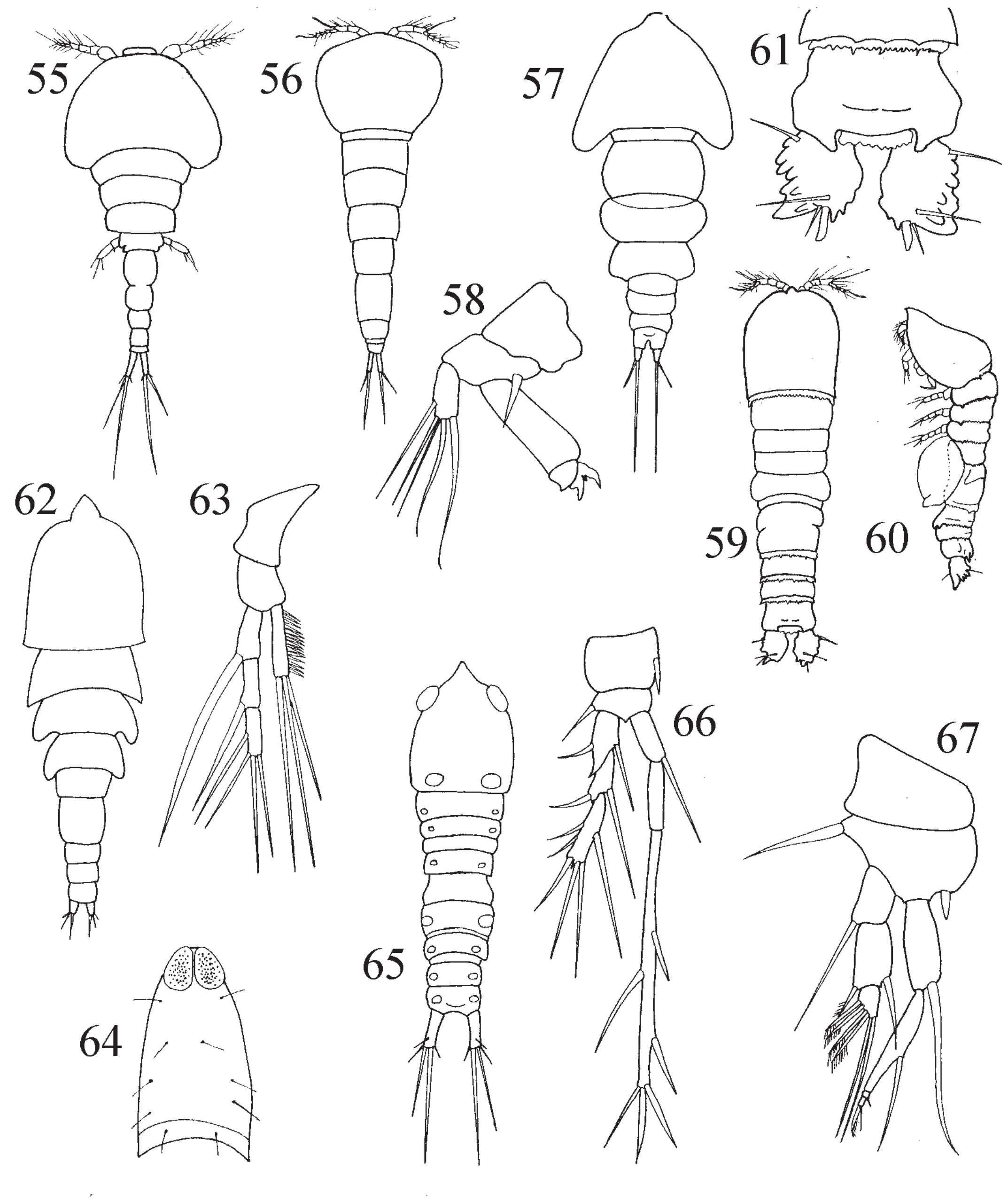
FIGURES 22–33: 22–24, Porcellidiidae — 22–23, female and male in dorsal view; 24, P1. 25–28, Peltidiidae — 25–26, females in dorsal view (note that the chitin struts may be less well developed than shown in Fig 25 or be entirely absent); 27–28, forms of P1. 29–30, *Hamondia* (Hamondiidae), — 29, female in dorsal view; 30, P1. 31–33, *Paramenophia* (Thalestridae), — 31–32, female and male in dorsal view; 33, P1.



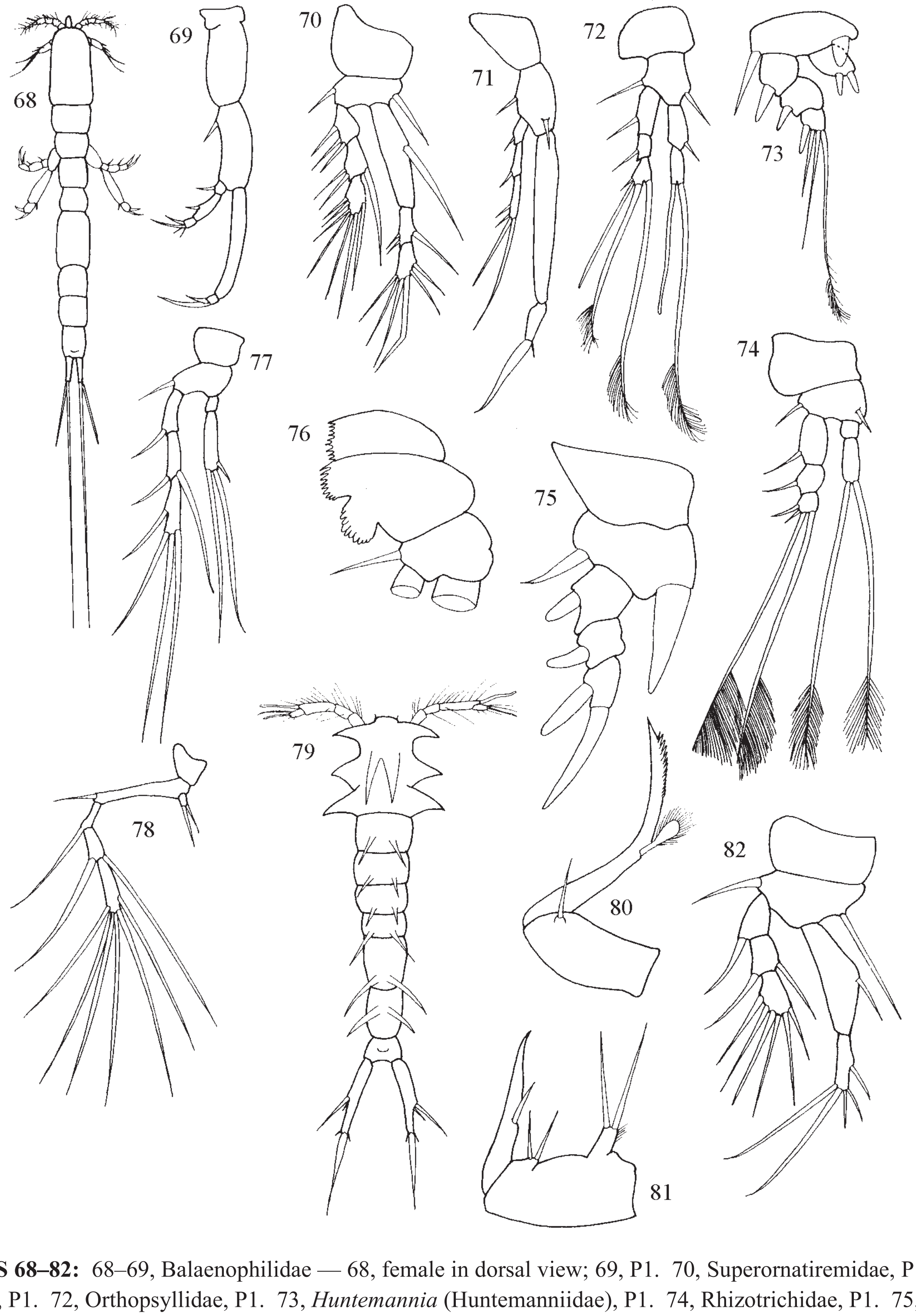
FIGURES 34–43: 34-35, *Zaus* (Harpacticidae) — 34, female in dorsal view; 35, P1. 36–37, *Scutellidium* (Tisbidae) — 36, female in dorsal view; 37, P1. 38–39, *Dactylopia* (Idyanthidae) — 38, female in dorsal view; 39, P1. 40–43, Metidae — 40–41, female in dorsal and lateral view; 42, P1 (Endopod may have 1–3 segments); 43, the pair of P5.



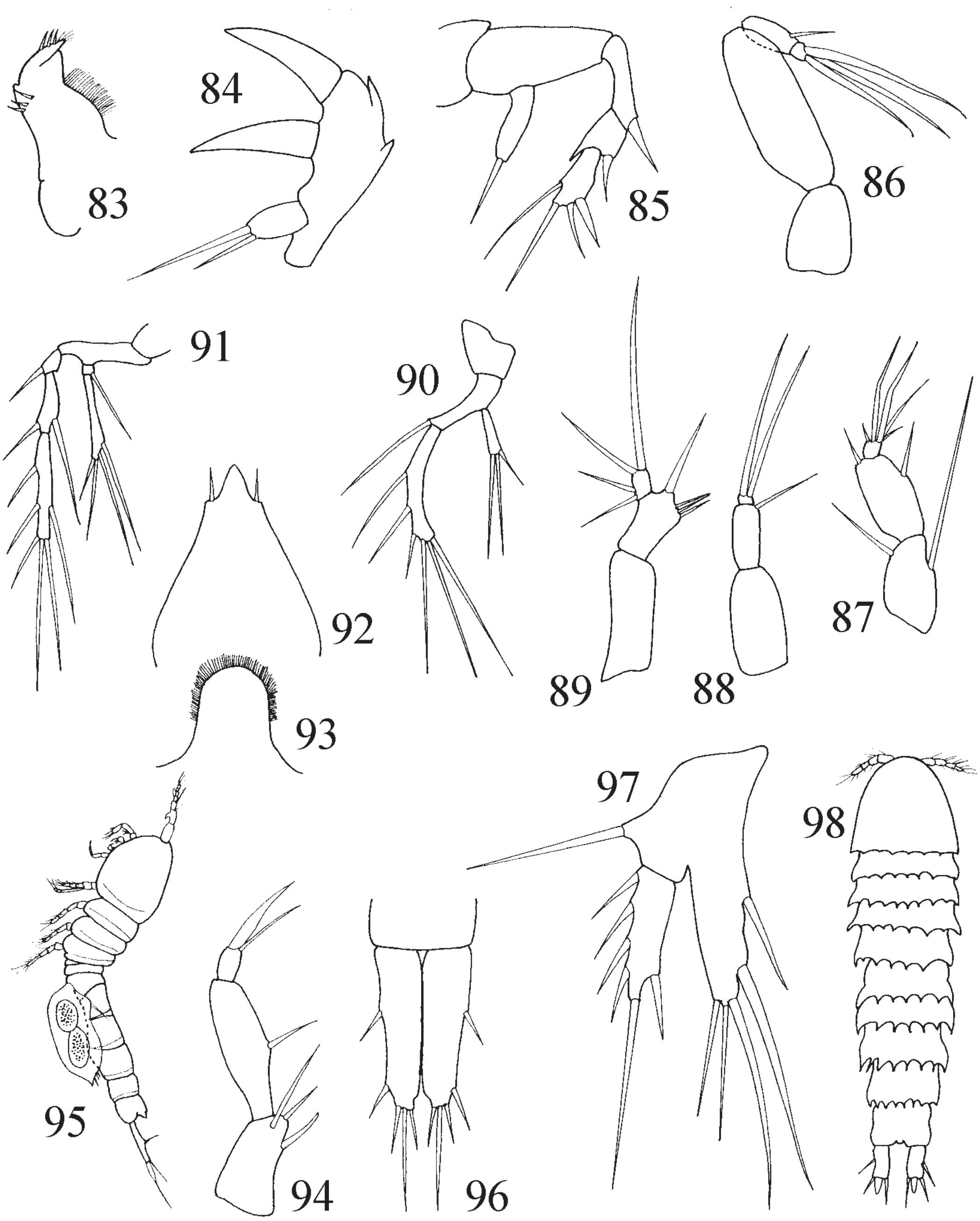
FIGURES 44–54: 44–46, Stenhelia (Miraciidae) — 44–45, female in dorsal and lateral view; 46, Mandible. 47–49, Diarthrodes (Dactylopusiidae) — 47–48, female in dorsal and lateral view; 49, P1 (Exopod may have 1–2 segments; Endopod may have 2–3 segments). 50, Peltobradya (Ectinosomatidae), female in dorsal view. 51–53, Ectinosomatidae, various forms of Maxilla. 54, Leptastacidae, Maxilliped.



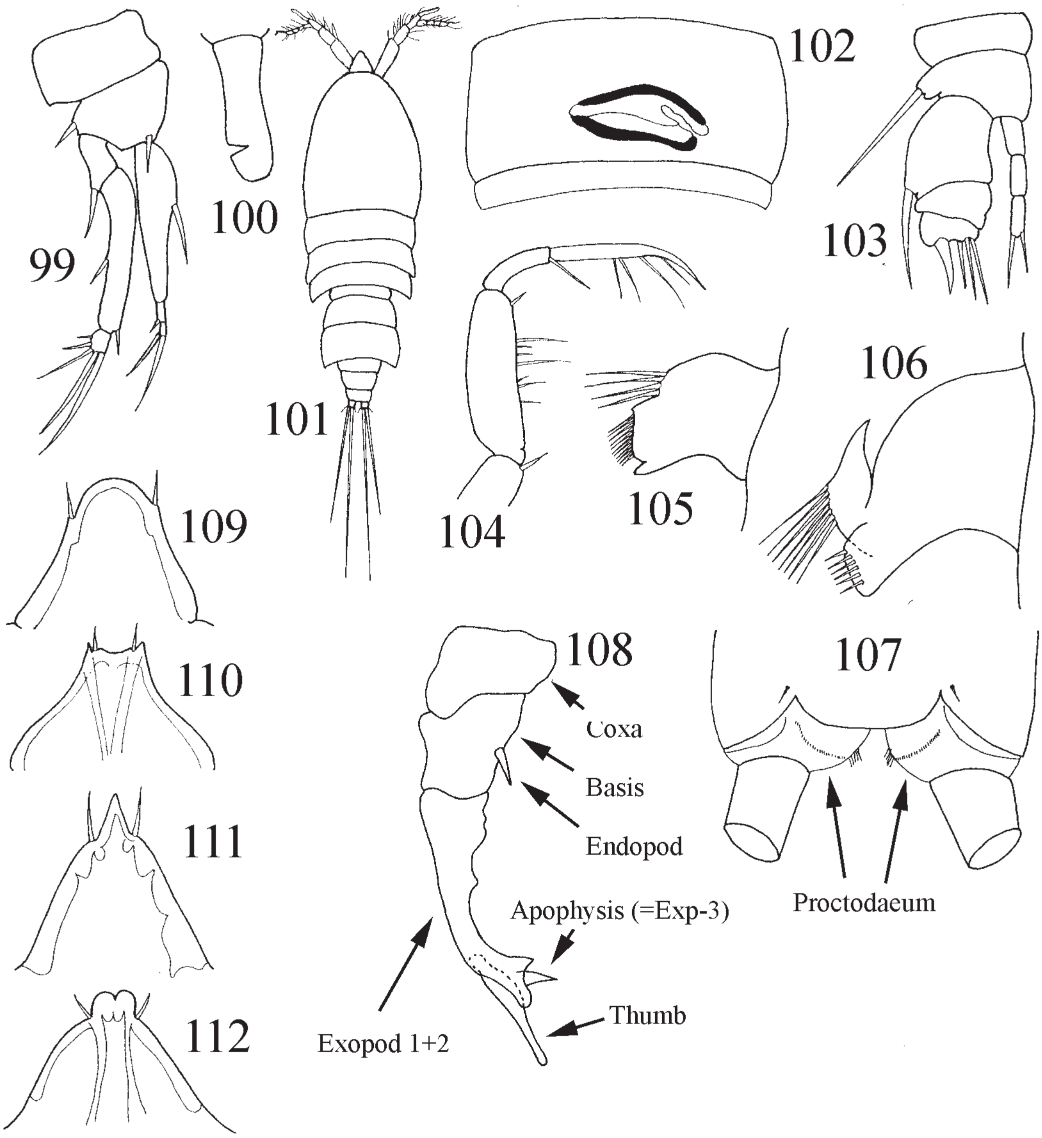
FIGURES 55–67: 55, *Yunona* (Tisbidae), female in dorsal view. 56, *Neoscutellidium* (Tisbidae), female in dorsal view. 57–58, *Caligopsyllus* (Paramesochridae) — 57, female in dorsal view; 58, P1. 59–61, *Oniscopsis* (Tetragonicipitidae) — 59–60, female in dorsal and lateral view; 61, anal segment and caudal rami in dorsal view (details differ between species and may be sexually dimorphic). 62–63, *Clytemnestra* (Peltidiidae) — 62, female in dorsal view; 63, P1. 64, *Oculosetella* (Miraciidae), Cephalic Shield in dorsal view. 65, Adenopleurellidae, female in dorsal view. 66, Longipediidae, P2. 67, Tisbidae, P1.



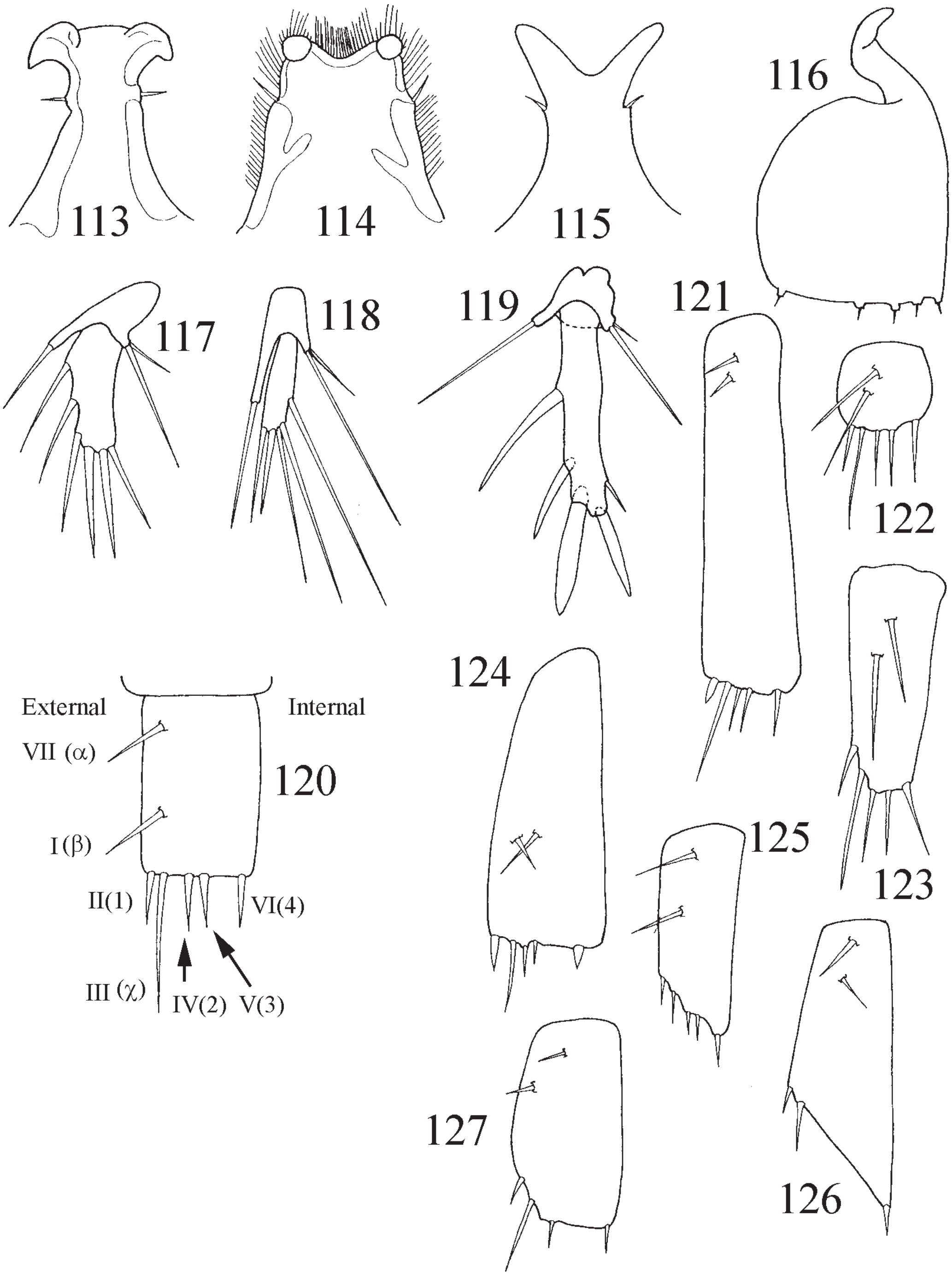
FIGURES 68–82: 68–69, Balaenophilidae — 68, female in dorsal view; 69, P1. 70, Superornatiremidae, P1. 71, Laophontidae, P1. 72, Orthopsyllidae, P1. 73, *Huntemannia* (Huntemanniidae), P1. 74, Rhizotrichidae, P1. 75, *Metahuntemannia* (Huntemanniidae), P1. 76, Cristacoxidae, P1 Protopod. 77–79, Ancorabolidae — 77–78, two forms of P1; 79, female in dorsal view. 80–81, Tisbidae, two forms of Maxilla. 82, *Idyanthe* (Idyanthidae), P1.



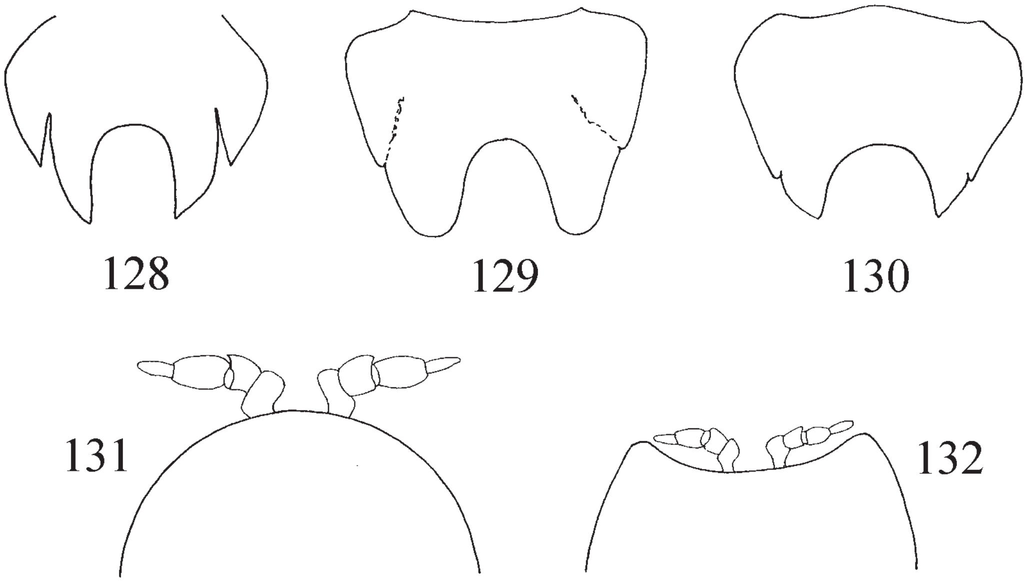
FIGURES 83–98: 83, Louriniidae, Maxilliped. 84, *Leptocaris* (Darcythompsoniidae), Maxilliped. 85–86, Paramesochridae — 85, P2; 86, Maxilliped. 87, *Tachidiella* (Idyanthidae), Maxilliped. 88–89, Zosimidae, two forms of Maxilliped. 90, *Anoplosoma* (Ameiridae), P2. 91, *Malacopsyllus* (Ameiridae), P2. 92, *Eurycletodes* (Argestidae), Rostrum. 93, *Nannopus* (Huntemanniidae), Rostrum. 94–95, *Phyllopodopsyllus* (Tetragonicipitidae) — 94, Maxilliped; 95, female in lateral view, with eggs in a brood pouch formed from the pair of P5. 96-97, *Laophontopsis* (Laophontopsidae), — 96, Caudal Rami; 97, female P5. 98, *Actinocletodes* (Cletodidae), female in dorsal view.



FIGURES 99–112: 99, *Thalestris* (Thalestridae), P1. 100, *Ameira* (Ameiridae), modified inner spine of male P1 Basis. 101, *Peltthestris* (Rhynchothalestridae), female in dorsal view. 102, *Cancrincola* (Cancrincolidae), male, first abdominal segment and P6. 103, *Latiremus* (Latiremidae), male P4. 104, *Protopsammotopa*, (Miraciidae), Maxilliped. 105–106, Leptastacidae, two forms of Labrum in lateral view. 107–108, Parastenocarididae — 107, anal segment in dorsal view; 108, male P3. 109–112, Cletodidae, various forms of Rostrum in dorsal view.



FIGURES 113–127: 113–116, *Schizacron* (Cletodidae) — 113–115, various forms of Rostrum in dorsal view; 116, Rostrum and Cephalic Shield in lateral view. 117–119, *Peltidium* (Peltidiidae), various forms of P5. 120, Porcellidiidae, diagram of left Caudal Ramus in dorsal view with setae numbered according to Huys & Boxshall (1991; roman numerals) and Harris & Robertson (1994; arabic numerals and greek letters) (cf Fig 3). 121–127, Porcellidiidae, various forms of left Caudal Ramus in dorsal view.



FIGURES 128–132: Porcellidiidae — 128–130, various degrees of fusion of the segments of the genital double somite; 131–132, anterior edge of male Cephalic Shield.