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NEOPELTOPSIS PECTINIPES, A NEW GENUS AND SPECIES OF SEAWEED-DWELLING COPEPOD (HARPACTICOIDA: PELTIDIIDAE) FROM WELLINGTON, NEW ZEALAND

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ABSTRACT

Neopeltopsis pectinipes gen. et sp. nov. is described and figured from sublittoral marine algae at Wellington, New Zealand; the genus is an addition to the Peltidiidae Sars. The genus is compared with the other genera of the family, and a revised key is given to the genera of the Peltidiidae.

INTRODUCTION

During a sampling programme to study the population structure and ecology of the seaweed-dwelling Copepoda (Harpacticoida) at Island Bay, Wellington, New Zealand, a large number of new species were encountered. Among them was a commonly occurring form belonging to the Peltidiidae which I was not able to place within any of the existing genera.

The family Peltidiidae Sars contains seven genera (Lang 1948; Bodin 1967, 1971), members of which are common inhabitants of marine sediments and algae.

SYSTEMATICS

Family PELTIDIIDAE Sars, 1904

Neopeltopsis gen. nov.

DIAGNOSIS: Body flattened with a simple skeletal pattern, not as well developed as in *Peltidium* Philippi or *Parapeltidium* A. Scott; rostrum broad, prominent; antennule 8-segmented in the female, 9 in the male; antennal exopod rudimentary, 1-segmented and bearing 2 setae; P1 endopod 2-segmented, exopod segment 3 bearing 4 large flattened comb-shaped setae; endopods and exopods of P2–P4 3-segmented, P5 2-segmented, exopod smaller than baseoendopod, in the form of a triangle with slightly curved sides; urosome broadly ovate, slightly expanded laterally but extending posteriorly so as to almost surround the caudal rami; caudal rami rectangular, posteriorly truncated, length to width ratio of nearly 3 : 1 in the female, but only about 3 : 2 in the male; urosome-caudal rami complex analogous to that of the genus *Porcellidium* (Porcellidiidae Sars).

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The above definition coincides with that of its only known and type species, and must, therefore, be considered tentative.

Neopeltopsis pectinipes sp. nov. (Figs 1–3)

FEMALE (Fig. 1A): Total length 1.04 mm; length to width ratio is 1.8 : 1.0; body flattened, simple pattern of chitinous thickening, not as well developed as in *Peltidium* Philippi or *Parapeltidium* A. Scott.

Rostrum (Fig. 1A) broad, prominent.

Urosome (Fig. 1C) broadly ovate, slightly expanded laterally, with 3 lateral clefts on each side marking the fusion of the abdominal somites; postero-lateral wings of urosome extensive and closely surrounding caudal rami.

Caudal rami (Fig. 2G) rectangular with parallel sides, posteriorly truncated and not extending beyond posterior border of urosome, length to width ratio of 2.9 : 1.0, each ramus bearing 4 dorsal setae, 3 terminal setae, and distal surface spinules. The urosome-caudal rami complex rather like *Porcellidium.*

Antennule (Fig. 3A) 8-segmented with aesthetascs on segments 4 and 8; first and second segments with groups of spinules.

Antenna (Fig. 2A) coxa small, bare; basis rectangular and bearing exopod. Endopod segment 1 longer than basis, bearing a single naked marginal seta. Endopod segment 2 with 4 subterminal geniculate setae, 2 large spines and 2 expanded saw-like terminal setae. Exopod rudimentary, 1-segmented and bearing 2 setae.

Mandibular praecoxa (Fig. 2B) elongate and narrow, cutting edge small; coxa-basis narrow and bears a single seta; endopod has 1 proximal and 3 terminal setae; exopod with 3 terminal setae; all setae smooth.

Maxillule (Fig. 2C) arthrite of praecoxa with 10 setae distally; coxa small with 3 apical setae; basis with 4 terminal setae, one of which is large and spiniform, and 2 subterminal setae; endopod represented by 3 setae, one of which is reduced; exopod bearing 3 terminal setae.

Maxilla (Fig. 2D) syncoxa bearing 3 endites; proximal endite with 4, other endites with 2 and 3 terminal setae respectively; basis bearing one spiniform and 2 naked setae; endopod represented by 2 small setae.

Maxilliped (Fig. 2E) subchelate; coxa larger than basis; basis bears a small plumose seta; endopod expanded, ovoid, bearing a strong curved spine and a shorter stout seta with a cushion of tiny spinules; a group of spines occurs proximally on the outer margin of the endopod palm.

P1 (Fig. 3C) coxa longer and wider than basis; basis bears 2 setae, one of which is placed at the base of the endopod; exopod segments 1 and 2 each with a single naked outer seta, segment 2 also with an inner distal spinulated seta; exopod segment 3 small and indistinctly separated from segment 2, bearing 4 broadly flattened comb-shaped setae; endopod 2-segmented and bearing 8 setae on the distal segment.

P2, P3, and P4 all with 3-segmented exopods and endopods; seta and spine formulae are as follows:

	Endopod	Exopod
P2 (Fig. 3D)	0.1.120	0.1.222
P3 (Fig. 3E)	1.1.220	0.1.322
P4 (Fig. 3F)	1.1.220	0.1.322

P5 (Fig. 2F) baseoendopod over twice the length of exopod, bearing 4 setae on the inner edge, the most distal of which is strongly spiniform, and one small terminal seta on the distal outer corner; exopod slightly curved, in the form of a triangle, with 6 setae on the outer margin, the most distal of which is spiniform.

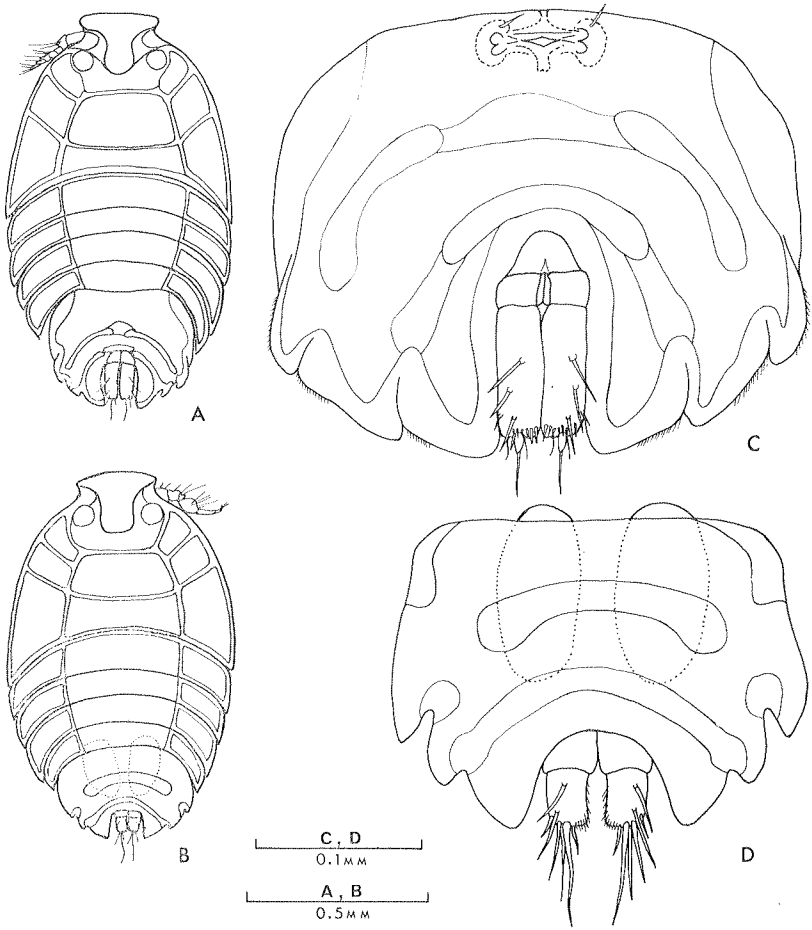

FIG. 1—*Neopeltopsis pectinipes* gen. et sp. nov.: (A) ♀ dorsal view; (B) ♂ dorsal view; (C) ♀ urosome dorsal view; (D) ♂ urosome dorsal view.

Colour in the live animal is variably grey-gold, some with the thoracic epimera tinged with violet-blue.

MALE (Fig. 1B) : Total length 0.98 mm; body generally shaped like female.

Rostrum (Fig. 1B) as in female.

Urosome (Fig. 1D) broadly ovate, with 2 distinct lateral notches marking the fusion of the abdominal somites.

Caudal rami (Fig. 2I) rectangular and not extending past the posterior border of the urosome; length to greatest width ratio of 1.5 : 1.0, each ramus bears 4 dorsal setae and 3 terminal setae, the middle of which is longest; spinules are present on the medial and posterior borders.

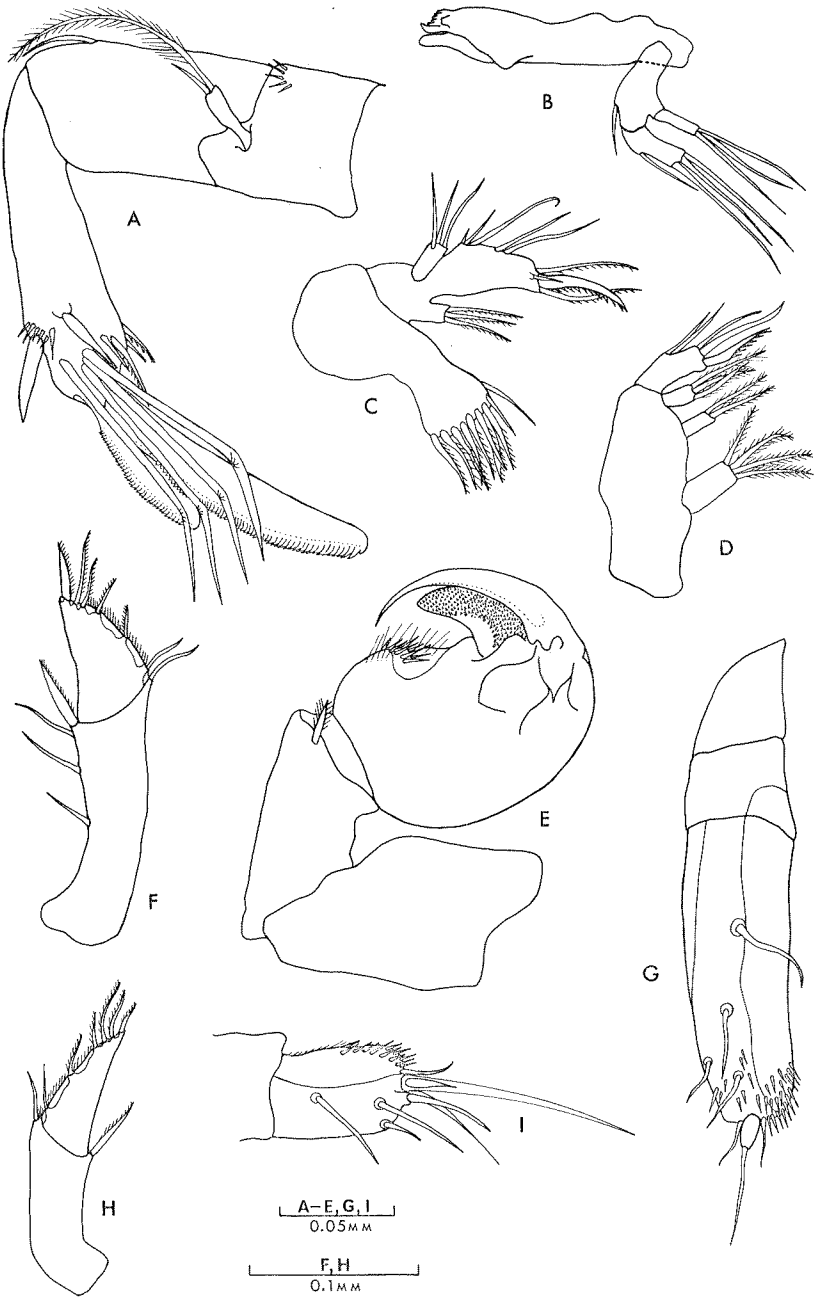

FIG. 2—*Neopeltopsis pectinipes* gen. et sp. nov., ♀ : (A) antenna; (B) mandible; (C) maxillule; (D) maxilla; (E) maxilliped; (F) P5; (G) caudal ramus; ♂ : (H) P5; (I) caudal ramus.

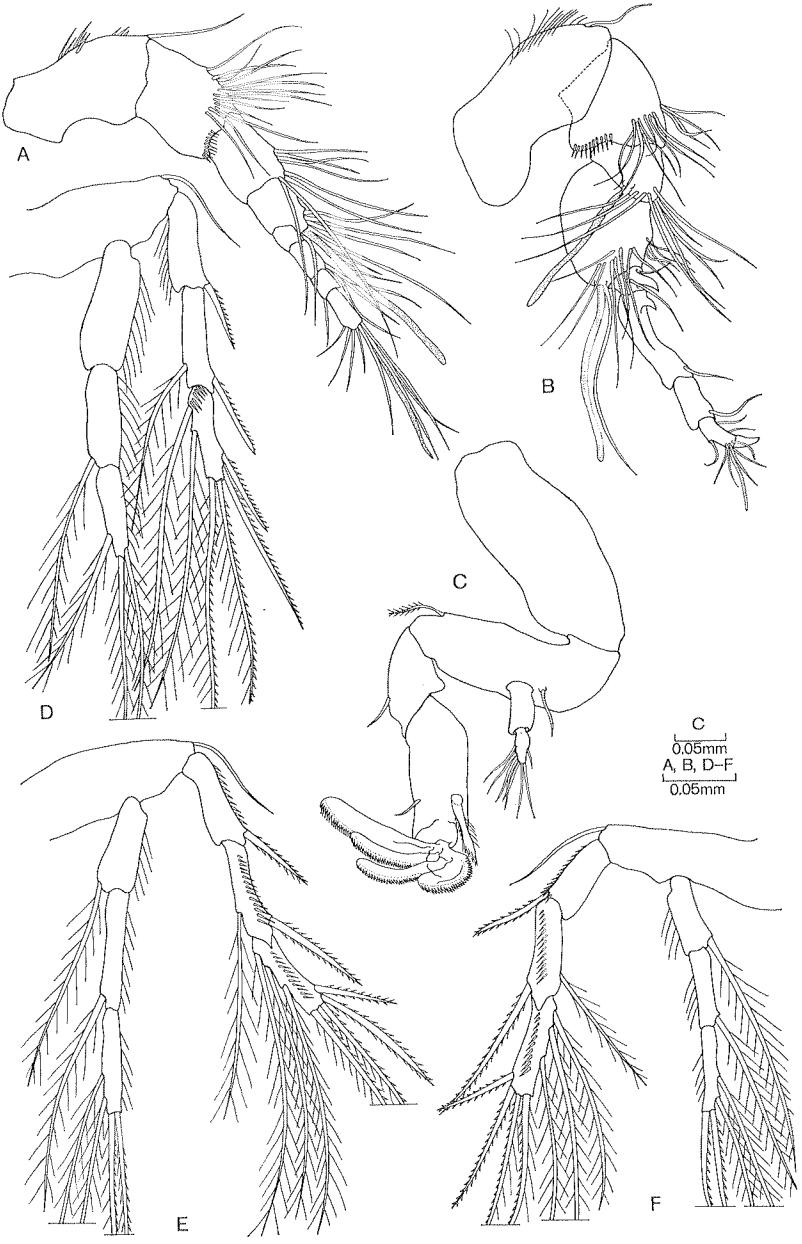

FIG. 3—*Neopeltopsis pectinipes* gen. et sp. nov.: (A) ♀ antennule; (B) ♂ antennule; (C) ♀ P1; (D) ♀ P2; (E) ♀ P3; (F) ♀ P4.

TABLE 1—Differences between genera of the Peltidiidae Sars

	A2 Exopod	Maxilliped Endopod	P1 Endopod	♀ P5	Urosome	Caudal Rami
Peltidium Philippi	2-segmented	narrow, sub-ovoid	2-segmented, shorter or almost as long as exopod	2-segmented, exopod larger than baseoendopod	genital-double segment expanded postero-laterally, last 3 segments narrow, distinct	slender, rectangular, surrounded by expansions of genital double segment
Alteutha Baird	2-3?segmented	narrow, expanded-ovoid	3-segmented, shorter than exopod	2-segmented, exopod larger than baseoendopod	genital-double segment expanded laterally, last 3 segments tapering, distinct	short, wide, not surrounded by abdominal expansions
Eupelte Claus	2-segmented	expanded, ovoid	2-segmented, shorter than exopod	2-segmented, exopod as large or larger than baseoendopod	genital-double segment expanded laterally, last 3 segments tapering, distinct	short, wide, not surrounded by abdominal expansions
Alteuthella A. Scott	2-segmented	narrow, sub-ovoid	3-segmented, shorter than exopod	1-segmented, exopod and baseoendopod fused	genital-double segment expanded laterally, last 3 segments tapering, distinct	short, wide, not surrounded by abdominal expansions
Parapeltidium A. Scott	2-segmented	narrow, sub-ovoid	2-segmented, shorter or almost as long as exopod	1-segmented, exopod and baseoendopod fused	genital-double segment expanded postero-laterally, last 3 segments narrow, distinct	slender, rectangular, surrounded by expansions of genital-double segment
Paralteutha T. Scott	2-segmented	narrow, sub-ovoid	2-segmented, almost as long as exopod	2-segmented, exopod as large or larger than baseoendopod	genital-double segment expanded laterally, last 3 segments narrow, distinct	short, wide, not surrounded by abdominal expansions
Alteuthellopsis Lang	1-segmented	narrow, sub-ovoid	2-segmented, shorter than exopod	1-segmented, exopod and baseoendopod fused	genital-double segment expanded laterally, last 3 segments narrow, distinct	short, wide, not surrounded by abdominal expansions
Neopeltopsis gen. nov.	1-segmented	expanded, ovoid	2-segmented, shorter than exopod	2-segmented, exopod smaller than baseoendopod	genital-double segment and distal segments fused, expanded postero-laterally	elongate, wide, closely surrounded by fused urosomal expansions

Antennule (Fig. 3B) is 9-segmented; segment 3 small, with aesthetasc; segment 4 expanded, ovate and bearing an aesthetasc; segment 5 small and bearing a distinct tooth on its margin; segment 6 elongate, narrow, and also bearing a proximal tooth; segment 8 with small aesthetasc; distal segment small, recurved.

P5 (Fig. 2H) narrower than in the female; baseoendopod only slightly longer than exopod and lacking the 3 inner naked setae present in the female; exopod as in female but more elongate and narrow; outer distal seta of the exopod not as spiniform as in the female.

Colour as in the female.

VARIABILITY: Ten specimens have been dissected. They were identical except for one female which had a setal and spine formula on the P2 endopod of 0.1.110 on one limb; another female had 0.2.120 on one limb of the same appendage.

HOLOTYPE: The undissected holotype female is deposited in the National Museum, Wellington, New Zealand (Nat. Mus. Z. Cr. 1998).

PARATYPES: One dissected and six undissected females, one dissected male, and one undissected male, have been deposited with the National Museum, Wellington, New Zealand (Nat. Mus. Z. Cr. 1999–2001); one female and one male dissected specimens are also deposited in the British Museum (Nat. Hist.) (BM(NH) 1975.1269 and 1975.1268 respectively).

TYPE LOCALITY: Type material was collected from the red gelidiacean alga *Pterocladia lucida* at a depth of 6 m opposite the Victoria University Marine Laboratory at Island Bay, Wellington, on 30 September 1973. The species can be collected throughout the year and is sometimes also found at a similar depth on *P. pinnata* and the green 'sea rimu' *Caulerpa brownii*.

ETYMOLOGY: The generic name is derived from the Greek *neos* = new, *pelta* = small shield, and *-opsis* = appearance, and refers to a new genus within the Peltidiidae. The gender is masculine. The specific name is derived from the Latin *pecten* = comb, and *pes* = foot, and relates to the flattened comb-shaped setae on the distal exopod segment of P1.

REMARKS: *Neopeltopsis* is remarkable in that the majority of its characters are sufficient to place it within the Peltidiidae, but its urosome-caudal rami complex is very like that found in the Porcellidiidae Sars.

Neopeltopsis shares a number of important features with other peltidiid genera (Table 1), notably the 2-segmented endopod of P1, found in *Peltidium*, *Eupelte* Claus, *Parapeltidium* and *Paralteutha* T. Scott, and the combination of this feature with the unsegmented exopod of the antenna seen in *Alteuthellopsis* Lang. However, it is distinct in having a 2-segmented P5 with an exopod which is smaller than the baseoendopod, but more importantly the structure of the urosome and its relationship with the caudal rami resembles that found in the monotypic Porcellidiidae. The fused lateral expansions of the abdominal somites extend posteriorly to almost surround the caudal rami, as seen in a number of species of *Porcellidium* (see Humes & Gelerman 1962, Hicks 1971). This feature along with a number of others (Table 1) distinguishes *Neopeltopsis* from *Alteuthellopsis*, which has a similar expanded genital-double segment but a small narrow abdomen bearing terminal caudal rami.

Because *Neopeltopsis* appears to have affinities with two well-established families, the possible discovery of further species may result in the erection of a new family.

KEY TO THE PELTIDIIDAE Sars

Revised from Nicholls (1941) and Lang (1948)

BOTH SEXES

1	Endopod P1 3-segmented	2
	Endopod P1 2-segmented	3
2	Distal segment exopod P1 with 1 claw; P5 1-segmented	**Alteuthella** A. Scott
	Distal segment exopod P1 with 2 or more claws; P5 2-segmented	**Alteutha** Baird
3	Exopod antenna 2-segmented	5
	Exopod antenna 1-segmented	4
4	P5 1-segmented; abdominal segments narrow, distinct; caudal rami exposed	**Alteuthellopsis** Lang
	P5 2-segmented; abdominal segments expanded, fused, surrounding caudal rami	**Neopeltopsis** gen. nov.
5	Caudal rami slender, rectangular	7
	Caudal rami wide, plate-like	6
6	Exopod segment 1 P1 short, exopod about twice as long as endopod	**Eupelte** Claus
	Exopod segment 1 P1 elongate, exopod and endopod almost equal in length	**Paralteutha** T. Scott
7	P5 2-segmented	**Peltidium** Philippi
	P5 1-segmented	**Parapeltidium** A. Scott

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