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A NEW SPECIES OF *ELAPHOIDELLA* FROM GROUNDWATER OF SARDINIA, AND  
FIRST RECORD OF *ELAPHOIDELLA CVETKAE* PETKOVSKI FROM ITALY  
(CRUSTACEA: HARPACTICOIDA)

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ABSTRACT

*Elaphoidella nuragica* n.sp., from groundwater of Sardinia, Italy, is described, and *Elaphoidella cvetkae* Petkovski, 1983, known only from Yugoslavia, is for the first time reported from Italy. The new species belongs to the *simplex*-group of *Elaphoidella* s.str., sensu Apostolov (1985), being close to *E. longifurcata* Chappuis & Kiefer, 1952, and *E. mauro* Chappuis, 1952, both from groundwater of France. *E. cvetkae*, belonging to the *gracilis*-group, is redescribed and briefly discussed; the species is new to Italy.

Our continuing studies on the stygofauna of Italy has yielded a large amount of stygobiont or eustygophilous harpacticoid copepods from different groundwater habitats of Sardinia.

Among this material, a species of the genus *Elaphoidella* Chappuis, sensu Apostolov (1985), which is herein described as *Elaphoidella nuragica* n.sp., was encountered. Following Apostolov's review of the genus *Elaphoidella* s.l., *E. nuragica* n.sp. belongs to the *simplex*-species group, being close to *E. longifurcata* Chappuis & Kiefer, 1952, and *E. mauro* Chappuis, 1952, both from subterranean waters of France.

Moreover a great number of harpacticoids from groundwaters of north-eastern Italy (Friuli-Venezia Giulia) was received for identification through the kindness of Dr. F. Stoch of the University of Trieste (Italy). Examination of these samples yielded besides other species,

*Elaphoidella cvetkae* Petkovski, 1983, hitherto unknown outside of Yugoslavia. This species is redescribed and briefly discussed.

Family Canthocamptidae Sars, 1906 cf.

Lang, 1948

Genus *Elaphoidella* s.str. sensu

Apostolov, 1985

*Elaphoidella nuragica* n.sp.

Figs. 1-8

Material.-

1♂ (holotype) and 1 immature specimen (cop. IV?), completely dissected and mounted on coverslips in Faure's medium; fresh-water well along the main road S. Caterina di Pittinuri-Riola Sardo (Oristano); 2-IX-1979; coll. G.L. Pesce, D. Maggi and G. Silverii. Holotype deposited in the collection of the Zoölogisch Museum, Amsterdam, Netherlands (ZMA Co. 102.779).

## Description.-

A small *Elaphoidella*; body slender, gradually tapering posteriorly; length, excluding antennulae and furcal setae, 0.38 mm. Body ornamented ventrally with row of long spines on posterior margin of genital, postgenital and terminal somites, and with numerous rows of hair-like elements on whole surface of these somites; posterior and dorsal margins of the same somites denticulate; anal somite with 4 spines at basis of each furcal ramus.

Furcal rami subconical, elongated (length/width = 2.29); outer margin armed with 2 long setae; distal margin with 3 setae, outer seta about 2.5 times longer than inner one, medial seta the longest; dorsal seta about as long as each furcal ramus, implanted on very conspicuous chitinous protrusion.

Antenna 1: 8-segmented, aesthetasc on segment 4, long, overreaching distal segment. Antenna 2: exopod 1-segmented, bearing 2 apical and 2 subapical short setae.

Mouthparts without characteristics, in comparison with other species of the genus.

Leg 1: both rami 3-segmented, endopod longer than exopod; first segment of endopod about as long as the first two segments of exopod combined; armature as in fig. 1.

Leg 2: Exopod 3-segmented; endopod 2-segmented, first segment armed with short inner seta, distal segment with 1 long, apical plumose seta and 2 short, subapical setae.

Leg 3: exopod 3-segmented; endopod spine on medial segment as in fig. 8; setae on distal segment subequal in length.

Leg 4: exopod 3-segmented, endopod 2-segmented and armed with 1 distal and 2 subdistal setae.

Leg 5: basiendopod naked on the inner margin; exopod wider than long, armed with 3 short setae, of same length, and 1 stout, long spine.

Female unknown.

## Etymology.-

Named after the ancient neolithic civilization of Sardinia: "Nuragica".

## Remarks.-

Recently, Apostolov (1985) defined *Elaphoidella* sensu restricto as a genus with a 3-seg-

mented P1 endopod and 2-segmented P4 endopod, and established the genera *Stygoelaphoidella*, *Elaphoidellopsis* and *Neoelaphoidella* to include those species formerly attributed with a variable number of segments in the endopods of P1-P4. Moreover, Apostolov proposed two species-groups within *Elaphoidella* s.str., based on the armature of the distal segment of the exopod of P4, viz. the *gracilis*-group, with 6 terminal setae and the *simplex*-group with 4-5 setae.

According to this proposition, *E. nuragica* n.sp. quite fits the diagnosis of *Elaphoidella* s.str., and belongs to the *simplex*-species group, being close to *E. longifurcata* Chappuis & Kiefer, 1952, and *E. mauro* Chappuis, 1952, both from groundwater of France. From all species of *Elaphoidella* s.str., the new species differs by the armature of the P4 exopod, the construction and armature of the P5 exopod, and the armature of the P3 endopod.

*Elaphoidella cvetkai* Petkovski, 1983

Figs. 9-16

## Material.-

499, 2♂♂, completely dissected and mounted on coverlips in Faure's medium, "grotta di Montefosca" 1649Fr (Torrano, Udine), Friuli-Venezia Giulia; 16-III-1986; coll. F. Gasparo & F. Stoch; 2♂♂, 1 immature specimen (cop. V?), dissected and mounted as above, "grotta II", south of Mt. Tricesa (Pulfero, Udine), Friuli-Venezia Giulia; 23-III-1986; coll. F. Gasparo & F. Stoch; 1♀, dissected and mounted as above, "Foran des Aganis" 48 Fr (Torrano, Udine), Friuli-Venezia Giulia; 24-II-1986; coll. F. Gasparo & F. Stoch; 1♂, dissected and mounted as above, "grotta I", south-west of Montefosca 443Fr (Pulfero, Udine), Friuli-Venezia Giulia; 23-III-1986; coll. F. Gasparo & F. Stoch.

Material in the collection of the first author, Dipartimento di Scienze Ambientali, University of L'Aquila, Italy.

## Description.-

Female. A medium-sized *Elaphoidella*; body length, excluding antennulae and furcal setae, 0.68-0.72 mm. Abdominal somites each with posterior row of spinules on ventral side; anal somite with 5-9 spinules at basis of each furcal ramus. Genital field as in fig. 16. Anal operculum slightly convex, with numerous short spinules along medial margin.

Furcal rami subconical, longer than wide (length/width = 1.78-1.81); outer margin of

each furcal ramus with 2 setae and numerous spinules; distal margin with 3 setae, inner one the shortest, much shorter than furcal ramus; dorsal seta long, implanted on a chitinous lamella.

Antenna 1: 8-segmented. Antenna 2: exopod 1-segmented, elongated, armed with 2 apical and 2 subapical setae. Mouthparts without particularities.

Leg 1: both rami 3-segmented; legs 2-4, exopod 3-segmented, endopod 2-segmented. Setal formula of legs 1 to 4 listed below.

	exopod	endopod
P <sub>1</sub>	0 1 022	1 1 120
P <sub>2</sub>	0 1 122	- 1 221
P <sub>3</sub>	0 1 222	- 1 321
P <sub>4</sub>	0 1 222	- 1 211

Leg 5: exopod subquadrangular in shape, with 3 setae; basiendopod with 3 setae of about the same length.

Male. Body length, excluding antennulae and furcal setae, 0.75-0.77 mm. Endopod of P<sub>3</sub> as in fig. 12; endopod of P<sub>4</sub> as in fig 9; spines on distal segment of exopod of P<sub>4</sub> not transformed. Leg 5, exopod distinct, much wider than long, armed with 3 setae; basiendopod naked. Other characteristics as in female.

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Remarks.-

*E. cvetkae* has recently been described by Petkovski (1983) on material from the Planiska Jama cave in Slovenia (Yugoslavia). The only subsequent record of the species is from groundwater of the Skocjanske Jama cave in the same karstic area (Petkovski & Brancelj, 1985) It is now recorded for the third time and it is new to the Italian fauna.

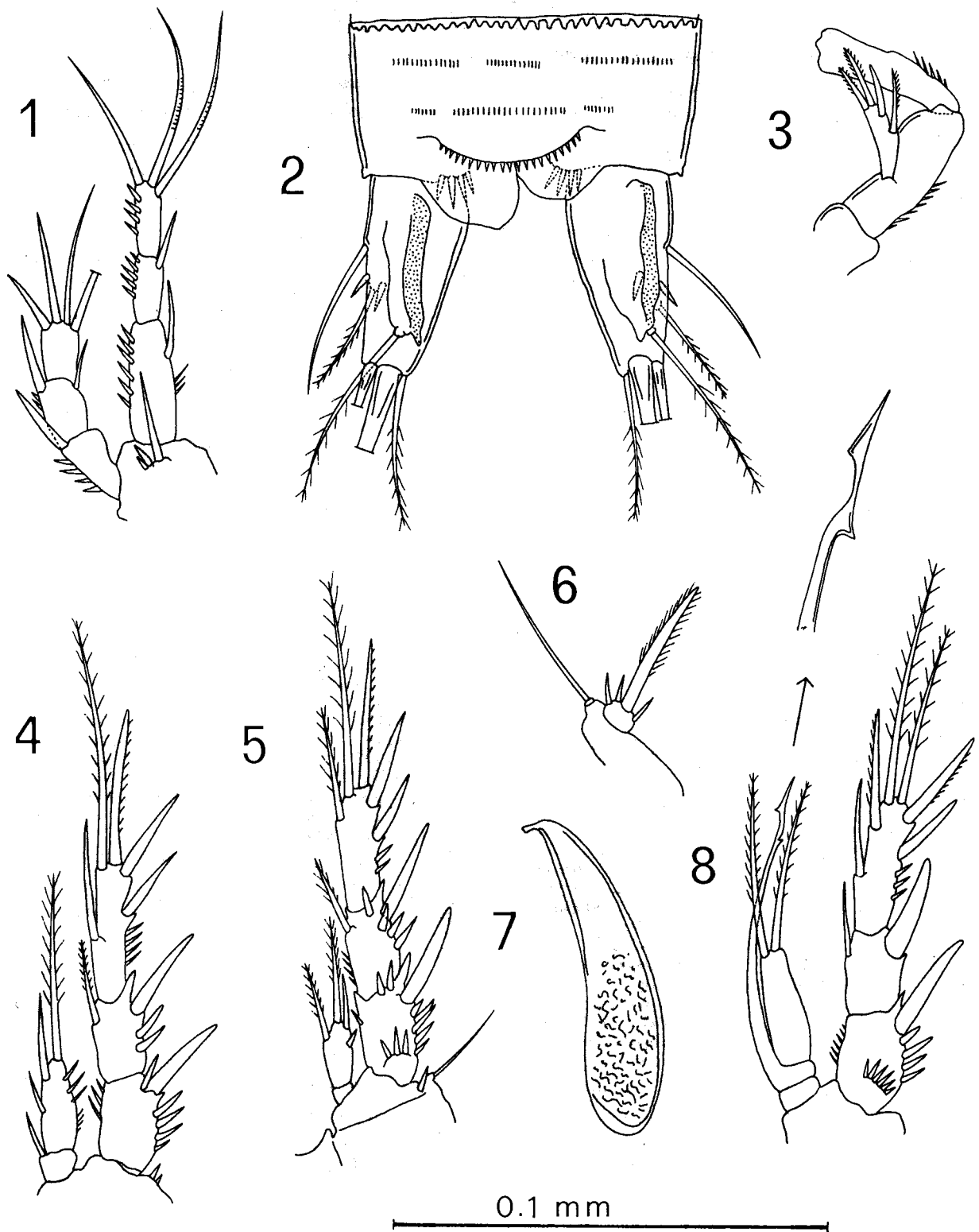
Following Apostolov's (1985) recent revision of the genus *Elaphoidella*, *E. cvetkae* belongs to the *gracilis*-group of *Elaphoidella* s.str.

All material examined from Italy is easily identifiable as *E. cvetkae*, the only differences we found being a smaller size of the specimens, an anal somite with 5-9 spines at the basis of furcal rami (versus 5-6 spines only), and furcal rami slightly shorter than in the material from Yugoslavia.

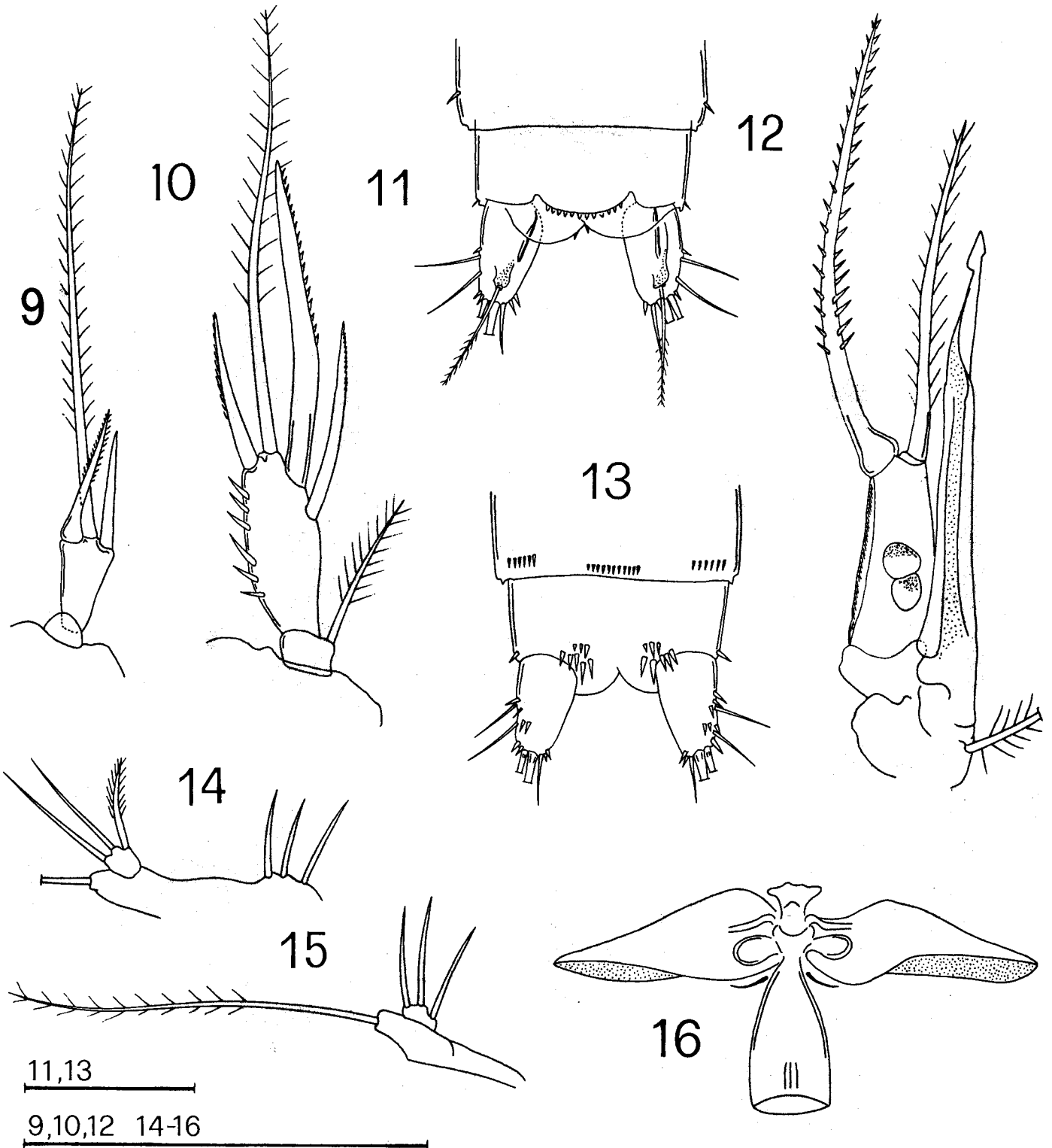
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Figs. 1-8. *Elaphoidella nuragica* n.sp. (holotype). 1, P1; 2, furcal rami and anal operculum, dorsal view; 3, antenna; 4, P2; 5, P4; 6, P5; 7, spermatophore; 8, P3.



Figs. 9-16. *Elaphoidella cvetkae* Petkovski. 9, P4 endopod ( $\delta$ ); 10, P4 ( $\text{♀}$ ); 11, furcal rami and anal operculum, dorsal view; 12, P3, endopod ( $\delta$ ); 13, furcal rami, ventral view; 14, P5 ( $\text{♀}$ ); 15, P5 ( $\delta$ ); 16, genital field.