

UDK 595.371(450)

Gordan S. Karaman*

NEW AND INTERESTING SPECIES OF THE GENUS *NIPHARGUS*
Schiödte 1849 (FAM. *NIPHARGIDAE*) FROM ITALY

(Contribution to the Knowledge of the Amphipoda 212)

Abstract

The new species, *Niphargus stochi*, n. sp. (*Amphipoda Gammaridea*, fam. *Niphargidae*) is described from the caves, springs and wells in the Trieste province (N. Italy). *Niphargus danielopoli* G. Karaman 1994, known from Austria, is found now in Italy, and re-described from the subterranean waters in the Varese province (N. Italy). The variability and the taxonomical position of both taxa are discussed.

Introduction

Recent studies of the subterranean fauna of *Amphipoda* from Italy during last several years, made possible the discovery of numerous new taxa or taxa known previously only in the adjacent countries (*N. bodoni* G. Karaman 1985, *N. tamaninii barbatus* G. Karaman 1985, *N. armatus* G. Karaman 1986, *N. poianoi* G. Karaman 1988, *N. steueri liburnicus* G. Karaman & Sket 1989, *N. strouhali alpinus* G. Karaman & Ruffo 1989, *N. messanai* G. Karaman 1990, etc.).

The recent study of the material of the subterranean *Amphipoda* from Italy, collected by Dr. Fabio Stoch from Trieste

* Faculty of Sciences, P.O. Box 40. 81000 Podgorica (Titograd) Yugoslavia.

(Italy), indicated the presence of some unknown taxa of the genus *Niphargus* in the subterranean waters of the northern part of Italy, new for the science or for Italy. Two of these taxa are presented and analysed in this paper.

TAXONOMICAL PART

Niphargus stochi, n. sp.

Figs.: I—IV

Material examined: Italy: — AMD/00210. — Springs of Aurisina, »Filtri« di Aurisina, com. Duino-Aurisina, prov. Trieste, January 5, 1987, 1. juv. spec. (leg. F. Gasparo & F. Stoch) (Coll. MCSNV (Museo Civico di Storia Naturale Verona);

— AMD/00248. — Antro delle Ninfe (VG 2687), Val Rosandra, com. S. Dorligo della Valle, prov. Trieste, Sept. 10, 1992, 4. juv. spec. intermixed with *Niphargus wolfi* Schell. 1933 (Coll. MCSNV);

— AMD/00303. — Antro Sorgenti di Bagnoli (VG 105), Bagnoli della Rosandra, comune S. Dorligo della Valle, prov. Trieste, January 17, 1986, 1 spec. (holotype) intermixed with *Niphargus wolfi* Schell. 1933 (leg. F. Gasparo) (Coll. MCSNV);

— Well near S. Giovanni di Duino (VG 226), G. 50, com. Duino-Aurisina, prov. Trieste, Dec. 11, 1983, 1 spec. juv. (leg. F. Gasparo) (Coll. MCSNV).

Description: Female 3 mm with smooth oostegites (holotype): Body slender, metasomal segments 1—3 with 5—6 dorsoposterior marginal setae each (fig. IV, 5); urosomites 1—2 with 1 spine on each side (fig. III, 6). Urosomite 1 near basis of peduncle of uropod 1 without any spine or seta (fig. III, 6).

Head with short rostrum and short subrounded lateral cephalic lobe (fig. I, 1).

Antenna 1 slightly exceeding half of body, peduncular segments 1—3 progressively shorter; main flagellum consisting of 12 articles (most of them with 1 longer aesthetasc); accessory flagellum short, 2 — segmented, shorter than last peduncular segment (fig. III, 3).

Antenna 2: peduncular segment 5 slightly shorter than 4, flagellum with 4 stout articles; antennal gland cone strong (fig. III, 4). Labrum entire, broader than long, with truncated distal margin (fig. IV, 2). Labium with well developed inner lobes (fig. IV, 3).

Mandible with well developed triturative molar bearing 1 long subdistal seta on right mandible. Right mandible: incisor with 4 teeth, lacinia mobilis bifurcate, pluritoothed, accompanied by 6 rakers (fig. I, 2). Left mandible: incisor with 5 teeth, lacinia mobilis with 4 teeth, accompanied by 7 rakers (fig. I, 3). Mandibular palp

segment 2 with 4 setae; palp segment 3 subfalciform, slightly longer than segment 2, provided with 1 A-seta, 2 single B-setae, 10 D-setae and 4 long E-setae (fig. I, 4).

Maxilla 1: inner plate narrow, with 1 distal seta; outer plate with 7 spines (5 spines with 1 lateral tooth, 1 spine with 1—2 lateral teeth, 1 spine with 4—5 lateral teeth); palp short, not reaching tip of spines of outer plate, provided with 5 setae (fig. II, 7).

Maxilla 2 normal, with distolateral setae only.

Maxilliped: inner plate hardly exceeding outer tip of first palp segment, with 2 distal smooth spines accompanied by single setae (fig. IV, 4); outer plate reaching $\frac{2}{3}$ of second palp segment, bearing a row of distolateral spines; palp normal (fig. IV, 4).

Coxae 1—4 longer than broad, coxae 1—2 nearly as long as corresponding segment 6 of gnathopods 1—2, with 2—4 long marginal setae each (fig. II, 1, 4; III, 1, 2); coxa 4 with poorly marked ventroposterior dilatation (fig. III, 2); coxa 5 shorter than 4 (fig. I, 5).

Gnathopods 1—2 weak, linear, »kochianus-type«. Gnathopod 1: segment 3 with 1 posterior marginal seta; segment 5 slightly longer than 6, with 3 posterior groups of setae (fig. II, 1, 2), segment 6 slightly longer than broad, with convex posterior margin provided with 2 groups of setae and produced distoposterior part; palm finely serrate, supertransverse (i.e. palm and anterior margin of segment 6 forming angle of more than 90°), convex, defined on outer face by 1 strong and 1 short corner spine accompanied by 1 facial seta, on inner face by 1 subcorner elongated spine (fig. II, 3); dactyl hardly reaching posterior margin of segment 6, with 1 seta at outer margin (fig. II, 3).

Gnathopod 2: segment 5 slender and long, with 4 groups of posterior setae (fig. II, 4, 5); segment 6 narrow, shorter than 5, remarkably longer than broad, with 3 groups of posterior marginal setae; palm, corner and subcorner spines like these in gnathopod 1 and dactyl hardly reaching posterior margin of segment 6, bearing 1 seta at outer margin (fig. II, 5, 6).

Pereopods 3—4 slender; dactyl long and slender, exceeding $\frac{3}{4}$ of segment 6-length, with 1 seta at inner margin; nail much longer than pedestal (fig. III, 1, 2).

Pereopods 5—7 with dilated ovoid segment 2 bearing short posterior marginal setae and well developed ventroposterior lobe (fig. I, 5, 6, 8). Dactyl of pereopod 5 missing, that of pereopods 6—7 long and slender, reaching nearly $\frac{2}{3}$ of segment 6, bearing 1 short seta at inner margin; nail nearly as long as pedestal (fig. I, 7, 9).

Epimeral plates 1—3 with acute produced ventroposterior corner (fig. IV, 5), plate 3 with 1 subventral spine.

Pleopods 1—3 with 2 retinacula each. Peduncle of pleopod 1 with 1 anterior seta, peduncle of pleopod 2 smooth, that of pleopod 3 with 1 posterior median seta (fig. III, 5).

Uropods 1—2 long and slender. Uropod 1: peduncle with dorsoexternal and dorsointernal row of spines; rami nearly subequal, with lateral and distal short spines (fig. III, 6).

Uropod 2: inner ramus distinctly longer than outer one, both rami with lateral and distal spines (fig. III, 6).

Uropod 3 missing in holotype; that from Antro delle Ninfe is short, first segment with row of single plumose setae along inner margin, intermixed with spines; second segment short (fig. IV, 6).

Telson slightly elongated, broadly excavated over 3/4 of its length (fig. IV, 1, 7); each lobe with 3 short distal spines and one pair of short plumose setae sitting near the middle of each lobe (fig. IV, 1, 7).

Coxal gills moderately long, these of pereonites 2 and 4 narrowed (fig. II, 4; III, 2); gills on pereonite 3 broad (fig. III, 1).

Oostegites short and broad, without setae in our specimens (probably not yet fertile) (fig. II, 4; III, 2).

Male: unknown.

Variability: Urosomite 1 near basis of peduncle of uropod 1 always without any spine or seta. Small juvenile specimens have gnathopods 1—2 provided with lower number of posterior groups of setae, and with broadly excavated telson; coxal gills on pereonite 3 broad.

Holotype: Female 4 mm. Holotype is deposited in Museum of Natural History in Verona, Italy.

Localities cited: See sub »Material examined«.

Loc. typ.: Antro Sorgenti di Bagnoli, Italy.

Distribution: Italy: Trieste province (present work).

Remarks and affinities: *Niphargus stochi* is very similar to the species *Niphargus longidactylus*, Ruffo 1937 known from N. Italy and eastern part of Balkan peninsula, as well as to the species *Niphargus schusteri* G. Karaman 1993, known from Austria (Kasten Gradenfeld) based on absence of ventral spine on urosomite 1 near basis of peduncle of uropod 1, shape of gnathopods 1—2, pereopods 3—7, uropods 1—3, gaping telson, etc.). But, *N. longidactylus* differs from *N. stochi* by elevated number of lateral teeth on spines of outer plate in maxilla 1, by presence of dorsal long spines on lobes of telson, by slightly shorter inner plate of maxilliped bearing 3 distal spines, by slightly shorter dactyl of pereopods 3—7 reaching up to half of segment 6 only.

Niphargus schusteri differs from our species by presence of long facial spines on telson, by broader segment 2 of pereopod 7, by produced lateral lobes of head, by longer coxae, broader gnathopods 1—2, etc.

Niphargus danconai Benedetti 1942, known from N. Italy and Austria (G. Karaman, 1992), is also without ventral spine near basis of peduncle of uropod 1, but this species differs remarkably from *N. stochi* by different shape of spines on outer plate of maxil-

la 1, by short dactyl of gnathopods 1—2, short outer plate of maxilliped, etc.

Ecology: Freshwater subterranean species, found in the caves, springs and wells, sometimes accompanied by *Niphargus wolffi* Schell. 1933.

Derivatio nominis: This species is dedicated to Dr. Fabio Stoch from Trieste who collected numerous samples of the subterranean and epigeal *Amphipoda* given us at disposition for study.

Niphargus danielopoli G. Karaman 1994

Figs.: V—IX

Syn.: *Niphargus danielopoli* G. Karaman 1994, p. 118, figs. V, 10—11, VI—IX;

Material examined: Italy — AMD/00152. — Grotta S. Martino-cave (2203 Lo), com. Cuvaglio, prov. Varese, Sept. 12, 1988, 2 spec. (leg. F. Gasparo);

— AMD/00153 — Grotta della Porticina-cave (2017 Lo), com. Duno, prov. Varese, Sept. 8, 1988, one spec. (leg. F. Gasparo).

Description: (spec. from S. Martino-cave): Male 3.6 mm; Body slender, metasomal segments 1—3 with 4—5 dorsoposterior short marginal setae each (fig. V, 6); urosomite 1 with 1 seta, urosomite 2 with 2 spines on each side (fig. VII, 7). Urosomite 1 near basis of peduncle of uropod 1 with 1 short spine (fig. VII, 7).

Head with short rostrum, lateral cephalic lobes short and subrounded (fig. VI, 9).

Antenna 1 reaching nearly half of body, peduncular segments 1—3 progressively shorter (fig. VI, 3); main flagellum with 14 articles (most of them with 1 aesthetasc reaching 3/4 of article itself); accessory flagellum 2-segmented, shorter than half of peduncular segment 3 (fig. VI, 3).

Antenna 2 normal, peduncular article 5 slightly shorter than 4; flagellum with 5 articles; antennal gland cone short (fig. VI, 4).

Labrum entire, broader than long. Labium with well developed inner lobes.

Mandible with triturative molar, on right mandible with long distal seta. Right mandible: incisor with 4 teeth, lacinia mobilis bifurcate, pluritoothed, accompanied by 4 rakers (fig. VI, 5). Left mandible: incisor with 5 teeth, lacinia mobilis with 4 teeth, accompanied by 6 rakers (fig. VI, 6). Mandibular palp segment 2 with 4 setae; segment 3 hardly longer than 2, with 2 A-setae, 1 B-seta, 3 D and 4 E setae (fig. VI, 7).

Maxilla 1: inner plate with 1 seta, outer plate with 7 spines (6 spines with 1 lateral tooth, 1 spine with 5 teeth); palp reaching tip of spines of outer plate, with 3 distal setae (fig. V, 5).

Maxilla 2: normal. Maxilliped: inner plate hardly exceeding outer tip of first palp segment, with 3—4 distal spines (fig. VI, 8); outer plate reaching $\frac{3}{4}$ of second palp segment, with distolateral row of strong spines, palp normal (fig. VI, 8).

Coxae moderate, coxa 1 hardly broader than long (fig. VII, 1), coxae 2—4 slightly longer than broad, coxa 4 without distinct ventroposterior lobe (fig. VI, 1, 2; VII, 3); coxae 5—7 short (fig. V, 1—3).

Gnathopods 1—2 rather slender. Gnathopod 1: segment 5 shorter than 6 (fig. VII, 1, 2); segment 6 trapezoid, slightly longer than broad, with 3 groups of posterior setae (fig. VII, 1—3); palm slightly inclined (oblique), convex, defined on outer face by 1 long strong and 2 slender short corner spines, accompanied by 3 facial setae, on inner face by 2 short subcorner spines (abnormal) (fig. VII, 3); dactyl reaching posterior margin of segment 6, with 1 seta at outer margin (fig. VII, 3).

Gnathopod 2 only slightly larger than 1; segment 5 as long as 6; segment 6 trapezoid, longer than broad, with 4 groups of posterior setae (fig. VII, 3, 4); palm convex, slightly inclined, defined on outer face by 1 strong and 2 weak corner spines accompanied by 3 facial setae, on inner face by 1 short subcorner spine (fig. VII, 4); dactyl reaching posterior margin of segment 6, with 1 seta at outer margin (fig. VII, 4).

Pereopods 3—4 with dactyl exceeding half of segment 6, bearing 1 short seta at inner margin; nail longer than pedestal (fig. VI, 1, 2).

Pereopods 5—7 moderate; segment 2 slightly dilated bearing a row of posterior short setae and shallow ventroposterior lobe, especially on pereopod 7 (fig. V, 1—3); dactyl relatively slender, much shorter than half of segment 6, with 1 seta at inner margin; nail shorter than pedestal (fig. V, 1—4).

Pleopods 1—3 with 2 retinacula each; peduncle of pleopods 1—2 nearly smooth, that of pleopod 3 with 3 posterior median setae.

Epimeral plates 1—3 with subrounded ventroposterior corner and convex posterior margin; plates 2—3 with 1 submarginal ventral spine each (fig. V, 6).

Uropods 1—2 relatively stout. Uropod 1: peduncle without dorsointernal row of spines (except distal spine); inner ramus hardly longer than outer one, both rami with distal short spines (fig. VII, 5). Uropod 2: inner ramus hardly longer than outer one (fig. VII, 6).

Uropod 3 short, second segment not reaching $\frac{1}{3}$ of first segment (fig. VIII, 9).

Telson short, hardly broader than long, incised over $\frac{2}{3}$ of its length, each lobe with 3 distal and 1 outer marginal long spine; a pair of short plumose setae appears near the middle of each lobe (fig. VI, 10).

Coxal gills on pereonites 2 and 4 long, these on pereonites 3, 5 and 6 short (fig. V, 1, 2; VI, 1, 2; VII, 3).

Female: 3.2 mm, with setose oostegites: Generally likes the males (coxae, epimeral plates, pleopods, uropod 3, gills) (fig. IX, 1—3, 5—8), but urosomites 1—2 with 1 strong spine on each side (fig. VIII, 7).

Mouthparts like these in males, including inner plate of maxilla 1 with 1 seta; but, inner plate of maxilliped only reaching outer tip of first palp segment, bearing 3 distal spines.

Segment 6 of gnathopods 1—2 hardly more narrow than that in the male.

Gnathopod 1: segment 6 with 2 posterior groups of setae; palm defined on outer face by 1 strong and 1 slender corner spine, accompanied by 2 facial setae (fig. VIII, 1), on inner face by 1 subcorner spine.

Gnathopod 2: posterior margin of segment 6 with 3 groups of setae; palm, corner and subcorner spines, as well as dactyl, like these in males (fig. VIII, 2, 3).

Segment 2 of pereopods 5—7 slightly broader than that in males, with hardly visible ventroposterior lobe (fig. IX, 1—3); dactyl of pereopod 7 relatively slender, like that of pereopod 6, always with 1 seta at inner margin (fig. IX, 4).

Uropod 1: inner ramus slightly longer than outer one (fig. VIII, 4); inner ramus of uropod 2 hardly longer than outer one (fig. VIII, 5). Uropod 3 with short second segment (fig. VIII, 6).

Telson slightly longer than broad, incised over 3/4 of its length (fig. VIII, 8).

Coxal gills relatively long (fig. IX, 1, 2, 6, 7, 8).

Oostegites broad, with marginal short setae (fig. IX, 1).

Variability: Inner plate of maxilliped reaching or hardly exceeding (specimens from S. Martino), or distinctly exceeding outer tip of first palp segment (specimens from Porticina).

Localities cited: Paxerlueg, St. E. C. (Austria) (G. Karaman, 1994); S. Martino-cave; Porticina cave (Italy) (present work).

Loc. typ.: Paxerlueg, Austria.

Distribution: Austria, N. Italy.

Remarks and affinities: Our specimens in hands from Italy mainly agree with the species *Niphargus danielopoli* G. Karaman

1994 known from Paxerlueg, Austria, by almost all characters (the male of *N. danielopoli* from Austria is unknown).

But, the specimens from Austria differ from our specimens from S. Martino-cave (AMD/00152) by presence of 2 setae on inner plate of maxilla 1, by presence of 1 seta on urosomite 1 in female, by more unequal rami of uropod 2.

The single ovig. female from Grotta della Porticina (AMD/00153) has urosomite 1 with 1 seta on each side, urosomite 2 with 1 spine; inner plate of maxilla 1 with 1—2 setae, inner plate of maxilliped elongated, with 3—4 distal spines. Segment 6 of gnathopods 1—2 slightly more narrow, along posterior margin with 3 and 5 groups of setae respectively; palm of gnathopod 1 defined on outer face by 1 strong and 1—2 slender corner spines accompanied by 2 facial setae, on inner face by 1 subcorner spine. Palm of gnathopod 2 defined on outer face by 1 strong and 1 slender corner spine, accompanied by 2—3 facial setae, on inner face by 1 subcorner spine.

Peduncle of uropod 1 with 1 dorsointernal median seta (no spines); rami of uropod 1 poorly, these of uropod 2 remarkably unequal; pleopods 1—3 with 2 retinacula each; posterior margin of peduncle of pleopod 3 with 2 median setae; telson poorly longer than broad, deeply incised, each lobe with 3 distal and 1—2 outer marginal long spines (fig. IX, 9).

By this way, the specimen from Porticina cave seems to be more close to the paratypes of *N. danielopoli* (urosomites, maxilla 1), than to the specimens from S. Martino-cave (urosomite 1 in female with 1 spine, uropod 2, maxilla 1). But, the absence of more abundant material from various localities made impossible any more clear recognition of various micropopulations or subspecies within the taxon *N. danielopoli*.

Niphargus danielopoli G. Karaman 1994, is very similar to the species *N. carniolicus* Sket 1960 known from Slovenia, by numerous characters (epimeral plates, antennae, mouthparts, uropods and telson) (see G. K a r a m a n, 1989). But, *N. carniolicus* differs mainly from our species by elevated number of retinacula and by shorter inner and outer plate of maxilliped in both sexes, as well as by the shape of gnathopods 1—2 in the female.

Further discovery of both taxa in other localities will show their real taxonomical relationships. For the moment, no transitive

specimens between both taxa have been observed, but we can not exclude the possibility that both taxa can represent two extreme forms of the same species.

Niphargus strouhali strouhali known from Austria, is also similar to *N. danielopoli*, but it differs from later by elevated number of retinacula and by presence of pluritoothed spines on outer plate of maxilla 1.

Ecology: Subterranean freshwater species, in Italy known from caves only.

Conclusions

Niphargus stochi, n. sp. is rather similar to the species *Niphargus longidactylus* Ruffo 1937, known from Italy and western part of Balkan, and to *Niphargus schusteri* G. Karaman 1993, known from Austria; but it differs remarkably from both taxa by distinct characters.

The discovery of new species *N. stochi*, n. sp. elevated the number of known taxa of the genus *Niphargus* with completely reduced ventral spine on urosomite 1 near basis of peduncle of uropod 1 (*N. danconai* Benedetti 1942, *N. longidactylus* Ruffo 1937, *N. schusteri* G. Karaman 1993, *N. parapupetta* G. Karaman 1984, *N. stochi*, n. sp.). As this character has been only sometimes observed by most of previous authors, it is possible that within the genus *Niphargus* exist some other taxa with that taxonomic character.

Niphargus danielopoli is very similar to the species *N. carniolicus* Sket 1960 known from Slovenia, and only further discovery of new localities of both taxa will show their real taxonomic relationships.

On the other hand, recent discovery of *Niphargus danconai* in Austria (G. Karaman, 1992) and present discovery of *N. danielopoli* in Italy, indicated that many *Niphargus* species, known at the moment as taxa with limited area of distribution in Italy or its adjacent regions, are much more widely extended in Europe.

Acknowledgements. I am indebted to dr. Fabio Stoch, speleologist from Trieste, for the loan of material used in this study.

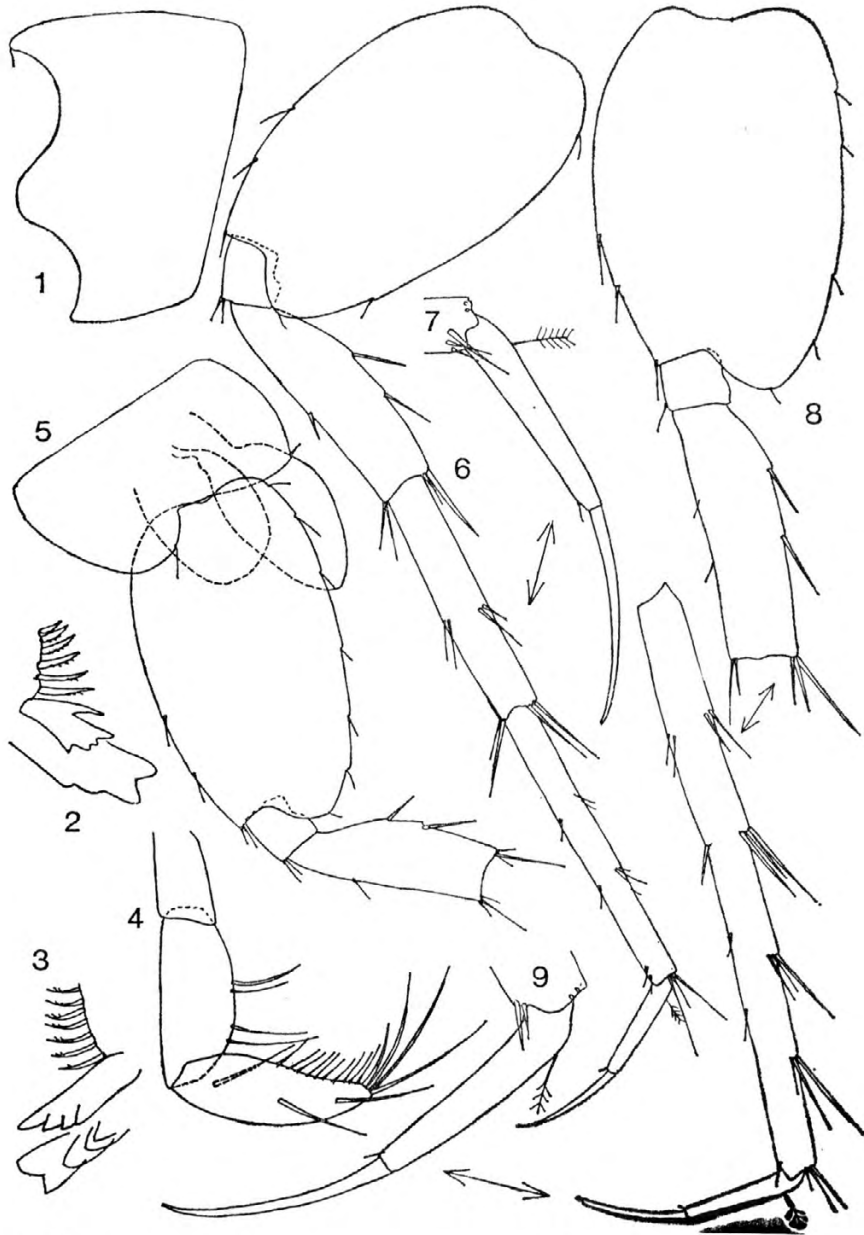


Fig. 1. *Niphargus stochi*, n. sp., Antro Sorgenti di Bagnoli, female 3 mm: 1 = head; 2 = right mandible; 3 = left mandible; 4 = mandibular palp; 5 = pereopod 5; 6-7 = pereopod 6; 8-9 = pereopod 7;

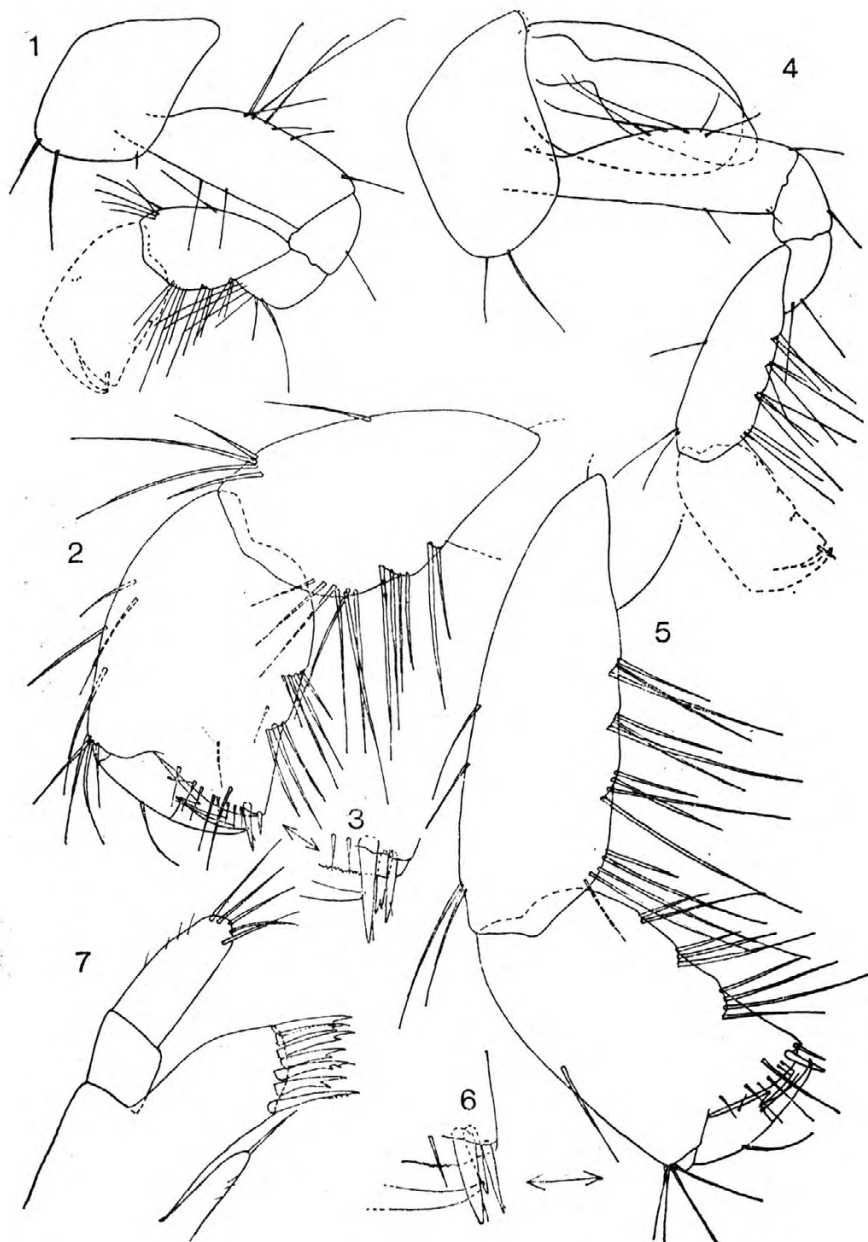


Fig. II. *Niphargus stochi* n. sp., Antro Sorgenti di Bagnoli, female 3 mm;
1-3 = gnathopod 1; 4-6 = gnathopod 2; 7 = maxilla 1.

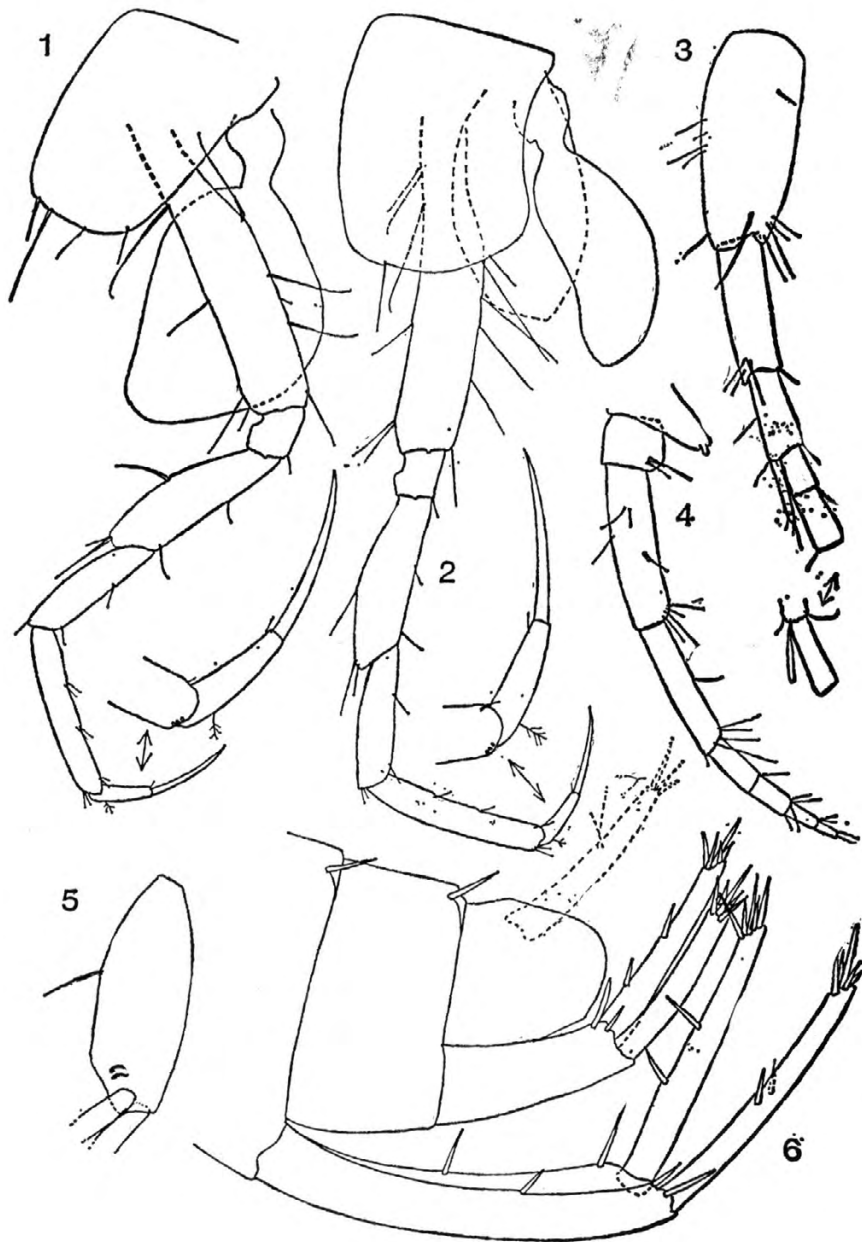


Fig. III. *Niphargus stochi*, n. sp., Antro Sorgenti di Bagnoli, female 3 mm; 1 = pereopod 3; 2 = pereopod 4; 3 = antenna 1; 4 = antenna 2; 5 = pleopod 3; 6 = urosome with uropods 1-2.

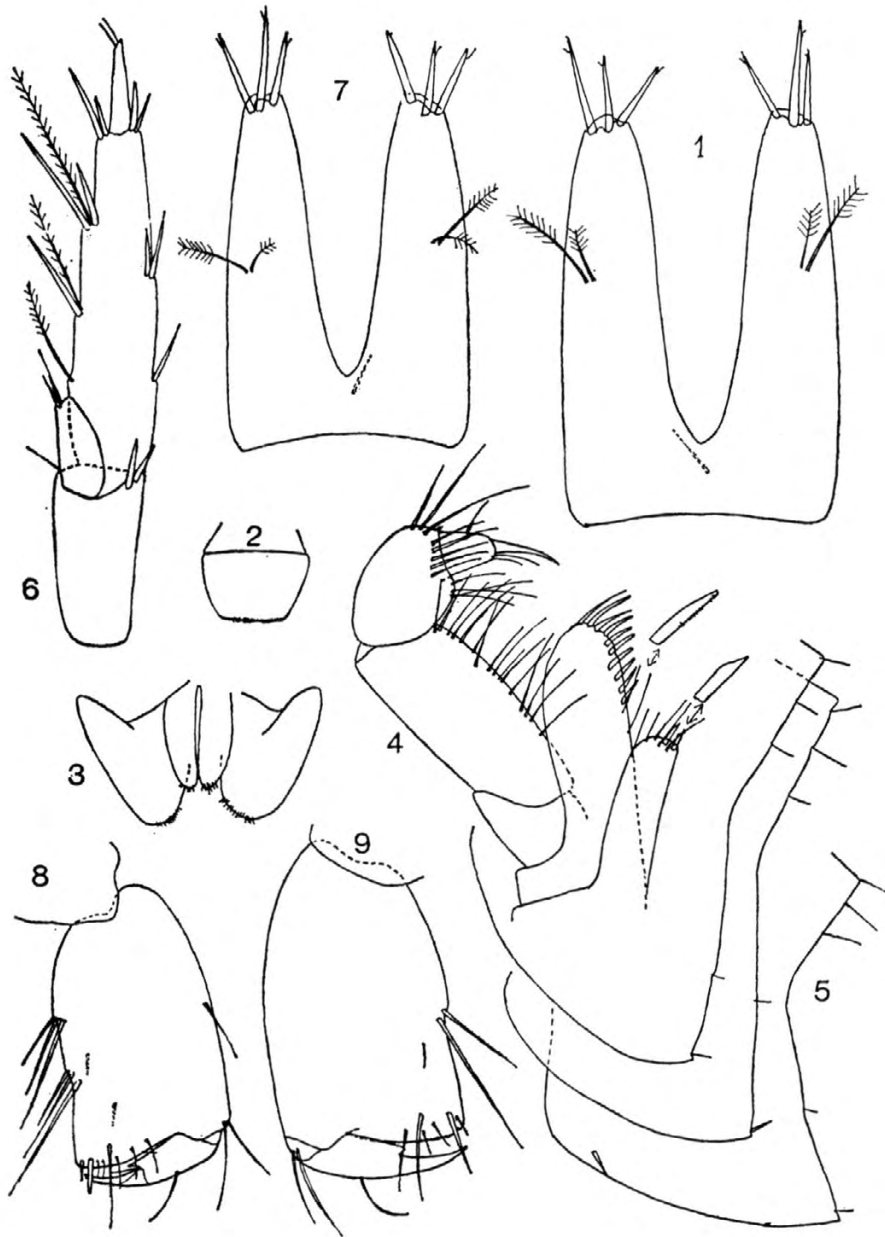


Fig. IV. *Niphargus stochi*, n. sp., 1-5 = Antro Sorgenti di Bagnoli, female 3 mm: 1 = telson; 2 = labrum; 3 = labium; 4 = maxilliped; 5 = epimeral plates 1-3; 6-8 = Antro delle Ninfe, female 2,5 mm: 6 = uropod 3; 7 = telson; 8 = gnathopod 2; 9 = gnathopod 2, Juv. 2 mm from S. Giovanni di Duino.

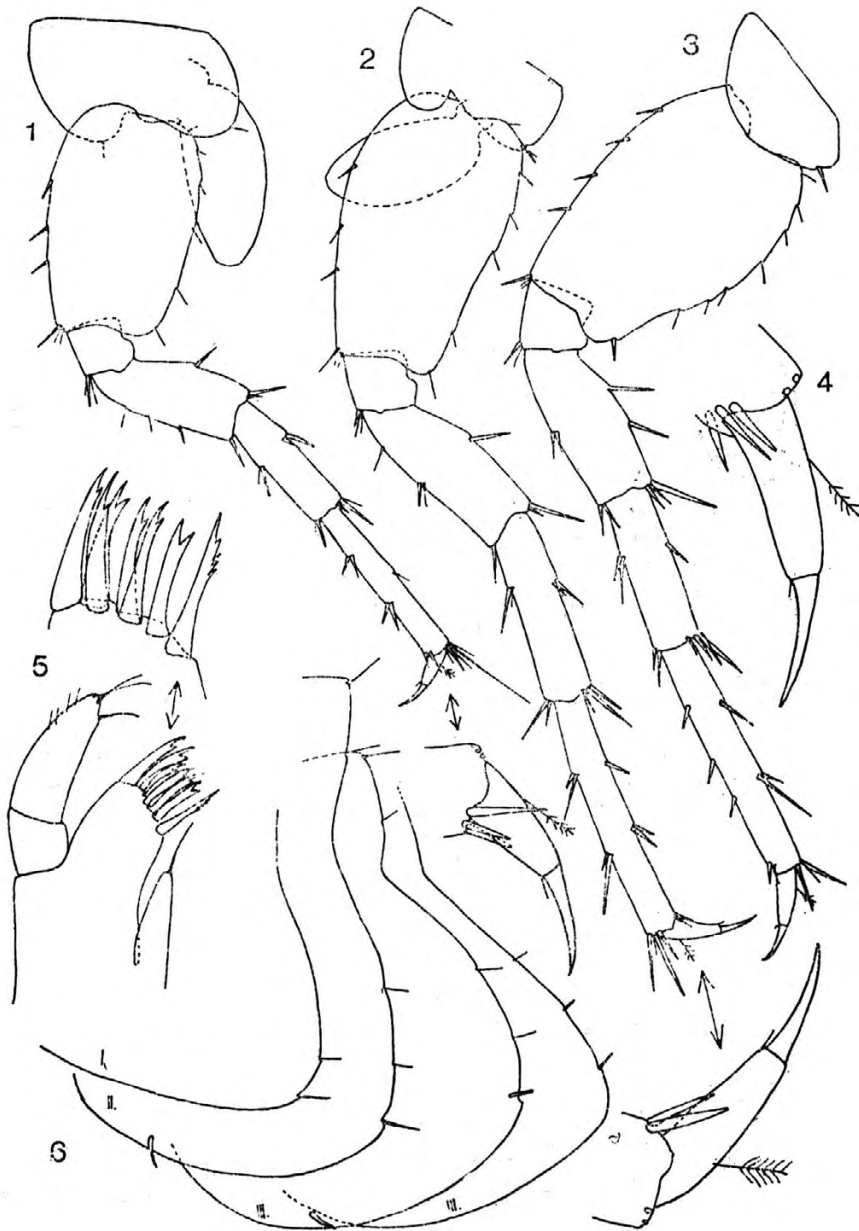


Fig. V. *Niphargus danielopoli* G. Karaman 1994, Grotta S. Martino, male 3.6 mm: 1 = pereopod 5; 2 = pereopod 6; 3-4 = pereopod 7; 5 = maxilla 1; 6 = epimeral plates 1-3.

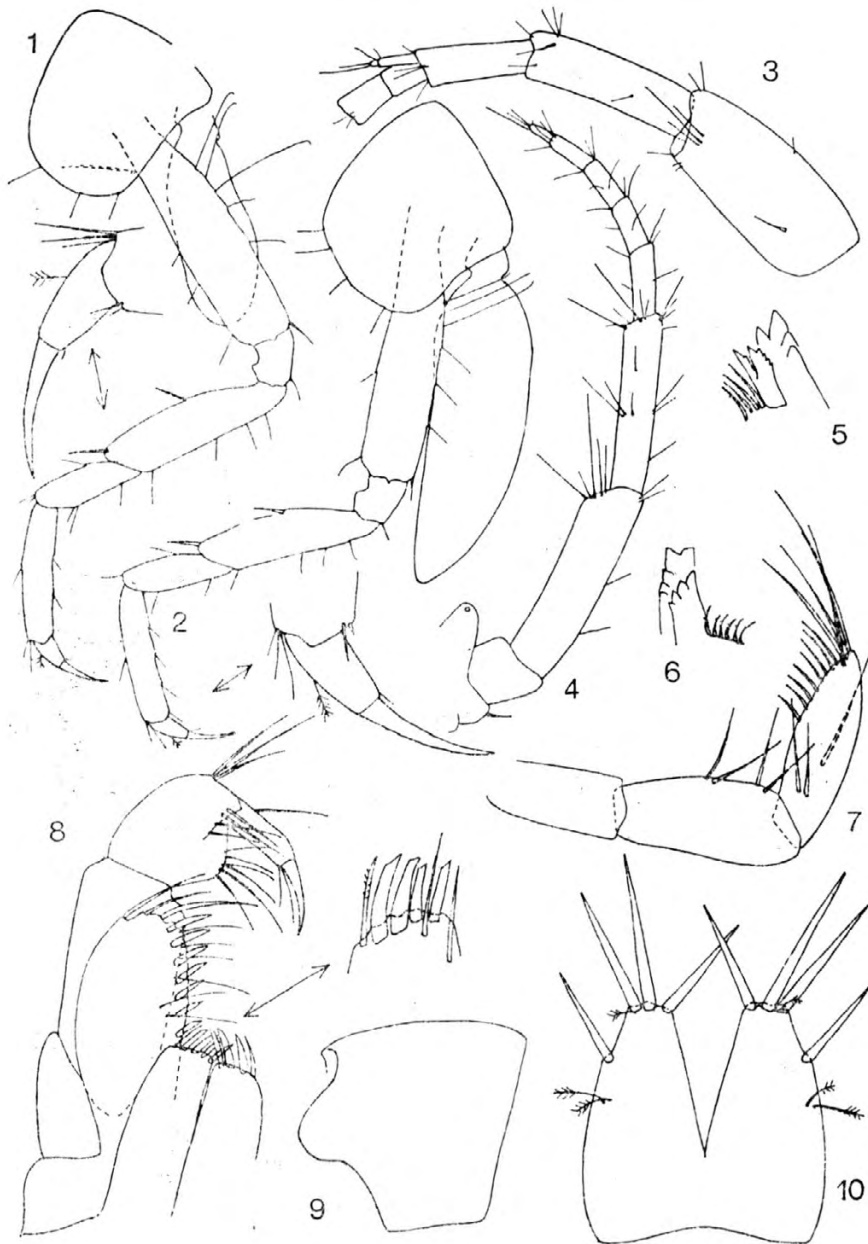


Fig. VI. *Niphargus danielopoli* G. Karaman 1994, Grotta S. Martino, male 3,6 mm: 1 = pereopod 3; 2 = pereopod 4; 3 = antenna 1; 4 = antenna 2; 5 = tip of right mandible; 6 = tip of left mandible; 7 = mandibular palp; 8 = maxilliped; 9 = head; 10 = telson.

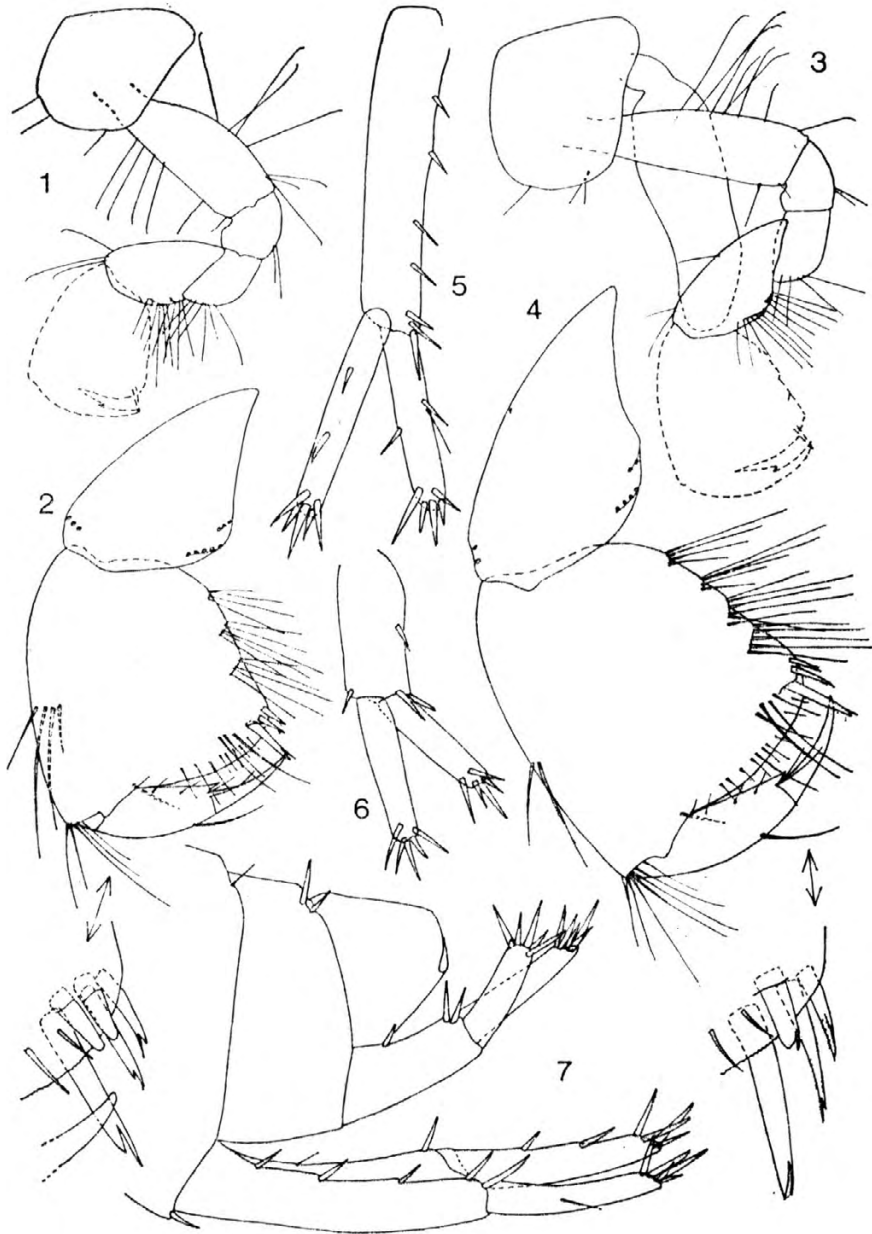


Fig. VII. *Niphargus danielopoli* G. Karaman 1994, Grotta S. Martino, male 3,6 mm; 1-2 = gnathopod 1; 3-4 = gnathopod 2; 5 = uropod 1; 6 = uropod 2; 7 = urosome with uropods 1-2.

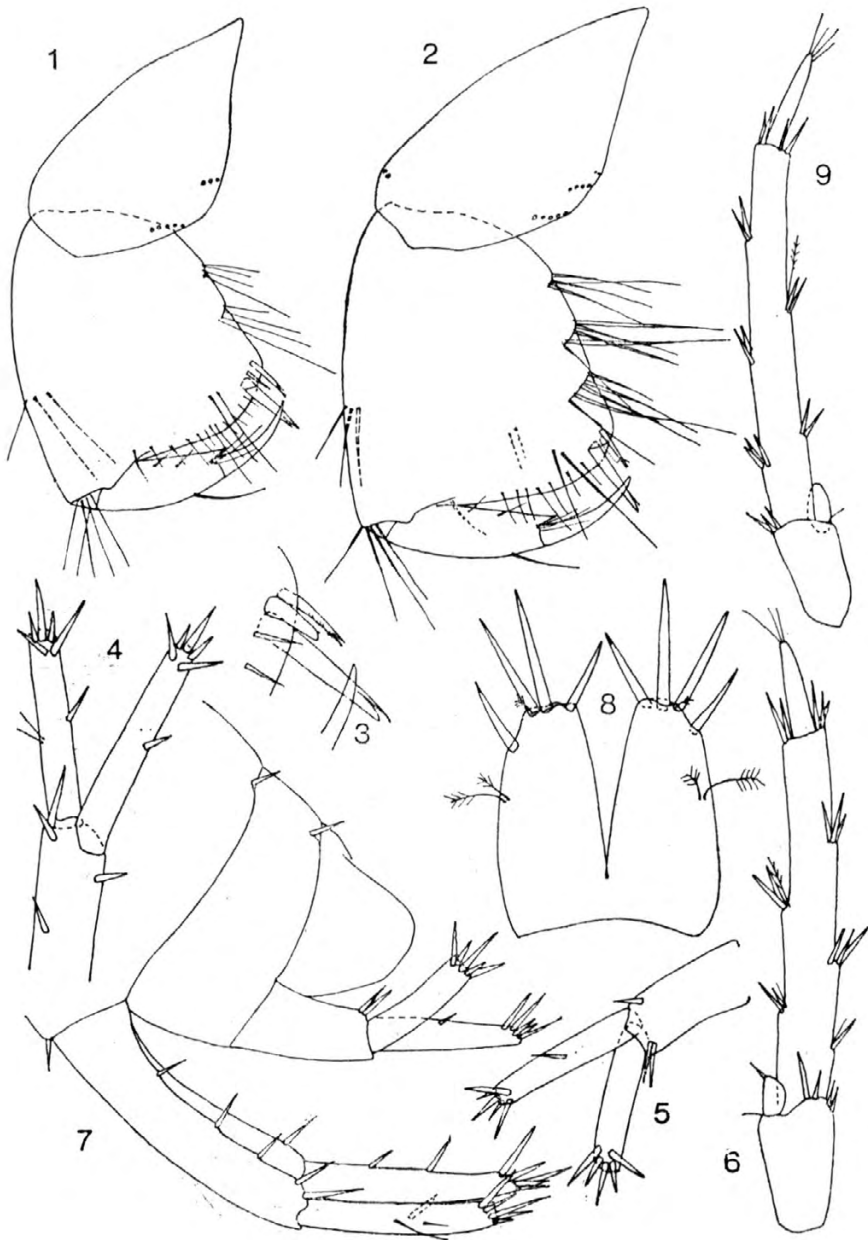


Fig. VIII. *Niphargus danielopoli* G. Karaman 1994, Grotta S. Martino, female 3,2 mm: 1 = gnathopod 1; 2-3 = gnathopod 2; 4 = uropod 1; 5 = uropod 2; 6 = uropod 3; 7 = urosome with uropods 1-2; 8 = telson; 9 = uropod 3, male 3,6 mm.

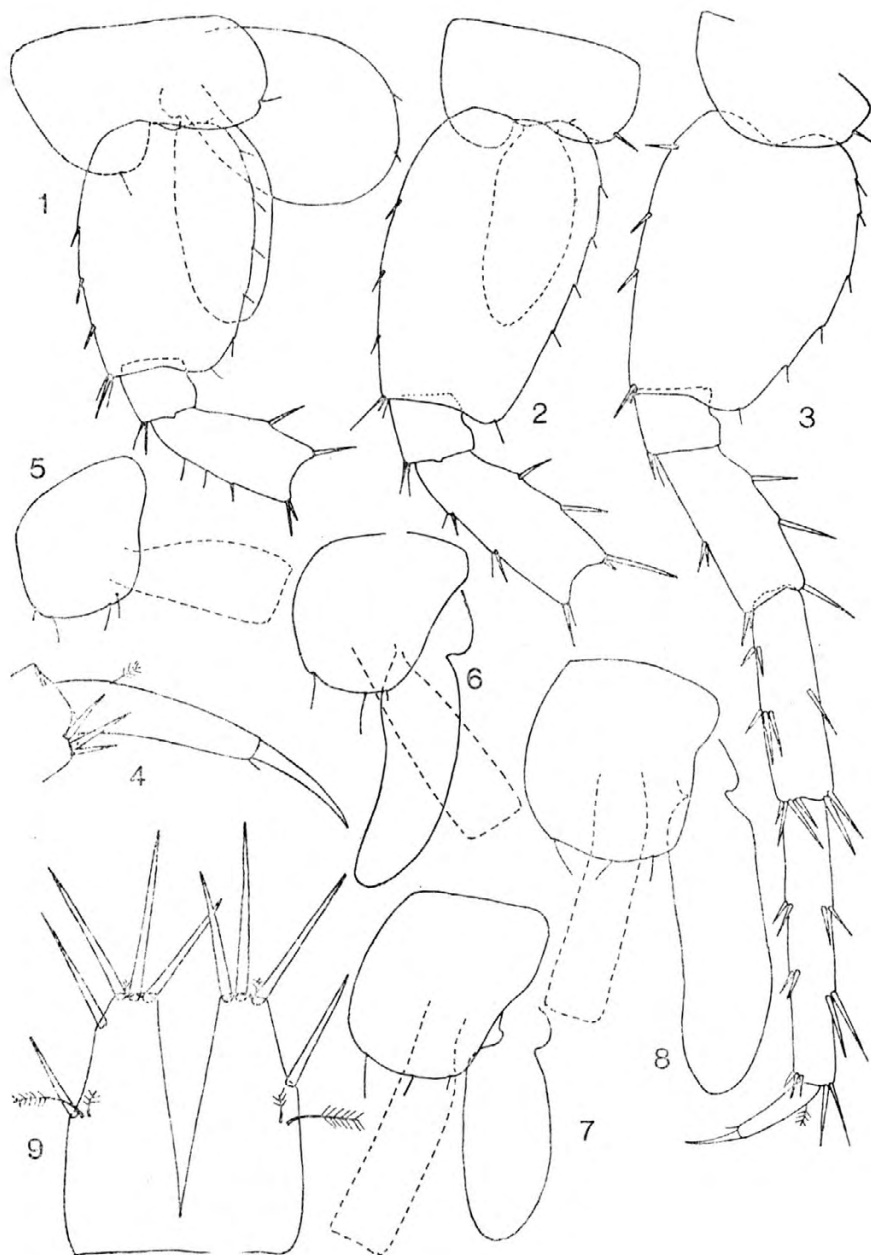


Fig. IX. *Niphargus danielopoli* G. Karaman 1994 Grotta S. Martino, female 3,2 mm: 1 = pereopod 5; 2 = pereopod 6; 3-4 = pereopod 7; 5-8 = coxae 1-4 with gills; 9 = telson of female 3,7 mm from Grotta della Porticina.

LITERATURE CITED

- Benedetti, G. B. 1942: Prime osservazioni sopra i *Niphargus* della Venezia Euganea. — Mem. R. Accad. Sc. Let. Arti Padova (n. s.), 58: 175–186.
- Karaman, G. 1984: Description of several new *Niphargus* Species (Gammariidea, Niphargidae) from southern Europe (Contribution of the Knowledge of the Amphipoda 136). — Poljoprivreda i šumarstvo, Titograd, 30 (2–3): 39–64.
- Karaman, G. 1985: Contribution to the Knowledge of the Amphipoda 146. *Niphargus bodoni*, n. sp. and *N. pescei* G. Kar. in Italy (Fam. Niphargidae). — Fragmenta Balcanica, Musei Macedonici Scientiarum Naturalium, Skopje, 12 (8/269): 21–33.
- Karaman, G. 1985a: Contribution to the Knowledge of the Amphipoda 147. *Niphargus tamaninii* Ruffo 1953 and Subspecies *N. t. barbatus* n. ssp. (Fam. Niphargidae) in Italy. — Poljoprivreda i šumarstvo, Titograd, 31 (1): 63–78.
- Karaman, G. 1985b: The taxonomy of *Niphargus transitivus* Sket 1971, with remarks to *N. armatus* G. Kar. 1985 (Fam. Niphargidae) in Italy (Contribution to the Knowledge of the Amphipoda 149). — Poljoprivreda i šumarstvo, Titograd, 31 (2–3): 21–35.
- Karaman, G. 1986: New data on the Genus *Niphargus* Schiödte (Fam. Niphargidae) in Italy and adjacent regions (Contribution to the Knowledge of the Amphipoda 138). — Boll. Museo Civico Storia Naturale Verona, 12: 209–228 (1985), 1986.
- Karaman, G. 1988: The new Species of the Genus *Niphargus* Schiödte (Gammariidea, fam. Niphargidae) from Italy and Yugoslavia (Contribution to the Knowledge of the Amphipoda 177). — Poljoprivreda i šumarstvo, Titograd, 34 (2–3): 11–31.
- Karaman, G. 1989: The redescription of *Niphargus carniolicus* Sket 1960 (Fam. Niphargidae) with remarks to its new taxonomic position (Contribution to the Knowledge of the Amphipoda 195). — Poljoprivreda i šumarstvo, Titograd, 35 (3–4): 13–28.
- Karaman, G. 1990: On two subterranean Gammariidean Species from Italy, *Niphargus messanai*, n. sp. and *Ilvanelia inexpectata* V. T. 1972 (Contribution to the Knowledge of the Amphipoda 194). — Acta biologica Jugoslavica, Biosistematika, Beograd, 15 (1): 55–70 (1989), 1990.
- Karaman, G. 1992: Some new or interesting Gammariidean species from Austria and adjacent regions (Contribution to the Knowledge of the Amphipoda 206). — Glasnik Rep. zavoda zašt. prirode — Prirod. muzeja Podgorica 24: 29–39 (1991), 1992.
- Karaman, G. 1992a: New data on genus *Niphargus* Schiödte 1849 (fam. Niphargidae) in Austria (Contribution to the Knowledge of the Amphipoda 207). — Glasnik odjeljenja prirodnih nauka, Crnogorska akademija nauka i umjetnosti, Titograd, 8/9: 73–93.
- Karaman, G. 1993: Crustacea Amphipoda di acqua dolce. — Fauna d'Italia, vol. XXX: 1–337, Edizione Calderini, Bologna, Italia.
- Karaman, G. 1994: Further data on genus *Niphargus* Schiödte from Europe, *N. ivokaramani*, n. sp., and *N. dauielopoli*, n. sp. (Contribution to the Knowledge of the Amphipoda 210). — Glasnik odjeljenja prirodnih nauka, CANU, Podgorica (in press).
- Karaman, G., Ruffo, S. 1989: Two new taxa of *Niphargus* Schiödte from the Italian Alps (Amphipoda, Niphargidae). — Studi Trentini di Scienze Naturali, Acta Biologica, 65 (1): 123–136 (1988), 1989.
- Karaman, G., Sket, B. 1989: *Niphargus* Species (Crustacea: Amphipoda) of the Kvarner — Velebit Islands (NW Adriatic, Yugoslavia). — Biološki Vestnik, Ljubljana, 37 (2): 19–36.
- Ruffo, S.: 1937: Studi sui Crostacei Anfipodi IV. Su alcune specie italiane del genere *Niphargus*. — Bol. Istituto Entomologia R. Univ. Bologna, 9: 153–183.

- Schellenberg, A. 1933: Höhlenflohkrebse des Aldesberger Grottensystems nebst Bemerkung über *Niphargus kochianus*. — Mitteilung über Höhlen- und Karstforschung, 2: 32—36.
- Sket, B. 1960: Einige neue Formen der Malacostraca aus Jugoslawien III. — Bulletin Scientifique, 5(3): 73—75.

Apstrakt

NOVE I INTERESANTNE VRSTE RODA *NIPHARGUS* Schiödte 1849 (FAM. NIPHARGIDAE) IZ ITALIJE

(212. Prilog poznavanju Amphipoda)

Iz podzemnih voda u provinciji Trst u sjevernoj Italiji, opisana je nova vrsta, *Niphargus stochi* n. sp. (*Amphipoda Gammaridea*, fam. *Niphargidae*). Vrsta *Niphargus danielopoli* G. Kar. 1994, poznata do sada iz Austrije, nađena je i opisana sada iz podzemnih voda u italijanskoj provinciji Varese. Analizirani su varijabilitet i taksonomski položaj obiju taksona.

Gordan S. Karaman

NOVE I INTERESANTNE VRSTE RODA *NIPHARGUS* Schiödte 1849 (FAM. NIPHARGIDAE) IZ ITALIJE (212. Prilog poznavanju Amphipoda)

Rezime

Intenzivna istraživanja faune podzemnih *Amphipoda* Italije posljednjih godina, dovela su do otkrića niza novih rodova i vrsta, kako za nauku uopšte, tako i novih za teritoriju Italije (*N. bodoni* G. Karaman 1985, *N. tamanini barbatus* G. Karaman 1985, *N. armatus* G. Karaman 1986, *N. poianoi* G. Karaman 1988, *N. steueri liburnicus* G. Karaman & Sket 1989, *N. strouhali alpinus* G. Karaman & Ruffo 1989, *N. messanai* G. Karaman 1990, itd.).

Sadašnja naša istraživanja materijala *Amphipoda* sakupljenog u sjevernoj Italiji, ukazala su na postojanje taksona novih za područje Italije ili za nauku uopšte. U ovom radu smo obradili dva takva taksona, *Niphargus stochi*, n. sp. i *Niphargus danielopoli* G. Karaman 1994.

Niphargus stochi je nova vrsta, opisana iz pećina, bunera i izvora u provinciji Trsta, i ona pripada malobrojnoj grupi vrsta roda *Niphargus* koji nemaju nikakvog trna niti dlake na ventralnoj strani prvog urozomita kod baze drške prvog uropoda (*N. danconai* Benedetti 1942, *N. longidactylus* Ruffo 1937, *N. schusteri* G. Karaman 1993, *N. parapupetta* G. Karaman 1984, *N. stochi*, n. sp.).

N. stochi je sličan vrsti *N. longidactylus* Ruffo 1937 poznatoj iz sjeverne Italije i zapadnog dijela Balkana, ali se od nje razlikuje nizom jasnih odlika (odsustvo facijalnih trnova na telzonu, smanjeni broj bočnih zubaca na trnovima vanjske grane prve maksile i sl.).

Niphargus danielopoli G. Kar. 1994, poznat do sada samo iz Austrije, nađen je sada i u podzemnim vodama sjeverne Italije, u pećinama provincije Varese (Grotta S. Martino: Grotta della Porticina). Kako mužjak ove vrste nije bio poznat, dat je sada njegov opis, kao i varijabilitet nadenih primjeraka. Primjerci iz Italije se neznatno razlikuju od istih iz Austrije, i za sada, zbog malog broja raspoloživih primjeraka, nije bilo moguće utvrditi stepen razlika njihovih mikropopulacija iz Austrije i Italije.

N. danielopoli je nizom karaktera vrlo slična vrsti *Niphargus carnio-licus* Sket 1960, poznatoj iz Slovenije, ali se od nje razlikuje, pored ostalog, i manjim brojem retinakula na pleopodima, dužom unutrašnjom i vanjskom granom maksilipeda, a kod ženki i nešto drugačijim oblikom gnatopoda. Tek na osnovu nalaza novih populacija obiju vrsta iz drugih lokaliteta i utvrđivanja širine varijabiliteta njihovih taksonomskih karaktera moći će se utvrditi realan međusobni taksonomski položaj ova dva taksona, među kojima do sada nisu nađeni prelazni oblici.

