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FURTHER STUDIES ON GENUS NIPHARGUS Schiödte FROM  
EUROPE, N. IVOKARAMANI, N. SP. AND N. DANIELOPOLI,  
N. SP.

(Contribution to the Knowledge of the Amphipoda 210)

Abstract

Two new subterranean species of the genus *Niphargus* Schiödte 1849 (*Amphipoda Gammaridea*, fam. *Niphargidae*) from Europe are describen: *Niphargus ivokaramani*, n. sp. from Prekonoga (Serbia), and *Niphargus danielopoli*, n. sp. from Paxerlueg (Austria). The taxonomical position of both species within the genus *Niphargus* is discussed.

Apstrakt

DALJNJE STUDIJE RODA NIPHARGUS Schiödte 1849 U EVROPI,  
N. IVOKARAMANI, N. SP. I N. DANIELOPOLI, N. SP.  
(210. Prilog poznavanju Amphipoda)

Opisane su dvije nove podzemne vrste roda *Niphargus* Schiödte 1849 (*Amphipoda Gammaridea*, fam. *Niphargidae*) iz Evrope: *Niphargus ivokaramani*, n. sp. iz sela Prekonoga (Srbija) i *Niphargus danielopoli*, n. sp. iz Paxerlueg (Austria). Analiziran je taksonomski položaj ovih novih vrsta u okviru roda *Niphargus*.

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## Introduction

The genus *Niphargus* Schiödte 1849 (*Amphipoda Gammaridea*, fam. *Niphargidae*) is presented in Europe by over 250 known taxa, living in various fresh and brackish subterranean waters (G. Karaman & Ruffo 1986). But, still many regions of Europe are poorly explored.

On the other hands, the progressive pollution of the subterranean waters in Europe creates the danger of the disappearance of many known as well as still undiscovered taxa of genus *Niphargus* living in these waters.

During our previous studies on genus *Niphargus*, various known as well as new taxa of this genus have been described from various parts of Europe (*Niphargus schusteri* G. Kar. 1992, *N. pecarensis* S. & G. Karaman 1959, *N. pecarensis occultus* G. Karaman 1933, *N. kragujevensis* S. Kar. 1950, *N. kragujevensis remus* G. Karaman 1993, *N. inopinatus* Schell. 1932, *N. danconai* Benedetti 1942, etc.).

Our present studies of this genus based on material given us kindly at disposition for study from various sources, indicated the presence of two new species in the subterranean waters of Serbia and Austria, described and figured in present work.

**Acknowledgements:** I am thankful to prof. Ivo Karaman from the University of Novi Sad (Serbia), Dr. Dan Danielopol from the Institute of Limnology, Mondsee and to Dr. Otto Mog from the Faculty of Agriculture in Wien (Austria), for the loan of material used in this study.

*Niphargus ivokaramani* n. sp.

Figs.: I—IV, V, 1—9

**Material examined:** Serbia: S. 4772. Village Prekonoga near Svrljig (Svrljiški Timok drainage system, E. Serbia), well, July 12, 1989, many spec. (leg. Ivo Karaman).

**Description:** Oviparous females up to 4,7 mm, with eggs: Body slender, metasomsegments 1—3 with 4 long dorsoposterior marginal setae each (fig. I, 7); urosomite 1 with 1 long seta on each dorsolateral side and with 1 ventral short slender spine near basis of peduncle of uropod 1. Urosomite 2 with 1 spine on each dorsolateral side. Urosomite 3 smooth (exceptionally, only holotype with 1 spine on each side) (fig. IV, 5).

Head without rostrum, lateral cephalic lobes short: eyes absent.

Antenna 1 reaching half of body: peduncular segments 1—3 progressively shorter, peduncular segment 3 only slightly exceeding half of ped. segment 2; flagellum consisting of 16 articles (most of

them with one short aesthetasc each); accessory flagellum 2-segmented, only slightly shorter than ped. segment 3 (fig. I, 1).

Antenna 2 normal, peduncular segment 5 hardly shorter than 4; flagellum 8-segmented, longer than last peduncular segment (fig. I, 2).

Labrum entire. Labium with well developed inner lobes (fig. III, 1).

Mandible with triturative molar. Left mandible: incisor with 5 teeth, lacinia strong, with 4 teeth, accompanied by 7 rakers. Right mandible: incisor with 4 teeth, lacinia bifurcate, pluritoothed, accompanied by 5 rakers. Mandibular palp strong; first segment smooth, second segment with 6 setae; third palp segment hardly longer than second one, with 1 group of A-setae, 2 single B-setae, 11 D and 4 long distal E-setae (fig. I, 3).

Maxilla 1: inner plate with 1 seta; outer plate with 7 spines bearing various number of lateral teeth each (formula: 3—2—1—1—4—1—5, 2—3—1—1—3—1—6, 2—1—2—2—1—2—7, 2—1—1—2—2—1—6) (fig. I, 5, 6, 8, 9); palp reaching or exceeding tip of spines of outer plate, with 5 distal setae (fig. I, 4).

Maxilla 2: both plates with marginal setae only.

Maxilliped: inner plate not reaching outer tip of first palp segment and bearing 3 smooth spines (fig. III, 2); outer plate not exceeding 2/3 of second palp segment, bearing a row of smooth marginal spines (fig. III, 2); palp normal.

Coxae 1—4 short, with one very long and several shorter marginal setae; coxae 1 and 4 broader than long (figs. II, 1; IV, 3); coxae 2—3 nearly as long as broad (figs. II, 4; IV, 1); coxa 5 hardly shorter than 4, with 2—3 ventral setae, coxae 6—7 small (fig. III, 3—5).

Gnathopods 1—2 moderate, only slightly larger than corresponding coxae. Gnathopod 1 only slightly smaller than 2, its segment 5 shorter than 6; segment 6 longer than broad, trapezoid, with 4 groups of posterior setae; palm convex, poorly inclined, defined on outer face by 1 strong corner spine accompanied on outer face by 2 slender toothed spines and 2 long facial setae, on inner face by 1 short subcorner spine (fig. II, 1—3). Dactyl reaching posterior margin of segment 6, with 1 seta at outer margin.

Gnathopod 2: segment 5 almost as long as segment 6; segment 6 longer than broad, strongly trapezoid, with 5 groups of posterior setae; palm, dactyl, corner and subcorner spines like these in gnathopod 1 (fig. II, 4—6).

Pereopods 3—4 slender: dactyl slender, not reaching half of segment 6, with one short seta at inner margin (fig. IV, 1—4).

Pereopods 5—7: segment 2 ovoid, less than twice as long as broad, with short but distinct ventroposterior lobe and bearing a row of rather longer setae along anterior margin and one long anterodistal seta; along posterior margin appear short setae only (fig.

III, 3—5); segments 3—6 with longer marginal spines. Dactyl of pereopods 5—7 slender, increasing towards pereopod 7, and bearing one seta along inner margin, nail shorter than pedestal (fig. III, 3—5).

Epimeral plates 1—3 nearly subrounded, with marked ventro-posterior corner and poorly to remarkably convex posterior margin (fig. I, 7, 10).

Pleopods 1—3 with 2 retinacula each (only one male with 3 retinacula on left pleopod 1 have been observed). Peduncle of pleopod 3 with 1—2 posterior median setae only (fig. III, 6).

Uropod 1: peduncle with dorsoexternal and dorsointernal row of spines (fig. IV, 5); inner ramus distinctly longer than outer one, both rami with lateral and distal longer spines.

Uropod 2: peduncle with long distal spine; inner ramus remarkably longer than outer one, both rami with lateral and distal spines (fig. IV, 5).

Uropod 3 slender but short; first segment of outer ramus with spines along both margins, plumose setae absent; second segment short (fig. IV, 6).

Telson short, deeply incised, poorly longer than broad; each lobe with 3 long distal, 1—2 outer marginal and 0—1 inner marginal long spines; facial spines absent (fig. V, 1, 4); a pair of unequal plumose setae appears in upper half of each lobe.

Coxal gills on mesosomal segments 2—6 relatively short (figs. II, 4; III, 3, 4; IV, 1, 3).

Oostegites broad and long, with small number of marginal setae (figs. III, 3; IV, 3).

Male 3,3 mm (probably not of the final size): It is very similar to the females, including metasomal and urosomal segments, mouthparts, coxae, gills (fig. V, 2, 3, 6—9), gnathopods, pereopods, epimeral plates (fig. I, 11), uropods (fig. IV, 7) and telson (fig. V, 5).

Variability: Inner margin of lobes on telson with or without one spine. All specimens in hands with 2 retinacula each, without additional setae; occasionally only one male with 3 retinacula on left pleopod 1 (right pleopod 1 with 2 retinacula only).

The shape of uropod 3 of small male in hands like that in female, that of adult males is unknown.

Holotype: Female 4,7 mm with 4 eggs in marsupium. Holotype and paratypes are deposited in Karaman's Collection in Podgorica (Titograd), Crna Gora.

Loc. typ.: Village Prekonoga near Svrljig, Serbia.

Distribution: Known from type locality only.

Remarks and affinities: *N. ivokaramani* is very similar to the species *Niphargus strouhali strouhali* Schell. 1933 known from Austria (loc. typ.: Eggerloch, Kärnten) (one seta on dactyl of gnathopods 1—2, shape of segment 2 of pereopods 5—7, subrounded epimeral plates, etc.), but it differs from *ivokaramani* by: presence of

3 retinacula on pleopods 1—3, by more narrow segment 6 of gnathopods 1—2 provided on palm with only one slender corner spine near long spine on outer face of segment 6, by longer dactyl of pereopods 3—4, by short spines on telson, shorter setae on metasomal and urosomal segments and on pereopods 5—7, by higher number of lateral teeth on spines of outer plate in maxilla 1, by reduced number of dorsointernal spines on peduncle of uropod 1.

Unfortunately, *N. strouhali* is known only from type-locality, and distribution and variability of their various populations is still unknown. By this way, only after these studies it will be possible to establish the real relations between *strouhali* and *ivokaramani*.

*N. strouhali alpinus* GK & Ruffo 1989 known from N. Italy (Tridentine Alps and Dolomites) differs from *N. ivokaramani* by lower number of lateral teeth on spines of outer plate in maxilla 1, absence of dorsointernal row of spines on peduncle of uropod 1, longer coxal gills, absence of ventroposterior lobe on segment 2 in pereopods 5—7, etc.

Another species similar to *N. ivokaramani* is *Niphargus galvagnii galvagnii* Ruffo 1953 known from Val Sugana (N. Italy), but this taxon differs from *N. ivokaramani* by more oblique palm of gnathopods 1—2, by presence of 4—6 retinacula on pleopods 1—3, lower number of lateral teeth of spines on outer plate in maxilla 1.

*N. galvagnii similis* G. Karaman & Ruffo 1989 known from Prealps of Venezia and Altopiano di Tonzetta, differs from *N. ivokaramani* by lower number of lateral teeth on spines of outer plate in maxilla 1, by presence of 2—3 spines on each side of urosomite 2, 3—4 retinacula on pleopods 1—3, by distinctly angular epimeral plates 1—3.

*N. carniolicus* Sket 1960, known from Slovenia and Austria, differs from *N. ivokaramani* by lower number of lateral teeth on spines of outer plate in maxilla 1, by elevated number of retinacula on pleopods, short spines on telson, by absence of dorsointernal row of spines on peduncle of uropod 1.

*N. ruffoi* G. Karaman 1976, known from N. Italy (Gortani Abyss in Friuli) is provided also with subounded epimeral plates and 2 retinacula on pleopods 1—3, but this species differs from *N. ivokaramani* by different shape of segment 6 in gnathopods 1—2 having more inclined palm, by 1-toothed 6 spines of outer plate in maxilla 1, more narrow segment 2 of pereopods 5—7, by presence of inner spine on dactyl of pereopods 5—7, etc.

*N. forroi* G. Karaman 1986, known from Hungary (Diabaz Cave) differs from our species by different shape of gnathopods 1—2, presence of 2 setae on inner plate of maxilla 1, by presence of dorsointernal row of setae on peduncle of uropod 1 (except distal spine), less number of lateral teeth on maxilla 1, etc.

*N. schusteri* G. Karaman 1992, known from Kasten Gradenfeld, Austria, has also 2 retinacula, ventroposterior lobe on seg-

ment 2 of pereopods 5—7, »kochianus-type« of segment 6 of gnathopods 1—2, by 1 lateral tooth on 6 spines of outer plate in maxilla 1 etc., but it differs from *N. ivokaramani* by absence of any ventral spine on urosomite 1 near basis of peduncle of uropod 1, by long telson having marginal and facial spines, by acute epimeral plates 1—3 like these in *N. longidactylus* Ruffo 1937, etc.

*Derivatio nominis:* This species is dedicated to Prof. Ivo Karaman from the University of Novi Sad (Serbia), who collected the studied material.

*Niphargus danielopoli*, n. sp.

Figs.: V, 10—11, VI—IX

*Material examined:* Austria, Paxerlueg, St. E.C. April 6, 1982, 5 spec. (leg. Otto Moog).

*Description:* Female with oostegites up to 5 mm: Body slender, metasomal segments 1—3 with 4—5 dorsoposterior marginal setae each (fig. IX, 7); urosomite 1 with 1 seta, urosomite 2 with 1 spine on each side (fig. VII, 4). Urosomite 1 near basis of peduncle of uropod 1 with 1 slender spine.

Head with short subrounded lateral cephalic lobes, eyes absent (fig. VI, 3).

Antenna 1 reaching half of body; peduncular segments 1—3 progressively shorter; peduncular segment 3 exceeding half of segment 2; main flagellum with 16 articles (most of them with 1 aesthetasc shorter than article itself). Accessory flagellum 2-segmented, shorter than last peduncular segment (fig. V, 10).

Antenna 2: peduncular segment 5 shorter than 4, flagellum 7-segmented, shorter than peduncular segments 4—5 combined; antennal gland cone short (fig. V, 11).

Labrum entire, broader than long (fig. VI, 4), labium normal, with well developed inner lobes, outer lobes entire (fig. VI, 5).

Mandible with triturative molar, right molar with long subdistal seta. Right mandible: incisor with 4 teeth, lacinia mobilis bifurcate, pluritoothed, accompanied by cca. 6 rakers (fig. IX, 5). Left mandible: incisor with 5 teeth, lacinia mobilis with 4 teeth accompanied by 7 rakers (fig. IX, 6). Mandibular palp 3-segmented, second segment with 4 setae; third segment hardly longer than second one, on outer face with 1 group of 2 A-setae, on inner face with 2 single B-setae, along margin with 9 D and 4 long distal E-setae (fig. IX, 4).

Maxilla 1: inner plate with 2 setae, outer plate with 7 spines (1 pluritoothed spine, 6 spines with 1 lateral tooth); palp reaching tip of spines of outer plate, with 4 distal setae (fig. VI, 2, 9).

Maxilla 2: both plates with marginal setae only (fig. VI, 6).

Maxilliped: inner plate slightly exceeding outer tip of first palp segment, bearing 3—4 strong cutter-spines accompanied by setae (fig. VII, 5, 6), outer plate exceeding 2/3 of second palp segment, with row of smooth lateral spines; palp 4-segmented (fig. VI, 5).

Coxae relatively short, coxa 1 nearly as long as broad (fig. VII, 1), coxae 2—4 poorly longer than broad (figs. VII, 1, 3; VIII, 4); coxa 4 without distinct ventroposterior lobe; coxa 5 shorter than 4 (fig. IX, 1), coxae 5—6 bilobed, coxa 7 entire (fig. IX, 2, 3).

Gnathopods 1—2 relatively slender, gnathopod 2 longer than 1. Gnathopod 1: segments 3—4 with 1 posterior marginal group of setae; segment 5 slightly shorter than 6; segment 6 longer than broad, slightly trapezoid; palm convex, almost transverse, defined on outer face by 1 strong corner spine accompanied laterally by 2 slender toothed spines and 2 facial setae, on inner face by 1 short subcorner spine (fig. VIII, 1—3); dactyl distinctly reaching posterior margin of segment 6, with 1 seta at outer margin.

Gnathopod 2: segments 3—4 with 1 group of posterior marginal setae; segment 5 as long as 6; segment 6 longer than broad; palm transverse, convex, defined on outer face by 1 strong corner spine accompanied laterally by 1 slender spine and 3 long facial setae, on inner face by 1 subcorner spine (fig. VIII, 4—6); dactyl like that of gnathopod 1.

Pereopods 3—4 slender, with dactyl reaching half of segment 6, nail remarkably longer than pedestal and provided with 0—1 very short inner marginal seta (fig. VII, 1—3).

Pereopods 5—7 relatively slender, their segment 2 up to twice as long as broad, tapering distally and without distinct ventroposterior lobe (weak corner poorly marked on pereopods 6—7 only); dactyl shorter than half of segment 6, bearing 1 seta (not spine) at inner margin and 1 plumose setae at outer margin (fig. IX, 1—3), nail remarkably shorter than pedestal.

Pleopods 1—3 with 2 retinacula each. Peduncle of pleopod with 2 short posterior marginal median setae (fig. VI, 7).

Epimeral plates 1—3 with subrounded ventroposterior corner; plates 2—3 with 1 subcorner spine each (fig. IX, 7).

Uropod 1: peduncle with 1 dorsoexternal row of spines, dorsointernal row of spines consisting of 1 distal and 0—1 median spine (fig. VII, 4); inner ramus slightly longer than outer one, both rami with short lateral and distal spines.

Uropod 2: inner ramus distinctly longer than outer one, both rami with short lateral and distal spines (fig. VII, 4).

Uropod 3: peduncle short; first segment of outer ramus long, with bunches of spines along both margins (plumose setae absent); second segment nearly reaching 1/4 of first segment.

Telson short, incised over 2/3 of its length, almost as long as broad, each lobe with 3 distal and 1 outer marginal spine; a pair

of short plumose setae appears near the middle of each lobe (fig. VI, 1, 8).

Coxal gills on pereonites (mesosomal segments) 2 and 4 long and narrow (figs. VII, 3; VIII, 4), these of pereonites 3, 5 and 6 shorter (figs. VII, 1; VIII, 4; IX, 1, 2).

Oostegites broad, in our specimens with short marginal setae only (figs. VII, 1; VIII, 4).

Male: unknown.

Variability: Six spines of outer plate of maxilla 1 with 1 lateral tooth each (inner spine pluritoothed only), occasionally one of spines with 2 lateral teeth (fig. VI, 2, 9). Peduncle of pleopod 3 with 1—2 shorter or longer median marginal setae. Uropod 1 with or without dorsointernal median spine. Telson with 3—4 distal and 1—2 outer marginal lateral spines (fig. VI, 1, 8).

Holotype: female 5 mm. Holotype and paratypes are deposited in Karaman's Collection in Podgorica (Titograd), Crna Gora.

Loc. typ.: Paxerlueg, Austria.

Distribution: Known only from type-locality (Austria).

Remarks and affinities: *Niphargus danielopoli*, n. sp. is very allied to the species *N. strouhali strouhali* Schell. 1933, known from Eggerloch near Warmbad, Villach, Austria) and *N. strouhali alpinus* G. Karaman & Ruffo 1989, known from caves in the Tridentine Alps (Grotta del Torrione di Vallesinella) and Dolomites (cave in Alpe di Fosses) by numerous characters (subrounded epimeral plates 1—3, telson, urosomites 1—2, uropod 3, gnathopods, dactyl of pereopods, long coxal gills, mandibular palp, etc.), but both taxa differ from *N. danielopoli* by pluritoothed all spines of outer plate in maxilla 1.

*N. carniolicus* Sket 1960, known from Slovenia (cave near Luknja) is very similar to our species (despite the unknown male of *N. danielopoli*) (similar pereopods 3—7, epimeral plates, outer plate and palp of maxilla 1, urosomites 1—2, telson), but differs from *N. danielopoli* by presence of only 1 seta on inner plate of maxilla 1, by shorter both plates of maxilliped, by inner plate of maxilliped with only 3 distal spines, by elevated number of retinacula on pleopods, by subequally long both rami of uropods 1—2, by shorter segment 5 of gnathopods 1—2, by lower number of corner slender spines on gnathopod 1, etc.

*N. ablaskiri romanicus* Dobr. Man. 1942, known from the well in Faget (Tirnavé, Eastern Romania) is also similar to *N. danielopoli* (telson, outer plate of maxilliped, urosome, gnathopods 1—2, almost subrounded epimeral plates 1—3, telson), but it differs from *N. danielopoli* by elevated number of retinacula on pleopods 1—3, by only 1 seta on inner plate of maxilla 1, slightly more narrow segment 2 of pereopods 5—7, etc).



There are also several other species with subrounded epimeral plates rather similar to *N. danielopoli*, differing distinctly from our species.

*N. aquilex* Schiödte 1855, known from numerous parts of Europe and *N. tauri* Schellenberg 1933, known from Asia Minor, differ from *N. danielopoli* by elevated number of retinacula, shape of gnathopods 1—2, etc.; *N. aquilex* also by longer outer ramus of uropod 1.

*N. forroi* G. Karaman 1986, known from Hungary (Diabaz Cave, Bükk National Park) agrees with our new species by shape of outer and inner plate of maxilla 1, short coxae, shape of pereopods 3—7, by presence of only 2 retinacula, etc., but it differs from *N. danielopoli* by different shape of gnathopods 1—2, shorter palp of maxilla 1, short coxal gills 2 and 4, presence of median setae on dorsointernal margin of peduncle of uropod 1, slightly broader telson etc.

*N. transsylvanicus* Schell. 1934, known from Romania (Hunedoara and Ploesti regions) differs from our species by distinctly angular epimeral plates, by 3—4 retinacula on pleopods, etc. (poorly described species).

*Niphargus andropus* Schell. 1940, known from Romania (Transylvania and Bihar Mt.) differs from *N. danielopoli* by more inclined segment 6 of gnathopods 1—2, only 1 seta on inner plate of maxilla 1 (this taxon has been poorly described, and many taxonomic characters are unknown).

*N. adei* S. Kar. 1934, known from Samothrake island (Greece) is also very similar to our species (subrounded epimeral plates, etc.) but this taxon differs from *N. danielopoli* by broader telson, short palp of maxilla 1, inner plate of maxilliped with 5 distal spines (3—4 in *N. danielopoli*), by oblique palm of gnathopods 1—2, etc.

*N. kochianus petrosani* Dobr. & Man. 1933, known from Romania (Petrosani) differs from our species by presence of 1 seta on inner plate of maxilla 1, angular epimeral plates, by ovoid and lobed segment 2 of pereopod 7, by presence of 3—4 spines on each side of urosomite 2.

*N. birsteini* Dedju 1963 known from Moldavia (former SSSR), differs by presence of 3 setae on inner plate of maxilla 1, outer plate of the same maxilla with several spines bearing more than 1 lateral tooth each, etc.

*N. corinae* Dedju 1963 known from Goverla (Prut river region, 2000 m above sea level) differs from *N. danielopoli* by inner plate of maxilla 1 with 3 setae, by more oblique palm of gnathopods 1--2.

*N. ruffoi* G. Karaman 1976 from Italy (Gortani Abyss), differs by different shape of segment 6 in gnathopods 1--2, by only 1 seta on inner plate of maxilla 1, rami of uropod 1 subequal or outer ramus is longer than inner one, etc.

Derivatio nominis: This species is dedicated to Dr. Dan Danielopol from the Institute of Limnology in Mondese (Austria) for his great contribution to the knowledge of the subterranean fauna of Austria and other European countries.

### Conclusions

The species *Niphargus ivokaramani*, n. sp., described from the subterranean waters in Prekonoga (E. Serbia), as well as *Niphargus danielopoli*, n. sp., described from Paxerlueg (Austria), are provided with nearly subrounded epimeral plates, only one seta at outer margin of dactyl in gnathopods 1--2, and pleopods 1--3 are with only 2 retinacula each. Based on these characters, these species are very allied to the species *Niphargus strouhali strouhali* Schell, 1933 known from the subterranean waters of Austria (Eggerloch).

But, based on present knowledges, both taxa differ distinctly from *N. strouhali*. The further discoveries of the males of both new taxa, as well as the new localities of *N. strouhali*, *N. danielopoli* and *N. ivokaramani* will show the real value of these differences, the limits of the variability of each of these taxa and their real relationships.

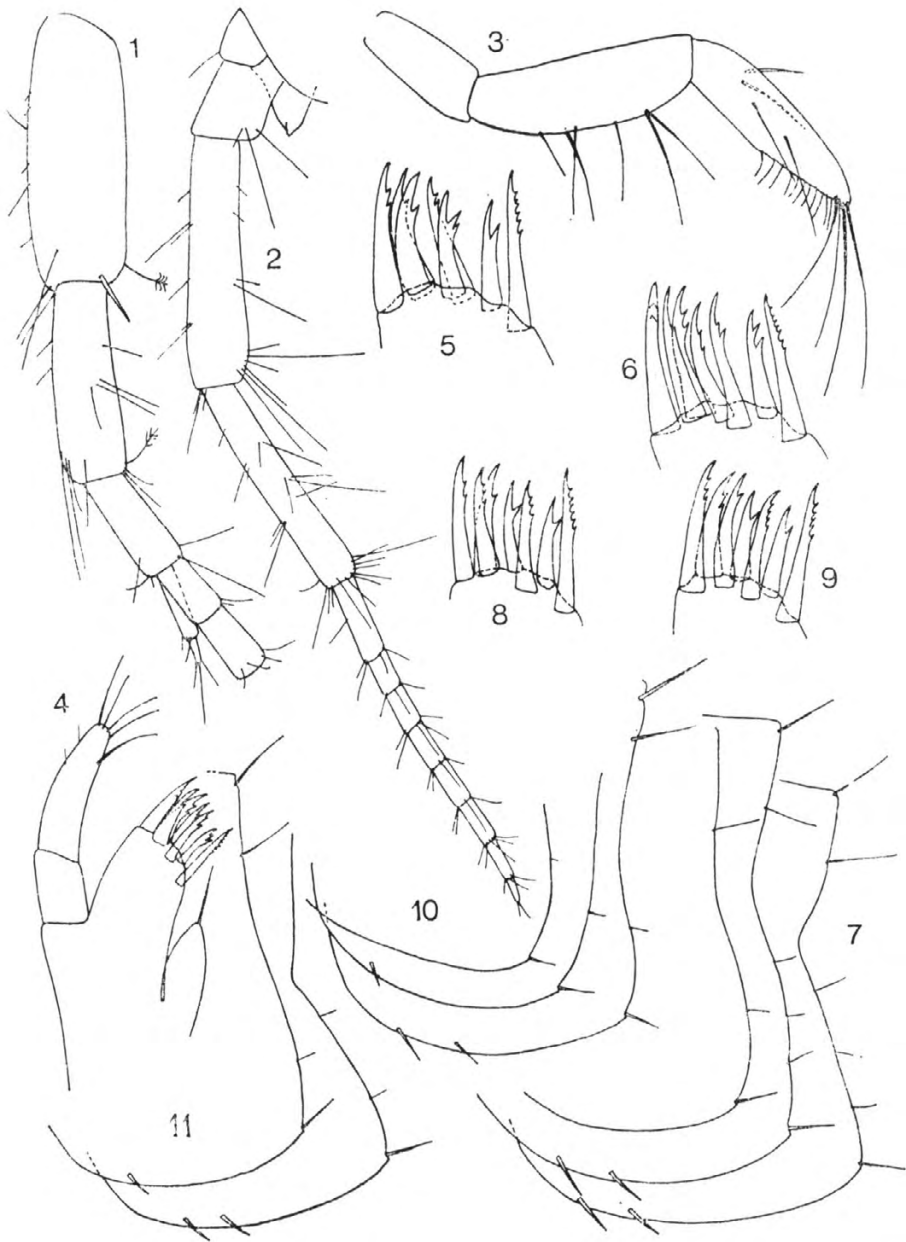


Fig. 1. *Niphargus ivokaramani*, n. sp., Prekonoga, Svrljig, female 4,7 mm; 1 = antenna 1; 2 = antenna 2; 3 = mandibular palp; 4-6 = maxilla 1; 7 = epimeral plates 1-3; 8-9 = maxilla 1, female 4,0 mm; 10 = epimeral plates 1-3, female 3,4 mm; 11 = epimeral plates 1-3, male 3,3 mm.

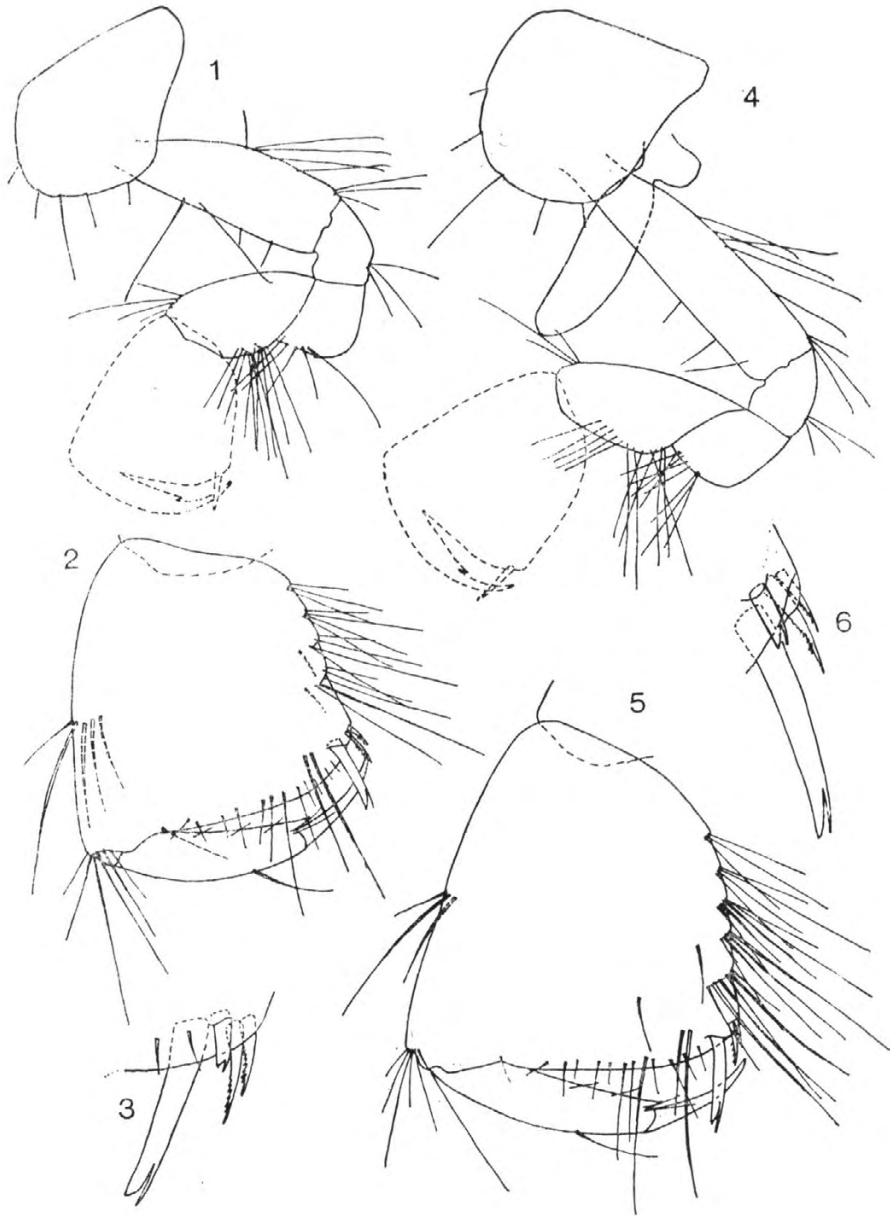


Fig. II. *Nipargus ivokaramani*, n. sp., Prekonoga, Svrljig, female 4,7 mm:  
 1-3 = gnathopod 1; 4-6 = gnathopod 2.

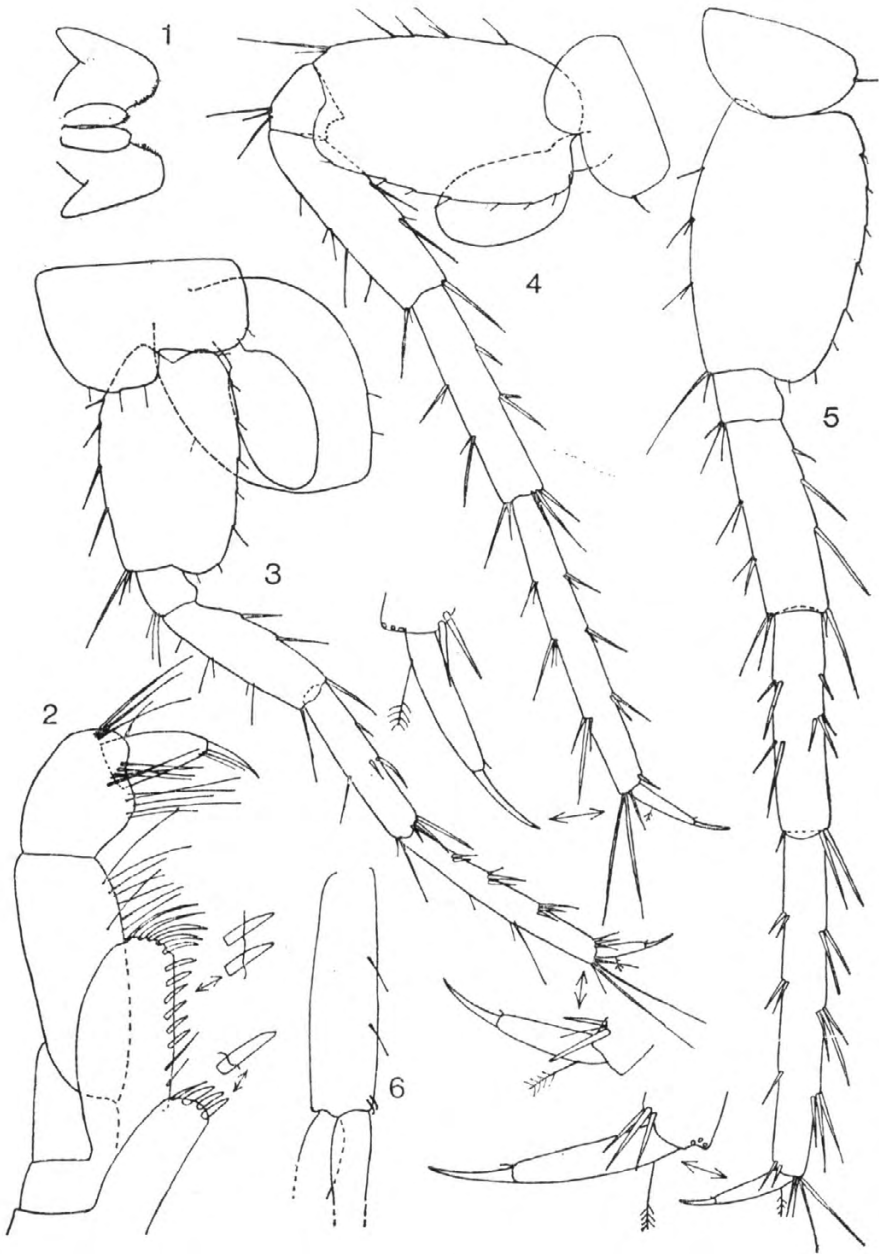


Fig. III. *Niphargus ivokaramani*, n. sp., Prekonoga, Svrljig, female 4.7 mm; 1 = labium; 2 = maxilliped; 3 = pereopod 5; 4 = pereopod 6; 5 = pereopod 7; 6 = pleopod 3.



Fig. IV. *Niphargus ivokaramani*, n. sp. Prekonoga, Svrljig, female 4,7 mm; 1—2 = pereopod 3; 3—4 = pereopod 4; 5 = urosome with uropods 1—2; 6 = uropod 3; 7 = uropod 3, male 3,3 mm.

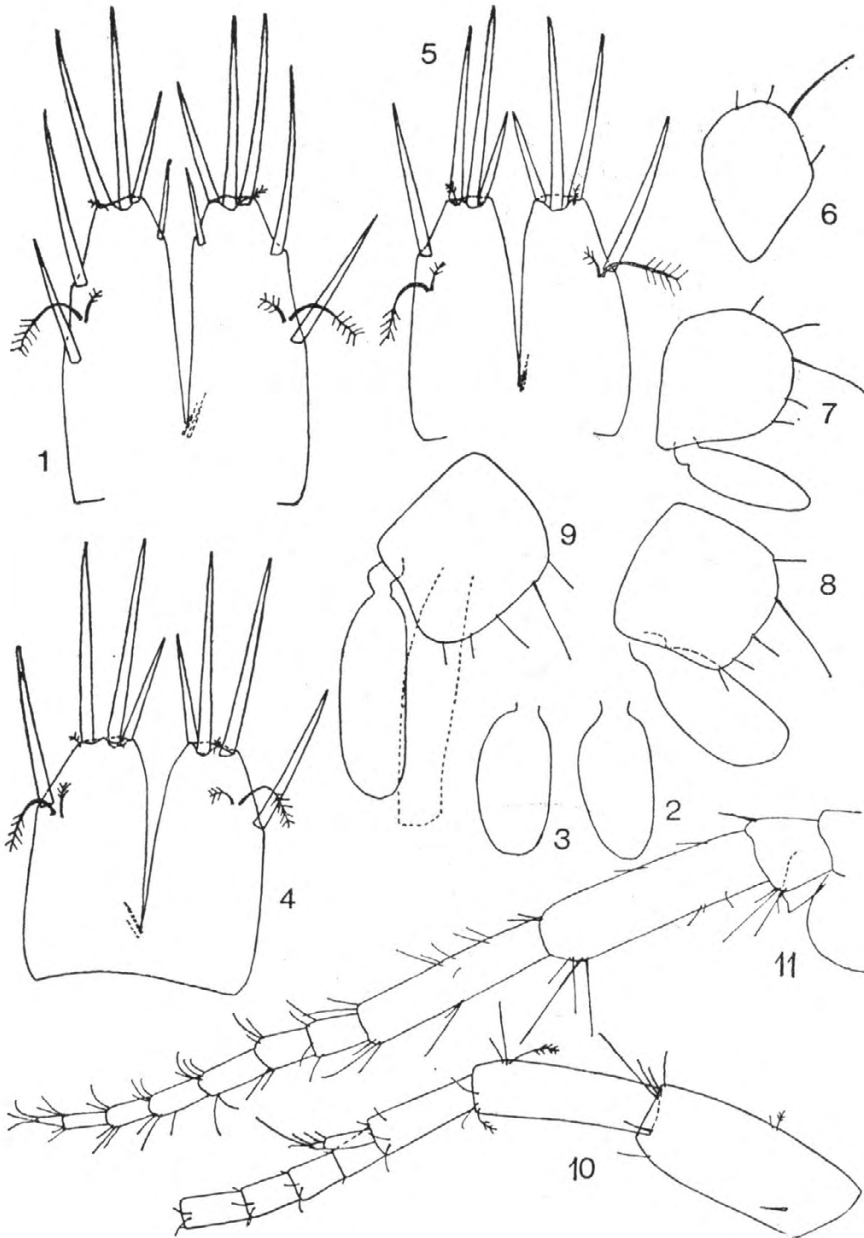


Fig. V. *Niphargus ivokaramani*, n. sp., Prekonoga, Svrljig, female 4,7 mm: 1 = telson; 2-3 = coxal gills 5-6, male 3,3 mm; 4 = telson, female 3,4 mm; 5 = telson, male 3,3 mm; 6-9 = coxae 1-4, male 3,3 mm; *Niphargus danielopoli*, n. sp., Paxerlueg, Austria, female 5 mm: 10-11 = antennae 1-2.

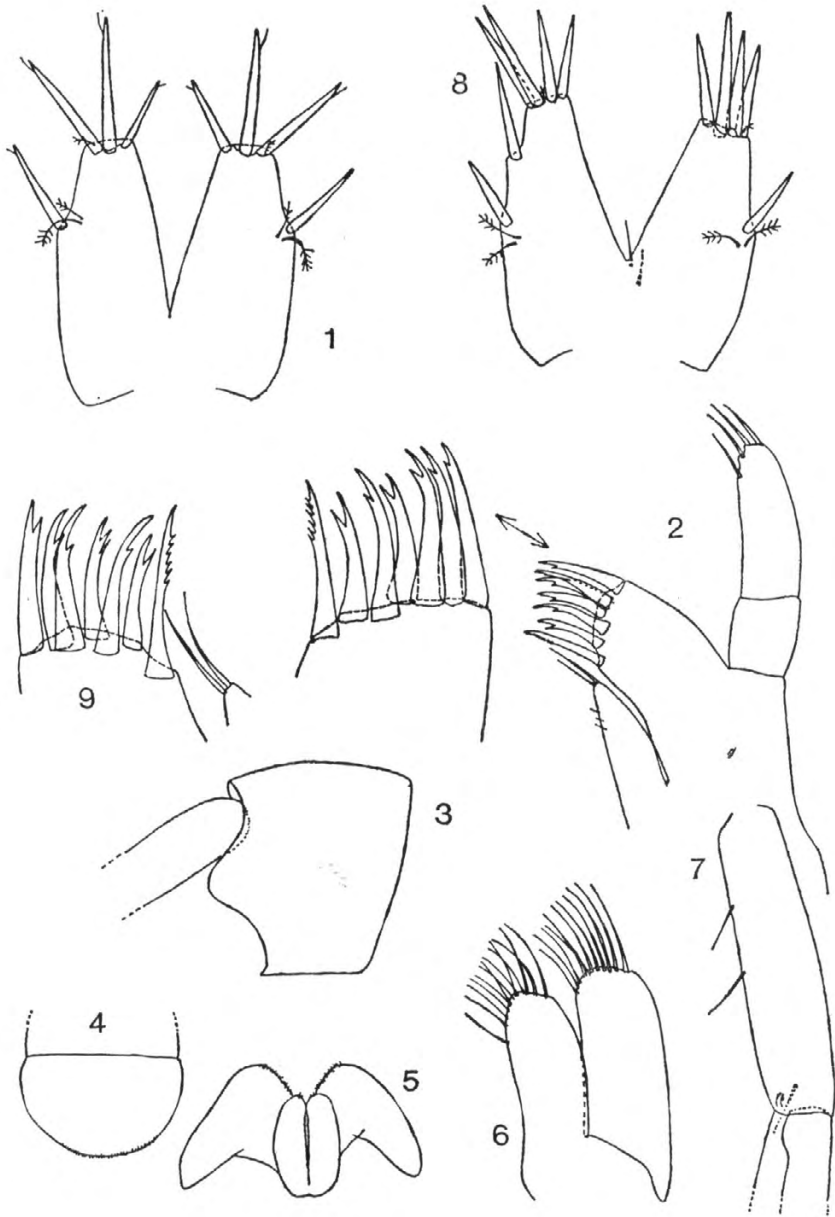


Fig. VI. *Niphargus danielopoli*, n. sp., Paxerlueg, Austria, female 5 mm; 1 = telson; 2 = maxilla 1; 3 = head; 4 = labrum; 5 = labium; 6 = maxilla 2; 7 = pieopod 3; 8 = telson, female 4,9 mm; 9 = maxilla 1, female 4,9 mm.



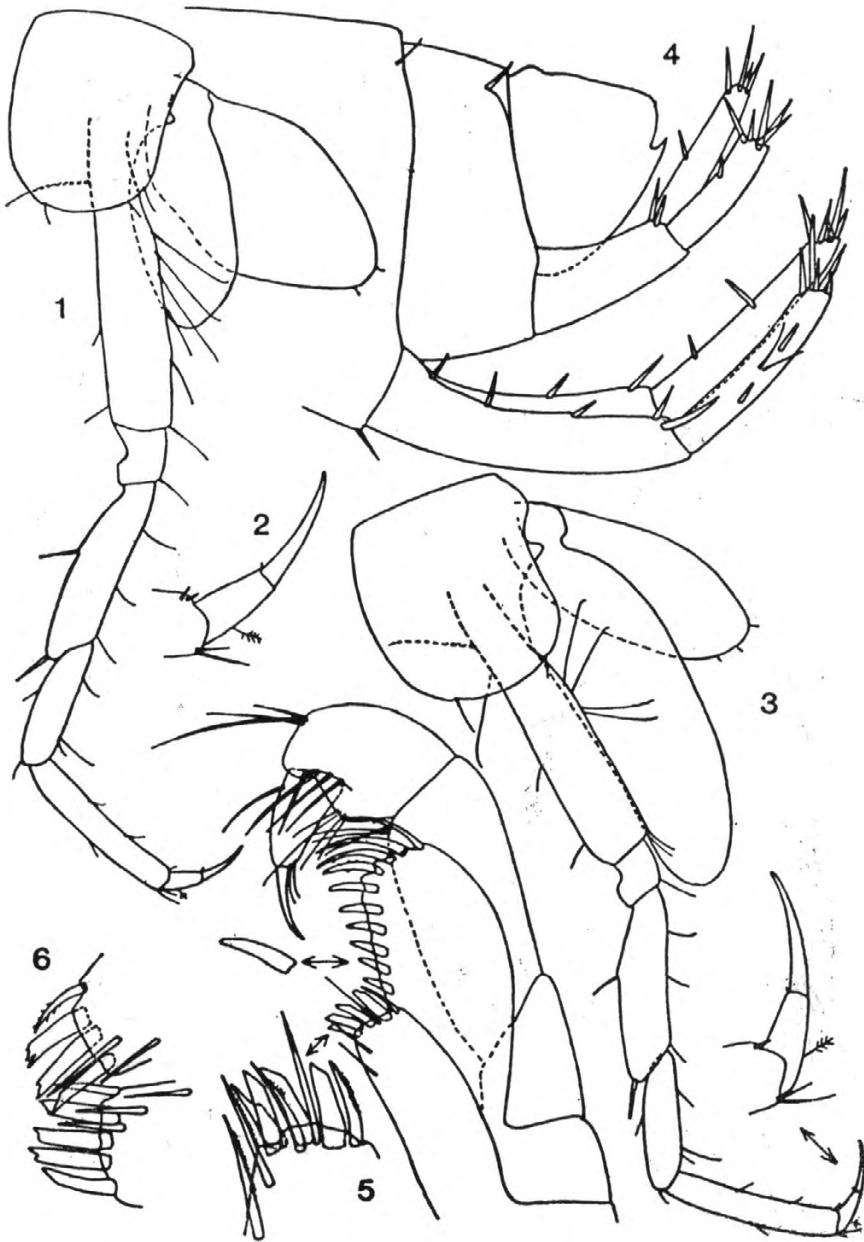


Fig. VII. *Niphargus danielopoli*, n. sp., Paxerlueg. Austria, female 5 mm: 1-2 = pereopod 3; 3 = pereopod 4; 4 = urosome with uropods 1-2; 5 = maxilliped; 6 = inner plate of maxilliped, female 4.9 mm.

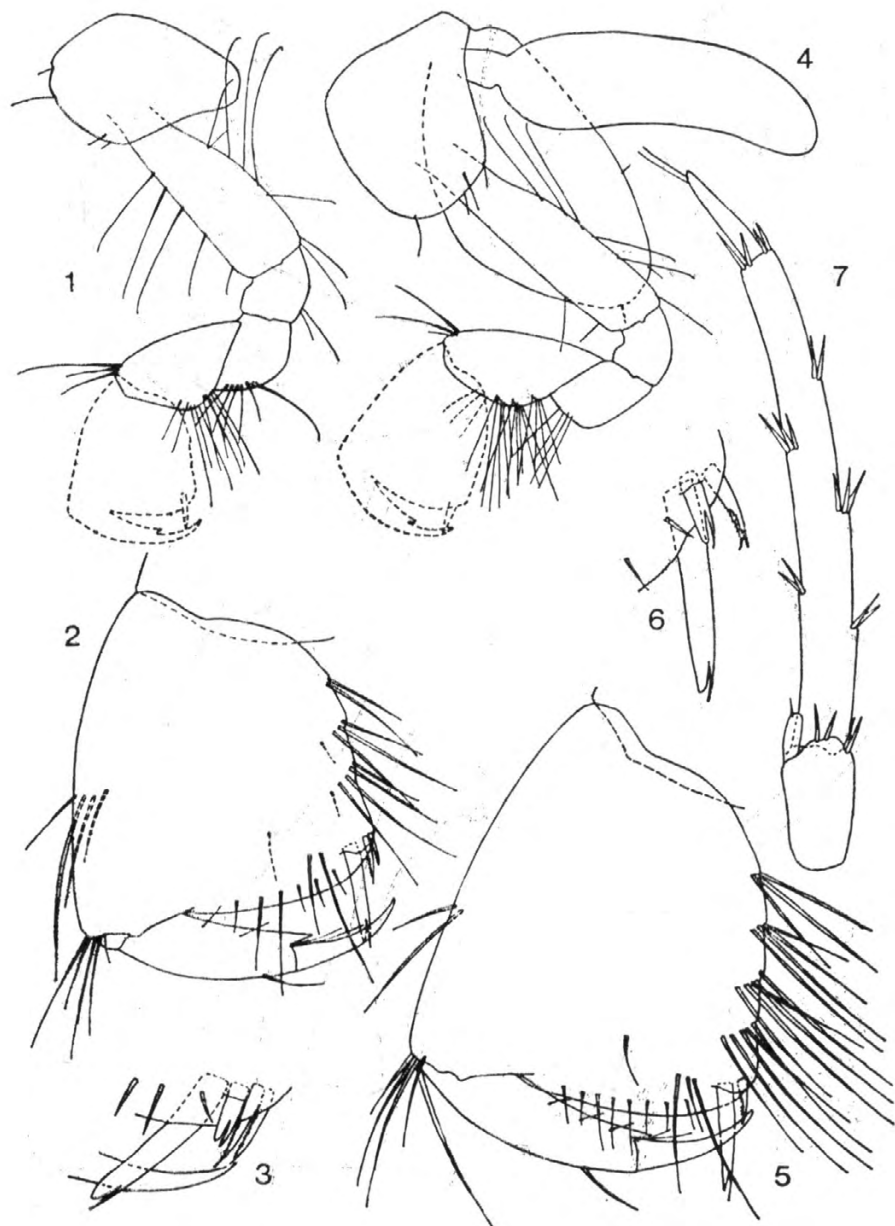


Fig. VIII. *Niphargus danielopoli*, n. sp., Paxerlueg, Austria, female 5 mm: 1-3 = gnathopod 1; 4-6 = gnathopod 2; 7 = uropod 3.

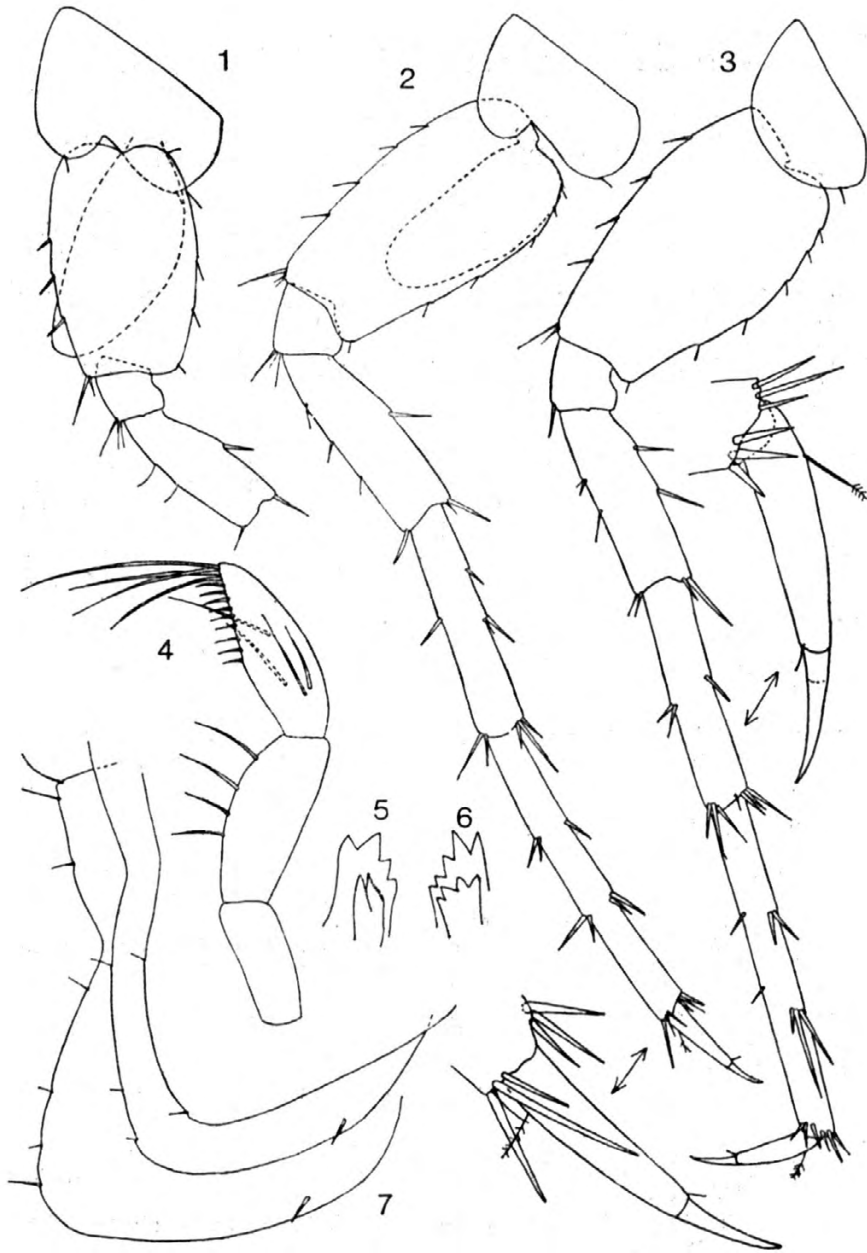


Fig. IX. *Niphargus danielopoli*, n. sp., Paxerlueg, Austria, female 5 mm: 1 = pereopod 5; 2 = pereopod 6; 3 = pereopod 7; 4 = mandibular palp; 5 = right mandible; 6 = left mandible; 7 = epimeral plates 1-3.

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DALJNJE STUDIJE RODA *NIPHARGUS* Schiödte 1849 U EVROPI, *N. ivokaramani*, n. sp., I *N. danielopoli*, n. sp.  
(210. Prilog poznavanju Amphipoda)

#### Rezi me

Rod *Niphargus* Schiödte 1849 (*Amphipoda Gammaridea*, fam. *Niphargidae*) je zastupljen u Evropi sa preko 250 taksona koji naseljavaju kontinentalne podzemne vode. Međutim, još uvijek u mnogim dijelovima Evrope je ova grupa organizama veoma slabo proučena, pa se stalno otkrivaju nove vrste ovog roda.

Tokom naših višegodišnjih istraživanja ove grupe rakova, opisan je niz novih taksona iz različitih dijelova Evrope (*N. schusteri*, *N. pecarensis occultus*, *N. kragujevensis remus* i dr.). Sadašnja istraživanja faune *Amphipoda* podzemnih voda Austrije i Srbije su dovela do otkrivanja nekih novih taksona koje i opisujemo u ovom radu.

Vrsta *Niphargus ivokaramani*, n. sp., je nađena u podzemnim vodama u selu Prekonoga (Svrljig, Srbija). Po svojim karakteristikama dosta je bliska vrsti *Niphargus strouhali strouhali* poznatoj iz Austrije, ali se razlikuje od nje nizom karaktera (manji broj retinakula na pleopodima, drugačijim oblikom gnatopoda, znatno dužim trnovima telzona i drugih dijelova tijela, i sl.). Druga opisana vrsta, *Niphargus danielopoli*, n. sp., sakupljena je u podzemnim vodama kod Paxerlueg-a, Austrija. I ova vrsta je dosta bliska vrstama *N. strouhali* i *N. ivokaramani* (oblik epimera, jedna dlaka na vanjskom rubu daktilusa gnatopoda, telson, itd.), ali se razlikuje jasno od njih oblikom prve maksile, pereopoda, maksilipeda i sl.

Nažalost, kako su mužjaci nepoznati kod vrste *N. danielopoli*, a kod vrste *N. ivokaramani* su poznati samo mladi, nepotpuno adultni mužjaci, to je otežana odgovarajuća uporedba sa nekim poznatim vrstama roda *Niphargus* radi određivanja detaljnog taksonomskog položaja obiju novih vrsta unutar roda *Niphargus*.

