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**INVESTIGATIONS ON TWO SUBTERRANEAN SPECIES OF
THE FAMILY NIPHARGIDAE (GAMMARIDEA) FROM SERBIA,
NIPHARGUS REMYI S. KAR. 1934 AND N. EUSERBICUS, SP. N.
(CONTRIBUTION TO THE KNOWLEDGE OF THE AMPHIPODA 266)**

SUMMARY

Two members of the subterranean family Niphargidae (Amphipoda, Gammaridea) from Serbia are studied: *Niphargus remyi* Karaman, S., 1934, and *Niphargus euserbicus*, new species. The species *N. remyi* was described relatively briefly by Stanko Karaman (1934) based on the specimens collected by Dr. Paul. Remy from Nancy, France, in the springs Čedovo near Sjenica (Serbia). Although the original material was dried, we redescribed more in detail this species based on holotype and paratypes existing in the KARAMAN's Collection in Podgorica, Crna Gora (Montenegro).

The subterranean species *Niphargus euserbicus*, new species, is described here from the cave Jovanjska pečina near Valjevo (Serbia), based on specimens collected by Dr. Ivo Karaman from Novi Sad, Serbia.

The both species belong to the *Niphargus remyi-ravanicanus* complex of taxa, and its taxonomic position within this group of species is discussed. As the males and females of all species within this Complex are partially unknown, the presented taxonomic relations among all known taxa of this complex are probably not definitive.

Keywords: taxonomy, Amphipoda, *Niphargus*, *remyi*, *euserbicus*, new species, subterranean, Serbia.

INTRODUCTION

The fauna of the family Niphargidae (Crustacea, Amphipoda, Gammaridea) settled various subterranean waters over entire Europe and Near East till Baghdad. Among several known genera of this family, the genus *Niphargus* Schiödte, 1849 is widely extended over entire area, consisting of over 200 species and subspecies (see Karaman & Ruffo, 1986). Numerous subterranean waters are split into numerous more or less isolated areas, and by this way the various populations of the genus *Niphargus* in these waters were consequently isolated to each other, creating numerous distinct species and subspecies. These isolated subterranean waters with its fauna, accelerated fragmentation of numerous *Niphargus* populations into a distinct species and subspecies divided to each other by various natural barriers and adapted to very

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different ecological conditions in each of these waters (hyporheic waters, fast running subterranean waters, limnocrenes springs, hygroptic springs, caves, etc.).

At the one side, the populations of different species living in the subterranean waters with similar ecological conditions obtained similar visible morphological and invisible genetic and physiological characteristics. By this way, we can find the very different distinct species with very similar (to each other) morphological characters, and consequently hardly morphologically recognizable (cryptic species, etc).

On the other side, the populations of one species living in the various ecological conditions obtained different morphological adaptations, although genetically belonging still to the same species

The difficult sampling of the specimens in the subterranean waters, where we collect usually a scarce number of specimens, sometimes the males or females only, made study and recognition of the taxa within the genus *Niphargus* not easy.

In Serbia there are numerous caves and other karstic phenomena, especially in the regions belonging to the Dinarid mountain chain. From the numerous springs, caves and other subterranean waters in Serbia, nearly 20 species and subspecies of genus *Niphargus* are known, most of them endemic for Serbia (Karaman, G., 2011).

First member of the subterranean genus *Niphargus* in Serbia was described by Stanko Karaman (1934) from the springs in Čedovo near Sjenica, *Niphargus stygius remyi* (= *Niphargus remyi* Karaman, S., 1934), and he mentioned in the same paper also *Niphargus valachicus* Dobreanu & Manolache, 1933, from the wells in Makiš near Beograd. Later other scientists discovered and described numerous species of this genus over Serbia from various caves, springs and other subterranean waters, sometimes together with other subterranean amphipods.

As the original description of *Niphargus remyi* has been relatively short and covered by 3 figures only, numerous taxonomic characters of this species were unknown. Later, other species of this genus were described, and it was difficult to recognize the differences between *N. remyi* and some other species from Serbia. By this way, it was important to redescribe *N. remyi* based on the original material of Stanko Karaman.

During our recent studies of the subterranean fauna of Serbia, we received one sample of genus *Niphargus* collected from one cave in region of Valjevo, described here as a new species, *Niphargus euserbicus*, sp. n.

MATERIAL AND METHODS

The sample of *N. remyi* was preserved in 5% formaldehyde, a common solution used for preservation in past time. During the Second World War period, the sample was dried. Recently we treated the specimens with aquatic solution of ethyleneglycol (HOCH₂CH₂OH), transferring it later to the 70% ethanol. By this way we obtain the possibility to dissect and figured the specimens.

The sample of *N. euserbicus* was collected in the subterranean waters by hand net and preserved in 70% ethanol. Specimens were examined and dissected using a Wild M 20 stereomicroscope and drawn using a camera lucida attachment. The animals were temporarily mounted in the mixture of glycerin and water for dissection and drawing of body parts, and later transferred on slides with liquid of Faure for final preservation. The body length of examined specimens was measured by tracing individual's mid-trunk lengths (tip of the rostrum to end of telson) and drawings were made using a camera lucida and inked manually.

RESULTS AND DISCUSSION

TAXONOMICAL PART

Family Niphargidae

***NIPHARGUS REMYI* Karaman, S., 1934**

Figs. 1-5, 6A-E

Niphargus stygius remyi Karaman, S., 1934: 330, fig. 2; Karaman, S., 1935: 62; Karaman, S., 1943A: 285; Karaman, G., 1972: 6; Karaman, G., 1974: 26; Karaman, G. & Ruffo, 1986: 532; Karaman, G., 1995: 324; *Niphargus longicaudatus remyi* Schellenberg, 1935: 210 (key); Barnard & Barnard, 1983: 693; *Niphargus (Stygoniphargus) stygius remyi* Karaman, S., 1952: 23; *Niphargus remyi* Karaman, G., 1983: 70; Karaman, G., 2009: 80; Karaman, G., 2011: 157.

MATERIAL EXAMINED: SERBIA: S-453= Springs in Čedovo near Sjenica, 1930, 8 exp. (leg. P. Remy) (holotype and paratypes). Holotype and paratypes are deposited in KARAMAN's Collection in Podgorica (Crna Gora) under No. S-453.

LOCUS TYPICUS: springs in Čedovo near Sjenica, Serbia.

DIAGNOSIS OF THE SPECIES: Moderately large species with large gnathopods. Urosomite 1 on each dorsolateral side with 1 spine and 1 seta, urosomite 2 with 3-4 dorsolateral spines on each side, urosomite 3 naked. Coxae relatively short, coxa 1 with subrounded ventroanterior corner, coxa 4 without distinct ventroposterior excavation.

Inner plate of maxilla 1 with elevated number of setae (5-7), outer plate with 8-9 spines (most of them with one strong lateral tooth each), palpus short, hardly exceeding basis of outer plate-spines. Maxilliped: inner plate with 4-5 smooth spines, palpus article 3 along outer margin with one median and one distal group of setae.

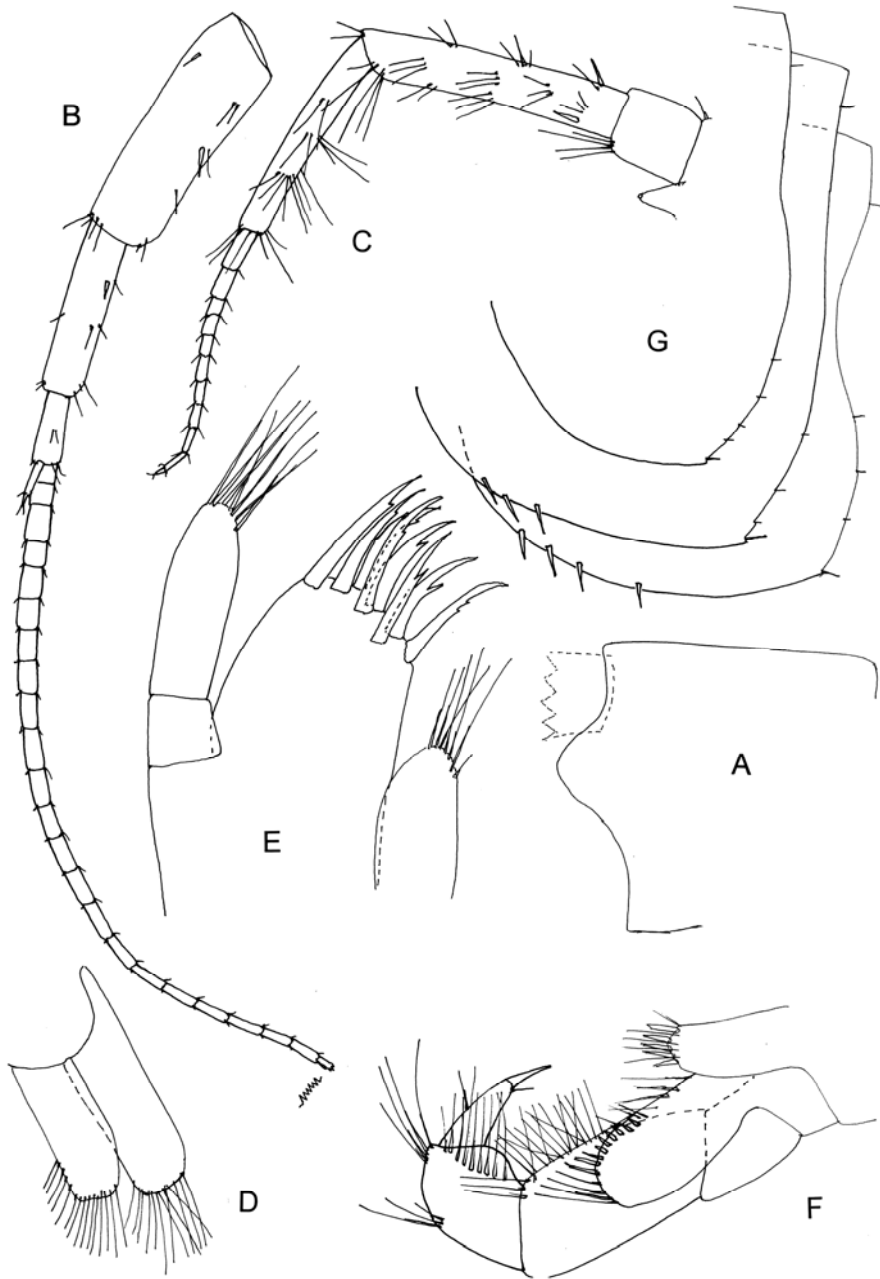


Fig. 1. *Niphargus remyi* S. Kar., 1934, Čedovo near Sjenica, male 14 mm (holotype): A= head; B= antenna 1; C= antenna 2; D= maxilla 2; E= maxilla 1; F= maxilliped; G- epimeral plates 1-3.

Gnathopods 1-2 with large propodus inclined nearly $2/3$ of propodus-length, L-spines are attached laterally of the strong S-spine; dactylus along outer margin with row of several single or paired strong setae. Pereopods 5-7 with article 2 longer than broad, with absent of poorly visible ventroposterior lobe. Dactylus of pereopods 3-7 moderately slender, with one strong seta or slender spine along inner margin near basis of the nail.

Epimeral plates 1-3 in males poorly quadrate, in females distinctly angular. Pleopods 1-3 with 2 retinacula each. Uropod 1 with inner ramus only slightly longer than outer ramus (female), and remarkably longer than outer ramus (male). Uropod 2 with equal rami (female and male). Uropod 3 elongated, with second article of outer ramus reaching $1/4$ (female) to $2/3$ of first article (male). Telson broader than long, deeply incised, with numerous distal and lateral spines, facial spines absent.

DESCRIPTION OF: MALE 14 mm (holotype). Body moderately stout, metasomal segments 1-3 with 2-4 dorsoposterior short marginal setae (fig. 1G); urosomite 1 with 1 spine and 1 seta on each dorsolateral side; urosomite 2 with 3 dorsolateral spines on each side (fig. 4A); urosomite 3 naked. Urosomite 1 with one ventroposterior slender spine near basis of uropod 1-peduncle (fig. 4A).

Head with short rostrum and short subrounded lateral cephalic lobes, eyes absent (fig. 1A). Epimeral plates 1-3 poorly quadrate, with well marked ventroposterior corner defined by slender strong seta (fig. 1G), posterior margin of epimeral plates 1-3 convex, with several short marginal setae each. Epimeral plate 2 with 3 subventral spines, epimeral plate 3 with 4 subventral spines (fig. 1G).

Coxae 1-4 relatively short. Coxa 1 slightly broader than long (ratio: 41: 48), with subrounded ventroanterior corner and several marginal setae (fig. 2D). Coxa 2 is scarcely longer than broad (ratio: 54: 53), with row of short marginal setae (fig. 2E); Coxa 3 is distinctly longer than broad (ratio: 56: 52) (fig. 2F); coxa 4 nearly as long as broad (57: 57), bearing a row of short marginal setae and without distinct posterior excavation (fig. 2G).

Coxae 5-7 short. Coxa 5 remarkably shorter than coxa 4, coxae 5-6 with subrounded anterior lobe (fig. 3A, C); coxa 7 entire, subrounded ventrally (fig. 3F).

Antenna 1 reaching nearly half of the body; peduncle articles 1-3 progressively shorter (ratio: 68: 47: 20); articles 1-2 with 1 spine and several short setae along ventral margin (fig. 1B); main flagellum consisting of 23+ articles (most of them with one short aesthetasc each). Accessory flagellum 2-articulate, short (fig. 1B).

Antenna 2 moderately setose (fig. 1C); peduncle article 3 short, with distoventral bunch of setae; peduncle article 4 slightly longer than 5 (ratio: 72: 60), both articles along ventral margin with several bunches of setae as long as or longer than diameter of articles themselves; along dorsal margin of article 4 appear 2 spines accompanied by single short setae; flagellum slightly longer than last peduncle article (ratio: 68: 60) with 11 slender articles scarcely setose (fig. 1C). Antennal gland cone short (fig. 1C).

Mouthparts well developed. Labrum broader than long. Labium with subrounded outer lobes.

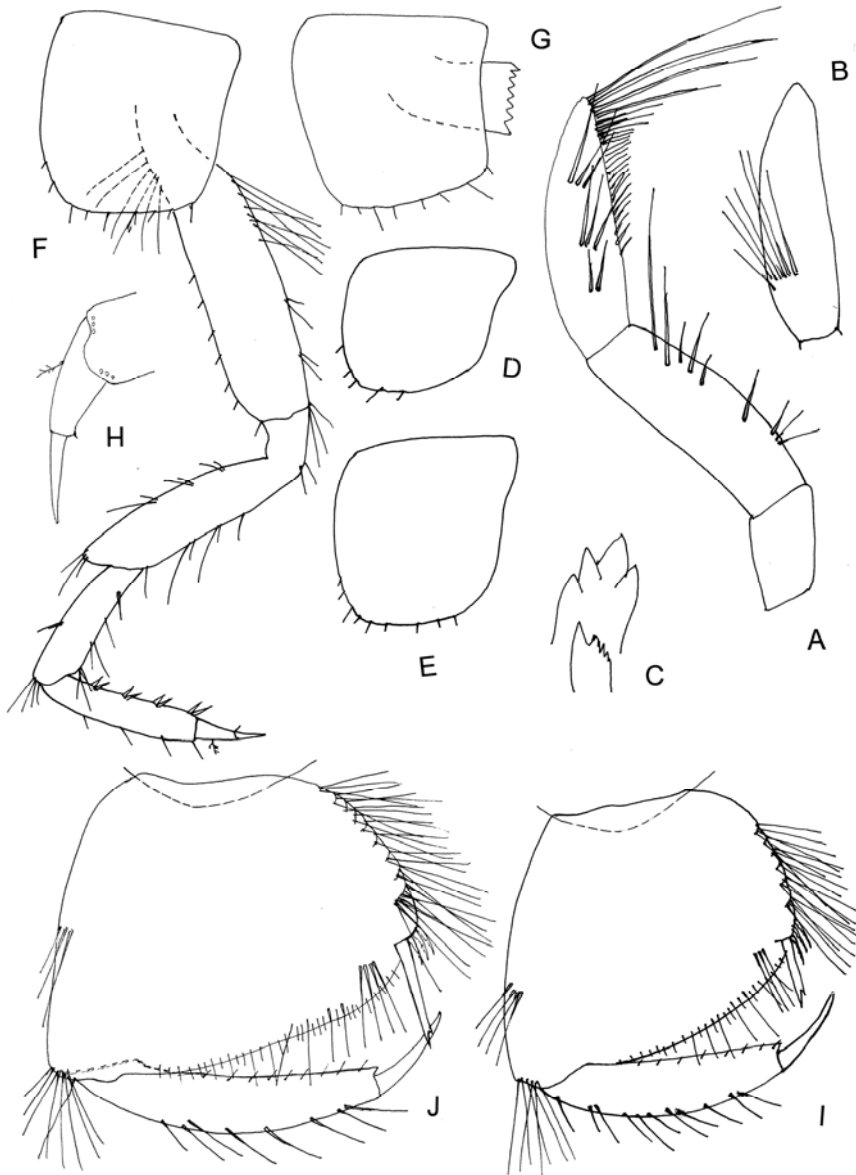


Fig. 2. *Niphargus remyi* S. Kar. 1934, Čedovo near Sjenica, male 14 mm (holotype): A= mandible palpus, inner face; B= distal tip of mandible palpus, outer face; C= right mandible, incisor and lacinia mobiliis; D= coxa 1; E= coxa 2; F= pereopod 3; G= coxa 4; H= dactylus of pereopod 3; I= gnathopod 1 propodus; J= gnathopod 2 propodus.

Mandibles with triturative molar. Left mandible: incisor with 5 teeth, lacinia mobilis with 4 teeth. Right mandible: incisor with 4 teeth, lacinia mobilis bifurcate, pluritoothed (fig. 2C). Mandible palpus 3-articulate: first article naked (fig. 2A); article 2 with 9 strong setae (fig. 2A); palpus article 3 falciform, slightly longer than palpus article 2 (ratio: 74: 65), bearing nearly 28 marginal D-setae and 8 distal unequal E-setae (fig. 2A); on outer face of article 3 is attached a row of 7 A-setae (fig. 2B), on inner face are attached 3 groups of setae (8 setae) (fig. 2A); C-setae absent.

Maxilla 1: inner plate with 7 distal setae (fig. 1E); outer plate with 8 distal spines: 7 spines with one strong lateral tooth each, one spine (inner spine) with 2 small lateral teeth; palpus 2-articulate, short, not reaching half of outer plate-spines (fig. 1E), provided with 7 distal setae.

Maxilla 2: both plates relatively narrow, bearing marginal setae only (fig. 1D).

Maxilliped: inner plate with 4 or 5 smooth spines intermixed with several setae (fig. 1F); outer plate reaching nearly half of palpus article 2, bearing along inner margin with row of smooth pointed spines intermixed with setae (fig. 1F); palpus 4-articulate, palpus article 3 along outer margin with one median and one distal bunch of setae; article 4 along inner margin with one seta near basis of the nail, and with one median seta along outer margin; nail distinctly shorter than pedestal (fig. 1F).

Gnathopods 1-2 relatively large, with propodus distinctly larger than corresponding coxae. Gnathopod 1: article 2 with numerous proximal long setae along both margins; article 3 along posterior margin with one group of distoposterior marginal setae; article 5 slightly shorter than 6. Article 6 (propodus) trapezoid and provided with 6 transverse rows of setae along posterior convex margin (fig. 2 I). Palm distinctly convex, inclined nearly 2/3 of propodus-length, defined on outer plate by one strong corner S-spine accompanied laterally by 3 slender serrate L -spines and by 3 facial M -setae (fig. 2 I), on inner face by one short subcorner R-spine. Dactylus reaching posterior margin of propodus, bearing a row of short setae along inner margin and a row of 10 single or paired strong setae along outer margin) (fig. 2 I).

Gnathopod 2: article 2 with long proximal setae along both margins; article 3 along posterior margin with one distoposterior bunch of setae; article 5 shorter than 6. Propodus (article 6) trapezoid, broader than long (ratio: 100: 86), bearing 9 transverse rows of setae along posterior convex margin (fig. 2J). Palm distinctly convex, inclined nearly 2/3 of propodus-length (fig. 2J), defined on outer face by one strong corner S-spine accompanied laterally by 3 serrate slender L-spines and 4 long facial M-setae (fig. 2J), on inner face by one short subcorner R-spine. Dactylus reaching posterior margin of propodus, with a row of short setae along inner margin and with row of 8 single or paired strong setae along outer margin (fig. 2J).

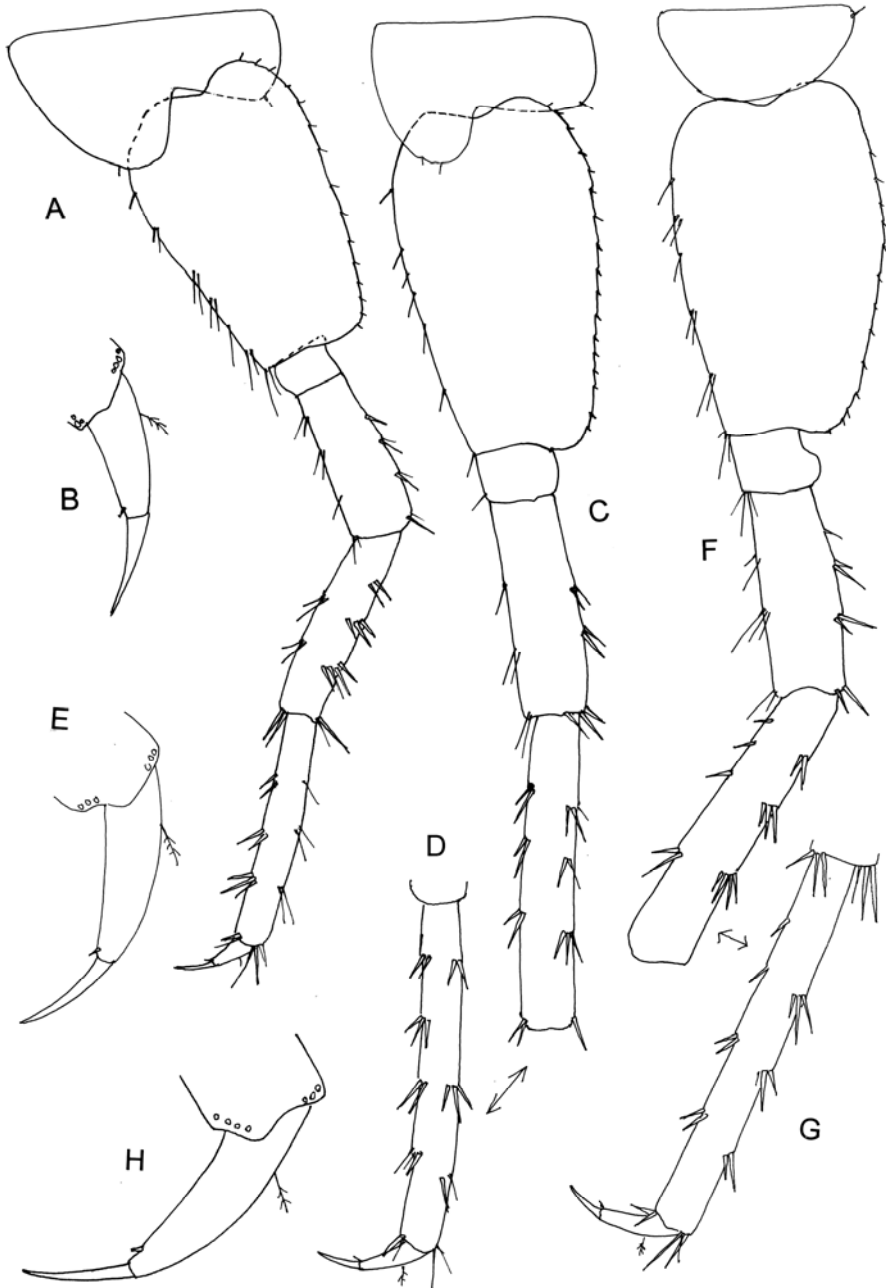


Fig. 3. *Niphargus remyi* S. Kar., 1934, Čedovo near Sjenica, male 14 mm (holotype): A-B= pereopod 3; C-E= pereopod 6; F-H= pereopod 7.

Pereopods 3-4 similar to each other, with relatively slender articles. Pereopod 3: article 2 along both margins with numerous proximal marginal setae (fig. 2F); articles 4-6 of unequal length (ratio: 62: 42: 44); articles 4 and 5 along inner margin with several longer setae; article 6 along inner margin with 4 pairs of short spines accompanied by single short setae. Dactylus short and relatively strong, along inner margin with 1 short spine-like seta, along outer margin with one plumose median seta (fig. 2H); nail is slightly shorter than pedestal (ratio: 25: 33).

Pereopod 4 is similar to pereopod 3.

Pereopods 5-7 progressively longer. Pereopod 5: basipodit slightly longer than broad (ratio: 78: 50), tapering ventrally, with indistinct ventroposterior lobe and slightly convex posterior margin bearing a row of short setae (fig. 3A), along anterior margin with row of single or paired strong setae; article 3 along posterior margin with 4 bunches of spines and setae; article 5 along anterior margin with bunches of setae, along posterior margin with bunches of short spines; article 6 along anterior margin with bunches of short spines, along posterior margin with short setae (fig. 3A); dactylus moderately slender, along inner margin with 1 short spine-like seta, along outer margin with one median plumose seta (fig. 3B).

Pereopod 6: basipodit almost twice as long as broad (ratio: 93: 52), with indistinct ventroposterior lobe and with row of posterior short setae along almost straight margin (fig. 3C); along anterior margin with row of short spine-like setae. Articles 4-6 of unequal length (ratio: 57: 83: 92), bearing mainly groups of short spines along both margins (fig. 3C, D); dactylus moderately slender, with one slender spine at inner margin and one median plumose seta at outer margin, nail shorter than pedestal (fig. 3E).

Pereopod 7: basipodit nearly twice as long as broad (ratio: 91: 54), with indistinct ventroposterior lobe and moderately convex posterior margin bearing a row of short setae, along anterior margin with a row of single or paired short strong setae (fig. 3F); article 3 along posterior margin with 4 bunches of short spines and setae; articles 4-6 of unequal length (ratio: 54: 82: 105); articles 5 and 6 along both margins with bunches of short spines (fig. 3F, G); dactylus moderately slender, with one short slender spine at inner margin and with one median plumose seta at outer margin; nail shorter than pedestal (ratio: 29: 53) (fig. 3H).

Pleopods 1-3 with 2 retinacula each, all peduncles very scarcely setose.

Uropod 1: peduncle with dorsoexternal row of spines and dorsointernal row of setae (except distal spine) (fig. 4A); outer ramus is remarkably shorter than inner ramus (ratio: 62: 85), with several bunches of spines along inner and outer margin as well as with several single simple setae longer than spines (fig. 4A). Inner ramus along inner margin and tip with short spines; along outer margin with bunches of simple long setae (fig. 4A).

Uropod 2: peduncle with marginal and distal spines (fig. 4A); rami of equal length, both with lateral and distal spines (fig. 4A).

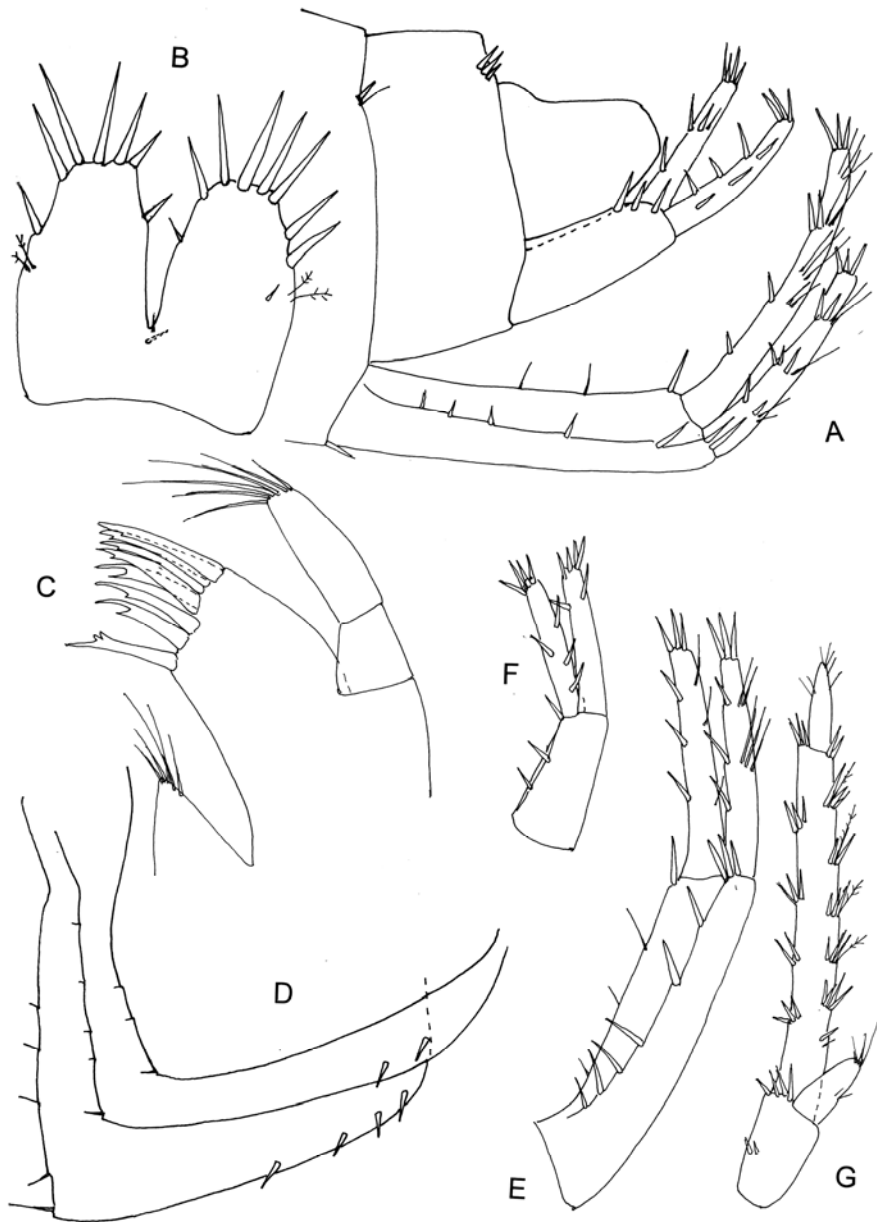


Fig. 4. *Niphargus remyi* S. Kar., 1934, Čedovo near Sjenica, male 14 mm (holotype): A= urosome with uropods 1-2; B= telson; Female 12 mm: C= maxilla 1; D= epimeral plates 1-3; E= uropod 1; F= uropod 2; G= uropod 3.

Uropod 3 missing, but Karaman, S. (1934) mentioned that outer ramus is elongated, its second article reaching $\frac{1}{4}$ to $\frac{2}{3}$ of first article.

Telson slightly broader than long (ratio: 75: 68), each lobe with broadly subrounded distal margin bearing 5 distal spines, as well as 2 spines along external margin and one spine at internal margin; facial spines absent (fig. 4B); a pair of short plumose setae is attached near the external middle of each lobe (fig. 4B).

FEMALE 12 mm with large oostegites (paratype): mainly similar to the males, but with some differences.

Antenna 1 nearly reaching half of body, similar to that in male. Antenna 2 like that in male. Metasomal segments 1-3 with 2-3 dorsoposterior marginal setae each.

Epimeral plates 1-3 more angular than these in male. Epimeral plate 1 with well marked ventroposterior corner and convex posterior margin bearing several short marginal setae (fig. 4D). Epimeral plate 2 distinctly angular, with almost straight posterior margin bearing several short setae (fig. 4D). Epimeral plate 3 distinctly angular, with well marked ventroposterior corner and almost straight but inclined posterior margin bearing several marginal setae (fig. 4D). Epimeral plate 2 with 2 ventral submarginal spines, epimeral plate 3 with 4 ventral submarginal spines.

Urosomite 1 on each dorsolateral side with 1 spine and 1 seta. Urosomite 2 with 4 dorsolateral spines on each side. Urosomite 1 near basis of uropod 1-peduncle with one ventroposterior spine.

Mouthparts mainly like these in male.

Mandible like that in male.

Maxilla 1: inner plate with 5 distal setae; outer plate with 8 spines: 6 spines with one strong lateral tooth, one (inner) spine with 2 lateral shorter spines (fig. 4C); palpus 2-articulate, hardly exceeding basis of outer plate-spines and bearing 6 distal setae (fig. 4C).

Maxilliped: inner plate with 4-5 distal smooth pointed spines, outer plate with row of distolateral smooth spines; palpus article 3 along outer margin with one median and one distal bunch of strong setae, article 4 with one median seta along inner margin.

Coxae 1-4 slightly longer than these in males (fig. 5A, C, E, G). Coxa 1 slightly longer than broad (ratio: 36: 30), with subrounded ventroanterior corner and bearing a row of short marginal setae (fig. 5A). Coxa 2 longer than broad (ratio: 46: 38) with several marginal setae each (fig. 5C). Coxa 3 longer than broad (ratio: 55: 41) (fig. 5E). Coxa 4 longer than broad (ratio: 55: 46) (fig. 5G), with poorly concave posterior margin. Coxae 5-7 short, coxa 5 shorter than coxa 4, anterior lobe with 3-4 setae (fig. 6A). Coxa 6 slightly smaller than coxa 5, scarcely setose (fig. 6B). Coxa 7 entire, with subrounded ventral margin (fig. 6C).

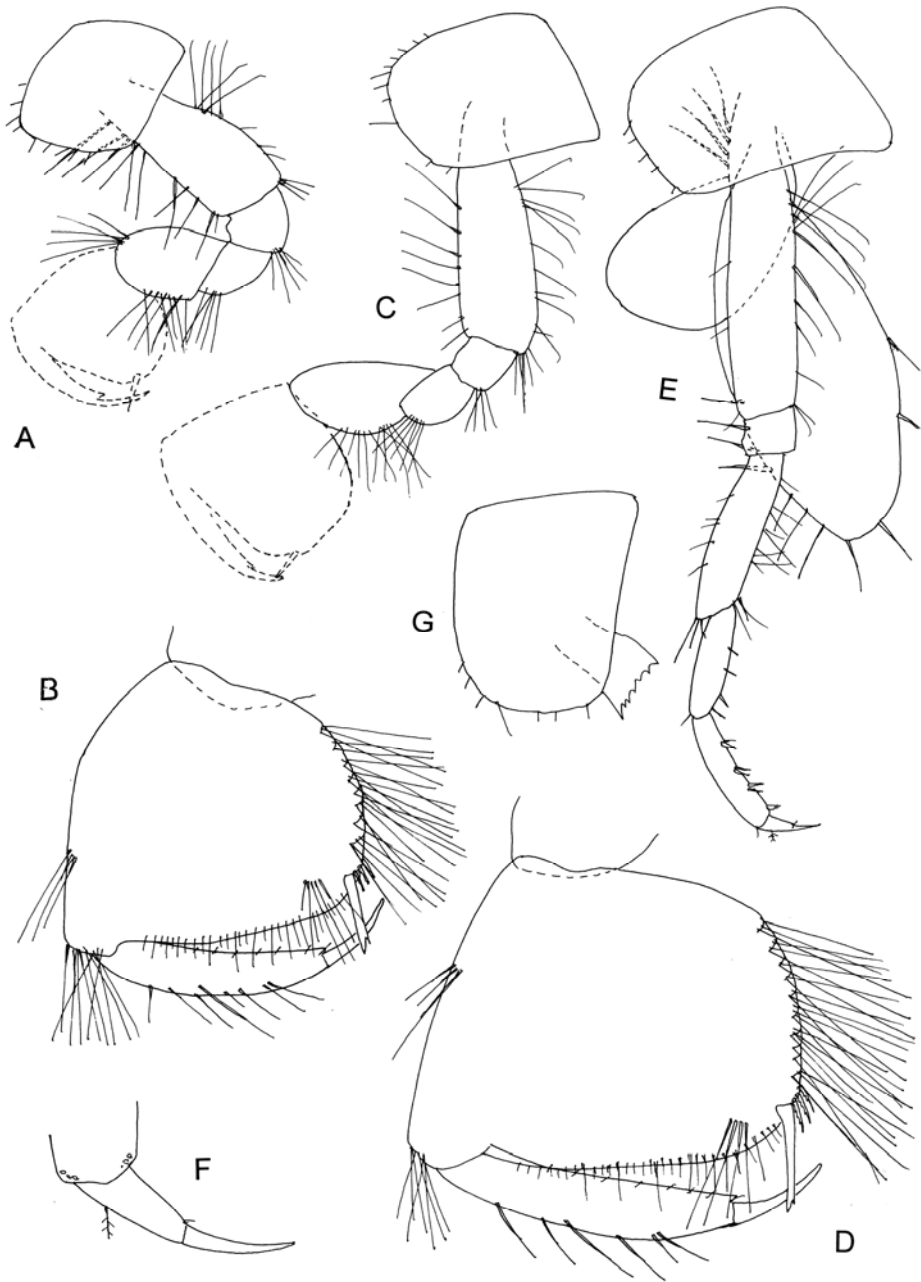


Fig. 5. *Niphargus remyi* S. Kar., 1934, Čedovo near Sjenica, female 12 mm (paratype): A-B= gnathopod 1; C-D= gnathopod 2; E-F= pereopod 3; G= coxa 4.

Propodus (article 6) of gnathopods 1-2 almost as large as the corresponding coxae (fig. 5A, C).

Gnathopod 1: article 2 with long marginal setae along both margins; article 3 along posterior margin with one distal bunch of setae; article 5 only slightly shorter than article 6 (fig. 5A). Propodus (article 6) poorly trapezoid, hardly broader than long (ratio: 78: 75), along posterior margin with nearly 8 transverse rows of setae (fig. 5B). Palm distinctly convex, especially in distal part, inclined nearly 2/3 of propodus-length and defined on outer face by one strong corner S- spine accompanied laterally by 4 short serrate L- spines and a group of 5 facial M- setae (fig. 5B), on inner face by one short subcorner R- spine. Dactylus reaching posterior margin of propodus, bearing along inner margin a row of short submarginal setae, along outer margin provided with row of nearly 9 single or paired strong setae (fig. 5B).

Gnathopod 2: article 2 along both margins with long setae; article 3 along posterior margin with one distoposterior bunch of setae; article 5 as long as article 6 (fig. 5C), along anterior margin with one distoposterior bunch of long setae. Propodus (article 6) poorly trapezoid, slightly broader than long (ratio: 100: 78), bearing along posterior margin nearly 10 transverse rows of setae (fig. 5D); palm distinctly convex, especially in distal part, inclined nearly 2/3 of propodus-length and defined on outer face by one strong corner S-spine accompanied laterally by 3 short serrate slender L-spines and one row of 4 facial M-setae; on inner face by one short submarginal R-spine. Dactylus reaching posterior margin of propodus, bearing along inner margin a row of short marginal setae, on outer margin bearing a row of several strong setae (fig. 5D).

Pereopods 3-4 similar to each other, moderately slender. Pereopod 3: articles 4-6 of unequal length (ratio: 45:30: 32); posterior margin of article 5 with short setae and single spines (fig. 5E); article 6 along posterior margin with 4 pairs of short spines; dactylus moderately slender, along inner margin with one spine-like seta (fig. 5F), along outer margin with one median plumose seta; nail nearly as long as pedestal (fig. 5F).

Pereopod 4 likes pereopod 3.

Pereopods 5-7 like these in male but slightly shorter. Pereopod 5: basipodit ovoid, longer than broad (ratio: 70: 42), slightly tapering ventrally and with indistinct ventroposterior lobe; posterior margin of article 2 convex, bearing row of short setae, along anterior margin appears several paired or single strong spine-like setae (fig. 6A).

Pereopod 6: basipodit (article 2) remarkably longer than broad (ratio: 82: 45), posterior margin almost straight, bearing a row of short marginal setae; ventroposterior lobe poorly visible, anterior margin of article 2 with several bunches of strong spine-like setae (fig. 6B).

Pereopod 7: basipodit almost ovoid, with slightly marked ventroposterior lobe and with convex posterior margin bearing a row of short marginal setae (fig. 6C); anterior margin of article 2 with several bunches of spine-like setae (fig. 6C). Dactylus moderately stout, with one slender short spine at inner margin and one median plumose seta at outer margin (fig. 6D); nail shorter than pedestal (ratio: 46: 33) (fig. 6D).

Pleopods 1-3 with scarcely setose peduncle bearing 2 retinacula each.

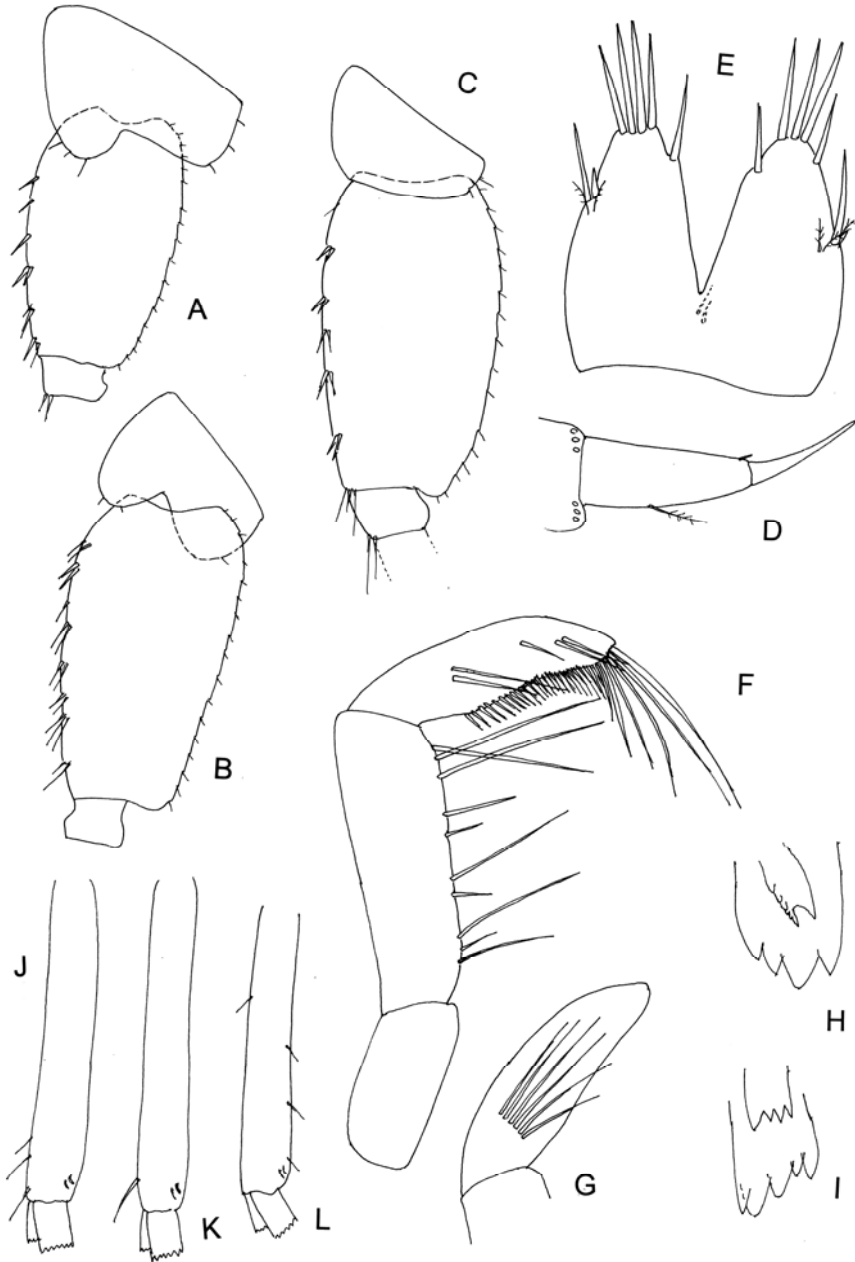


Fig. 6. *Niphargus remyi* S. Kar., 1934, Čedovo near Sjenica, female 12 mm (paratype): A= pereopod 5; B= pereopod 6; C-D= pereopod 7; E= telson. *Niphargus euserbicus*, sp. n., Jovanjska pečina Cave, male 15 mm (holotype): F= mandible palpus, inner face; G= tip of mandible palpus, outer face; H= incisor and lacinia mobilis, right mandible; I= incisor and lacinia mobilis, left mandible; J-L= peduncle of pleopods 1-3.

Uropod 1: peduncle with dorsoexternal row of spines and dorsointernal row of setae (except distal spine). Inner ramus hardly longer than outer ramus, both rami with lateral and distal spines as well as with single or bunches of simple lateral setae (fig. 4E).

Uropod 2: peduncle with lateral and distal spines (fig. 4F); rami of equal length, both with lateral and distal spines (fig. 4F).

Uropod 3: peduncle short, with distal 4 spines (fig. 4G); inner ramus short, scale-like, with one lateral and 3 distal simple setae. Outer ramus 2-articulate, elongated, with several bunches of spines along outer and inner margin, as well as at tip; several single long plumose setae are attached along inner margin of article 1; second article much shorter than first article (ratio: 25: 100), but only slightly shorter than peduncle (ratio: 25: 30) (fig. 4G).

Telson slightly broader than long (ratio: 74: 67), incised nearly 2/3 of telson-length (fig. 6E); each lobe is provided with 3-4 distal long spines and with one spine along inner margin and 1-2 spines along outer margin (fig. 6E); facial spines absent. A pair of short plumose setae appears near the external middle of each lobe.

Coxal gills of medial size (fig. 6E). Oostegites very large, much exceeding distal tip of corresponding article 2 (fig. 6E).

VARIABILITY. It seems that the stable characters are the absence of facial spines on lobes of telson, presence of elevated number of distomarginal spines on telson, elevated number of spines (8) on outer plate of maxilla 1; Stanko Karaman mentioned also presence of 9 spines in some specimens. All our dissected specimens were with 8 spines on outer plate of maxilla 1.

The original material of this species (holotype and paratypes) were dried, and by this way it was very difficult to observe in detail the variability of many taxonomic characters within the paratype material.

Stanko Karaman mentioned that the maximal size of the specimens is 18 mm, but the original partially preserved specimens in hands were up to 14 mm long. The uropod 3 and one of second gnathopods of holotype are missing.

Females of 12 mm are with very large setose oostegites.

Sexual dimorphism present: females differ mainly from males by more angular epimeral plates, slightly smaller gnathopods 1-2, shorter second segment of uropod 3, slightly longer coxae.

DISTRIBUTION: Known from the type-locality only.

REMARKS AND AFFINITIES.

Stanko Karaman described and partially figured this species (gnathopod 2, telson, maxilla 1) based on one male of 14 mm, figured by S. Karaman and mentioned here as holotype.

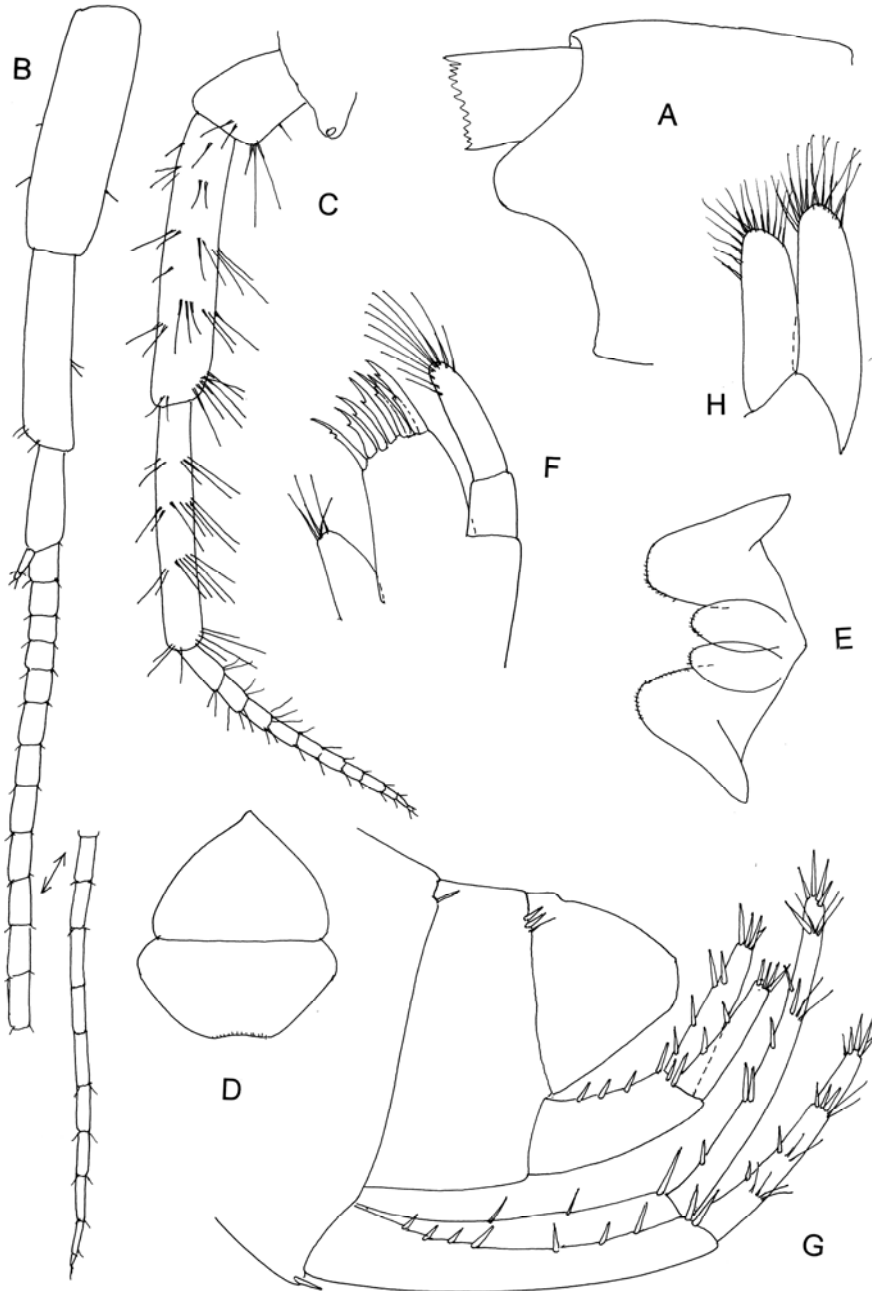


Fig. 7. *Niphargus euserbicus*, sp. n., Jovanjska pečina Cave, male 15 mm (holotype): A= head; B= antenna 1; C= antenna 2; D= labrum; E- labium; F= maxilla 1; G= urosome with uropods 1-2; H= maxilla 2.

N. remyi is rather similar to the *Niphargus stygius* group of species, but differs remarkably from *N. stygius* by elevated number of spines on outer plate of maxilla 1, telson, gnathopods, etc.

***NIPHARGUS EUSERBICUS*, sp. n.**

Figs. 6F-L, 7-13

MATERIAL EXAMINED: SERBIA: S-5051= Jovanjska pečina Cave near Valjevo, 18.5.1980, 7 exp. (leg. Ivica Karaman) (holotype and paratypes). Holotype (male, 15 mm) and paratypes are deposited in KARAMAN's Collection in Podgorica, Crna Gora (Montenegro) under the No. S-5051.

DIAGNOSIS: Moderately large species up to 15 mm. Metasomal segments 1-3 with single dorsomarginal posterior setae only. Epimeral plates 1-3 obtusely quadrate, with convex posterior margin.

Urosomite 1 in males and females with 1 dorsolateral seta on each side, urosomite 2 with 2-3 dorsolateral spines on each side, urosomite 3 naked.

Coxae 1-4 relatively short, epimeral plates broadly angular. Accessory flagellum short. Flagellum of antenna 2 longer than last peduncle article. Mouthparts: inner plate of maxilla 1 with 4-5 setae, outer plate with 7 spines (6 of them with one strong lateral tooth each). Propodus of gnathopods 1-2 with palm inclined up to half of propodus length, L-spines attached laterally of the strong S-spine, dactylus of gnathopods 1-2 along outer margin with row of single or paired strong setae. Dactylus of pereopods 3-7 with one slender spine along inner margin. Pleopods 1-3 with 2 retinacula each, peduncles scarcely setose. Inner ramus of uropods 1-2 in males and females longer than outer one. Uropod 3 in female with elongated second article of outer ramus (unknown in males). Telson with facial spines.

DESCRIPTION OF MALE 15 mm (holotype). Body moderately slender, metasomal segments 1-3 with 2-4 dorsolateral setae each (fig. 9F). Urosomite 1 on each dorsolateral side with one seta (fig. 7G); urosomite 2 with 2 spines and 1 seta on each dorsolateral side (fig. 7G); urosomite 3 naked. Urosomite 1 with one small ventroposterior spine near the basis of uropod 1 peduncle (fig. 7G).

Lateral cephalic lobes of head are short and subrounded, ventroanterior sinus developed (fig. 7A), eyes absent.

Antenna 1 reaching almost half of the body (ratio: 72: 150); peduncle articles 1-3 progressively shorter (ratio: 66: 52: 27), all articles scarcely setose (fig. 7B); main flagellum consisting of 22 articles (most of them with one short aesthetasc each), scarcely setose (fig. 7B). Accessory flagellum short, 2-articulate (fig. 2B).

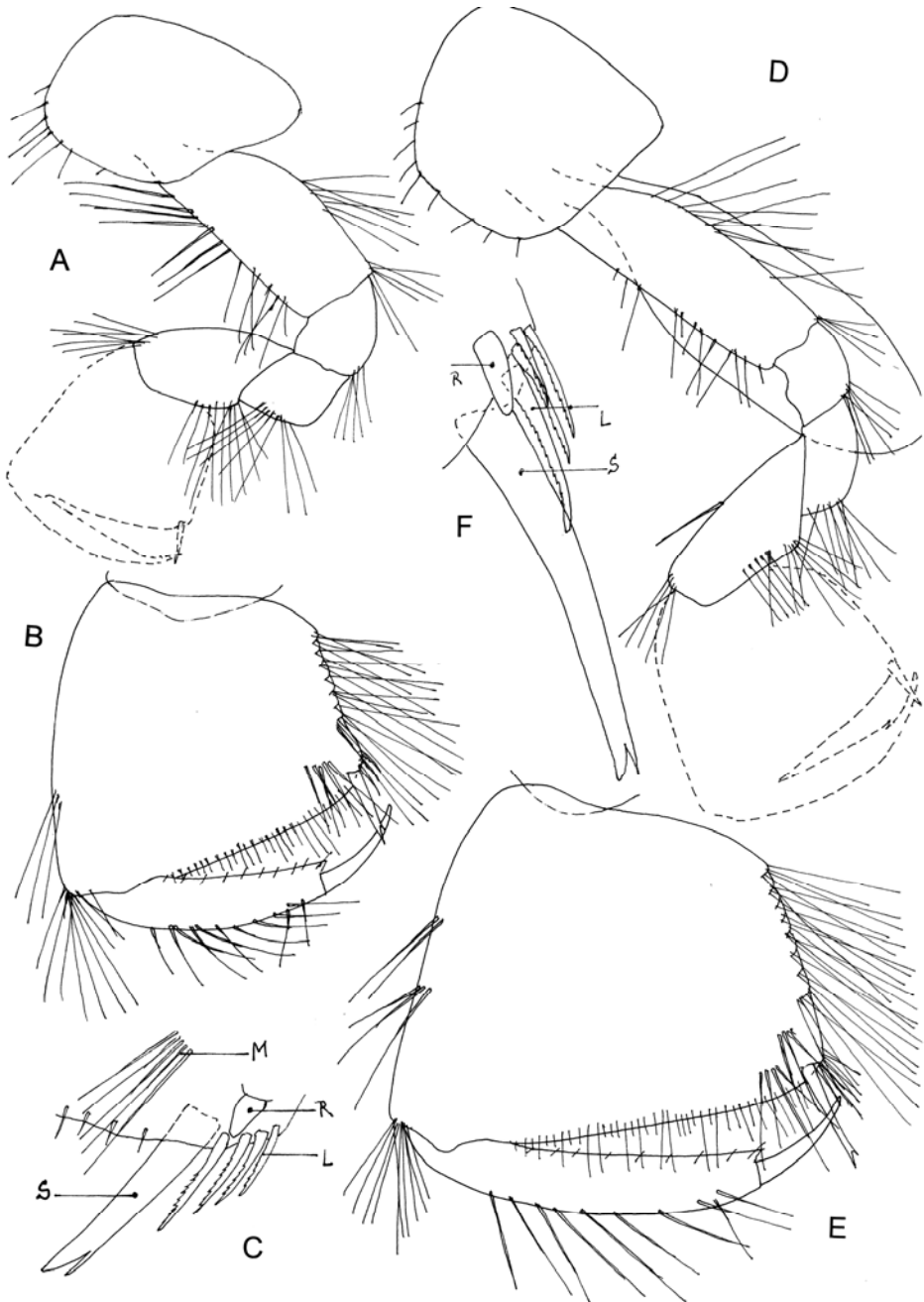


Fig. 8. *Niphargus euserbicus*, sp. n., Jovanjska pečina Cave, male 15 mm (holotype): A-B= gnathopod 1; C= tip of gnathopod 1 propodus, inner face; D-E= gnathopod 2; F= tip of gnathopod 2 propodus, inner face.

Antenna 2: peduncle article 3 short, with bunch of distal setae almost as long as diameter of article (fig. 7C); article 4 slightly longer than article 5 (ratio: 76: 65), each of them with 3-4 bunches of setae as long as or slightly longer than the diameter of articles. Flagellum slender, slightly shorter than last peduncle article and consisting of 11 articles moderately setose (fig. 7C). Antennal gland cone short.

Coxae 1-4 relatively short (figs. 8A, D; 9B, D). Coxa 1 broader than long (high) (ratio: 57: 43), with subrounded ventroanterior corner bearing longer marginal setae (fig. 8A). Coxa 2 slightly broader than long (high) (ratio 60: 56), with moderately long ventromarginal setae (fig. 8D).

Coxa 3 hardly broader than long (high) (ratio: 65: 62), with row of ventromarginal setae (fig. 9B).

Coxa 4 slightly broader than long (ratio: 68: 58), with several marginal setae (fig.); ventroposterior lobe is not well developed (fig. 9D).

Coxae 5-7 progressively shorter. Anterior lobe of coxa 5 only slightly shorter than coxa 4, bearing several short strong setae at anterior and posterior margin (fig. 10A). Coxa 6 scarcely setose, anterior lobe longer than posterior one (fig. 10C).

Coxa 7 is not lobed, naked (fig. 10E).

Epimeral plates 1-3 obtusely quadrate, with slightly convex posterior margin bearing a row of sort marginal setae each. Posterior margin of epimeral plates 1-2 is remarkably more convex than that of coxa 3, all with well marked ventroposterior corner with one strong corner spine-like seta. Epimeral plate 2 with 2 ventral submarginal spines; epimeral plate 3 with 3 ventral submarginal spines (fig. 8F).

Mouthparts well developed. Labrum remarkably broader than long (high) with slightly concave distal margin; epistome pointed (fig. 7D).

Mandibles with triturative molar. Left mandible: incisor with 5 unequal teeth, lacinia mobilis with 4 teeth (fig. 6 I). Right mandible: incisor with 4 unequal teeth (fig. 6H), lacinia mobilis bifurcate, pluritoothed (fig. 6H). Mandible palpus of both mandibles similar to each other, 3-articulate: first article short, naked; second segment bearing 10 strong setae (fig. 6F); third (distal) article almost as long as second article, falciform, provided with 25-26 E-setae and 6 distal long E-setae (fig. 6F). On outer face of article 3 is attached one bunch of 6 A setae (fig. 6G), on inner face are attached 3 groups of setae (2-1-2); C-setae absent (fig. 6F).

Labium much broader than long, outer lobes subrounded distally, inner lobes short, well developed (fig. 7E).

Maxilla 1: inner plate short, with 4 distal setae; outer plate with 7 spines: six spines with one strong lateral tooth, one (inner) spine with 3 small lateral teeth (fig. 7F); palpus 2-articulated, slightly exceeding half of outer plate-spines, and provided with 11 distal setae (fig. 7F).

Maxilla 2: both plates with marginal setae only (fig. 7H).

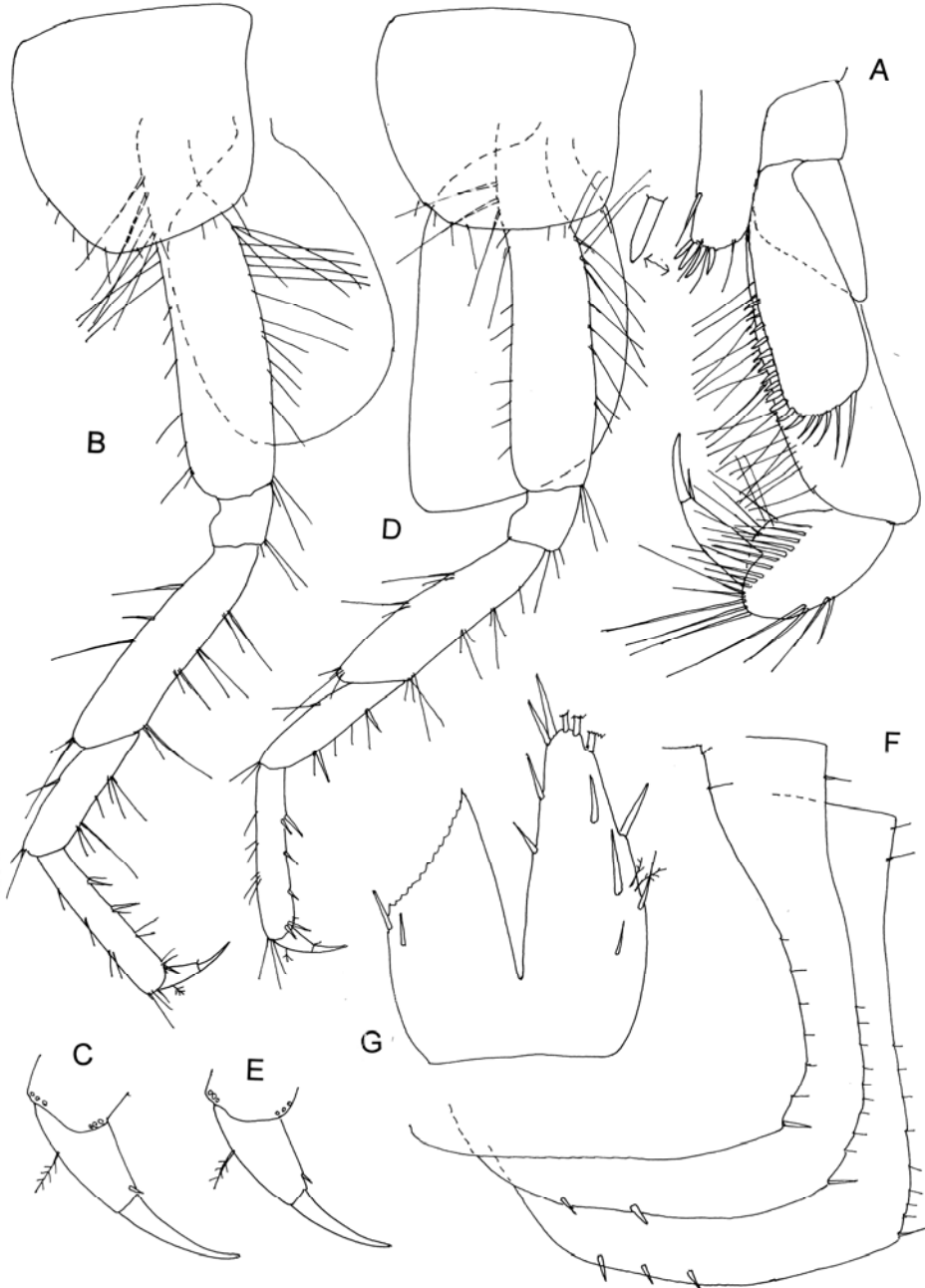


Fig. 9. *Niphargus euserbicus*, sp. n., Jovanjska pečina Cave, male 15 mm (holotype): A= maxilliped; B-C= pereopod 3; D-E= pereopod 4; F= epimeral plates 1-3; G= telson.

Maxilliped: inner plate with 4-5 distal spines accompanied by several setae (fig. 9A); outer plate slightly exceeding half of palpus article 2, bearing along inner margin with row of smooth spines (fig. 9A); palpus article 3 along outer margin with 2 median and one distal groups of long setae (fig. 9A); article 4 with one seta along inner margin, and one median seta along outer margin; nail shorter than pedestal (fig. 8A).

Gnathopods 1-2 with segment 6 nearly as large as the corresponding coxae (fig. 8A, D). Gnathopod 1: article 2 with numerous long setae along anterior and posterior margin (fig. 8A); articles 3 and 4 with one group of posterior marginal setae each. Article 5 hardly shorter than propodus, with one median and one distal group of posterior marginal setae (fig. 8A). Propodus (article 6) trapezoid, as long as broad, with 7 transverse groups of setae along posterior margin (fig. 8B); palm almost straight, oblique almost to the half of propodus-length, defined on outer face by one strong corner S-spine accompanied laterally by 4 serrate slender L- spines (fig. 8B, C) and 5 facial M-setae, on inner face by one short subcorner R-spine (fig. 8C). Dactylus reaching posterior margin of propodus, provided along inner margin with row of short submarginal setae, and on outer margin with 12 strong setae sitting in pairs or single (fig. 8B)..

Gnathopod 2: article 2 along anterior and posterior margin with numerous long marginal setae (fig. 8D); articles 3 and 4 with one bunch of posterior marginal setae each (fig. 8D); article 5 hardly shorter than article 6, along posterior margin with one median and one distal group of setae (fig. 8D). Propodus (article 6) trapezoid, broader than long (high) (ratio: 114: 95), bearing along posterior margin 8 transverse rows of setae (fig. 8E); palm almost straight, inclined slightly less than half of propodus-length (fig. 8E, F), defined on outer face by one strong S-spine accompanied laterally by 4 serrate L-spines and 2 bunches of facial M-setae (fig. 8F), on inner face by one short R-spine (fig. 8F). Dactylus reaching posterior margin of propodus, bearing along outer margin a row of 10 strong setae (fig. 8E), along inner margin with a row of short submarginal setae.

Pereopods 3-4 similar to each other, relatively slender. Pereopod 3: proximal part of article 2 with long setae along anterior and posterior margin, distal part with shorter marginal setae (fig. 9B). Articles 4-6 of different size (ratio measured at anterior margin: 63: 30: 47), articles 4-5 with long setae along anterior and posterior margin (fig. 9B); article 6 along posterior margin with bunches of short spines and setae; dactylus (female) short and stout, with one slender spine along inner margin near basis of the nail; nail slightly shorter than pedestal (ratio: 33: 35) (fig. 9C).

Pereopod 4 similar to pereopod 3, but ratio of articles 4-6: 53: 30: 47 (measured along anterior margin); posterior margin of article 4 with setae slightly shorter than these in pereopod 3. Posterior margin of article 5 with 2 spines and several very short setae only (fig. 9D); article 6 along posterior margin with several spine-like short setae or spines (fig. 9D); dactylus short, strong, along outer margin with 1 spine-like seta or slender short spine; nail slightly shorter than pedestal [ratio: 28: 33] (fig. 9E).

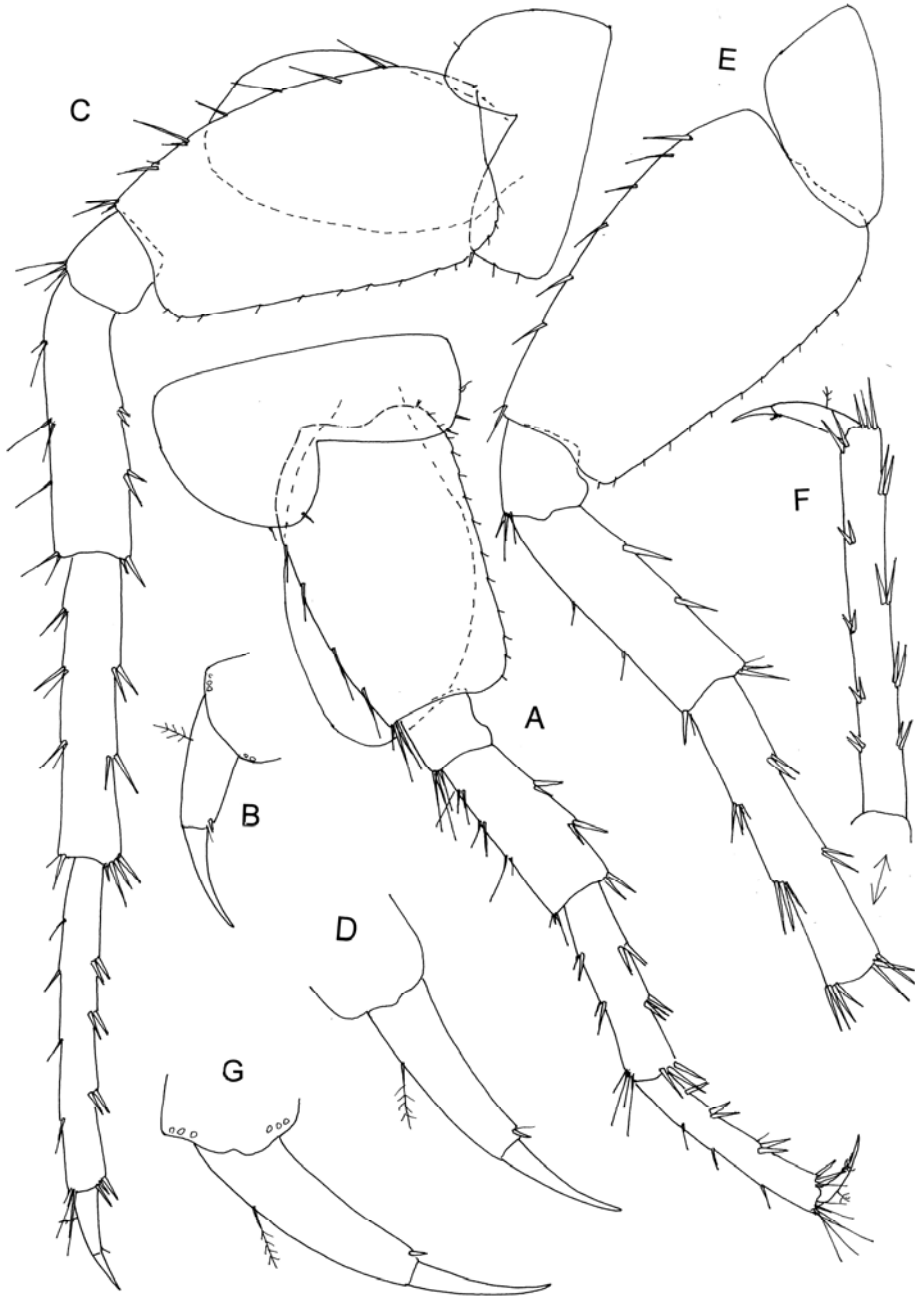


Fig. 10. *Niphargus euserbicus*, sp. n., Jovanjska pečina Cave, male 15 mm (holotype): A-B= pereopod 5; C-D= pereopod 6; E-G= pereopod 7.

Pereopods 5-7 moderately slender, progressively longer towards pereopod 7 (fig. 10, A, C, E), article 2 (basipodit) dilated, with almost indistinct ventroposterior lobe. Pereopod 5: basipodit longer than broad (ratio: 82: 58), slightly tapering ventrally (fig. 10A), along anterior margin with row of several long marginal setae; along posterior almost straight margin, with nearly 12 short setae (fig. 10A); articles 4-6 of unequal length (ratio: 49: 52: 56), articles 4-5 along posterior margin with 3 bunches of spines each (fig. 10A); article 6 along anterior margin with short setae, along posterior margin with 4 bunches of spines; dactylus short, strong, with one small spine along inner margin, and one median plumose seta at outer margin; nail slightly shorter than pedestal (ratio: 29: 35) (fig. 10B).

Pereopod 6: basipodit remarkably longer than broad (ratio: 98: 55), hardly narrowed ventrally, posterior margin nearly straight, with 13 short marginal setae (fig. 10C); along anterior margin appear several long strong setae (fig. 10C); articles 4-6 of unequal size (ratio: 75: 77: 87); anterior margin of article 4 with setae, posterior margin with spines; article 5 along both margins with bunches of spines; article 6 along anterior margin with setae, along posterior margin with bunches of spines (fig. 10C). Dactylus short, moderately slender, with one small spine at inner margin (fig. 10D); nail shorter than pedestal (ratio: 30: 47).

Pereopod 7: basipodit remarkably longer than broad (ratio: 100: 60), along posterior weakly convex margin provided with nearly 13 short setae (fig. 10E), along anterior margin with row of strong setae. Articles 4-6 of unequal length (ratio: 70: 84: 102); article 4 along anterior margin with single setae, along posterior margin with 3 single spines (fig. 10E); articles 5-6 along anterior and posterior margin with bunches of spines (fig. 10E, F). Dactylus relatively slender, with one short spine at inner margin and one median plumose seta at outer margin (fig. 10G), nail shorter than pedestal (ratio: 35: 70).

Pleopods 1-3 with 2 retinacula each. Peduncle of pleopod 1 along anterior margin with 3 distal setae (fig. 6J); peduncle of pleopod 2 with one distal setae along anterior margin (fig. 6K); peduncle of pleopod 3 with 3 setae along posterior margin (fig. 6L).

Uropods 1-2 elongated. Uropod 1: peduncle with dorsoexternal row of strong spines and dorsointernal row of setae (except distal spine); outer ramus remarkably shorter than inner one (ratio: 60: 90), along both margins and tip with bunches of short spines; several simple setae are attached in distal part of outer ramus (fig. 7G). Inner ramus with lateral and distal groups of short spines; several setae are attached in distal part of the ramus (fig. 7G).

Uropod 2: inner ramus distinctly longer than outer one, both rami with short lateral and distal spines (fig. 7G)

Uropod 3 missing.

Telson longer than broad, deeply incised; lobes tapering distally, bearing 5 distal spines, 2 spines along inner margin and one spine and one seta along outer margin (fig. 9G); 3 single spines are attached on the face of the lobe (fig. 9G). A pair of short plumose setae are attached near the middle of each lobe.

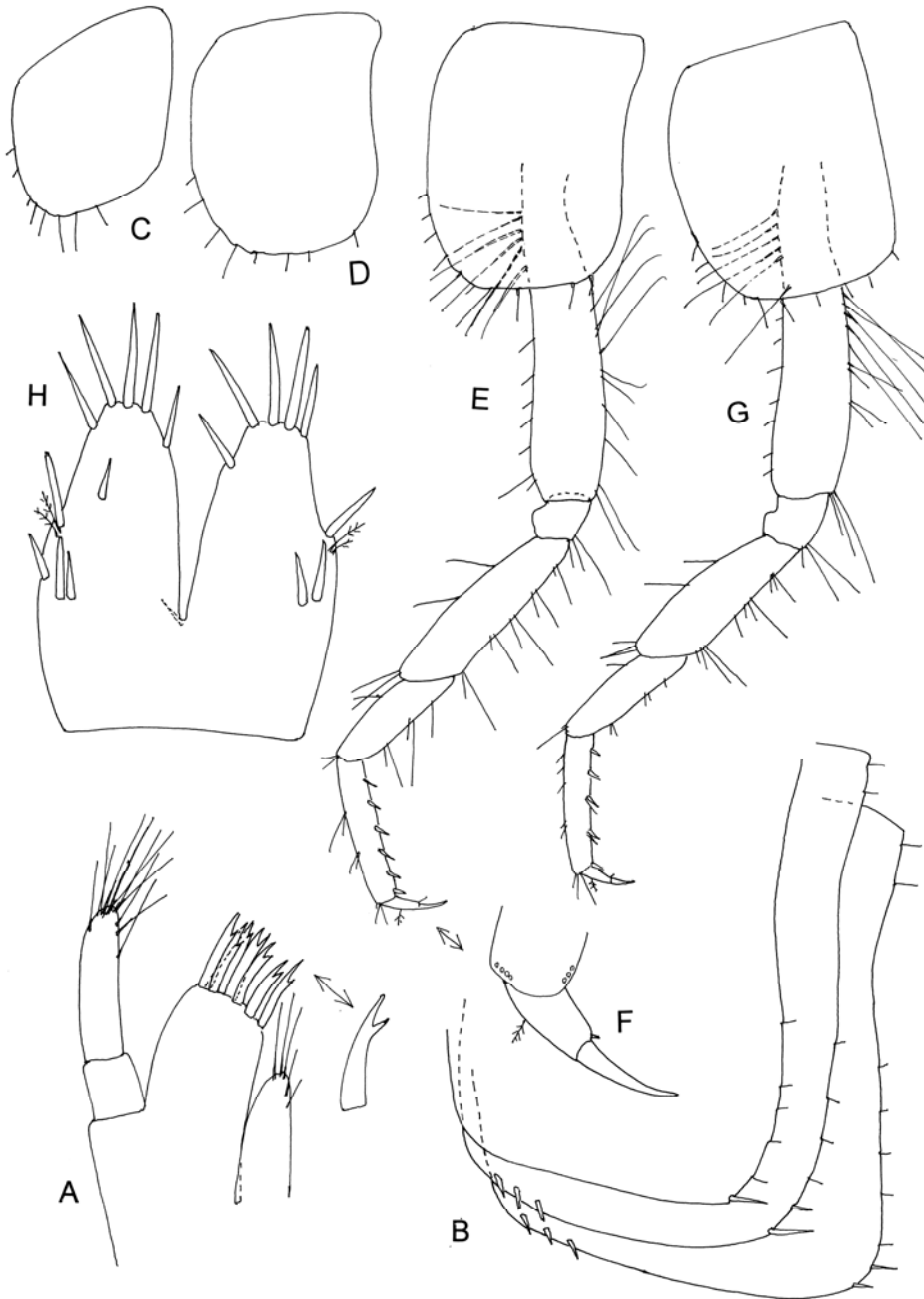


Fig. 11. *Niphargus euserbicus*, sp. n., Jovanjska pečina Cave, female 12 mm (paratype): A= maxilla 1; B= epimeral plates 1-3; C= coxa 1; D= coxa 2; E-F= pereopod 3; G= pereopod 4; H= telson.

Coxal gills relatively large, appear near corresponding pereopods 2-6 (figs. 8D, 9B, D, 10A, C).

FEMALE 12.0 mm, ovigerous, with 26 eggs (paratype). Body rather similar to the male. Metasomal segments 1-3 with 2-3 dorsoposterior marginal setae each (fig. 11B).

Epimeral plates 1-2 quadrate, with well marked ventroposterior corner by one strong spine-like seta and with poorly convex ventral and posterior margin; along posterior margin appear several short setae on each plate. Epimeral plate 3 with slightly convex ventral margin and subrounded ventroposterior corner; posterior margin is almost straight and inclined, provided with several short marginal setae (fig. 11B). Epimeral plates 2-3 with 3 subventral short spines each (fig. 11B).

Urosomite 1 on each side with dorsolateral strong seta (fig. 12G); urosomite 2 on each side with 3 dorsolateral spines; urosomite 3 naked (fig. 12G).

Coxae 1-4 slightly longer than these in male. Coxa 1 almost as long as broad (ratio: 48: 46), with subrounded ventroanterior corner bearing several long setae (fig. 11C). Coxa 2 distinctly longer than broad (ratio: 63: 50), with several longer marginal setae (fig. 11D). Coxa 3 distinctly longer than broad, (ratio: 70: 55), bearing a row of longer marginal setae (fig. 11E). Coxa 4 longer than broad (ratio: 67: 55), with row of shorter distal setae (fig. 11G).

Antenna 1 reaching half of the body (ratio: 60: 120), peduncle like that of male, main flagellum consisting of 26 articles.

Antenna 2: shape and pilosity like these in male; flagellum slender, consisting of 11 articles.

Mouthparts: labrum, labium, mandibles, maxilla 2 and maxilliped like these in males, including the presence of 3 groups of setae along outer margin of palpus article 3 of maxilliped. Maxilla 1: inner plate with 4-5 distal setae (fig. 11A); outer plate with 7 spines bearing one strong lateral tooth each (fig. 11A); palpus 2-articulate, almost reaching tip of outer plate-spines (fig. 11A), bearing 11 distal setae.

Gnathopods 1-2 slightly smaller than these in male, but with similar setation. Gnathopod 1: propodus trapezoid, slightly broader than long (ratio: 75: 70) bearing 7 transverse groups of setae along posterior margin (fig. 12A). Palm poorly convex, inclined only $\frac{1}{4}$ of propodus-length, defined on outer face by one strong S-spine accompanied laterally by 4-5 short serrate L-spines and one group of 5 facial M-setae; on inner face by one short subcorner R-spine. Dactylus along inner margin with row of short submarginal setae (fig. 12A), along outer margin with row of 6 single or paired strong setae.

Gnathopod 2: propodus trapezoid, slightly broader than long (ratio: 97: 85), bearing 10 transverse groups of setae along posterior margin (fig. 12B). Palm poorly convex, inclined only $\frac{1}{4}$ of propodus-length defined on outer face by one strong corner S-spine accompanied laterally by 3 short serrate L-spines and 5 facial M-setae; on inner face by one short subcorner R-spine. Dactylus along inner margin with row of short submarginal setae, along outer margin with 8 single or paired strong setae (fig. 12B).

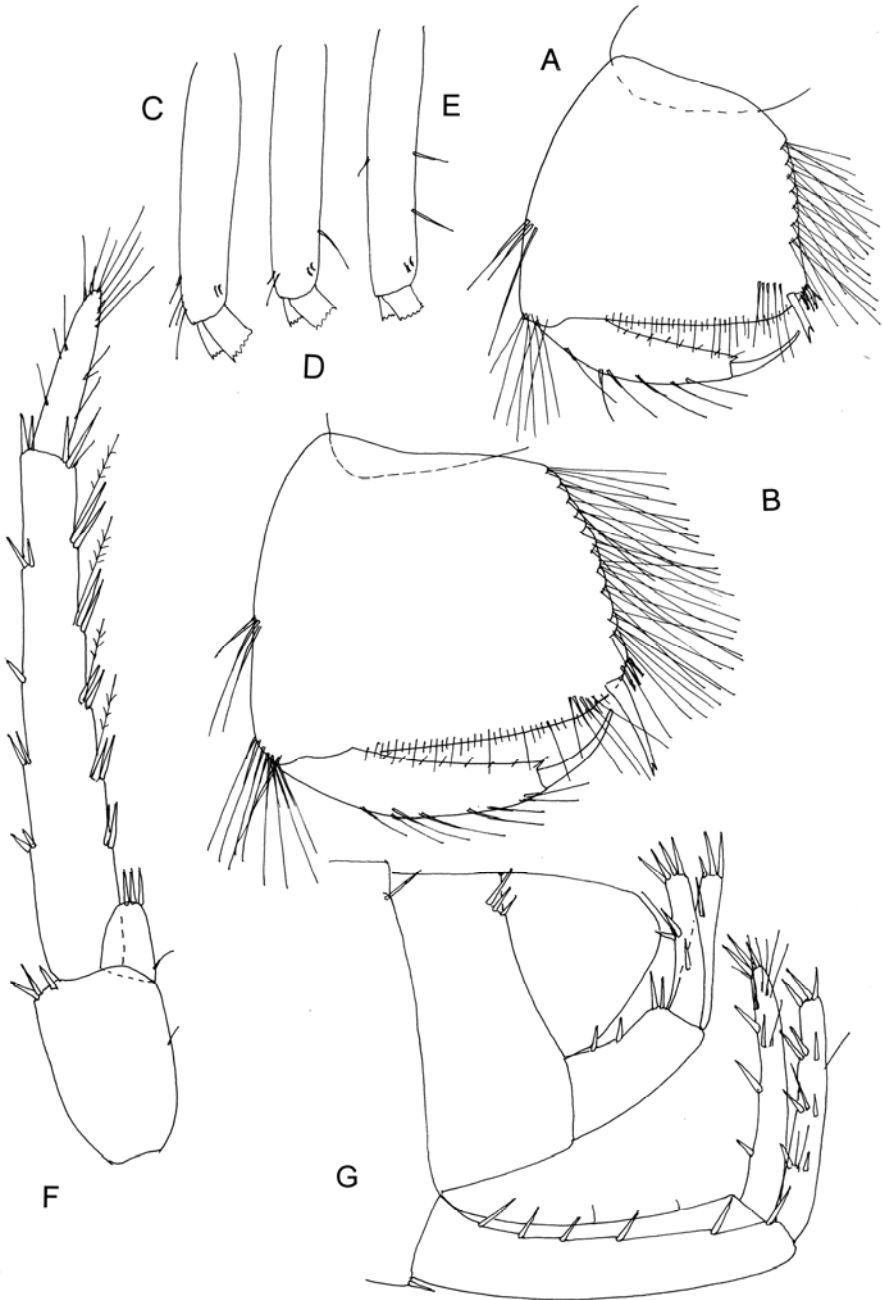


Fig. 12. *Niphargus euserbicus*, sp. n., Jovanjska pečina Cave, female 12 mm (paratype): A= gnathopod 1 propodus; B= gnathopod 2 propodus; C-E= peduncle of pleopods 1-3; F= uropod 3; G= urosome with uropods 1-2.

Pereopods 3-4 similar to each other, moderately slender. Pereopod 3: article 4 along posterior margin with 4-5 bunches of setae (the longest setae hardly longer than diameter of article itself) (fig. 11E); article 5 along posterior margin with 3 groups of long setae (fig. 11E). Article 6 along posterior margin with 6 single spines; dactylus short and stout, with one strong seta along inner margin, and one median plumose seta along outer margin; nail longer than pedestal (ratio: 28: 25) (fig. 11F).

Pereopod 4 similar to pereopod 3, but posterior setae on article 4 of pereopod 4 are shorter, and article 5 along posterior margin with short setae only (fig. 11G).

Pereopod 5 is shorter than pereopods 6 and 7; the size of pereopods 6 and 7 are nearly similar (fig. 13A, C, E). Pereopod 5: basipodit slightly longer than broad (ratio: 72: 46), with almost parallel lateral margins, posterior margin with row of nearly 14 short setae (fig. 13A), along anterior margin appears a row of stronger setae; ventroposterior lobe missing. Articles 4-6 with poorly different length (ratio: 50: 48: 50). Article 4 along posterior margin with 3 bunches of spines, along anterior margin with setae and distal spine. Dactylus short, with one small spine along inner margin and one plumose median seta along outer margin; nail shorter than pedestal [ratio: 23: 39] (fig. 13B).

Pereopod 6: basipodit longer than broad (ratio: 88: 54), with indistinct ventroposterior lobe and slightly convex posterior margin bearing row of short setae, along anterior margin with row of strong setae (fig. 13C). Articles 4-6 of unequal length (ratio: 64: 70: 83), along both margins with single and bunches of spines (fig. 13C). Dactylus short, moderately slender, with on small spine along inner margin and one median plumose seta along outer margin (fig. 13D); nail shorter than pedestal (ratio: 30: 55).

Pereopod 7: basipodit longer than broad (ratio: 90: 58), with remarkably convex posterior margin provided with row of short setae and indistinct ventroposterior lobe; along anterior margin with row of strong setae. Article 4 along anterior margin with setae, along posterior margin with 3 bunches of spines (fig. 13E); articles 5-6 along both margins with single or bunches of spines (fig. 13E, F). Dactylus moderately slender, along inner margin with one small spine, along outer margin with 1-2 median plumose setae (fig. 13G); nail is remarkably shorter than pedestal (ratio: 30: 55).

Pleopods 1-3 with 2 retinacula each. Peduncle of pleopod 1 with 3 distoanterior setae (fig. 12C); peduncle of pleopod 2 with one anterior distal seta and 1 median posterior strong seta (fig. 12D); peduncle of pleopod 3 with one short anterior median seta and 2 strong posterior median setae (fig. 12E).

Uropod 1: peduncle with row of dorsoexternal spines and a row of dorsointernal setae (fig. 12G); outer ramus is only slightly shorter than inner one (ratio: 61: 65); both rami with lateral and distal spines; one bunch of simple setae appears in the proximal part of outer ramus and 2 groups of simple setae appear in distal part of inner ramus (fig. 12G).

Uropod 2: rami of equal length, bearing lateral and distal spines (fig. 12G).

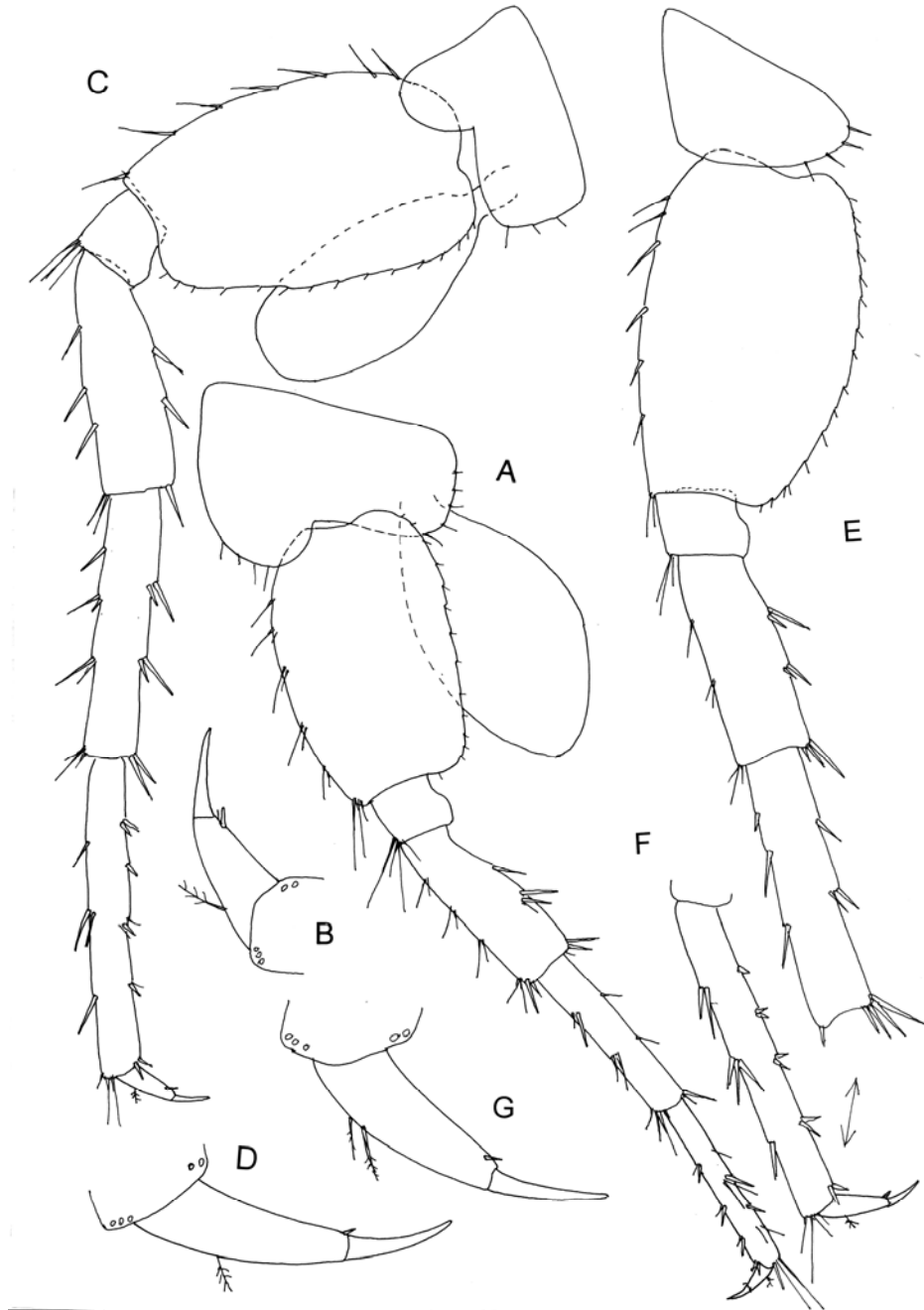


Fig. 13. *Niphargus euserbicus*, sp. n., Jovanjska pečina Cave, female 12 mm (paratype): A-B= pereopod 5; C-D= pereopod 6; E-G= pereopod 7.

Uropod 3 slightly elongated (fig. 12F); inner ramus scale-like, with 3 distal spines (fig. 12F). Outer ramus 2-articulate. Second article remarkably shorter than first article (ratio: 44: 138); first article along both margins with bunches of spines; along inner margin of article 1 are attached several long plumose setae; second article with lateral and distal simple setae (fig. 12F).

Telson short, only slightly longer than broad (ratio: 86: 78), incised nearly 2/3 of telson-length (fig. 11H). Lobes are slightly tapering distally, bearing 3-4 distal spines, 1-3 spines along outer margin and 1 spine along inner margin, each; on the face of each lobe are attached 1-2 groups of spines. A pair of short plumose setae appears near the external middle of each lobe (fig. 11H).

Coxal gills long, like these in males (fig. 13A, C). Oostegites very large, with marginal setae.

VARIABILITY. The number of setae on the peduncle of pleopods 1-3 can be rather variable, but always the number of setae is very scarce. The number of setae along outer margin of dactylus in gnathopods 1-2 is rather variable, but always setae are very strong, sitting single or in pairs. Maxilla 1 inner plate with 4-5 setae; outer plate is always with 7 spines only, and palpus exceeding half of outer plate-spines. Maxilliped Inner plate with 4-5 distal spines.

DISTRIBUTION: Known from the type-locality only.

DERIVATIO NOMINIS: The name “euserbicus” is named after the geographic name of Serbia where this species was collected.

REMARKS AND AFFINITIES.

There are several species rather similar to *N. euserbicus* and close to *N. stygius* group, in Serbia present by *N. remyi-ravanicanus* Group of species, but *N. euserbicus* differs from all of them (based on present our knowledge of its characteristics) by various differences.

Niphargus euserbicus, sp. n. differs distinctly from *N. remyi* by presence of facial spines on telson, by much less inclined palm of gnathopods 1-2, by presence of normal number (7) spines on outer plate of maxilla 1, by equal rami of uropod 2 in females, etc.

Niphargus bozanae Karaman, G., 2009, known from Jama Jamina Cave on Zlatibor Mt. (Serbia) and ssp. *omnivagus* Karaman, G. (2013), known from springs of Pusta Reka River, Radan Mt., agree with *N. euserbicus* by presence of facial spines on telson, but differ from *N. euserbicus* by Mx1 inner plate with 1-3 setae, uropod 2 in females with inner ramus longer than outer one, etc.

In the subterranean waters of the Ravanica Cave near Monastery Ravanica was described the species *Niphargus ravanicanus* S. Karaman, 1943. The relatively scarce material of this species in hands from S. Karaman original sample indicated that this species differs from *N. euserbicus* by absence of facial

spines on telson, by lower number of setae on inner plate of maxilla 1, etc. (see Karaman, G., 1973).

We visited Ravanica Cave twice, but the subterranean waters in the cave were heavily polluted, without any living subterranean animals in it. It is necessary to search this species in other subterranean waters in this region, to establish the variability of taxonomic characters in both sexes of this species.

Niphargus bogdani Karaman, G., 2009, known from Grlič Cave in Murtenica, Zlatibor Mt. (Serbia) is rather similar to *N. euserbicus* by absence of facial spines on telson, presence of a row of setae along outer margin in dactylus of gnathopods 1-2, but differs from later by completely rounded epimeral plates 1-3 in females (male unknown), by absence of facial spines on telson, etc.

CONCLUSIONS

The subterranean fauna of Amphipoda in Serbia is still only partially known, and recently various species and subspecies of the genus *Niphargus* have been discovered and described. The first species of the family Niphargidae was described in Serbia by Stanko Karaman (1934) from Čedovo near Sjenica, *Niphargus remyi*, S. Karaman, 1934. Later many other species of this genus were discovered and described. As the original description of *N. remyi* was relatively short and scarcely figured, we redescribed and figured this species based on the original material of S. Karaman. We believe that it will help the easier recognize of this species regarding other *Niphargus* taxa.

During our further study of genus *Niphargus* in Serbia, we described a new species from Jovanjska pečina Cave near Valjevo, Serbia. This species is rather similar to some other species of *N. remyi-ravanicanus* group, but differs from all of them by various distinct characters. By this way, from the subterranean waters of Serbia are known over 20 species and subspecies of genus *Niphargus*.

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**O DVIJE PODZEMNE VRSTE IZ FAMILIJE NIPHARGIDAE
(AMPHIPODA, GAMMARIDEA) IZ SRBIJE, *NIPHARGUS REMYI* S.
KAR., 1934 I N. *EUSERBICUS*, SP. N.
(266. PRILOG POZNAVANJU AMPHIPODA)**

SAŽETAK

Proučena su dva člana iz podzemne familije Niphargidae (Amphipoda, Gammaridea) iz Srbije: *Niphargus remyi* Karaman, S., 1934 i nova vrsta *Niphargus euserbicus*, sp. n. Vrstu *N. remyi* je bio relativno kratko opisao Stanko Karaman (1934) na osnovu primjeraka sakupljenih od Dr. Paul Remy-a iz Nancija (Francuska), u izvorima Čedovo kod Sjenice (Srbija). Mada je originalni materijal u međjuvremenu bio sasušen, opisali smo detaljno tu vrstu na osnovu holotipa i paratipova koji postoje u KARAMAN-ovoj zbirci u Podgorici (Crna Gora).

Podzemna nova vrsta *Niphargus euserbicus*, sp. n. opisana je u ovom radu iz Jovanjske pečine kod Valjeva (Srbija), na osnovu primjeraka koje je sakupio Dr. Ivo Karaman iz Novog Sada (Srbija).

Obje vrste pripadaju kompleksu taksona *Niphargus remyi-ravanicanus*, i njihova taksonomska pozicija unutar te grupe vrsta je razmatrana. Kako su mužjaci i ženke svih vrsta tog kompleksa djelimično nepoznati, trenutno prikazani taksonomski odnosi medju svim poznatim taksonima ovog kompleksa vjerovatno nisu definitivni.

Ključne riječi: taksonomija, Amphipoda, *Niphargus*, *remyi*, *euserbicus*, new species, podzemni, Srbija.