NIPHARGUS DECUI N. SP. (AMPHIPODA, GAMMARIDEA, NIPHARGIDAE), A NEW SPECIES FROM ROMANIA

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The new species, *Niphargus decui* n. sp. (Amphipoda, Gammaridea, Niphargidae), is described from the subterranean waters in Vama Veche near Mangalia, Romania and its taxonomic position within the genus *Niphargus* is discussed.

INTRODUCTION

The subterranean amphipods from Romania are still not very well known despite the monographic work by Cărăuşu et al. (1955) regarding the freshwater amphipods. Later various authors described several new taxa including the genus *Pontoniphargus* (Dancău, 1970).

During the detailed study of the subterranean waters in southern Dobrogea in the Mangalia region located on the Black Sea coast (Sârbu, 1990; Sârbu and Popa, 1992; Decu et al., 1994), the junior author collected numerous samples of subterranean Amphipoda belonging to the genera *Niphargus* and *Pontoniphargus*. Part of this material has already been studied (Karaman, 1990; Karaman and Sârbu, in press). The further investigation of this material revealed the existence of a new species of *Niphargus* from wells in Vama Veche, 10 km south of Mangalia (Dobrogea). This new species is closely related to *Niphargus carpathicus* Dobreanu and Manolache, 1939 known from Romania, but it exhibits distinct taxonomic differences.

NIPHARGUS DECUI n. sp. (Fig. 1–5)

MATERIAL EXAMINED: Romania: S-5221: 103–F2: Vama Veche village, 10 km south of Mangalia, well, July 24, 1994, many specimens (holotype and paratypes) (leg. Ş. M. Sârbu);

– 101–F1, ibid., July 24, 1994, 2 exp. (leg. Ş. M. Sârbu);

– 107–F3, ibid., August 9, 1994, 5 exp. (leg. Ş. M. Sârbu);

– 108–F4, ibid., August 9, 1994, 1 exp. (leg. Ş. M. Sârbu).

DESCRIPTION: FEMALE, up to 8.1 mm long, with setose oostegites.

– Body: smooth, metasomal segments I–III with 4 dorsoposterior marginal setae only (Fig. 3 P); urosomite I on each dorsolateral side with 1–2 spines, urosomite II with 3–4 spines on each side, urosomite III smooth, or with 1 small spine (only exceptionally) (Fig. 4 S). Urosomite I with 1 ventroposterior marginal strong spine slightly shorter than the diameter of peduncle of uropod I (Fig. 4 S).

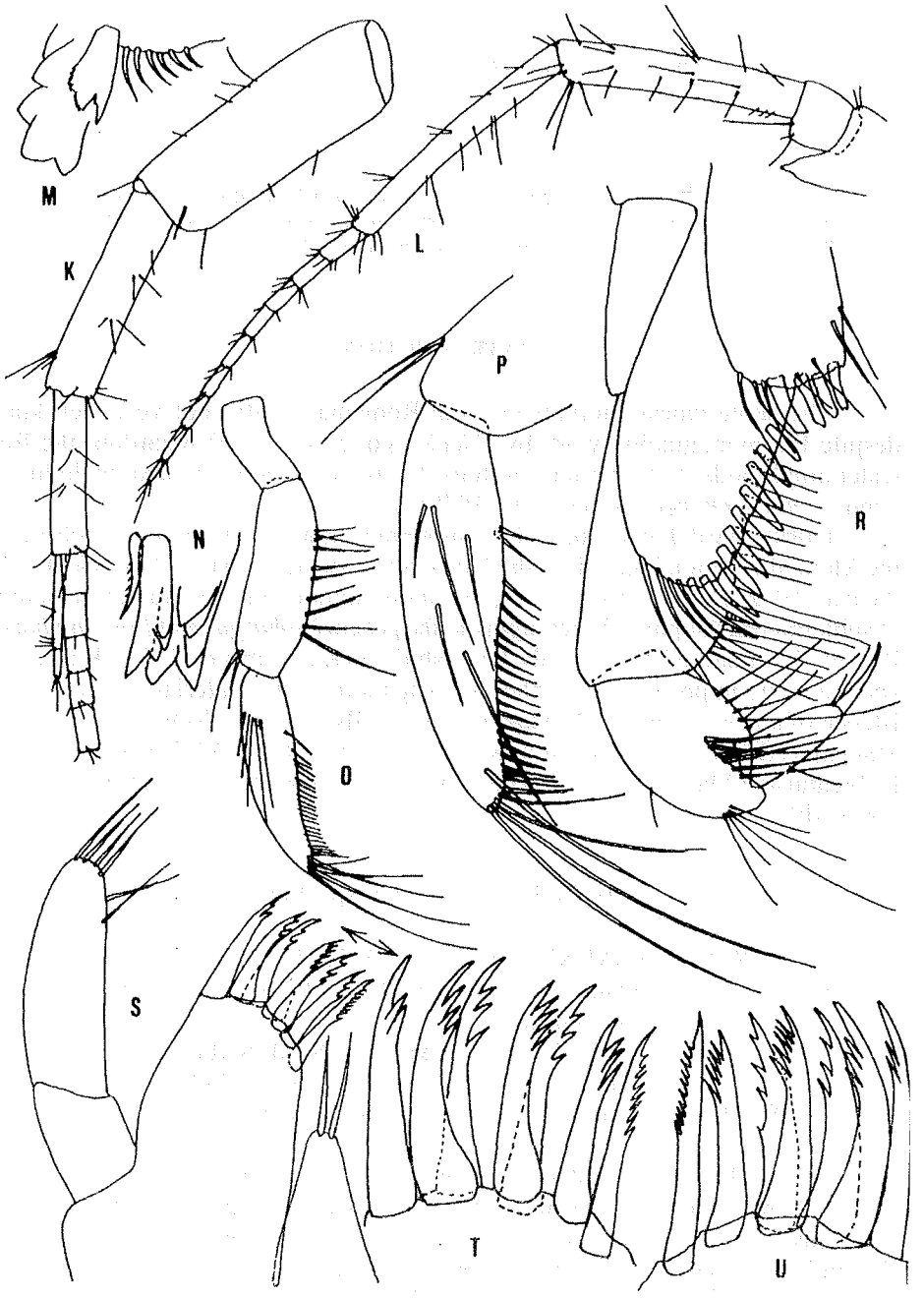

Fig. 1. – *Niphargus decui* n. sp., Vama Veche, female 8 mm long: K = antenna I; L = antenna II; M = tip of right mandible; N = tip of left mandible; ● = mandibular palp, outer face; P = inner face of mandibular palp; R = maxilliped; S, T = left maxilla I; U = right maxilla I.

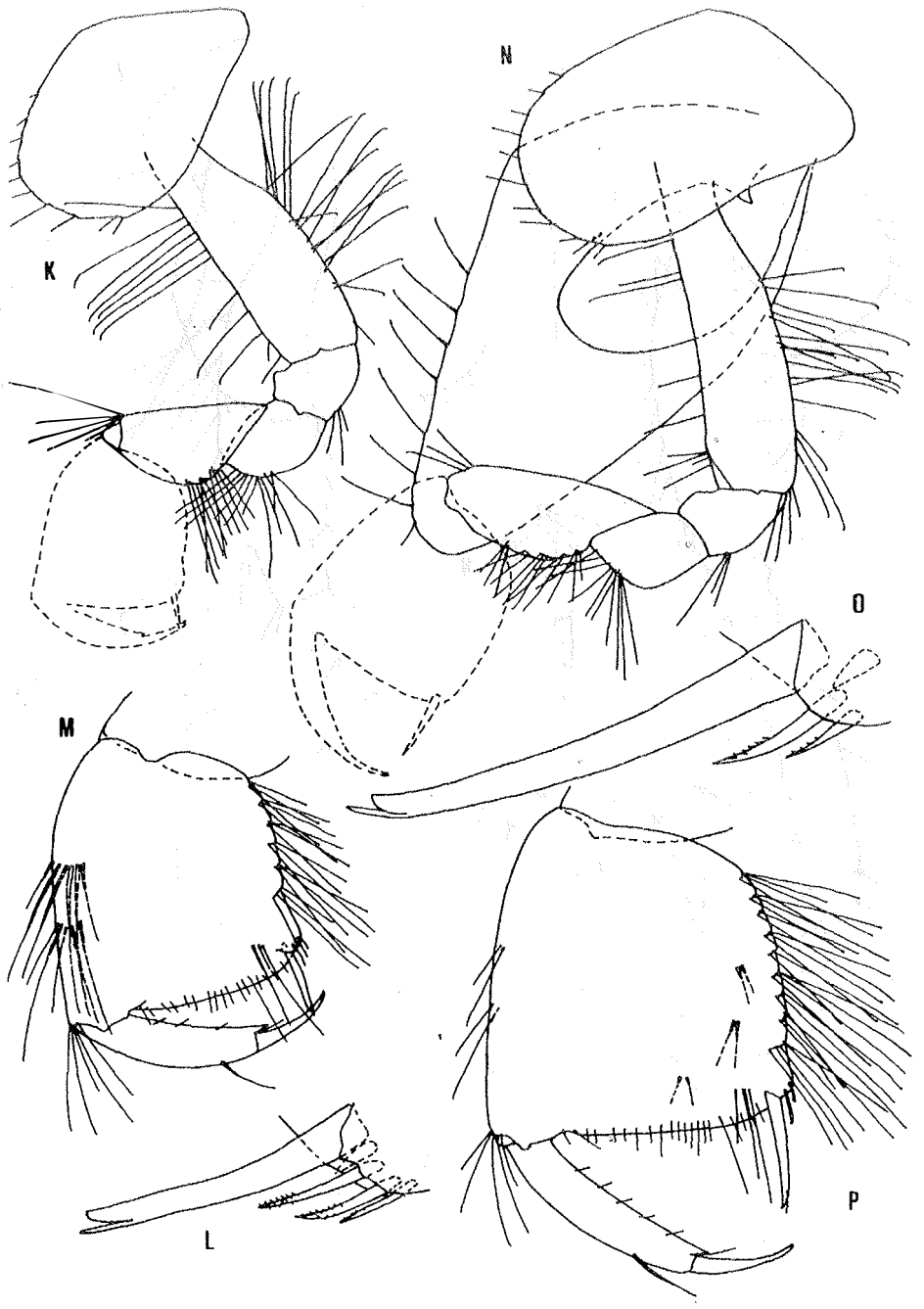

Fig. 2. – *Niphargus decui* n. sp., Vama Veche, female 8 mm long: K, L, M = gnathopod I; N, O, P = gnathopod II.

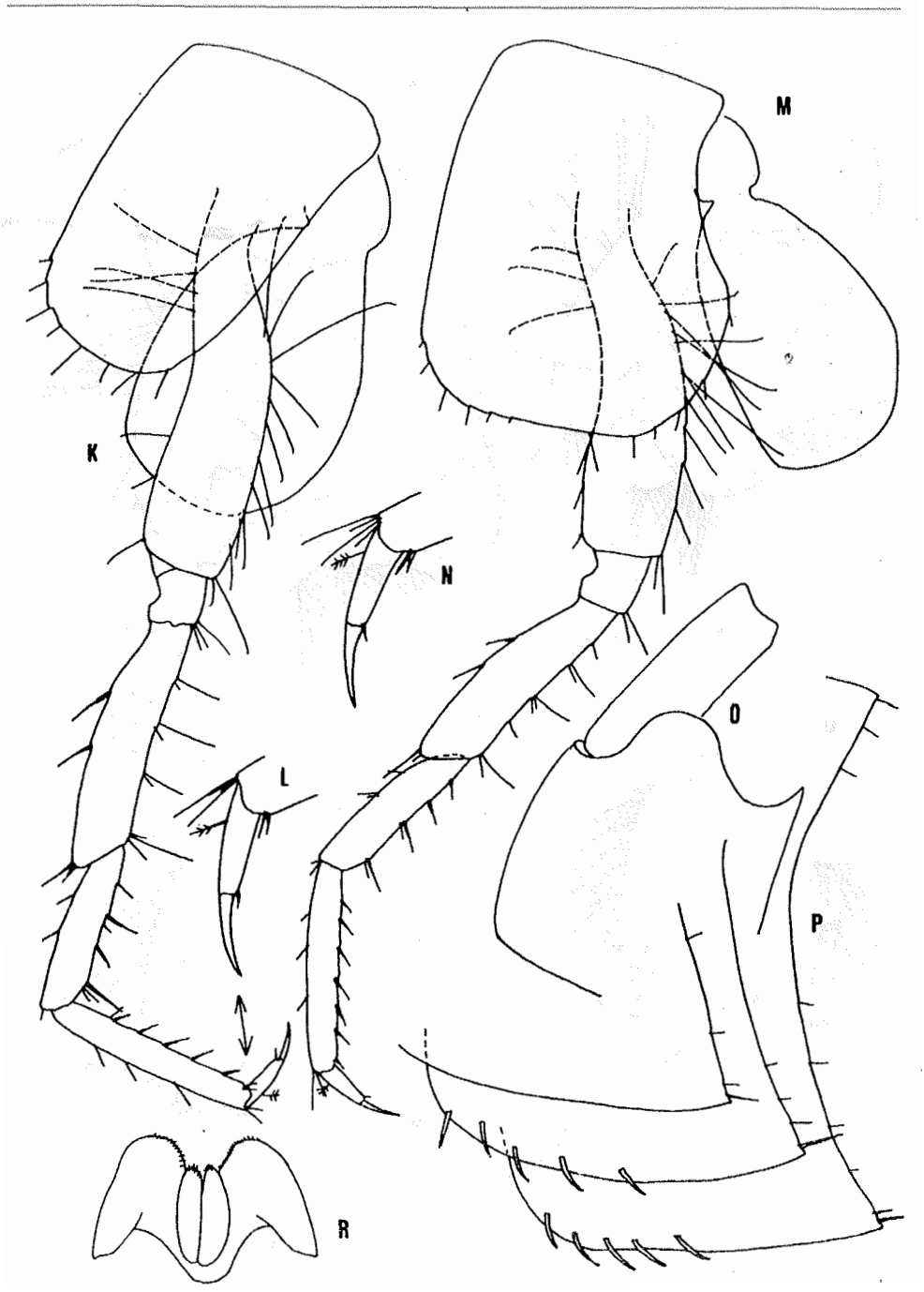

Fig. 3. – *Niphargus decui* n. sp., Vama Veche, female 8 mm long: K, L = pereopod III; M, N = pereopod IV; O = head; P = epimeral plates I–III; R = labium.

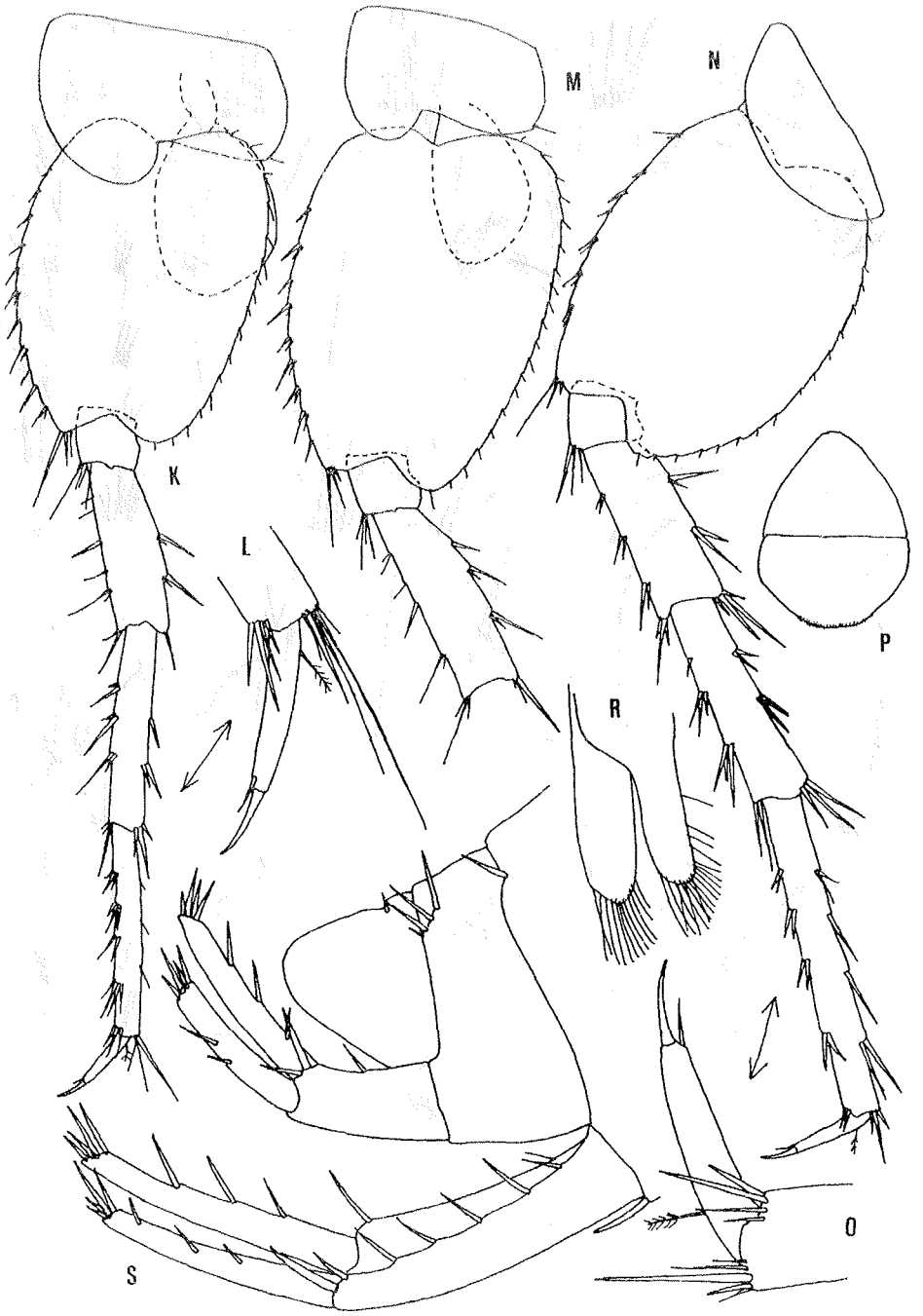

Fig. 4. – *Niphargus decui* n. sp., Vama Veche, female 8 mm long: K, L = pereopod V; M = pereopod VI; N, O = pereopod VII; P = labrum; R = maxilla II; S = urosome with uropods I–II.

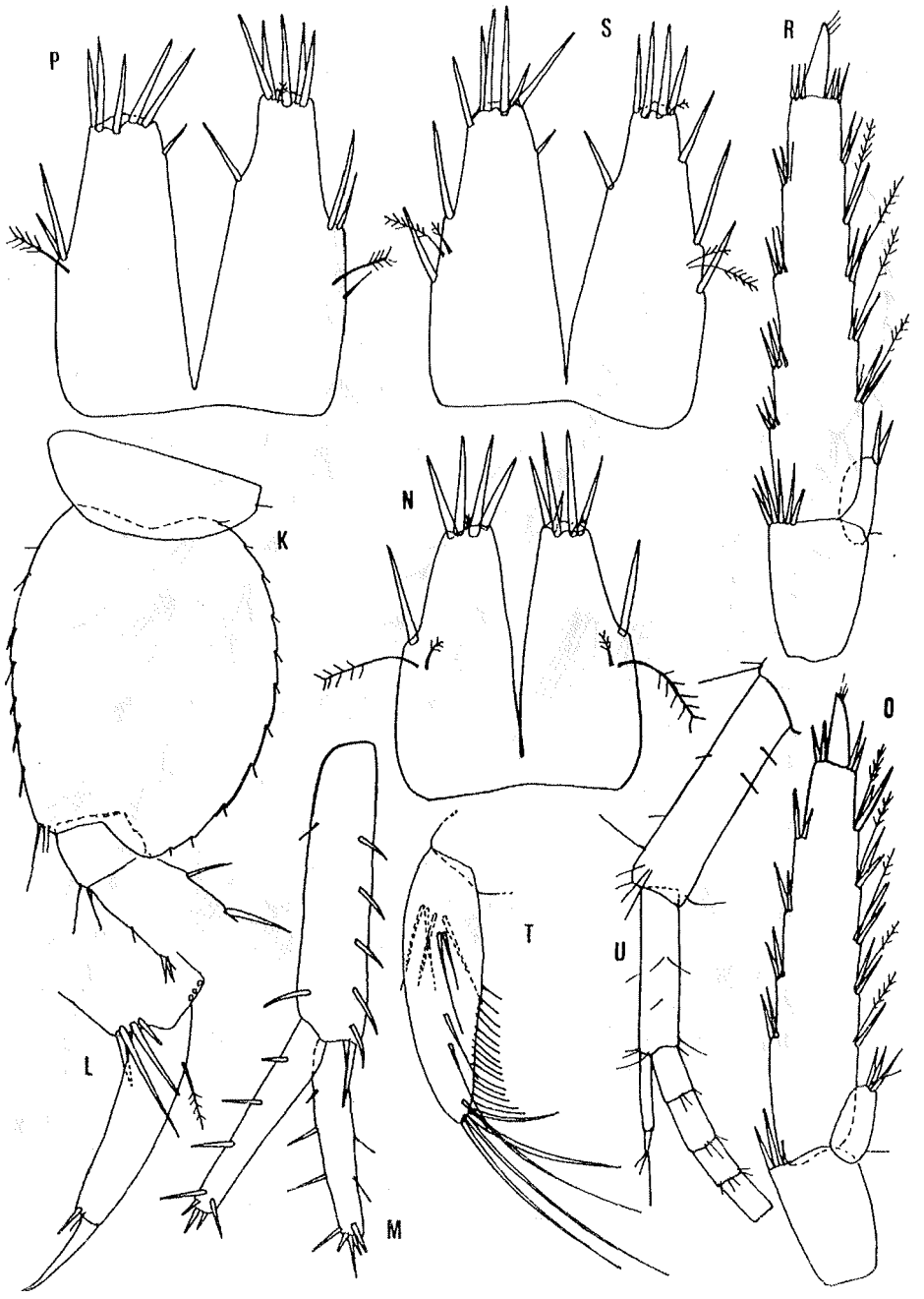

Fig. 5. – *Niphargus decui* n. sp., Vama Veche, male 5 mm long: K, L = pereopod VII; M = uropod I; N = telson; O = uropod III; P = telson, female 8 mm; R = uropod III, female 8 mm; S = telson, female 6 mm; T = mandibular palp, female 6 mm; U = antenna I, female 6 mm.

– Head with short and broad lateral cephalic lobes; rostrum indistinct; eyes absent (Fig. 3 O).

– Antenna I: slightly exceeding half of body length; peduncular segments 1 – 3 progressively shorter, but segment 3 reaching or exceeding 2/3 of segment 2 (Fig. 1 K); main flagellum with up to 21 articles bearing one short aesthetasc not exceeding half of the article itself; accessory flagellum 2-segmented, slightly elongated, reaching or exceeding half of peduncular segment 3 (Fig. 1 K; 5 U).

– Antenna II: slender, normal, segment 5 longer than 4; flagellum: slender, with 9 articles; antennal gland cone: short and straight (Fig. 1 L).

– Labrum: entire, broader than long (Fig. 4 P). Labium with well-developed inner lobes (Fig. 3 R).

– Left mandible: incisor with 5 teeth, lacinia mobilis with 4 teeth accompanied by 7 rakers (Fig. 1 N). Right mandible with incisor bearing 4 teeth, lacinia mobilis: bifurcate, pluridenticulate, accompanied by 6 rakers (Fig. 1 M). Mandibular molar: triturative. Mandibular palp: segment 1 smooth; segment 2 nearly as long as 3, with nearly 10 setae (Fig. 1 O); segment 3: subfalciform, with 1 group of A setae, 6 B setae, up to 21 D setae and 5 E setae (Fig. 1 P; 5 T).

– Maxilla 1: inner plate with 2 setae, outer plate with 7 spines bearing several teeth each (teeth formula: 8 – 3 – 3 – 4 – 3 – 3 –2, or 10 – 5 – 4 – 5 – 3 – 3 – 2, or 15 – 5 – 3 – 3 – 3 – 3 – 2); palp 2-segmented, bearing 6 setae and reaching tip of spines of outer plate (Fig. 1 S, T, U). Inner plate of maxilla 2 with marginal setae only (Fig. 4 R). Maxilliped: inner plate reaching outer distal tip of palp segment 1 and provided with 4 distal normal spines; outer plate not reaching tip of palp segment 2 and bearing a row of smooth distolateral spines; palp: normal, with nail shorter than pedestal (Fig. 1 R).

– Coxae I–IV longer than broad, with short marginal setae (Fig. 2 K, N; 3 K, M), coxa IV with a distinct ventroposterior lobe (Fig. 3 M); coxa V shorter than IV; coxae V–VI: bilobe, with the anterior lobe longer (Fig. 4 K, M); coxa VII subrounded, entire (Fig. 4 N). Gnathopods 1–2 of medium size, gnathopod 2 larger but article 6 of both gnathopods not larger than the corresponding coxae (Fig. 2 K, N). Gnathopod I: segment 5 nearly as long as 6, unlobed, with 3–4 posterior transverse groups of setae; segment 6 slightly longer than broad, with nearly parallel lateral margins, posterior margin with 6 transverse marginal rows of setae; palm poorly inclined and defined on outer face by 1 strong and 3 slender corner spines, accompanied by 3 facial setae, on inner face by 1 short subcorner spine; dactyl reaching posterior margin of segment 6, and displaying 1 outer median seta (Fig. 2 K, L, M). Gnathopod II: segment 5 as long as 6, unlobed, with 4–5 posterior groups of setae; segment 6 slightly longer than broad, bearing 9 posterior transverse marginal groups of setae; palm inclined less than 1/3 of posterior margin of segment 6 and defined on outer face by 1 strong and 2 slender corner spines accompanied by 3 facial setae, on inner face by 1 short subcorner spine; dactyl resembling that of gnathopod I (Fig. 2 N, O, P).

– Pereopods III–IV: relatively slender, poorly setose; dactyl slender, reaching almost half of segment 6, with 1 slender spine at inner margin and 1 median plumose seta at outer margin; nail almost as long as pedestal (Fig. 3 K, L, M, N).

– Pereopods V–VII: moderately long, pereopod V only slightly shorter than VI–VII (Fig. 4 K, M, N). All three pereopods with segment 2: large, ovoid, only slightly longer than broad, bearing numerous short posterior marginal setae and a strong large ventroposterior lobe; ventroanterior margin of segment 2 convex but unlobed; segments 3–6 with bunches of spines along both margins (Fig. 4 K, M, N); dactyl short but slender, much shorter than half of segment 6, with slender spine at inner margin; nail distinctly shorter than peduncle; outer margin of dactyl of pereopods III–VII with 1 median plumose seta (Fig. 4 L, O).

– Pleopods I–III with 4–5 retinacula each. Peduncle of pleopod III with 2–3 short posterior marginal setae only.

– Epimeral plates I–III with acute ventroposterior corner and slightly concave posterior margin, plates II–III with up to 5 subventral spines each (Fig. 3 P).

– Uropod I: peduncle with 1 dorsointernal seta or 1 slender median spine only, and with a dorsoexternal row of strong spines; basifacial spines absent; inner ramus subequal or slightly longer than the outer one, both rami with lateral and distal strong short spines (the longest distal spines reaching nearly 1/4 of rami length) (Fig. 4 S).

– Uropod II: inner ramus distinctly longer than the outer one, both rami with lateral and distal short spines (Fig. 4 S).

– Uropod III: relatively short, unmodified; first segment of outer ramus along both margins with bunches of spines accompanied with single plumose setae along inner margin of segment 1; second segment short (Fig. 5 R).

– Telson: slightly longer than broad, incised almost to the basis; each lobe with 4–5 distal and with single outer and inner marginal spines; a pair of short plumose setae appears near the middle of each lobe (Fig. 5 P, S).

– Coxal gills: relatively short, ovoid, occurring on mesosomal segments II–VI (Fig. 2 N; 3 K, M; 4 K, M). Oostegites: large, occurring on mesosomal segments II – V and bearing long marginal setae (Fig. 2 N).

MALE (non-adult) in hands up to 5.1 mm long. Not different from the female, including short uropod III (Fig. 5 O), large ovoid segment II of pereopods II–VII (Fig. 5 K, L), elongated accessory flagellum and peduncle segment 3 of antenna I. Peduncle of uropod I with a row of dorsoexternal spines only; inner ramus hardly longer, both rami with short lateral and distal spines (Fig. 5 M). Telson hardly longer than broad, deeply incised, each lobe with 4–5 distal spines and 1 outer marginal one (Fig. 5 N).

VARIABILITY: The number of retinacula is lower in small specimens.

– Urosomite I with a ventroposterior marginal spine reaching 1/2 to 2/3 of the diameter of peduncle of uropod I. Rami of uropod I subequal or inner ramus slightly longer.

– The number and position of spines on telson are very variable. The 8.1-mm-long female has lobes of telson with up to 7 distal spines, up to 4 outer

marginal spines (formula: 1 – 1 – 2), and with 0–1 inner marginal spine; dorsofacial spines on lobes absent. Length of the plumose setae on telson varies.

HOLOTYPE: Female 8 mm long. Holotype is preserved in Karaman's Collection in Podgorica (Crna Gora).

LOC. TYP.: Well in Vama Veche (10 km south of Mangalia, Romania).

DISTRIBUTION: Known only from the type locality.

ECOLOGY: This species was found in old hand-dug wells. Some of the wells are covered, others are open and receive organic detritus from the surface. The specimens described here were collected from the limestone walls of the well and from fragments of old wood floating on the water surface in the wells.

REMARKS AND AFFINITIES: *Niphargus decui* is very similar to *Niphargus carpathicus* Dobreanu and Manolache, 1939 described from Peleşului spring in Sinaia region, and later mentioned also for some other localities (Dobreanu and Manolache, 1948; Motaş et al., 1948; Cărăuşu et al., 1955) (pluritoothed spines of outer plate in maxilla I, telson, maxilliped, short uropod III in males, epimeral plates I–III, elevated number of retinacula). Unfortunately, *N. carpathicus* has not been redescribed in detail and the limits of its variability are still unknown. But Cărăuşu et al. (1955) showed different shapes of gnathopods I–II in specimens from two localities, which indicated the existence of two different taxa.

On the basis of the present knowledge, *N. carpathicus* differs from our species by a distinctly narrowed segment 2 of pereopods V–VII, by differently shaped gnathopods I–II (segment 6 with a remarkably more inclined palm), by less spinose urosomites I–II (urosomite I with 1 seta, urosomite II with 2–3 spines on each side).

Unfortunately, the shape of peduncle of antenna 1 and the shape of accessory flagellum of *N. carpathicus* have never been described, and, consequently, this character could not be compared in the two species.

Several other taxa known as subspecies of *N. carpathicus* also differ remarkably from *N. decui:*

– *Niphargus carpathicus cavernicolus* Dobreanu and Manolache, 1957, known from Romania (cave near Bătrâna, Bucegi Mountains), differs from our species by an elevated number of spines of outer plate in maxilla I (9 spines), bearing numerous lateral teeth each, by a more inclined palm of gnathopods I–II, and by a narrowed segment 2 of pereopods V–VII.

– *Niphargus carpathicus affinis* Dobreanu, Manolache and Puşcariu, 1953, known from a cave near Fata, Roşcani, Romania, differs from our species by a narrowed segment 2 of pereopods V–VII, by a very inclined palm of gnathopods I–II, and by a lower number of lateral teeth on spines of outer plate in maxilla I.

– *Niphargus carpathicus romanicus* Dobreanu and Manolache, 1942, known from a well in Făget–Târnave, Romania, and *Niphargus carpathicus variabilis* Dobreanu, Manolache and Puşcariu, 1953, known from the spring-cave of Crişul Negru and from Râpa Vânătă Cave, Romania, differ from our species by a low number of lateral teeth on spines of outer plate in maxilla I and by a narrowed segment 2 of pereopods V–VII.

– *Niphargus carpathicus meridionalis* Dobreanu and Manolache, 1942, known from wells in region of Ceatalor (= Caliacra), Bulgaria, differs from our species by a lower number of lateral teeth on spines of outer plate in maxilla I, by a longer inner plate of maxilliped and by a narrowed segment 2 of pereopods V–VII.

CONCLUSIONS

Niphargus decui n. sp. belongs to the *Niphargus carpathicus* group of taxa with poorly known limits of the variability of their taxonomic characters. *N. decui* is characterized by a broad segment 2 of pereopods V–VII, by pluridenticulate spines of outer plate in maxilla I, by a dactyl of gnathopods I–II with 1 seta at outer margin and with short uropod III in males and females.

DERIVATIO NOMINIS: This species is dedicated to Dr. Vasile Decu from the "Emil Racoviţă" Speological Institute in Bucharest, Romania.

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