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A NEW MEMBER OF THE GENUS NIPHARGUS SCHIÖDTE, 1849 (AMPHIPODA: GAMMARIDEA: NIPHARGIDAE) FOR THE ITALIAN FAUNA

SUMMARY

The subterranean freshwater species *Niphargus wolfi* Schellenberg, 1933 (Amphipoda: Gammaridea, fam. Niphargidae) is discovered in Italy in numerous localities, sometimes associated with other *Niphargus* species. *N. wolfi* is redescribed and figured for the first time based on specimens from Italy, and its variability and taxonomical position within the genus *Niphargus* Schiödte, 1849, are discussed.

Keywords: Amphipoda, taxonomy, description, Niphargus wolfi, Italy.

INTRODUCTION

Schellenberg (1933) described very briefly *Niphargus kochianus* wolfi from Postojna (Postumia) cave system (Tartarus Lake), Slovenia. Later, Karaman, G. (1983) and Karaman & Sket (1989) redescribed this species from some other localities from Slovenia and Croatia.

During very intensive researches on the subterranean fauna, especially cave-dwelling fauna, from north-eastern Italy, provided by the junior author (F.S.) and other speleologists from Trieste, numerous samples of the genus *Niphargus* and other Amphipoda have been discovered in various subterranean waters, and consequently submitted to specialists for taxonomical studies. Among these taxa *Niphargus wolfi* Schellenberg, 1933, was present in this work. The species was reported for the Italian fauna, based on the material described for the first time in the present paper, by Ruffo & Stoch (2005, data reported in the database on CD-ROM)".

MATERIAL AND METHODS

The material was collected by hand-nets in the various subterranean waters and caves, and preserved in 70% ethanol. The specimens were dissected using a WILD M20 microscope and drawn using camera lucida attachment. All dissected appendages have been transferred later permanently into a liquid of Faure. All illustrations were inked manually.

The samples with all data regarding the collection and determination are deposited in scientific collections.

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RESULTS AND DISCUSSION

NIPHARGUS WOLFI Schellenberg, 1933

Figs.: 1-6

Niphargus kochianus wolfi Schellenberg, 1933: 33, figs. 2, 3b; Schellenberg, 1935: 206; G. Karaman, 1972: 5; G. Karaman, 1974: 19.

Niphargus wolfi G. Karaman, 1983: 38, figs. 1-3; G. Karaman & Ruffo, 1986: 534; G. Karaman & Sket, 1989: 22, figs.1-2.

MATERIAL EXAMINED (codes beginning with AMD refer to F. Stoch's collection, codes beginning with VG refer to cave cadastre Venezia Giulia):

ITALY:

AMD/00176: Antro delle Sorgenti di Bagnoli (VG 105), Bagnoli della Rosandra, com. San Dorligo della Valle - Dolina, prov. Trieste, Febr. 3, 1989, 2 spec. (leg. F. Stoch);

AMD/00180: ibid., Jan. 15, 1989, 12 spec. (leg. F. Gasparo);

AMD/00214: ibid., Febr. 2, 1989, 4 spec. intermixed with *Synurella ambulans* F. Müller and *Niphargus transitivus* 3 spec. (leg. F. Stoch);

AMD/00227: ibid., August 16, 1987, 1 spec. (leg. F. Gasparo);

AMD/00291: ibid, Jan. 18, 1986, 1 spec. (leg. F. Gasparo);

AMD/00303: ibid., Jan. 17, 1986, 1 spec. intermixed with *Niphargus stochi* G. Karaman (leg. F. Gasparo);

AMD/00304: ibid., Jan. 16, 1986, 1 spec. (leg. F. Gasparo);

AMD/00219: Temporary spring near Fonte Oppia, Val Rosandra, com. San Dorligo della Valle - Dolina, prov. Trieste, May 2, 1986, 1 spec. (leg. F. Gasparo & F. Stoch);

AMD/00221: ibid., March 27, 1986, 1 spec. (leg. F. Stoch);

AMD/00234: ibid., April 8, 1988, 1 spec. (leg. F. Gasparo);

AMD/00256: ibid., Febr. 11, 1988, 2 spec. (leg. F. Stoch);

AMD/00207: Spring of Lavatoio di Bagnoli, Bagnoli della Rosandra, com. San Dorligo della Valle - Dolina, prov. Trieste, Dec. 26, 1987, 3 spec. (leg. F. Gasparo);

AMD/00250: ibid., April 3, 1988, 4 spec. (leg. F. Gasparo);

AMD/00175: Subterranean cistern near Antro delle Sorgenti di Bagnoli, Bagnoli della Rosandra, com. San Dorligo della Valle - Dolina, prov. Trieste, Febr. 2, 1989, 2 spec. intermixed with *Niphargus krameri* (leg. A. Halupca & F. Stoch);

AMD/00189: Fonte Oppia, Val Rosandra, com. San Dorligo della Valle, prov. Trieste, August 24, 1986, 1 spec. intermixed with *Niphargus* sp. juv. (leg. F. Gasparo);

AMD/00236: ibid., April 28, 1989, 2 spec. (leg. F. Gasparo & F. Stoch);

AMD/00283: ibid., May 20, 1991, 8 spec. (leg. F. Stoch);

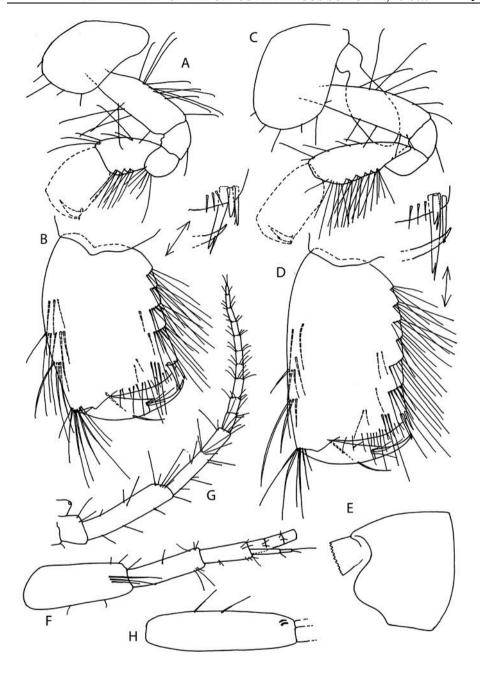


Fig. 1. $Niphargus\ wolfi$, Antro delle Sorgenti di Bagnoli, female 4.6 mm: A-B = gnathopod 1; C-D = gnathopod 2; E = head; F = antenna 1; G = antenna 2; H = pleopod 3.

- AMD/00369: ibid., March 29, 1991, 1 spec. (leg. M. Bodon & F. Stoch);
- AMD/00248: Antro delle Ninfe (VG 2687), Val Rosandra, com. San Dorligo della Valle Dolina, prov. Trieste, Sept. 10, 1992 several spec. intermixed with *Niphargus stochi*;
- AMD/00252: ibid., August 19, 1988, 1 spec. intermixed with *Niphargus* sp. juv. and *Gammarus balcanicus* (leg. F. Stoch);
- AMD/00226: Buco dei Gamberi (VG 4301), Val Rosandra, com. San Dorligo della Valle Dolina, prov. Trieste, August 24, 1985, 1 spec. (leg. F. Gasparo & F. Stoch);
- AMD/00244: Fessura del Vento (VG 4139), Val Rosandra, com. San Dorligo della Valle Dolina, prov. Trieste, Febr. 23, 1992, 1 spec. (leg. S. Dolce);
- AMD/00276: Cave A. F. Lindner (VG 3988), San Pelagio, com. Duino-Aurisina, prov. Trieste, May 2, 1990, 4 spec. (leg. S. Dolce & F. Stoch);
- AMD/00441: ibid., July 8, 1993, 13 spec. (leg. S. Dolce & F. Stoch);
- **SLOVENIA:** AMD/00440: Draga pri Ponikvah-Cave (S. 972), Ponikve, Staniel, June 19, 1993, 3 spec. (leg. S. Dolce & F. Stoch).

DESCRIPTION. Schellenberg (1933) described very briefly this species from Slovenia (Tartarus Lake in the Postojna Cave) (= Adelsberger Grotte). As the typical specimens have been lost, G. Karaman (1983) redescribed this species from Planinska Jama-cave and fixed a neotype (Planinska Jama belongs to the Postojna-Planina cave system near Postojna), based on three specimens (males only). Karaman & Sket (1989) briefly redescribed and figured this species from Croatia (Istra Peninsula and Krk Island).

The specimens from Italy are rather similar to the ones known from Slovenia and Croatia, but show some differences and variability. For this reason we redescribed herein this species based on material from Italy.

FEMALE 4.6 mm with oostegites bearing short setae only (Antro delle Sorgenti di Bagnoli): Body slender, metasomal segments 1-3 with 6-8 dorsal posterior short setae each (fig. 6E).

Epimeral plates 1-3 with slightly produced and acute ventral-posterior corner, epimeral plates 2-3 with 2-3 subventral spines (fig. 6E).

Ûrosomite 1 on each dorsolateral side with 2 spines accompanied sometimes by 1 seta; urosomite 2 with 3 spines on each side (fig. 2H), Urosomite 1 on each ventroposterior side near basis of peduncle of uropod 1 with small spine (fig. 2H).

Head with short subrounded latéral cephalic lobes (fig. 1E) and with developed, ventroanterior sinus.

Antenna 1 reaching 2/3 of body length, peduncular articles 1-3 progressively shorter (ratio: 75: 53: 32); peduncular article 3 exceeding half of peduncular article 2; main flagellum with 27 articles (most of them with 1 aesthetasc reaching 1/2 to 3/5 of article length). Accessory flagellum 2-articulated, only slightly shorter than last peduncular article (ratio: 23: 25) (fig. 1F).

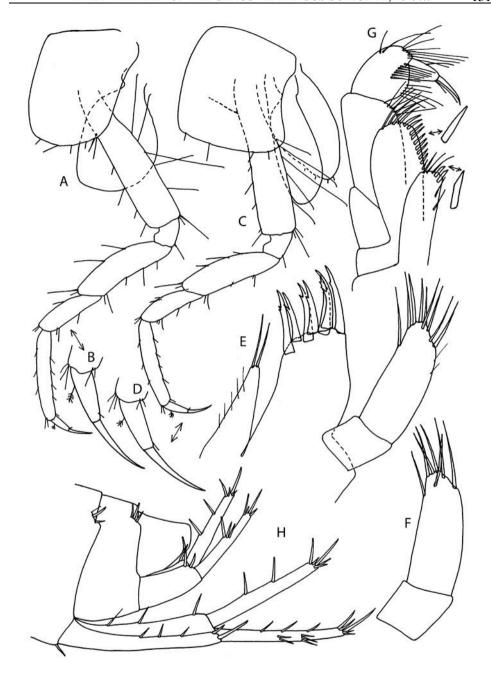


Fig. 2. Niphargus wolfi, Antro delle Sorgenti di Bagnoli, female 4.6 mm: A-B = pereopod 3; C-D = pereopod 4; E = left maxilla 1; F = palpus of right maxilla 1; G = maxilliped; H = urosome with uropods 1-2.

Antenna 2 normal, peduncular article 5 shorter than 4 (ratio: 55: 48), flagellum much longer than last peduncular article, consisting of up to 10 articles (fig. 1G). Antennal gland cone short (fig. 1G).

Labrum broader than long, with convex distal part. Labium with well-developed inner lobes.

Mandible with well-developed molar part provided on right mandible with 1 long distal seta (fig. 3F). Right mandible: incisor with 4 teeth, lacinia mobilis bifurcate, with several teeth, accompanied by 4 rakers (fig. 3F). Left mandible: incisor with 5 teeth, lacinia mobilis with 4 teeth, accompanied by 7 rakers (fig. 3G). Mandibular palpus article 1 naked. Article 2 with 8 setae (fig. 3H); palpus article 3 strong, subfalciform, longer than article 2 (ratio: 55: 46), bearing one group of 4 A setae, 3 single B setae, 15-16 marginal D setae and 4 long distal E setae (fig. 3H).

Maxilla 1: inner plate narrow, with 2 distal setae (fig. 2E); outer plate with 7 distal spines (6 spines with 1 lateral tooth, inner spine with 2 lateral teeth (fig. 2E). Palpus short, distinctly not reaching tip of spines of outer plate, bearing 7-9 distal setae (fig. 2E, F). Palpus of left and right maxilla 1 are symmetric to each other (fig. 2E, F).

Maxilla 2: both plates with marginal setae only.

Maxilliped: inner plate long, exceeding outer tip of palpus article 1, bearing 2 distal smooth spines intermixed with setae (fig. 2G); outer plate exceeding 2/3 of second palpus article, bearing a row of about 11 distal and lateral smooth spines (fig. 2G). Palpus article 3 along outer margin with one median and one distal bunch of setae; article 4 along inner margin with 2 setae near basis of the nail and with one median seta at outer margin (fig. 2G).

Coxa 1 longer than broad (ratio: 50: 35), with subrounded ventroanterior corner (fig. 1A). Coxa 2 remarkably longer than broad (ratio: 65: 42) (fig. 1C; coxa 3 longer than broad (ratio: 55: 45) (fig. 2A); coxa 4 hardly longer than broad (ratio: 66: 63), with slightly excavated posterior margin (fig. 2C). Coxae 5-7 short (fig. 4A, C, F), progressively smaller; coxae 5 and 6 with developed subrounded anterior margin (fig. 4A, C); coxa 7 entire (fig. 4F).

Gnathopods 1-2 relatively weak, elongated. Gnathopod 1: article 2 with numerous anterior and posterior marginal setae (fig. 1A). Article 3 along posterior margin with median seta; article 5 nearly as long as article 6, with 3 posterior transverse groups of marginal setae. Article 6 linear, longer than broad (ratio: 82: 56), along posterior margin with 4 transverse rows of setae; palm convex, almost transverse, defined on outer face by 1 strong corner S-spine accompanied by 1 weak slender L-spine and 3 facial M-setae, on inner face by 1 subcorner R-spine (fig. 1A, B); dactylus distinctly reaching posterior margin of article 6, with 1 median seta at outer margin (fig. 1B).

Gnathopod 2: article 2 with long setae along both margins; article 3 along posterior margin with one median seta; article 5 elongated, remarkably longer than article 6 (ratio: 60: 45), with 6 groups of posterior transverse rows of setae. Article 6 linear, longer than broad (ratio: 113: 52), with 6 transverse rows of setae along posterior margin; palm almost transverse, defined on outer face by 1 strong corner S-spine accompanied by 1 weak slender L-spine and 3 facial M-setae, on inner face by 1 subcorner R-spine (fig. 1C, D). Dactylus distinctly reaching posterior margin of article 6, with 1 median seta at outer margin (fig. 1D).

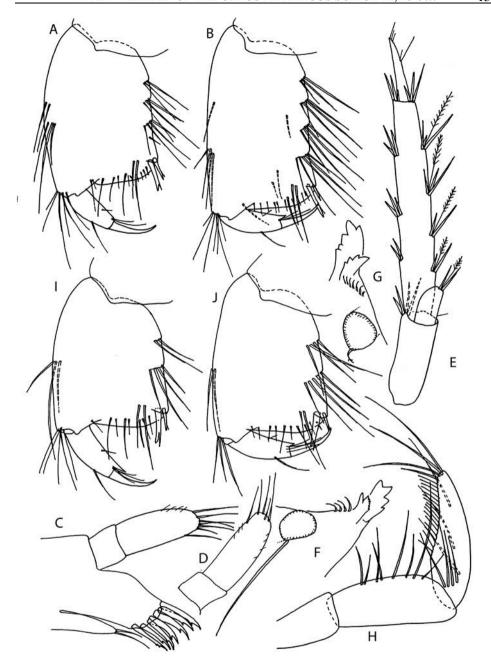


Fig. 3. $Niphargus\ wolfi$, Antro delle Sorgenti di Bagnoli, female 4.2 mm: A-B = gnathopods 1-2; C = right maxilla 1; D = palpus of left maxilla 1; E = uropod 3; F-G = right and left mandible, female 4.6 mm; H = mandibular palpus, female 4.6 mm.

Pereopods 3-4 slender, poorly setose. Pereopod 3: articles 4-6 of unequal length (ratio: 52: 38: 52), with several longer setae along both margins (fig. 2A); dactylus slender and long, nearly reaching half of article 6 (ratio: 17: 36), along inner margin with one short seta near basis of the nail, and with one median seta along outer margin; nail longer than pedestal (ratio: 40: 33) (fig. 2A, B).

Pereopod 4 rather similar to pereopod 3, including articles 2-6 (fig. 2C). Dactylus long and slender, with nail longer than pedestal (ratio: 42: 32) (fig. 2D).

Pereopods 5-6 slender, with large ovoid article 2. Pereopod 5: article 2 much longer than broad (ratio: 70: 40), with slightly convex anterior margin bearing a row of longer setae, and along posterior convex margin bearing a row of short setae, ventroposterior lobe distinct (fig. 4A). Articles 4-6 of unequal length (ratio: 58: 57: 65), along both margins with slender spines or spine-like setae. Dactylus slender, nearly reaching half of article 6 (ratio: 33: 65) (fig. 4A), along inner margin with one seta near basis of the nail, along outer margin with one plumose median seta (fig. 4B); nail shorter than pedestal (ratio: 32: 40).

Pereopod 6: article 2 ovoid, longer than broad (ratio: 82: 52), with marginal setae and ventroposterior lobe like these in pereopod 5 (fig. 4C). Articles 4-6 of unequal length (ratio: 41: 40: 55), bearing spine-like setae and spines along both margins. Dactylus shorter than article 6 (ratio: 30: 54), with one seta along inner margin near basis of the nail, and with one plumose median seta at outer margin; nail shorter than pedestal (ratio: 30: 42) (fig. 4D).

Pereopod 7: article 2 ovoid, longer than broad (ratio: 80: 52), along anterior convex margin with several stronger setae, along posterior margin with 10-11 short setae; ventroposterior lobe is well developed (fig. 4F). Articles 4-6 of unequal length (ratio: 42: 40: 50), bearing slender spine or spine like setae along both margins (fig. 4F). Dactylus long and slender, shorter than article 6 (ratio: 25: 50), along inner margin with short seta near basis of the nail, along outer margin with one plumose median seta (fig. 4G); nail shorter than pedestal (ratio: 32: 50). Pleopods 1-3 with 2 retinacula each; peduncle of pleopod 1 with 2-3 anterior short marginal setae; peduncle of pleopod 2 smooth, that of pleopod 3 with 2 posterior medial setae (fig. 1H).

Uropod 1: peduncle with dorsal external and dorsal internal row of slender spines (fig. 2H); rami long and subequal, bearing lateral and distal spines.

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

Uropod 3 (female 4.2 mm): short. Peduncle twice much longer than broad (ratio: 42: 17), with distal spines. Inner ramus short, scale-like, with distal spine and seta. Outer ramus 2-articulated: first article along inner margin with bunches of long slender spines intermixed with single plumose setae (fig. 3E), along outer margin without setae; second article much shorter than first article (ratio: 30: 100), bearing distal and lateral setae only.

Telson moderately long, deeply incised; each lobe with 3 distal short spines and 0-1 outer marginal spine; a pair of short plumose setae appears near the middle of each lobe (fig. 6G).

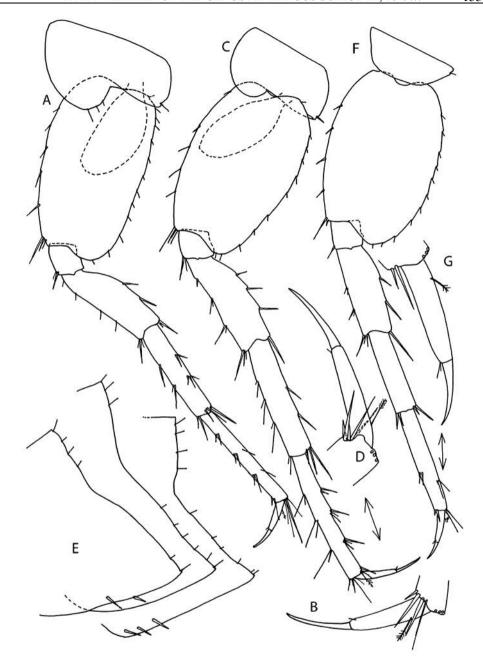


Fig. 4. $Niphargus\ wolfi$, Antro delle Sorgenti di Bagnoli, female 4.6 mm: A-B = pereopod 5; C-D = pereopod 6; E = epimeral plates 1-3; F-G = pereopod 7, female 4.2 mm.

Coxal gills moderately relatively long (figs. 1C; 2A, C; 4A, C), it seems that the longest is the gill on gnathopod 2.

Oostegites broad, with short marginal setae (fig. 2C).

MALES in hands were smaller than the females (3 mm only, probably non adult), and like females, including antennae, mouthparts, uropods 1-2 and pleopods.

Coxa 1 as long as broad (fig. 5A); coxa 2 hardly longer than broad (ratio: 40: 38) (fig. 5C); coxa 3 slightly longer than broad (ratio: 52: 47) (fig. 5E); coxa 4 longer than broad (ratio: 56: 50), with concave posteror margin (fig. 5F).

Gnathopod 1: article 5 hardly shorter than article 6 (ratio: 56: 58) (fig. 5A). Article 6 narrow, much longer than broad (ratio: 58: 43), along posterior margin with 3 transverse rows of setae; palm transverse, defined with one strong corner S-spine accompanied laterally by 1 slender L-spine and 1 facial M-seta, on inner face by one short subcorner R-spine; dactylus reaching posterior margin of propodus, with one strong median seta along outer margin (fig. 5B).

Gnathopod 2 slightly larger than gnathopod 1, article 5 slightly longer than article 6 (ratio: 75: 63) and provided along posterior margin with 4 transverse rows of setae (fig. 5D). Article 6 longer than broad (ratio: 65: 43), along posterior margin with 3 transverse rows of setae (fig. 5D); palm, corner and subcorner spines like these in gnathopod 1, but on outer face appear 2 facial M-setae. Dactylus like that in gnathopod 1.

Pereopods 5-7 with ovoid article 2 bearing distinct ventroposterior lobe; article 2 of pereopods 5-7 longer than broad (ratio: 64: 37; 75: 42; 77: 47, respectively).

Uropod 3 short, like that in female. Peduncle nearly twice longer than broad (fig. 5G); inner ramus short, scale-like; outer ramus 2-articulated, second article much shorter than first article (ratio: 25: 75), bearing short lateral and distal setae; first article along inner margin with 4 groups of spines accompanied by single plumose setae (fig. 5G), along outer margin with 4 groups of spines.

Telson longer than broad (ratio: 88: 68), deeply incised; each lobe with 3 distal spines and one spine along outer margin; a pair of short plumose setae is attached near the middle of each lobe (fig. 6C).

Coxal gills are relatively long, like these in female (fig. 5C).

VARIABILITY.

Niphargus wolfi is a rather variable species, especially regarding the length of gnathopods 1-2 and dactylus of pereopods 3-7.

Article 5 of gnathopod 1 nearly as long as article 6, that of gnathopod 2 only slightly to remarkably longer than broad (figs. 1A, C; 3 I, J; 5A-D); article 6 of gnathopod 1 with 2-4 posterior transverse rows of setae (figs. 1B; 3A, I; 5B); palm almost transverse, bearing 2-3, rarely only 1 facial M-seta; dactylus always distinctly reaching posterior margin of article 6.

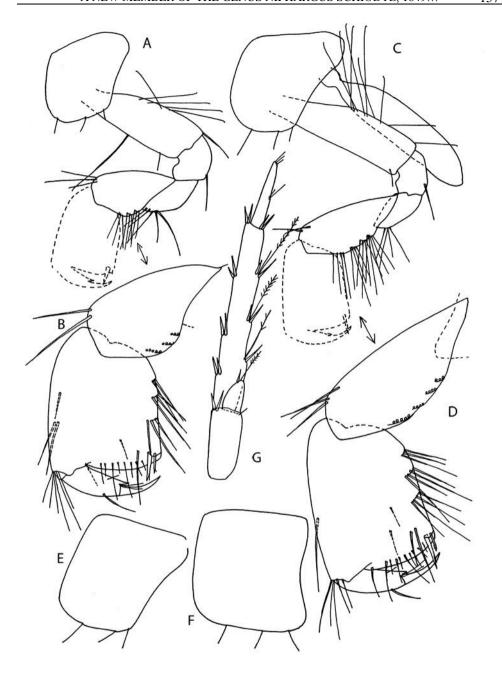


Fig. 5. $Niphargus\ wolfi$, Cave A.F. Lindner, male 3 mm: A-B = gnathopod 1; C-D = gnathopod 2; E = coxa 3; F = coxa 4; G = uropod 3.

Gnathopod 2: article 6 is usually 70-90%, rather up to only 30% longer than broad; posterior margin of article 6 with 4-6, rarely only 2 or 3 posterior marginal transverse rows of setae (figs. 1D; 3B, J; 5D); palm likes that of gnathopod 1.

Dactylus of pereopods 3-4 usually reaching nearly 50-65% of article 6 length (figs. 2B, D; 6A, J), but sometimes reaching up to 75% of article 6-length (fig. 6 I, J).

Often within the same population specimens with shorter and longer article 6 of gnathopods 1-2 co-exist (Antro delle Ninfe; spring of Lavatoio di Bagnoli). Specimens with shorter and longer dactylus of pereopods 3-7 are intermixed as well. The longest dactylus of pereopods 3-4 (those of pereopods 5-7 were missing) were found in the single specimen collected from the cave named Fessura del Vento (fig. 6 I).

Article 2 of pereopods 5-7 more or less ovoid in males and females, always with relatively short posterior marginal setae (figs. 4A, C, F; 6D-F), dactylus reaching 50-60% of article 6-length (figs. 4B, D, G; 6B), always with 1 seta at inner margin.

Maxilla 1 with 2 setae on inner plate; inner spine of outer plate with 2-3 lateral teeth only, otherwise with 6 spines with 1 lateral tooth; palpus not reaching tip of spines of outer plate (figs. 2E, F; 3C, D) and provided with 5-7 setae.

Inner plate of maxilliped distinctly exceeding outer tip of first palpus article, with 2, occasionally 3 distal smooth spines. In one specimen from Lindner cave, left inner plate of maxilliped was armed with 2 spines, while right plate was bearing 3 distal spines; outer plate reaching 2/3 to 3/4 of palpus article 2.

Metasomal segments 1-3 with 5-8 relatively short dorsoposterior marginal setae.

Uropods 1-2 with rather variable length of distal spines on both rami.

Telson short, each lobe usually with 3, sometimes 4 distal spines (fig. 6C, G, H); one outer marginal spine (fig. 6C) or an inner distal-marginal spine (fig. 6G) occurred in some specimens.

Coxal gills on gnathopod 2 reaching or not reaching distal tip of corresponding basipodite (figs. 1C; 5C); coxal gill on pereopod 3 shorter and ovoid (fig. 2A).

NEOTYPE: male 3 mm.

LOC. TYP.: Planinska Jama (Postojna-Planina cave system, Slovenia).

LOCALITIES CITED: ITALY: Several localities in the province of Trieste (present work);

Argano et al. (1995) cited, and Ruffo & Stoch (2005) mentioned in Checklist on CD (not published), *Niphargus wolfi* for Northern Italy, but without any detailed locality, based on unpublish data.

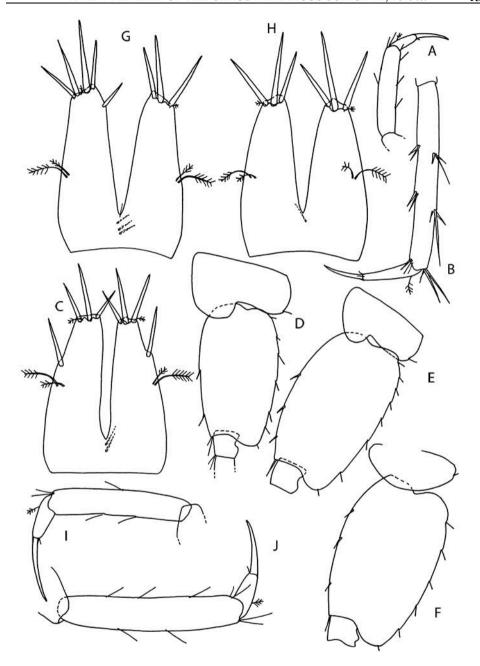


Fig. 6. *Niphargus wolfi*, Cave A.F. Lindner: A-B = dactylus of pereopods 3 and 6, female 3 mm; C = telson, male 3 mm; D-F = pereopods 5-7, male 3 mm; G-H = telson of females 4.6 and 4.2 mm from Antro delle Sorgenti di Bagnoli; I = pereopod 4, juv. 2.3 mm from Fessura del Vento; J = pereopod 4, female 3.5 mm from Antro delle Ninfe.

SLOVENIA: Tartarus Lake in Postojna Cave (Schellenberg, 1933); Planinska Jama (Karaman, G., 1983); Draga pri Ponikvah Cave (present work);

CROATIA: Čižići (Krk Island); Boljunščica River in Boljunsko polje, Istra Peninsula (Karaman, G. & Sket, 1989).

REMARKS AND AFFINITIES.

 $Niphargus\ wolfi$ is well characterized by elongated article 6 of gnathopods 1-2 having almost transverse palm with not produced distal-posterior corner, and by presence of 1 median seta at outer margin of dactylus of gnathopods.

Niphargus melticensis Dancau & Andreev 1973, known from Bulgaria (Sokolowo) is very similar to N. wolfi (shape of gnathopods 1-2, uropod 3, telson, slender dactylus of pereopods 3-7), but differs from N. wolfinby the presence of 1 seta on inner plate of maxilla 1, long palpus of maxilla 1, subequal rami of uropod 2, shorter inner plate of maxilliped, more narrowed article 2 of pereopods 5-7.

Rather similar gnathopods 1-2 are present also in *Niphargus jugoslavicus* G. Karaman, 1982, known from Serbia (Trgoviški Timok), but its gnathopod dactylus is provided at outer margin with 2 median setae.

Elongated gnathopods 1-2 are present in *Niphargus longidactylus* Ruffo, 1937 and *Niphargus stochi* G. Karaman, 1994 (northeastern Italy) also but these species have produced distoposterior corner of article 6 in gnathopods 1-2.

ECOLOGY

Niphargus wolfi was found in caves and karstic springs, intermixed sometimes with Niphargus stochi, N. transitivus Sket, 1971, N. krameri Schellenberg, 1935 and some other unidentified juvenile specimens of the genus Niphargus.

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NOVI ČLAN RODA *NIPHARGUS* SCHIŐDTE, 1849 (AMPHIPODA: GAMMARIDEA: NIPHARGIDAE) ZA FAUNU ITALIJE

SAŽETAK

Podzemna statkovodna vrsta *Niphargus wolfi* Schellenberg, 1933 (Amphipoda: Gammaridea: fam. Niphargidae) nadjena je u Italiji na većem broju lokaliteta, ponekad u zajednici sa drugim *Niphargus* vrstama. *N. wolfi* je opisana i nacrtana po prvi put na osnovu primjeraka iz Italije, i analiziran je njen varijabilitet i taksonomski položaj unutar roda *Niphargus* Schiödte, 1849.

Ključne riječi: Amphipoda, taksonomija, opis, Niphargus wolfi, Italija