»POLJOPRIVREDA I ŠUMARSTVO«, XXXIV, 1, 63-77, 1988, TITOGRAD

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THE GENUS ACCUBOGAMMARUS G. KAR. IN YUGOSLAVIA WITH REMARKS TO THE GENUS TYPHLOGAMMARUS SCHÄF. (FAM. GAMMARIDAE) (CONTRIBUTION TO THE KNOWLEDGE OF THE AMPHIPODA 167)

ABSTRACT

The new subspecies of the subterranean amphipod *Accubogammarus algor* (G. Karaman 1973) *(Amphipoda Gammaridea,* fam. *Gammaridae)* from the cave near Gromača, Orašac (Dubrovnik region, Yugoslavia) is described and figured; new diagnosis of the genus *Accubogammarus* G. Kar. 1974 is filled. New localities and synonymy of the subterranean species *Typhlogammarus mrazeki* (Schäferna 1906) are presented.

INTRODUCTION

During his study of the subterranean fauna of Crna Gora, G. Karaman described (1973) a new species *Typhlogammarus algor*, n. sp. from Stanina pećina — Cave near Vučji Do in Crna Gora (Montenegro) (between Nikšić and Trebinje).

Later, (1974) G. Karaman removed this species to the new genus *Accubogammarus* as a type species. As this species was described based on only one specimen (adult female of 10 mm length), we visited later twice this cave to collect other material of it, but no further specimens have been collected from it.

Recently, I recived one sample of 3 specimens (2 female and one male) of genus *Accubogammarus* from one cave near Gromača, Orašac (region Dubrovnik, Croatia). As these specimens differ remarkably from specimens of Stanina pećina — Cave, we described and figured them as a new subspecies, *Accubogammarus algor jalzici*, n. ssp.

The distribution of the subterranean species *Typhlogammarus mrazeki* (Schäferna 1906) is filled with new localities of Crna Gora (Montenegro) and Croatia (Hrvatska) and new synonymy of this species is given.

Acknowledgments: I am indebted to Dr. Branko Jalžić from the Museum of Natural History of Croatia in Zagreb, to Dr. Romana Lattinger from the University of Zagreb (Faculty of Natural Sciences and Mathematics) as well as to prof. Ilija Mijuškovič, Perica Pejovič and Veselin Mijuškovič, members of the speleological society of Crna Gora in Nikšič, for the loan of material used in this study.

TAXONOMIC PART

ACCUBOGAMMARUS ALGOR ALGOR (G. Karaman 1973)

fig.: I. 1-6

Syn.: *Typhlogammarus algor* G. Karaman 1973: 495, fig. 3 (1-7), 4 (1-11).

Accubogammarus algor G. Karaman 1974a: 5; G. Karaman 1974b: 55, fig. VI, 8-14; Barnard & Barnard 1983: 87, 505.

Loc. typ.: Stanina pećina — Cave near Vučji Do, between Nikšić and Trebinje (Yugoslavia).

Distribution: known only from type-locality.

Remarks: Peduncle of uropod 1 (female 10 mm) with one ventrofacial spine (not figured on fig. 4 in G. Karaman, 1973). Mandibular palp segment 2 with 14 setae, palp segment 3 with 11-12 D and 5-6 E-setae, as well as on inner face with one group of B-setae and 2 single C-setae (fig. I, 5), on outer face with one group of A-setae. Palp segment 3 is distinctly shorter than palp segment 2 (fig. I, 5).

Labrum, labium, maxilla 2 and maxilliped like these in ssp. *jalzici*. Maxilla 1: inner plate with 5 plumose setae, outer plate with 11-12 toothed spines, palp 2-segmented, hardly exceeding basis of spines on outer plate and bearing 6 distal setae (fig. I, 3).

Lateral cephalic lobes is narrowly subrounded (fig. I, 6).

Antenna 2: peduncular segment 5 is nearly as long as segment 4 (fig. I, 4). Segment 6 of gnathopods 1-2 of subequal length (fig. I, 1, 2).

Inner ramus of uropod 3 almost reaching tip of outer ramus. A pair of short plumose setae is sitting on short distance under distal spine of telson.

ACCUBOGAMMARUS ALGOR JALZICI, n. ssp.
figs.: I, 7-9, II-V

Material examined: Yugoslavia: »Špilja za Gromačkom Vlakom« — Cave in Gromača near vill. Orašac (Dubrovnik region) (cca 5 km. air distance from the Adriatic Sea), June 11, 1985, 3 spec. (leg. B. Jalžić).

Description: Male 7.3 mm. Body stout, metasomsegments 1-3 each with row of 7-9 long dorsoposterior marginal setae, including 2-4 dorsofacial setae on metasomsegment 3 (fig. II; 2; V, 4).

Urosome low, urosomite 1 in dorsal projection with 2 lateral and 2 dorsomedial posterior setae (fig. V, 5); urosomites 2 and 3 each on each side with 1 spine accompanied by 1-3 setae, dorsomedial elements absent (fig. V, 5).

Head with short rostrum, lateral cephalic lobes subrounded, eyes absent (fig. II, 1), ventroanterior sinus present (fig. II, 1). Antenna 1 reaching or hardly exceeding half of body; peduncular segments 1-3 progressively shorter, poorly setose (fig. II, 1); main flagellum consisting of about 20 articles bearing one aesthetasc each. Accessory flagellum 3-segmented (fig. II, 1).

Antenna 2 shorter than 1, peduncular segment 3 short, peduncular segment 5 remarkably shorter than 4 (fig. II, 1), both with 2-3 groups of short setae; flagellum consisting of 10-11 articles (fig. II, 1); antennal gland cone long, remarkably exceeding tip of third peduncular segment.

Mouthpart basic. Labrum subrounded (fig. III, 4); labium without inner lobes (fig. IV, 3). Right mandible with 5-toothed incisor, lacinia mobilis narrow, acute (fig. I, 9). Left mandible with 4-toothed incisor (and with 1 undistinct tooth), lacinia mobilis broad, 4-toothed (fig. I, 8); mandibular palp strong, 3-segmented, second segment with 7 setae (fig. I, 7); third segment is not shorter than second one, bearing 16 D and 3 long distal E-setae (fig. I, 7), as well as one group of A-setae on outer face and 1 group of B-setae on inner face; C-setae absent.

Maxilla 1: inner plate conical, with 3 distolateral plumose setae (fig. IV, 6, 7), outer plate with about 12 toothed spines (each spine with up to 28 tooth) (fig. IV, 6), palp narrow, 2-segmented, not reaching basis of spines, distally with 2 setae (left) or 3 setae (right palp).

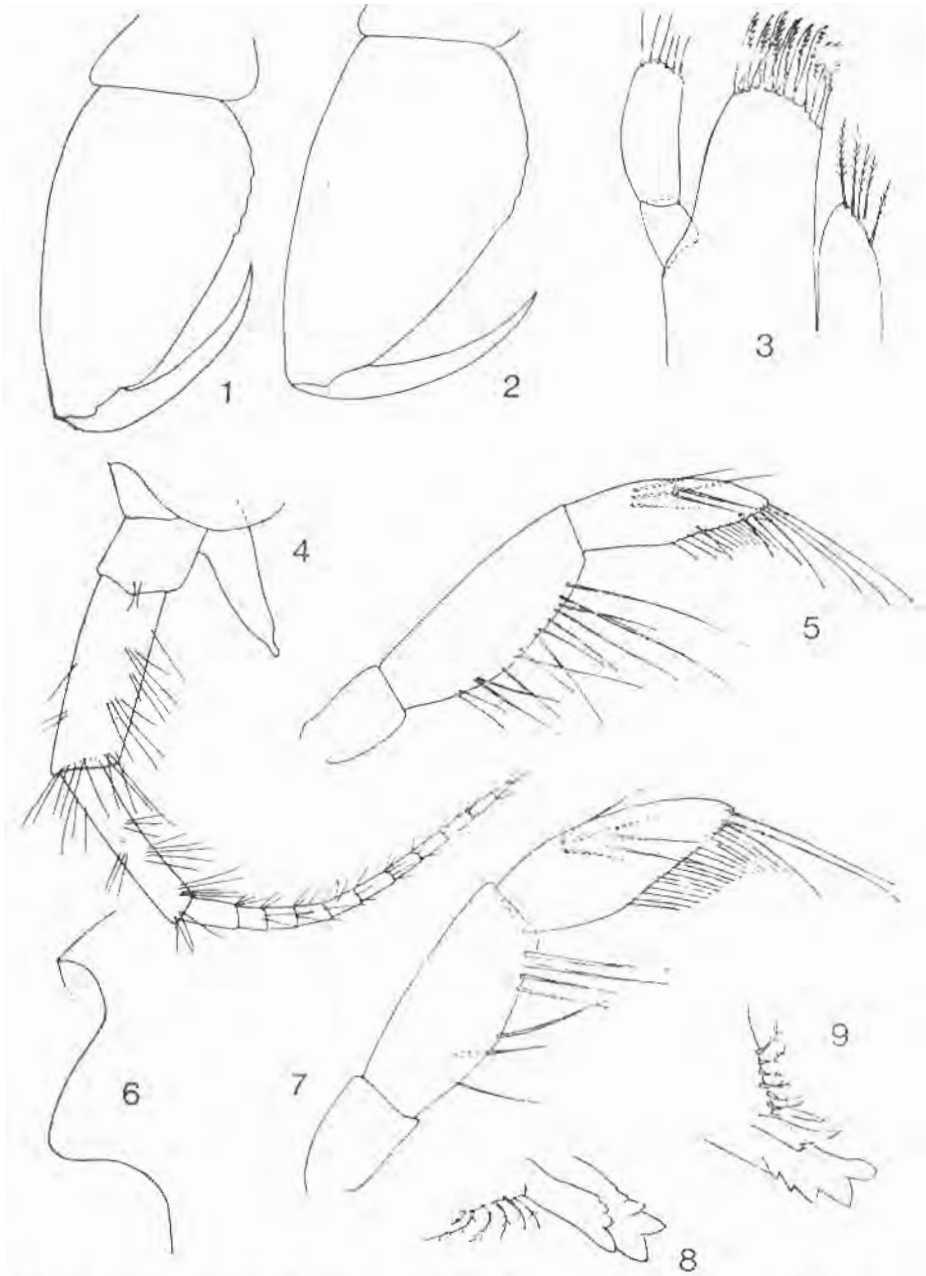

Fig. 1. *Accubogammarus algor algor* G. Kar., Stanina pećina-cave, female 10 mm: 1-2 = gnathopods 1-2; 3 = maxilla 1; 4 = antenna 2; 5 = mandibular palp; 6 = lateral cephalic lobe.
Accubogammarus algor jalzici, n. ssp., Gromača, male 7.3 mm: 7 = mandibular palp; 8 = tip of left mandible; 9 = tip of right mandible.

Both plates of maxilla 2 with distolateral setae, inner plate with oblique facial row of setae (fig. IV, 4). Maxilliped: inner plate reaching outer tip of first palp segment, bearing 5 distal spines (fig. II, 4), outer plate short and broad, not exceeding half of second palp segment, bearing a row of distolateral slender spines accompanied by setae (fig. II, 4); palp segment 3 unlobed, segment 4 shorter than 3, with nail.

Coxae 1-4 longer than broad, progressively longer, with cutted distoanterior corner, poorly setose (fig. III, 1, 2; IV, 1, 2), coxa 4 poorly lobed posteriorly (fig. IV, 2). Coxa 5 distinctly shorter than 4; coxae 5-7 progressively shorter, coxae 5 and 6 with posterior lobe angular and larger than anterior one (fig. V, 1, 2), coxa 7 unlobed (fig. V, 3).

Gnathopod 1 remarkably smaller than gnathopod 2, with short, lobed segment 5 (fig. III, 1) and pyriform broad segment 6; palp of segment 6 inclinated, bearing a row of palmar spines (fig. III, 1), defined by pair of spines, dactyl recurved, with one medial seta at outer margin (fig. III, 1).

Gnathopod 2: segment 5 short, lobed; segment 6 similar to that of gnathopod 1 but much larger, palm with row of strong spines and setae, dactyl like that of gnathopod 1 (fig. III, 2).

Pereopods 3 and 4 similar to each other, linear, poorly setose; setae along posterior margin not or hardly exceeding the diameter of segments themselves; dactyl short, with well developed nail (fig. IV, 1).

Pereopods 5-7 moderately long, pereopod 5 is only slightly shorter than pereopods 6 and 7. Segment 2 of pereopods 5-7 progressively broader towards pereopod 7, with numerous longer posterior marginal setae and a few anterior spine acompanied by single setae (fig. V, 1-3). Inner lace of segment 2 in pereopods 5-7 is with bunches of setae accompanied by single spines; segments 4-6 of pereopods 5-7 with spines along anterior margin, and with bunches of setae, accompanied by spines, at posterior margin. Segment 6 is slightly longer than segment 5, dactyl short, with one spine-like seta at inner margin.

Pleopod 1: peduncle with 3-4 retinacula, without any spine near them. Pleopods 2 and 3: peduncle bearing 3 retinacula accompanied by one spine (fig. II, 3), posterior margin of peduncle of pleopod 2 is provided with 3 single setae only, that of pleopod 3 with 4-5 setae and one spine (fig. II, 3).

Epimeral plates 2-3 slightly pointed, bearing 1-2 ventral spines and several long posterior marginal setae (fig. II, 2).

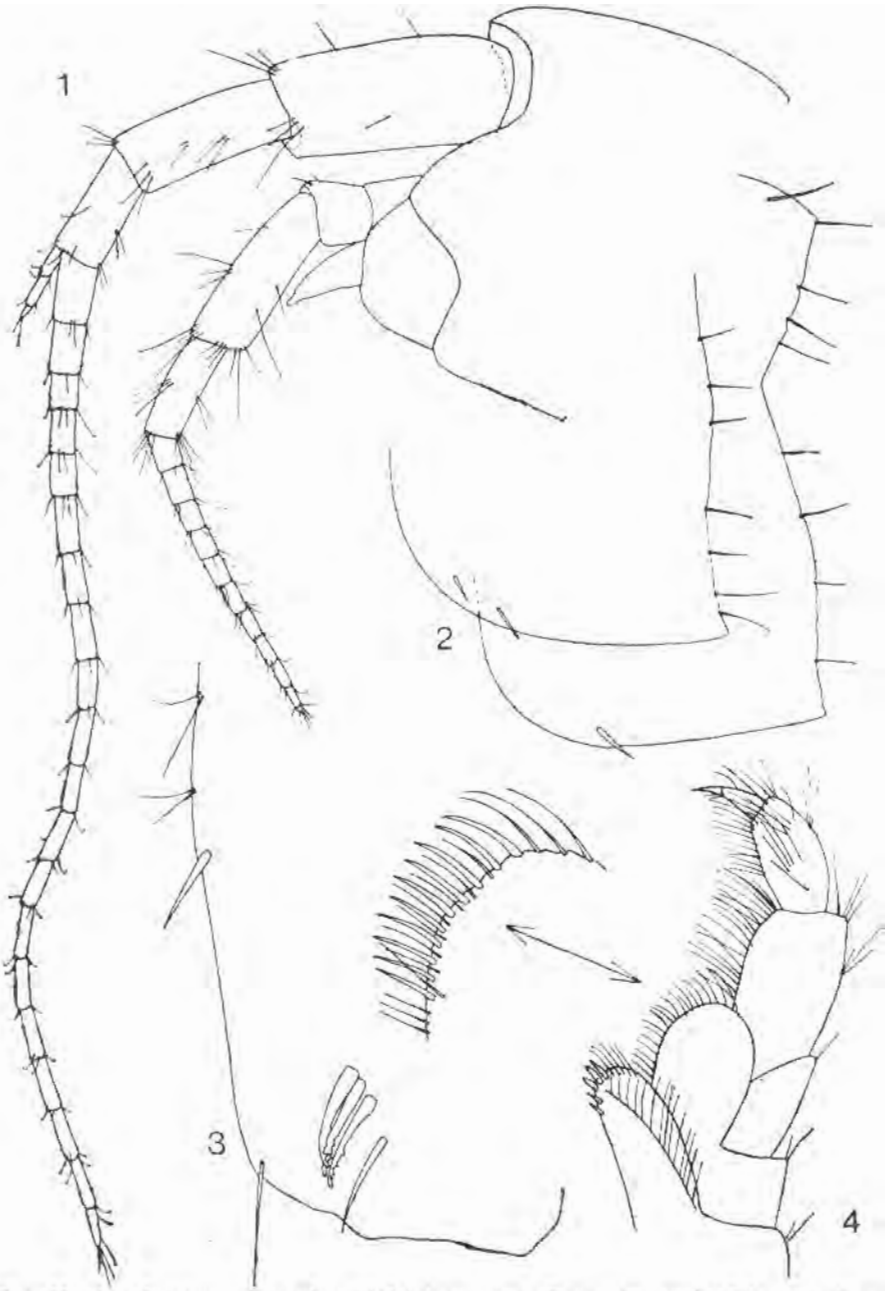

Fig. II. *Accubogammarus algor jalzici*, n. ssp., Gromača, male 7.3 mm: 1 = head with antennae 1-2; 2 = epimeral plates 2-3; 3 = tip of third pleopodal peduncle; 4 = maxilliped.

Urosomite 1 near basis of peduncle of uropod 1 with one spine (fig. V, 6). Uropod 1: peduncle with one ventrofacial spine, distal spine on peduncle is not larger than other spines; inner ramus is slightly longer than outer ramus, both rami with lateral and distal spines (fig. V, 6).

Uropod 2: inner ramus is remarkably longer than outer one (fig. V, 6). Uropod 3 hardly exceeding tip of uropods 1-2; peduncle strong, with 2 long distal spines at outer margin (fig. III, 3), both rami consisting of only one segment; outer ramus along outer margin and tip with spines accompanied by single simple setae; along inner margin with simple and plumose setae (fig. III, 3); inner ramus reaching 3/4 of outer ramus, with plumose setae along both margins.

Telson short, but distinctly exceeding tip of peduncle of uropod 3, broader than long, incised nearly to the basis (fig. IV, 5), each lobe with 1-2 distal spines accompanied by single setae; a pair of short plumose setae appears in last third of each lobe (fig. IV, 5).

Coxal gills ovoid, occur on pereonites 2-6.

Female 9 mm: Like male, but mandibular palp segment 2 with 11 setae, palp segment 3 with one group of A-setae and 2 groups of B-setae as well as with 20 D and 4 E-setae, C setae absent.

Main flagellum of antenna 1 with 22 articles; flagellum of antenna 2 with 13 articles. Gnathopod 1 much smaller than gnathopod 2, like these in males. Peduncular segment 5 of antenna 2 is remarkably shorter than segment 5, like that in male.

Pereopods 5-7 slightly more elongated, with articles 4-6 slightly more setiferous along posterior margin and inferior surface of segment 2 with higher number of setae and spines, like these in ssp. *algor algor*.

Peduncle of pleopod 1 with 3 retinacula accompanied by one spine. Uropod 3 like that in male but inner ramus is only slightly shorter than outer one (4/5 to 5/6). The pair of short plumose setae on lobes of telson is sitting distolaterally, like that in males.

Oostegyts setose, occur on pereonites 2-5.

Variability: All three specimens in hands are very homogenous regarding the taxonomic characters differing these specimens from ssp. *algor algor*.

Holotype: male 7.3 mm.

Remarks and affinities: All specimens from Gromača differ very remarkably from single known specimen (adult female, 10 mm) of *A. algor algor* from Stanina pećina — Cave by several characters:

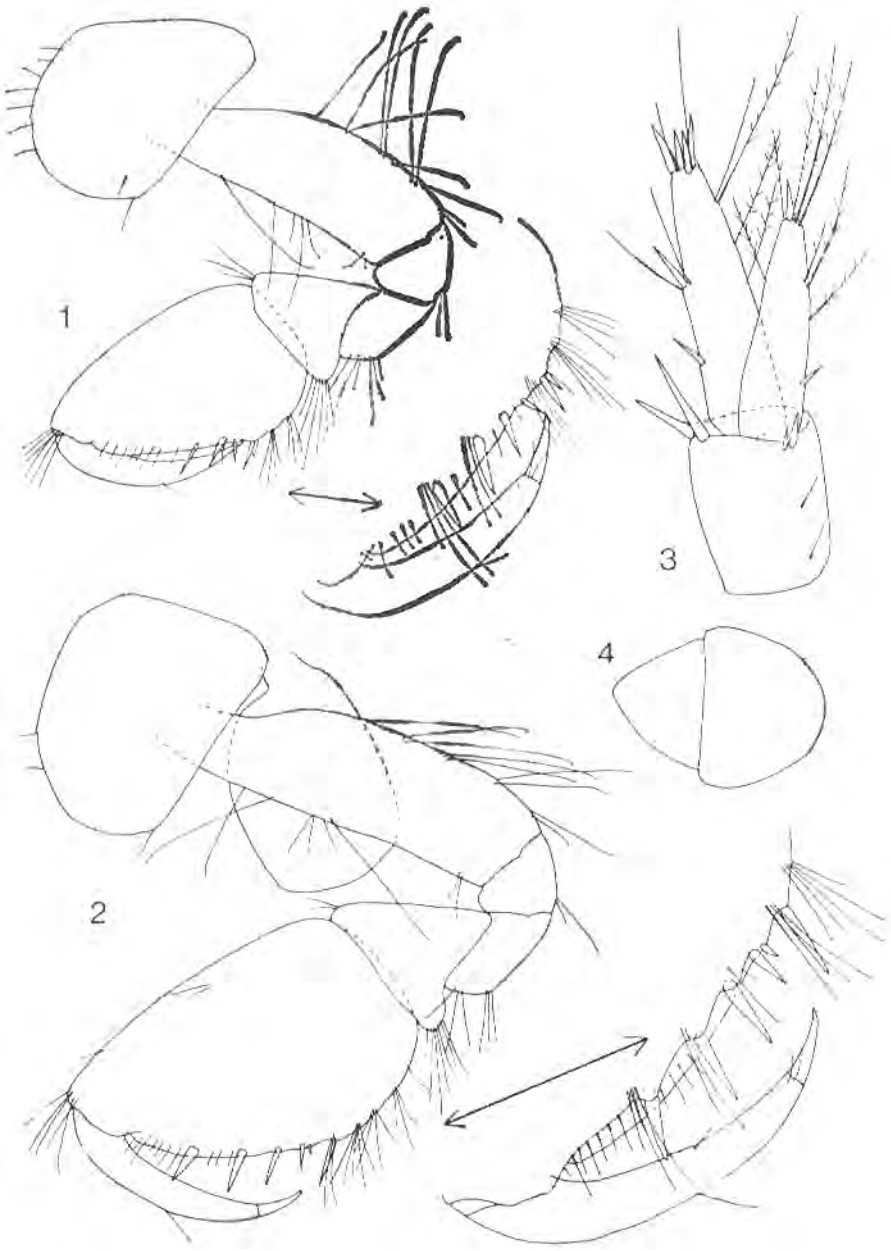

Fig. III. *Accubogammarus algor jalzici*, n. ssp., Gromača, male 7.3 mm: 1-2 = gnathopods 1-2; 3 = uropod 3; 4 = labrum.

Short peduncular segment 5 of antenna 2 (long in ssp. *algor);* broadly rounded lateral cephalic lobes (narrow in ssp. *algor);* mandibular palp segment 3 is not shorter than segment 2 and without C-setae (mandibular palp segment 3 shorter than 2 and with C--setae in ssp. *algor);* inner plate of maxilla 1 with only 3 setae (5 setae in ssp. *algor);* palp of maxilla 1 seems to be rather shorter and narrower, bearing only 2-3 distal setae (longer and broader, with 6 distal setae in ssp. *algor);* segment 6 of gnathopod 2 much larger that that of gnathopod 1 in males and females (segment 6 of gnathopod 2 nearly as long as that of gnathopod 1 in female, male unknown in ssp. *algor).*

Based on these differences, we consider the specimens from Gromača as a distinct new subspecies, *Accubogammarus algor jalzici,* n. ssp.

But, we have been rather uncertain, to create or not, this new subspecies, because the type subspecies, *A. a. algor* is known based on only one single specimen (adult female of 10 mm). We tried to collect a new specimens of *A. algor algor* from Stanina pećina — Cave; but, during our two visits to this cave, no one new specimen of this species was collected again. In this light, it was no reason more to wait on the finding of a new material of genus *Accubogammarus,* and we decided to describe the specimens from Gromača as a distinct subspecies. In any case, we can not exclude the possibility that ssp. *jalzici* can be only one form of *A. algor algor,* or better, that *A. algor algor* can be one aberrant form of *A. algor jalzici.* For the moment, we have no proves of it, considering both of them as a distinct taxa.

ETYMOLOGY: The name of this subspecies is dedicated to Prof. Branko Jalžić from the Museum of Natural History of Croatia in Zagreb (Yugoslavia) who collected numerous samples of subterranean amphipods, including the specimens from Gromača.

DIAGNOSIS OF GENUS ACCUBOGAMMARUS G. Karaman 1974:

Body stout, urosomites free, eyes absent, lateral cephalic lobes well developed, rostrum short. Antenna 1 longer than 2, normal, flagellum plurisegmented, accessory flagellum present. Labrum entire, labium without inner lobes. Mandible with molar triturative, incisor toothed, palp 3-segmented. Maxilla 1 inner plate with reduced number of distolateral setae, outer plate with about 12 spines, palp 2-segmented, not exceeding basis of spines, narrow. Inner plate of maxilla 2 with facial oblique row of setae. Maxilliped normal, palp 4-segmented.

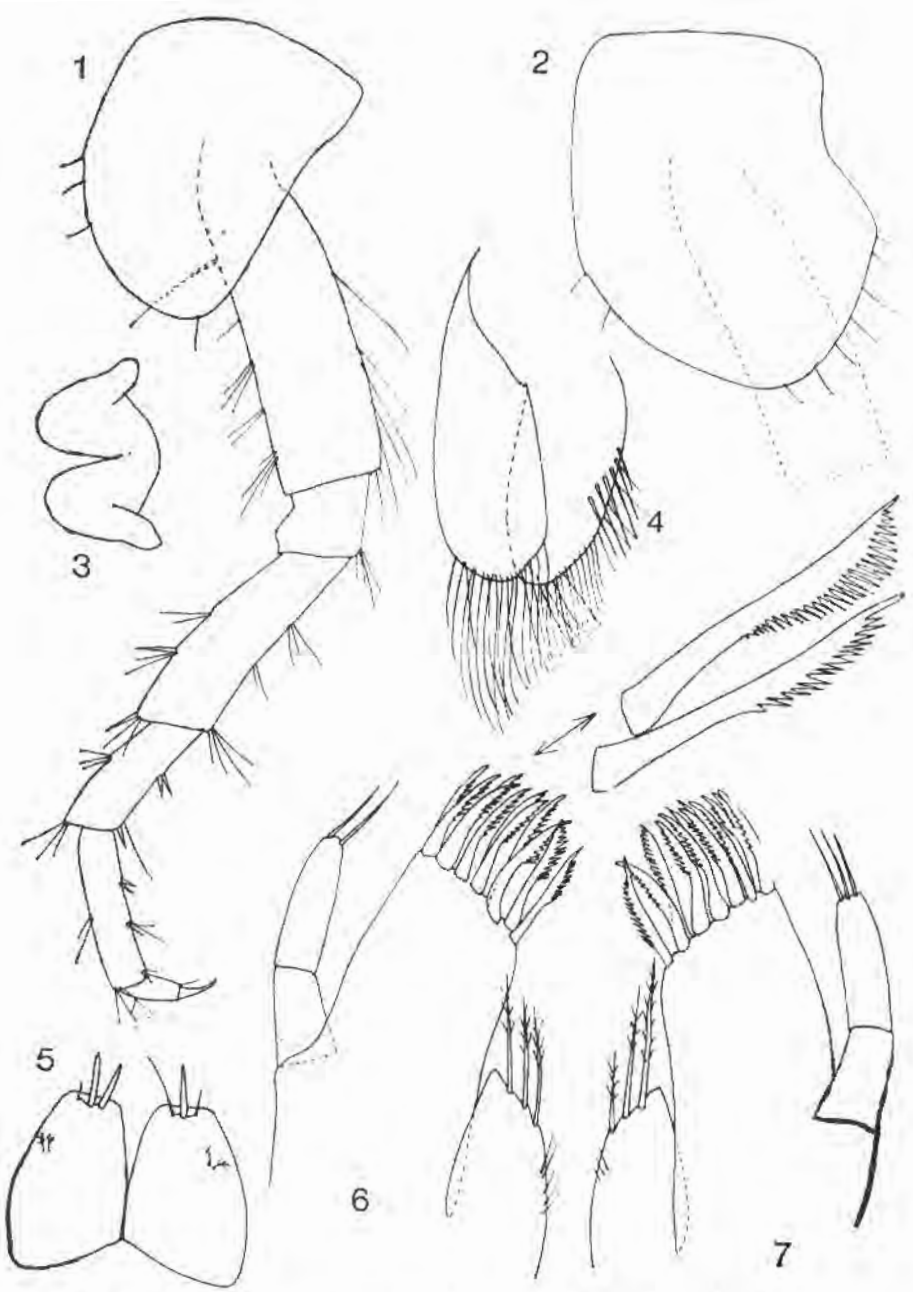

Fig. IV. *Accubogammarus algor jalzici*, n. ssp., Gromača, male 7.3 mm: 1 = pereopod 3; 2 = coxa 4; 3 = labium; 4 = maxilla 2; 5 = telson; 6 = left maxilla 1; 7 = right maxilla 1.

Coxae 1-4 normal, with slightly cutted anterior distal part, coxa 5 shorter than 4, coxae 1-4 increasing, coxae 5-7 decreasing toward coxa 7. Gnathopods 1-2 of subequal shape, subchelate, with short segment 5, segment 6 with palm bearing spines. Pereopods 3-4 normal. Pereopods 5-7 with segment 2 dilated, lobed. Uropods 1-2 biramous, normal; uropod 3 biramous, both rami 1-segmented, slightly unequal. Telson short, incised deeply. Coxal gills occur on pereonites 2-6. Oostegyts occur on pereonites 2-5, narrow.

Males like females.

Type species: *Typhlogammarus algor* G. Karaman 1973 (orig. design.).

Taxa: *algor* (G. Karaman 1973), *jalzici*, n. ssp.

Remarks: Rather similar to the genus *Typhlogammarus* Schäf. but differs from later by shape of coxae 1-4, antennal gland cone, shape and pilosity of maxilla 1.

Distribution: subterranean waters in SW. part of Yugoslavia within Dubrovnik — Bileća — Trebinje triangle.

TYPHLOGAMMARUS MRAZEKI (Schäferna 1906)

Syn.: *Gammarus (Typhlogammarus) mrazeki* Schäferna 1906: 1-24, fig. 1, pl. I, fig. 1-35.

Typhlogammarus mrazeki Spandl 1926: 72, fig. 47; S. Karaman 1932: 221; Schellenberg 1937: 268; S. Karaman 1953: 158; J. L. Barnard 1958: 75; Sket 1958: 53; Straskraba 1967: 209; G. Karaman 1974b: 54, fig. VI, 1-7.

Typhlogammarus mrazeki hercegovinensis S. Karaman 1932: 223, fig. 24, 24a, 25; S. Karaman 1953: 158; S. Karaman 1954: 203, one fig.

Typhlogammarus mrazeki mrazeki G. Karaman 1972: 22, fig. I (1-9), II (1-6); G. Karaman 1973: 499, fig. 3 (8-10); G. Karaman 1974a: 30.

Typhlogammarus mrazeki heteropalpus G. Karaman 1972: 28, fig. II (7-10), III-V; G. Karaman 1973: 499; G. Karaman 1974a: 30.

Material examined: Hrvatska (Croatia): Spring in the cave under waterfall Krčić (spring of Krka river), Sept. 19, 1982, one spec.; Crna Gora (Montenegro): Gornja Grbočica cave between Rijeka Crnojevića and Virpazar, June 1987, 4 spec. (leg. I. and V. Mijušković, P. Pejović).

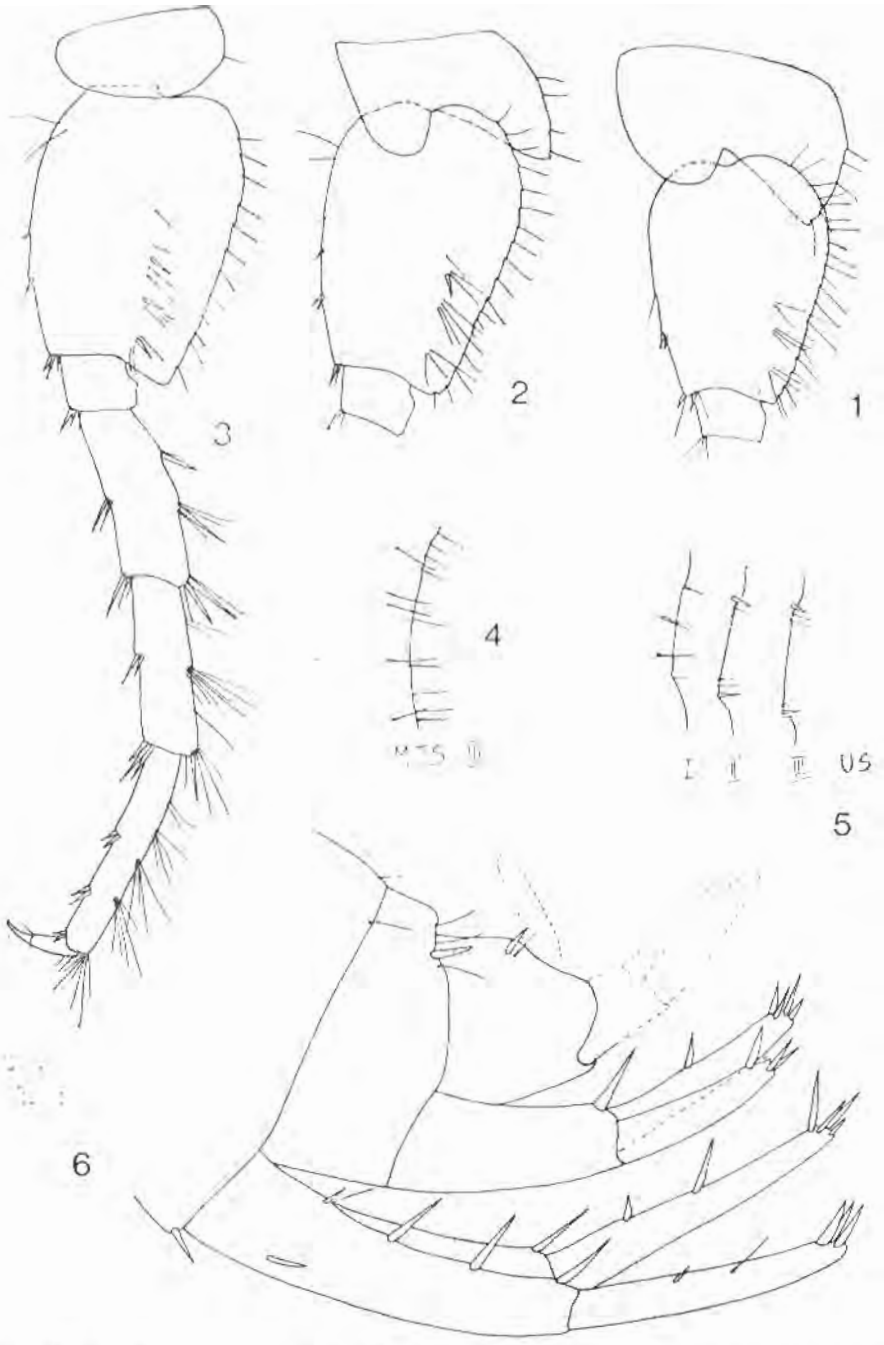

Fig. V. *Accubogammarus algor jalzici*, n. ssp., Gromača, male 7.3 mm: 1-3 = pereopod 5-7; 4 = third metasomsegment; 5 = urosomites 1-3, dorsal projection; 6 = urosome with uropods 1-2.

Remarks: The specimens from Grbočica cave agree completely with description and figures of this species given by G. Karaman (1972).

The specimens in hands from Krčić (male 27 mm long) is with lateral cephalic lobes more subrounded and third peduncular segment of antenna 1 is short, like these of ssp. *heteropalpus*.

But, left and right palp of maxilla 1 are narrow, similar to each other, like these of ssp. *mrazeki mrazeki*. Lobes of telson bearing each 2 distal and 2 facial isolated spines, accompanied by single short seta, like these of ssp. *mrazeki mrazeki*.

Urosomites 1-3 each with dorsomedian group of setae and dorsolateral group of spines (on urosomite 1 with one spine on each side, on urosomite 2 are 1-3 spines, on urosomite 3 are 2 lateral spines on each side).

The taxonomic characters of specimen from Krčić in Croatia showed one transitive position between ssp. *mrazeki mrazeki*, known from Herzegovina and Crna Gora (Montenegro), and ssp. *heteropalpus* known from cave near Slunj in Croatia. By this way, disappear also the distinct different geographical areals of distribution of ssp. *mrazeki* (Hercegovina, Crna Gora) and ssp. *heteropalpus* (Croatia), indicating that ssp. *heteropalpus* must be removed to ssp. *mrazeki* as synonym.

Localities cited: Crna Gora (Montenegro): Lipska pećina-Cave (Schäferna 1906; S. Karaman 1932, 1953; G. Karaman 1972); well near village Njeguši (between Cetinje and Kotor) (Schäferna 1906); Obodska pećina-Cave near Virpazar (Sket 1958); Grbočica Cave between Virpazar and Rijeka Crnojevića (present work).

Herzegovina: Vjeternica cave in Popovo Polje (S. Karaman 1932; 1953; G. Karaman 1972; 1974); Popovo Polje (Spandl 1926).

Croatia (Hrvatska): spring near Šibenik (Spandl 1926); spring Rudnica, Kamenica, cave near Slunj (G. Karaman 1972); cave near waterfall Krčić (present work).

Loc. typ.: Lipska pećina-Cave near Cetinje (Crna Gora).

LITERATURE CITED

Barnard, J. L. 1958. Index to the Families, genera and species of the Gammaridean Amphipoda (Crustacea). — Allan Hancock Foundation Publ., Occasional paper, 19: 1-145.

Barnard, J. L., C. M. Barnard, 1983. Freshwater Amphipoda of the World, 1-II. — Hayfield Association, Mt. Vernon, Virginia, pp. 1-830.

Karaman, G. 1972. XXXVIII. Contribution to the Knowledge of the Amphipoda. On the genus Typhlogammarus (Schäferna) (fam. Gammaridae) from Yugoslavia. — Fragmenta Balcanica, Mus. Mac. sc. nat. Skopje, 9 (3): 21-34.

Karaman, G. 1973. XLVIII. Contribution to the Knowledge of the Amphipoda. Two new species of Family Gammaridae from Yugoslavia, Niphargus deelemanae n. sp. and Typhlogammarus algor n. sp. — Arch. Hydrobiol. Stuttgart, 72 (4): 490-500.

Karaman, G. 1974a. Crustacea Amphipoda, Catalogus Faunae Jugoslaviae. — Acad. Sc. et Artum Slovenica, Ljubljana, 3 (3): 1-42.

Karaman, G. 1974b. 57. Contribution to the Knowledge of the Amphipoda. Genus Metohia Abs. in Yugoslavia and its relation to the genera Typhlogammarus Schäf. and Accubogammarus n. gen. — Poljoprivreda i šumarstvo, Titograd (20 (1): 43-57.

Karaman, S. 1932. 5. Beitrag zur Kenntnis der Süsswasseramphipoden. — Prirodoslovne Razprave, Ljubljana, 2: 179-232.

Karaman, S. 1953. Über subterrane Amphipoden und Isopoden des Karstes von Dubrovnik und seines Hinterlandes. — Acta Mus. Mac. sc. nat. Skopje, 1 (7): 137-167.

Karaman, S. 1954. Über unsere unterirdische fauna. — Acta, Mus. Maced. sc. nat. Skopje, 1 (9): 195-216.

Schäferna, K. 1906. O novem slepem blesivci Typhlogammarus n. sbg. — Vestnik kr. čes. spol. Nauk, Praha, pp. 1-25.

Schellenberg, A. 1937. Schlüssel und Diagnosen der dem Süsswasser--Gammarus nahestehenden Einheiten ausschliesslich der Arten des Baikalsees und Australiens. — Zool. Anzeiger, 117 (11-12): 267-280.

Sket, B. 1958. Einige interessante Funde der Malacostraca (Crust.) aus der Herzegowina und Crna Gora. — Bull. Scientifique, 4 (2): 53.

Spandl, H. 1926. Die Tierwelt der unterirdischen Gewässer. — Wien, 1926, Verlag Speläolog. Institut, 2: 235.

Rezime

ROD ACCUBOGAMMARUS G. KAR. U JUGOSLAVIJI SA OSVRTOM NA ROD TYPHLOGAMMARUS SCHÄF. (FAM. GAMMARIDAE) (167. PRILOG POZNAVANJU AMPHIPODA)

U radu su iznijeti rezultati istraživanja podzemnih rodova *Accubogammarus* G. Karaman 1974 i *Typhlogammarus* Schäferna 1906 na teritoriji Jugoslavije.

Rod *Accubogammarus* je postavljen sa vrstom *A. algor* (G. Karaman 1973) koja je bila opisana iz podzemnih voda Stanine pećine kod Vučjeg Dola između Nikšića i Trebinja.

Na osnovu materijala amfipoda sakupljenog nedavno iz pećina južne Hrvatske i Hercegovine, utvrdili smo postojanje roda *Accubogammarus* i u podzemnim vodama pećine »špilja za Gromačkom vlakom« kod Orašca iznad Dubrovnika. Primjerci iz ove pećine se znatno razlikuju od primjeraka tipičnog lokaliteta (Stanine pećine) nizom karaktera: peti segment drške druge antene je kratak (dug kod *A. a. algor);* bočne glavene ploče su široko zaobljene (usko zaobljene kod *A. a. algor);* treći palparni segment mandibule nije kraći od drugog segmenta palpusa i nema C-dlake po površini (treći segment je kraći od drugog segmenta i sa C-dlakama po površini kod *A. a. algor);* unutrašnja grana prve maksile nosi 3 dlake (5 dlaka kod *A. a. algor);* palpus prve maksile je kraći i uži, i nosi samo 2-3 vršne dlake (duži i širi, sa 6 vršnih dlaka kod *A. a. algor);* šesti segment drugog gnatopoda je mnogo veći od istog kor prvog gnatopoda (šesti segment prvog i drugog gnatopoda su podjednake dužine kod *A. a. algor).*

Na osnovu ovih razlika, populaciju iz Gromače smo izdvojili u zasebnu podvrstu *Accubogammarus algor jalžići,* n. ssp.

Sastavljena je nova detaljnija dijagnoza roda *Accubogammarus.*

Druga podzemna vrsta, *Typhlogammarus mrazeki* Schäf. 1906 nađena je u pećini Grbočica između Virpazara i Rijeke Crnojevića u Crnoj Gori, kao i u izvoru u pećini ispod vodopada Krčić (izvor rijeke Krke) u Hrvatskoj. Kako je primjerak iz pećine kod Krčić vodopada imao prelazne karakteristike između podvrste *T. mrazeki mrazeki* i podvrste *T. mrazeki heteropalpus,* to je podvrsta *heteropalpus* stavljena kao sinonim podvrste *T. mrazeki mrazeki.*