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A NEW *ECHINOGAMMARUS* OF THE *PUNGENS*-GROUP, *ECHINOGAMMARUS PINKSTERI* NOV. SP.,
FROM CENTRAL ITALY (CRUSTACEA, AMPHIPODA)

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RÉSUMÉ

Description d'une nouvelle espèce d'Amphipodes, *Echinogammarus pinksteri* n. sp., appartenant aux *Echinogammarus* du groupe *pungens*. Ce Gammare provient d'eau douce de la partie centrale de l'Italie (région d'Avellino).

INTRODUCTION

During summer 1972 samples of gammarids have been collected in the surroundings of Naples (cf. Van Maren, 1973). A good deal of the localities that were visited yielded no amphipods. These negative results were caused partly by pollution of the water, partly by the fact that many streams have a temporary nature only.

In addition to the new species, two other freshwater gammarids have been collected: *Echinogammarus veneris* (Heller, 1865) and *Echinogammarus stammeri* (S. Karaman, 1931) sensu G. Karaman, 1972. After re-examination and comparison of S. Karaman's specimens of *Ostiogammarus acarina-*

tus stammeri and of *Echinogammarus fluminensis*, described by Stock & Pinkster (1970), Karaman (1972) has concluded that the latter species is a synonym of *E. stammeri* (S. Karaman, 1931).

Echinogammarus veneris was sampled in a river system, discharging into the gulf of Manfredonia (Adriatic Sea). *Echinogammarus stammeri* (S. Karaman, 1931) occurred in the river system of the Tusciano (E. of Salerno), discharging into the Tyrrhenian Sea, and in a source near Il Casino, discharging into the Lago di Patria, N.W. of Naples. Until now the latter species was known from localities in northern Italy and no records from central Italy have been published (Stock & Pinkster, 1972, sub *E. fluminensis*; Karaman, 1972).

DESCRIPTIVE PART

Echinogammarus pinksteri nov. sp. Figs. 1-3.

Material examined.-
Italy, prov. Campania (Avellino):

- Tributary of the Ufita (river system of Il Volturno, discharging into the Tyrrhenian Sea), S.W. of Montecalvo, 11-VIII-1972, moderately polluted, slowly running stream with stony bottom, less than 0.10 m deep, about 1.50 m wide, temp. 19°C, pH 6, Cl 112 mg/l, Ca 154 mg/l, 1 ♂ (holotype) and 7 paratypes, specimens in precopulation present (ZMA, Amph. 103.677).

- Sorgente di Montaguto, Montaguto, 4-VIII-1972, clear water, cemented well and fast running little stream with stony bottom, temp. 14°C, pH 5.5, Cl 15 mg/l, Ca 96 mg/l, many specimens, many of them in precopulation (ZMA).

- Tributary of Torrente Cervaro (discharging into the Adriatic Sea), near Ponte Lucifero, E. of Castelfranco, 10-VIII-1972, clear, fast running little stream with stony bottom, temp. 14°C, pH 5.5, Cl 13 mg/l, Ca 89 mg/l, many specimens, many of them in precopulation (ZMA).

Description.-

Adult male: Total length (excluding antennae) about 12 mm. Lateral head lobes obtuse (fig. 1b). The eyes reniform and not very elongate, less than twice as long as wide; the distance from the upper margin of the eye to the mid-dorsal line rather large (fig. 1b).

The new species can be easily distinguished from related species as *E. pungens* (H. Milne Edwards, 1840) and the *veneris*-like *Echinogammarus* (described by Stock, 1968; Pinkster & Stock, 1969) because of the presence of some setules on the dorsum of the last segments of the mesosome and on the segments of the metasome (fig. 1a).

The first peduncle segment of the first antenna is distinctly shorter than the second and third together (fig. 1c).

The setation of antenna 2 is rather poor (fig. 1e). The second antenna is slightly shorter than the first; the gland cone is remarkably short. The setation of peduncle segments four and five resembles that in *Echinogammarus pungens*. As in this species the flagellum is shorter than the peduncle; calceoli are present on the 2nd to 7th segments of the flagellum.

The mouthparts of the present species do not show obvious differences from other species within the family Gammaridae. The mandible palp has an unarmed first segment; the inferior margin of the third segment is provided with a regular comb-like row of spinules and four terminal setae, (fig. 1d).

The first leg has a wide propodus and short dactylus (figs. 1g and h). There is one rather pointed medial palmar spine.

Like the first leg, the second leg has a setose

lower margin of its coxal plate (fig. 2a). The propodus is less elongate than in related species like *E. ruffoi* Pinkster & Stock, 1970, and is provided with a sharp medial palmar spine. The dactylus is short, not attaining the angle of the palma (fig. 2b).

The third and fourth legs resemble both in setation and armature those of *E. pungens* and bear rather long setae on their posterior margin (figs. 2c and e).

The basal segment of leg 5 has a fairly rectangular form. This leg shows a poor setation of the posterior margin of merus, carpus and propodus (fig. 2f).

The ischium of leg 6 is provided with a tuft of setae halfway its anterior margin (fig. 3a); the basal segment is bearing long setae on its posterior margin.

Leg 7 has a rather abruptly tapering basal segment, the posterior margin of which is provided with long setae (fig. 3b).

The dorsum of the pleosome is not keeled (fig. 1a).

The epimeral plates resemble those of *E. pungens* in shape as well as in setation of the lower and posterior margin (fig. 3d).

The contour of the urosome is fairly similar to that of *E. stammeri* (S. Karaman, 1931). The dorsal elevations are provided with spines and setae; the setae clearly overreach the spines (fig. 3c).

Each branch of the first uropod is bearing at least two marginal spines.

Both rami of uropod 3 are provided with smooth setae (fig. 2d); there are no plumose setae at all like there are in *E. ruffoi*. Halfway the inner margin of the endopod a spine and some setules are implanted, while a second group, consisting of a spine and a few long setae, is found on top of the endopod. The terminal spines of the first segment of the exopod do not overreach the second exopod segment.

The telson is slightly shorter than the basal segment of the third uropod; the telson lobes are longer than wide (fig. 1f).

Female: Smaller than the male and possessing hardly any characteristic features, except for the presence of setules on the mesosome and metasome like the male. This feature makes it easy to

distinguish at once the female of *E. pinksteri* from those of related species such as *E. pungens* and the *veneris*-complex.

ECOLOGY

Since the present gammarid was found in three localities only, it is hard to draw any conclusions concerning its ecology. *E. pinksteri* seems to occur in fast running as well as in almost stagnant waters. The station S.W. of Montecalvo has rather high Cl- and Ca-contents, probably caused by strong evaporation of this almost stagnant stream. Since precopulations were present in August on all three localities, the new species appears to be a summer-breeder.

REMARKS

Echinogammarus pinksteri is distinguished at once from related forms by the presence of setules on the dorsum of the meso- and metasome. A second distinctive character of the new species is the absence of any plumose setae on the rami of uropod 3. Among *E. pungens* and the *veneris*-like *Echinogammarus*, the present gammarid possesses the shortest dactylus in relation to the width of the propodus, especially in P1, but also in P2, a feature in which the new species resembles *E. tibaldii* Pinkster & Stock, 1970. The basal segment of the 7th leg has a shape different from that in the *veneris*-like species, but reminiscent of that in *E. pungens*.

In comparison with *Echinogammarus stammeri* the present species shows a richer setation of the posterior margin of the epimeral plates and of the basal segment of the 5th leg.

In addition to those mentioned above, other differences from *E. ruffoi* are: the segments 4 and 5 of the peduncle of the second antenna are bearing fewer setae in *E. pinksteri*; the posterior margin of merus, carpus and propodus of the 5th leg is provided with a poorer setation; this

holds true also for the posterior margin of merus and carpus of the 7th leg; the posterior margin of epimeral plates 4 and 5 bears more setae.

As compared with *E. veneris*, the new species possesses a richer setation of the posterior margin of the basal segments of the 5th, 6th and 7th leg; the eyes are less elongate and the distance from the eye to the mid-dorsal line is larger.

Contrary to *E. tibaldii* (another *veneris*-like *Echinogammarus*) the present species has setae longer than the accompanying spines on the dorsum of the urosome; moreover *E. pinksteri* has a richer setation on the 5th, 6th and 7th leg than *E. tibaldii*.

DERIVATIO NOMINIS

The new species is dedicated to Dr. S. Pinkster of the Institute of Taxonomic Zoology of the University of Amsterdam, in recognition of his assistance in introducing me to the various aspects of amphipodology and of his critical remarks in achieving the present paper.

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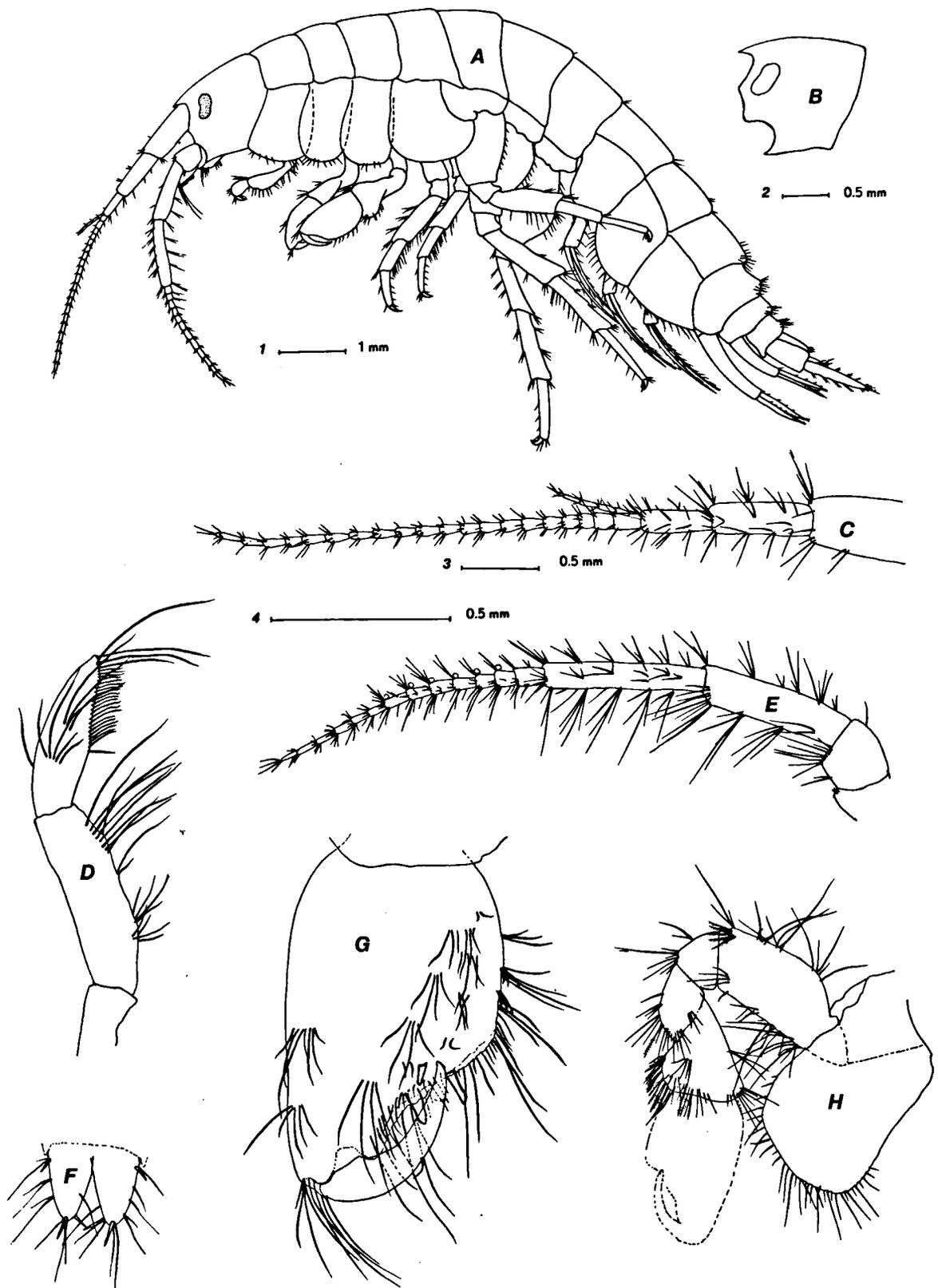


Fig. 1. *Echinogammarus pinketeri* nov. sp., ♂. A, habitus (scale 1); B, head (2); C, first antenna (3); D, mandible palp (4); E, second antenna (3); F, telson (3); G, hand of first leg (4); H, first leg (3).

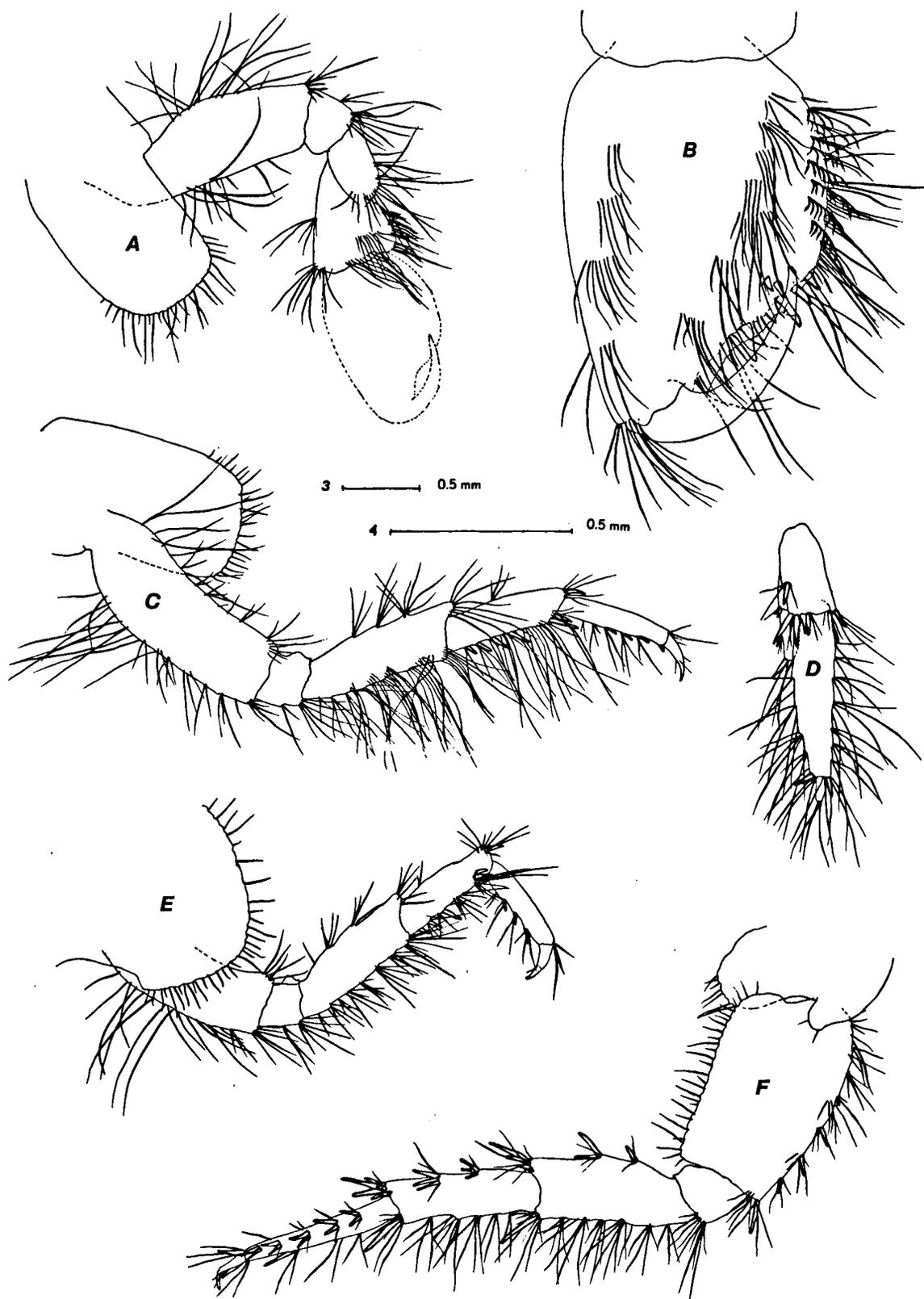


Fig. 2. *Echinogammarus pinksteri* nov. sp., ♂. A, second leg (3); B, hand of second leg (4); C, third leg (3); D, third uropod (3); E, fourth leg (3); F, fifth leg (3).

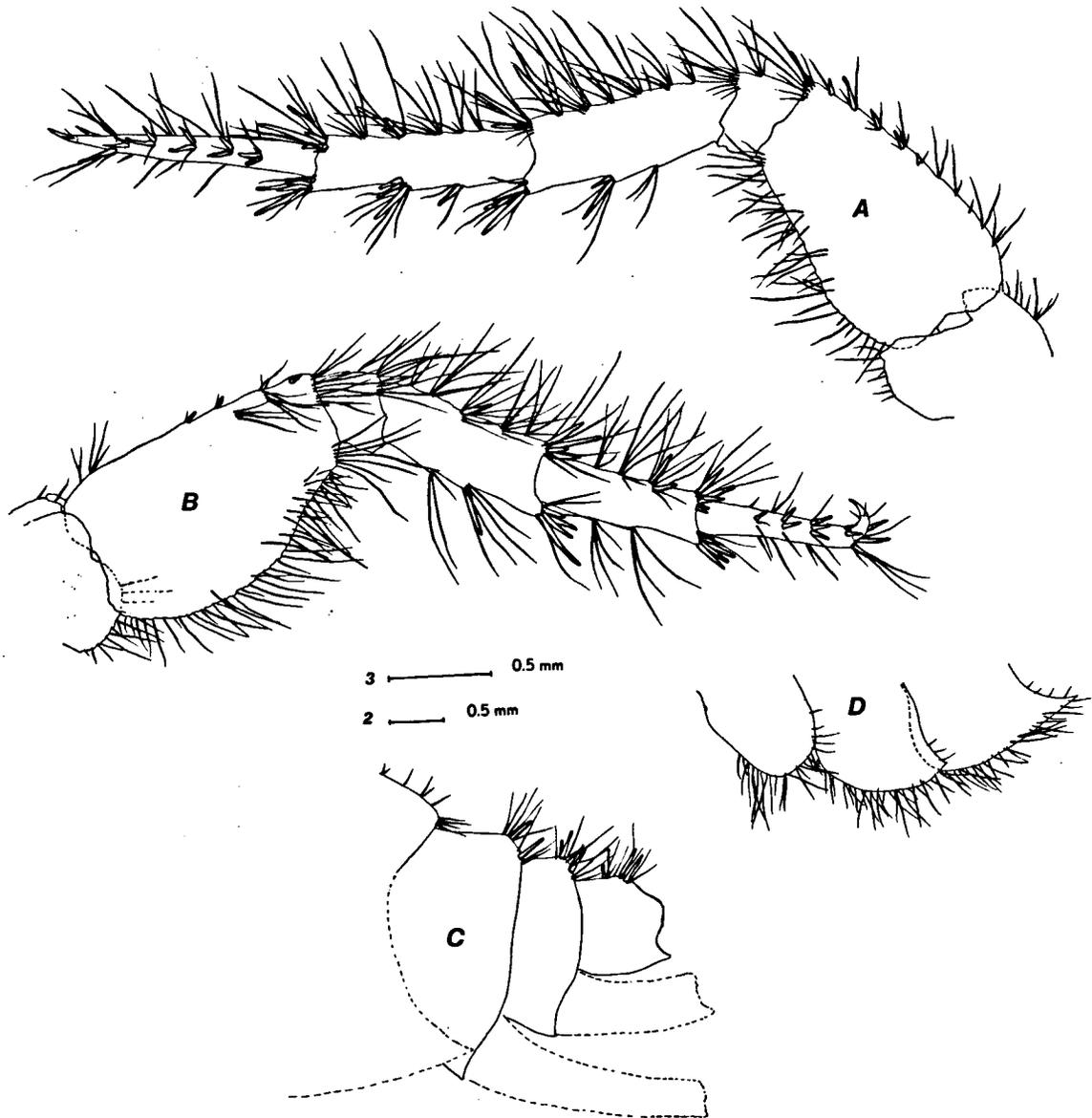


Fig. 3. *Echinogammarus pinksteri* nov. sp., ♂. A, sixth leg (3); B, seventh leg (3); C, urosome (3); D, epimeral plates (2).