

The genus *Erophiloscia* Vandel, 1972 – its phylogeny and biogeography, with description of three new species

(Crustacea, Isopoda, Oniscidea)

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A reexamination of the type material of *Erophiloscia longistyla* Vandel, 1972 revealed the presence of a second species in Colombia within the type series. *E. waegelei*, spec. nov. is quite similar to the preceding species, but differs in the presence of a caudal row of spines on the male pleopod 1 endopodite and a set of teeth in endopodite 2. Furthermore, there are two new species from a collection performed by Dr. W. Hanagarth at Panguana station in Peru in 1975/76: *E. recurvata*, spec. nov. which is characterized by the laterally bent male pleopods 1 and 2 and *E. acanthifera*, spec. nov. with some specific ornamentations on the male pleopod endopodite 1. The new records throw new light on the phylogenetic relationships of the species of this genus: The presence of a linea frontalis on the cephalothorax is considered a plesiomorphy of *E. longistyla* and *E. waegelei*, whereas the reduction of the caudomedial row of spines on the male pleopod 1 endopodite is a synapomorphy of *E. longistyla*, *E. recurvata*, and *E. acanthifera*. The Peruvian species are adelphotaxa due to the lack of a linea frontalis. The genus is found in the valleys of the northern Andes, which have a tropical climate. It is close to several genera forming the monophyletic *Prosekia*-group. A key for the four species is presented.

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Introduction

The genus *Erophiloscia* Vandel, 1972 was instituted for one new species of terrestrial isopods from Colombia (Vandel 1972), namely *Erophiloscia longistyla* Vandel, 1972. In addition, two species from Ecuador, first ascribed to the genus *Andenoniscus* Verhoeff, 1941 (Vandel 1968) were included. These two species were superficially described solely on the basis of female specimens, and a recognition of the males of these species is not warranted. Particularly since the descriptions were superficial and focused on characters commonly found in other species, they were regarded as nomina dubia by Leistikow (1998a) until new material, particularly males, are found.

Nonetheless, this genus is rather distinct from other South American genera of “philosciid” Oniscidea, especially the shape of pleopod 5 is unique within the Crinochaeta of this continent. A similarly shaped pleopod 5 can be found among others in *Chaetophiloscia hastata* Verhoeff, 1929. At the first glance, one should consider these forms congeneric. For elucidating the phylogenetic relationships of

Erophiloscia, the type material was re-examined and within this material, a new species could be located. Other material was found in the collection which Dr. W. Hanagarth made in the 1970's in Peru. The first material described was those of the genus *Ischioscia* Verhoeff, 1928 (Schmalfuss 1980). Now some more information on the interesting isopod fauna of the Biological station "Panguana" shall be given: the examination of the collection revealed the presence of two new species of the genus *Erophiloscia*.

The new species are described in detail and their phylogenetic relationships are discussed. Type specimens are deposited in Muséum National d'Histoire Naturelle, Paris (MNHN) and in Staatliches Museum für Naturkunde, Stuttgart (SMNS).

Systematic account

Genus *Erophiloscia* Vandel, 1972

Diagnosis. Cephalothorax with linea supra-antennalis, linea frontalis present or lacking, small lateral lobes, profrons with two slight depressions above antennal sockets, eyes composed of about 5 to 10 ommatidia. Antennula three-articulate, distal joint with two divergent aesthetasc tufts, the distal one directed more prominent than the vertical one, antenna with three-articulate flagellum, bearing a long apical organ.

Mandibular penicil consisting of about 4-7 branches, medial endite of maxillula without apical tip, lateral endite with 4+6 teeth, five of inner set cleft, outer lobe of maxilla up to two times broader than inner lobe, maxilliped with palp bearing two setal tufts, endite with small penicil, lacking setation.

Pereopods with sparse setation, ornamental sensory spine of carpus 1 double-fringed serrate, coxal plates with long nodulus lateralis, nodulus lateralis on coxal plate IV inserted more dorsally.

Pleopods without respiratory areas on exopodites, endopodites 1 and 2 of male elongate, especially of pleopod 2, reaching or somewhat surpassing caudal tip of pleotelson. Pleopod 5 exopodites of males, mediodistally drawn out, as for supporting pleopod 2 endopodites.

Uropod protopodite with lateral groove, endopodite inserting proximally of exopodite.

Type species. *Erophiloscia longistyla* Vandel, 1972 (by original designation)

Remark. This interesting genus is at once distinguished from other South American members of the "Prosekia-group", which have a synapomorphic morphology of the antennula as discussed elsewhere (Leistikow 1998a), by the shape of the male pleopods, especially the drawn out pleopod 5 exopodites and the extraordinarily long pleopod 2 endopodites already noted by Vandel (1972), a conspicuous set of autapomorphies. The pleopod 5 exopodite bears no guide slot for the pleopod 2 endopodite, which is holded simply by the medial margin of the exopodite 5. This character and the lack of a proximal setal tuft on the palp of the maxilliped and of setation on the endite are synapomorphies of the species of *Erophiloscia*. The closest relatives of *Erophiloscia* are the members of *Prosekia* Leistikow, 2000 and *Xiphoniscus* Vandel, 1968 which have a synapomorphic structure of the antennula. Rather closely related is *Andenoniscus* Verhoeff, 1941, with the noduli laterales extraordinarily long.

Erophiloscia waegelei, spec. nov.

Figs 1-6

Erophiloscia longistyla Vandel, 1972 (part).

Types. Holotype, ♂, 2.5 mm, several paratypes: Colombia, montane forest near Tibabitá, under tree mosses, 2600 m-2800 m, leg. H. Sturm, 18.07.1969, MNHN Vandel Collection.

Note. Among the plentiful material of *Erophiloscia longistyla* Vandel, 1972 there was found a lot with the males differing remarkably from the type. They are somewhat smaller and show differences in the morphology of the male pleopods.

Description

Colour. Material somewhat faded.

Cephalothorax. Linea frontalis faint, most significant medially from compound eyes, continued by lateral lobes, linea supra-antennalis present, faint lamina frontalis, compound eyes consisting of about 8 ommatidia (Fig. 1, Ctf).

Pereon. Tegument smooth with scattered tricorn-like setae, coxal plates (Fig. 6Cx3) with sulcus marginalis and nodulus lateralis, nodulus on coxal plate IV inserted more distantly from the lateral margin (Fig. 1, Cxp), gland pores lacking.

Pleon. Retracted from pereon, neopleurae of pleonites 3 to 5 small, pleotelson with almost straight lateral margins, bearing scattered tricorn-like setae (Fig. 6, Tel).

Antennula. Three-articulate with prominent proximal article, distal joint bulbous, bearing two distinct sets of aesthetascs (Fig. 1, An1).

Antenna. Antennal peduncle composed of five articles with length ratio 1:2:2:3:4, densely covered with tricorn-like setae, flagellum composed of three articles, distal one bearing prominent apical organ, as long as flagellar articles 1 and 2 together (Fig. 1, An2).

Mandible. Molar penicil composed of about seven branches, pars intermedia with two penicils on left and one on right mandible, additional plumose seta more proximally (Fig. 2, Mdl/r).

Maxillula. Medial endite with two pointed penicils, no apical tip, lateral endite with apically 4+5 teeth, four of inner set cleft, laterally fringed (Fig. 2, Mx1).

Maxilla. Lateral lobe almost twice as broad as medial one, almost without setation, medial endite bearing some cusps apically (Fig. 2, Mx2).

Maxilliped. Basipodite with sulcus lateralis, palp with two setal tufts, proximal one consisting of three setae, endite without setation, bearing two teeth caudally; in examined specimen, rostral surface with transverse scar at level where knob-like penicil inserted, probably broken (Fig. 2, Mxp).

Pereopods. Rather slender (Fig. 3, PE1-4, 4, PE5-7), carpus of pereopod 1 with small antenna-grooming brush rostrally, ornamental sensory spine double-fringed serrate (Fig. 3, Sc1), prominent sensory spines with two subapical tips, dactylus with short inner claw, dactylar seta simple (Fig. 3, Dac).

Pleopods. Shape of exopodites rhomboidal, laterally bearing two to six sensory spines, exopodite 5 with transverse row of long pectinate setae on caudal surface (Fig. 5, PL1-5).

Sexual dimorphism. Male ischium of pereopod 7 with fewer spines on medial margin than female. Male pleopod 1 exopodite circular, endopodite styliiform, with longitudinal ridge on rostral surface, subapically with slight transverse furrows rostrally, producing a striate appearance, mediocaudally with longitudinal row of spines. Male pleopod 2 exopodite pointed, lateral margin sinuous with three sensory spines subapically, endopodite conspicuously surpassing exopodite, flagelliform, distal quarter with several hyaline, obtuse hooks, medioproximally directed. Even female endopodite mediodistally pointed. Male pleopod 5 exopodite mediocaudally pointed, protrusion of one fifth the length of medial margin.

Uropod. As described in generic diagnosis (Fig. 4, UR).

Genital papilla. Ventral shield coniform with almost parallel margins, mouths of ductus ejaculatorii distinctly longer than ventral shield (Fig. 5, Gen).

Etymology. The new species is dedicated to Prof. Dr. J. W. Wägele for his merits to isopodology and molecular phylogenetic systematics.

Remark. As described above, the new species was found among the samples of *Erophiloscia longistyla*, which was collected at several sites in Colombia. Both species resemble each other, but they can be determined by the male pleopods as follows: pleopod 1 endopodite of *E. waegelei*, spec. nov. less pointed than in *E. longistyla*, with transverse furrows subapically and caudomedial row of spines (Fig. 7; PL1-2). Both characters may represent plesiomorphies as regards the ground pattern of the genus, they are lacking in *E. longistyla*, which has a mediocaudal row of hyaline lobes delimiting the spermatic channel. In contrast to the relations in pleopod 1, the endopodite of pleopod 2 in *E. waegelei* is the more derived: the obtuse hyaline hooks near the apex are not found in any other species and are an apomorphic feature of this appendage. In pleopod 5 the protrusion is longer in *E. longistyla*. Thus, it can be concluded that in this species the endopodite 2 is longer than in *E. waegelei* because it certainly works as a supporting structure for the endopodite 2.

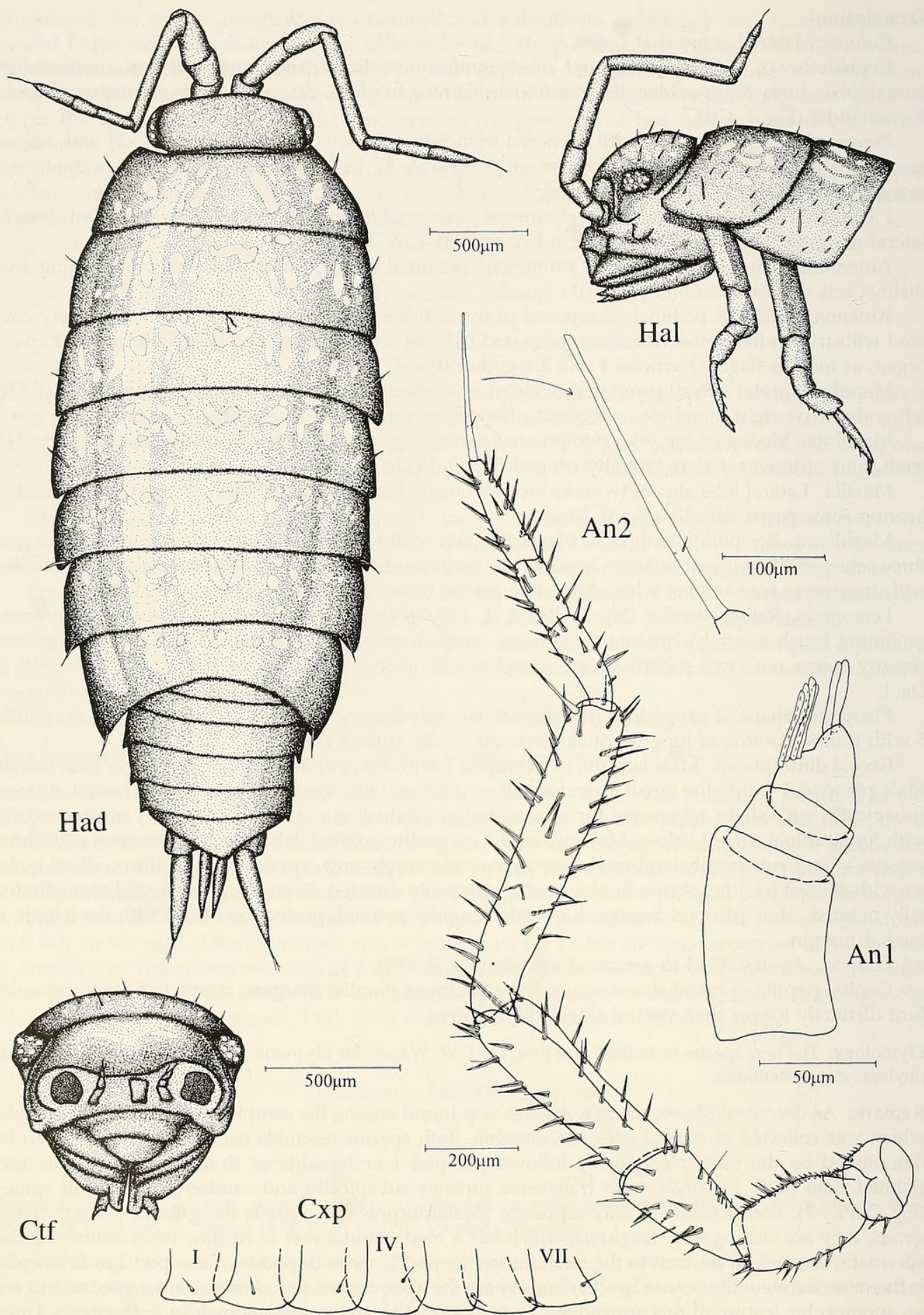


Fig. 1. *Erophiloscia waegelei* spec. nov. Holotype male. An1: antennula; An2: antenna with detail of apical organ; Ctf: cephalothorax in frontal view; Cxp: coxal plates with position of noduli laterales; Had: habitus in dorsal view; Hal: habitus in lateral view.

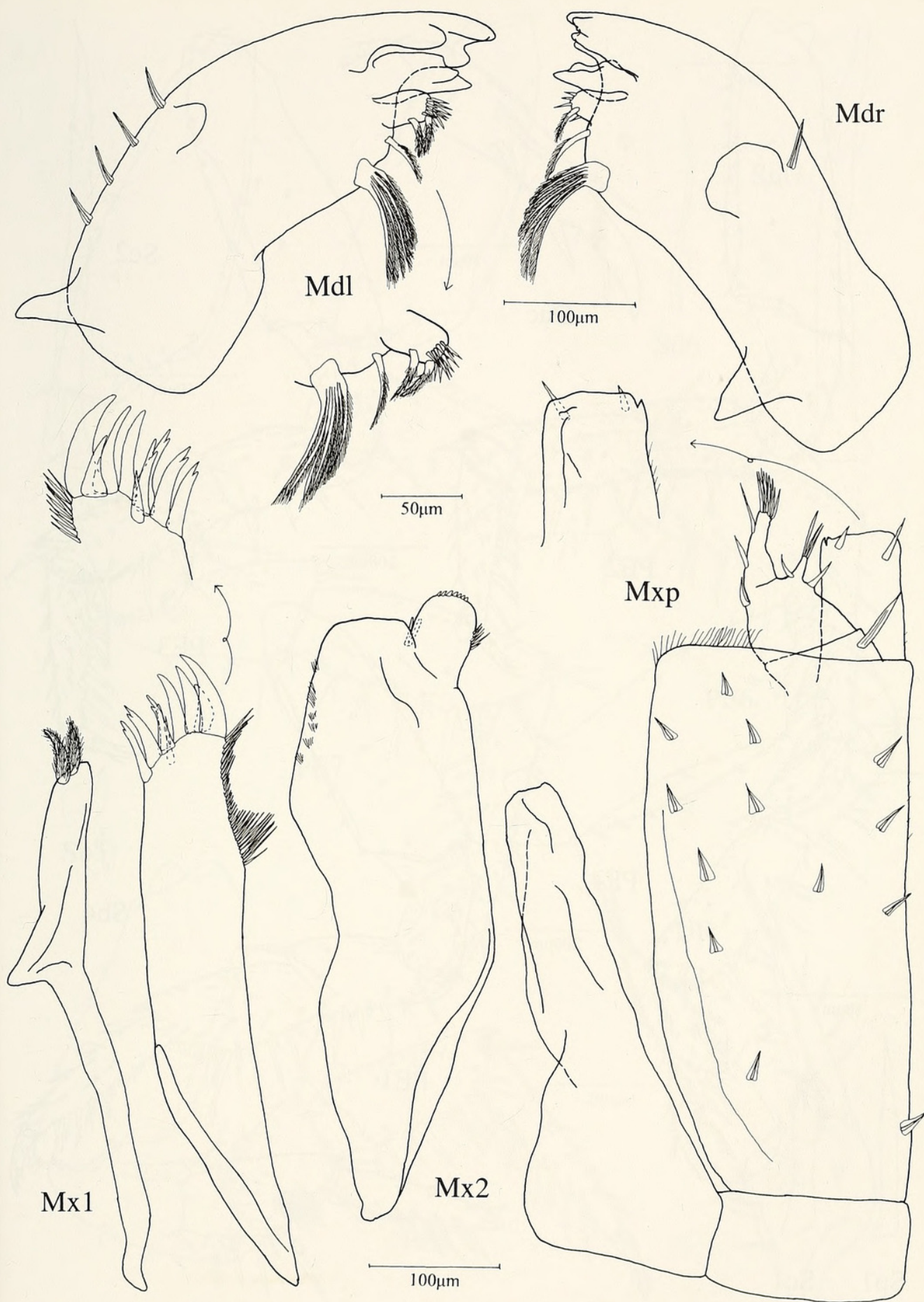


Fig. 2. *Erophiloscia waegelei*, spec. nov. Holotype male. Mdl: left mandible, with detail of pars intermedia; Mdr: right mandible; Mxp: maxilliped with detail of endite in rostral view; Mx1: maxillula with detail of apex of lateral endite in caudal view; Mx2: maxilla.

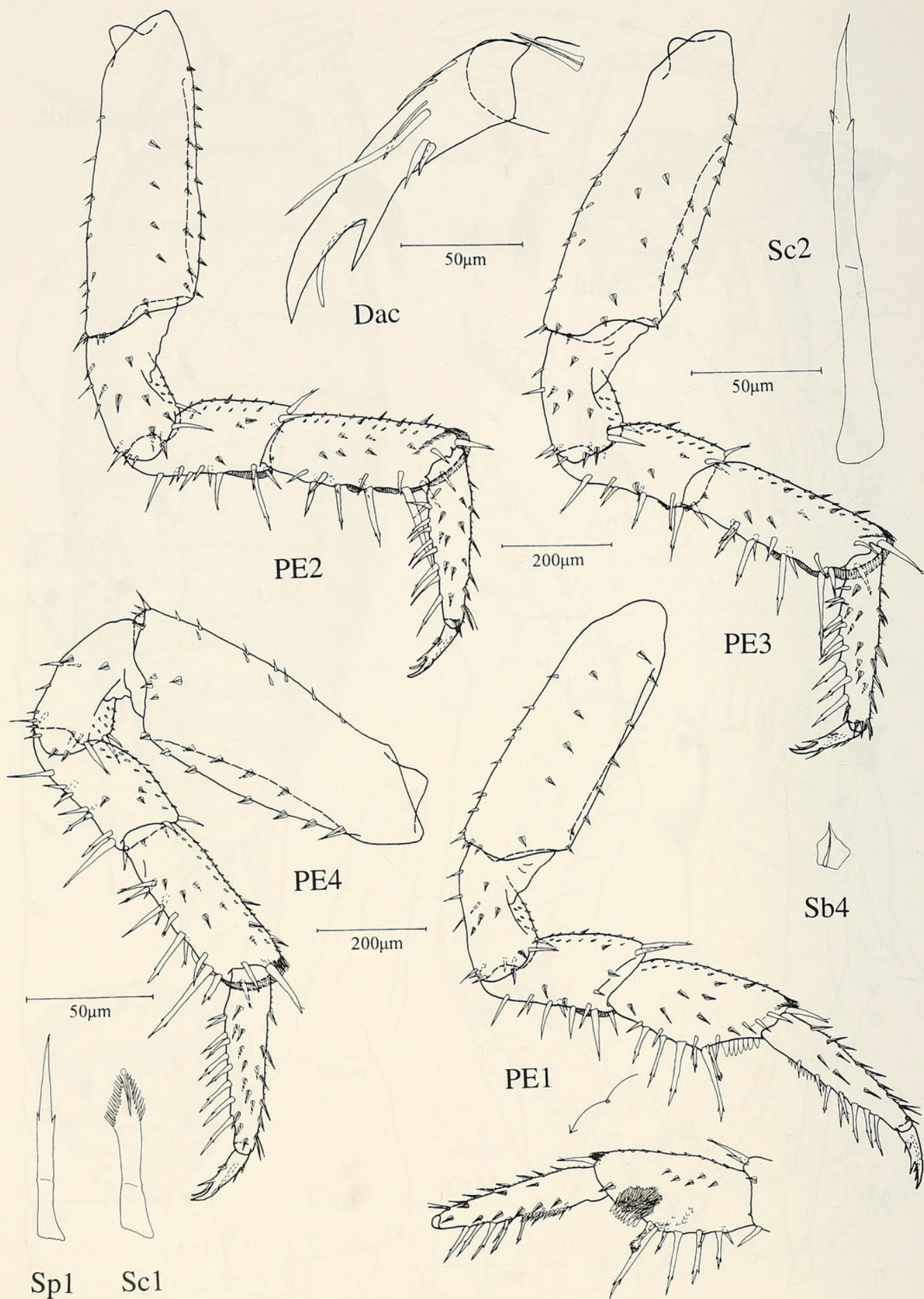


Fig. 3. *Erophiloscia waegelei*, spec. nov. Holotype male. Dac: dactylus 3 in rostral view; PE1-4: pereopods 1-4 (caudal view), with detail of carpus 1 in rostral view; Sb4: tricorn-like seta of basis 4; Sc1: ornamental sensory spine of carpus 1; Sc2: longest sensory spine of carpus 2; Sp1: distal sensory spine of propus 1.

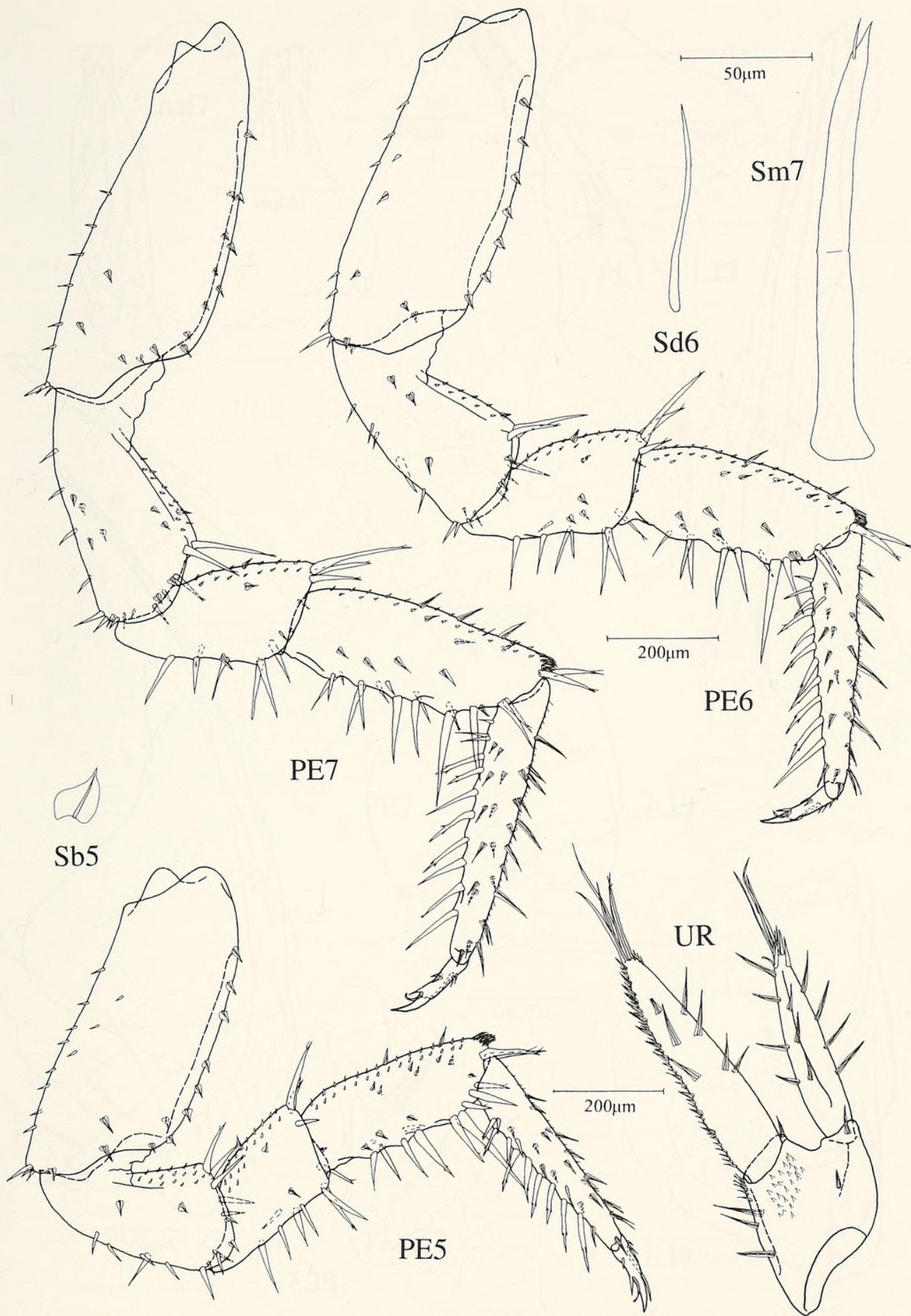


Fig. 4. *Erophiloscia waegelei*, spec. nov. Holotype male. PE5-7: pereopods 5-7 (caudal view); Sb5: tricorn-like seta of basis 5; Sd6: dactylar seta of dactylus 6; Sm7: sensory spine of merus 7; UR: uropod.

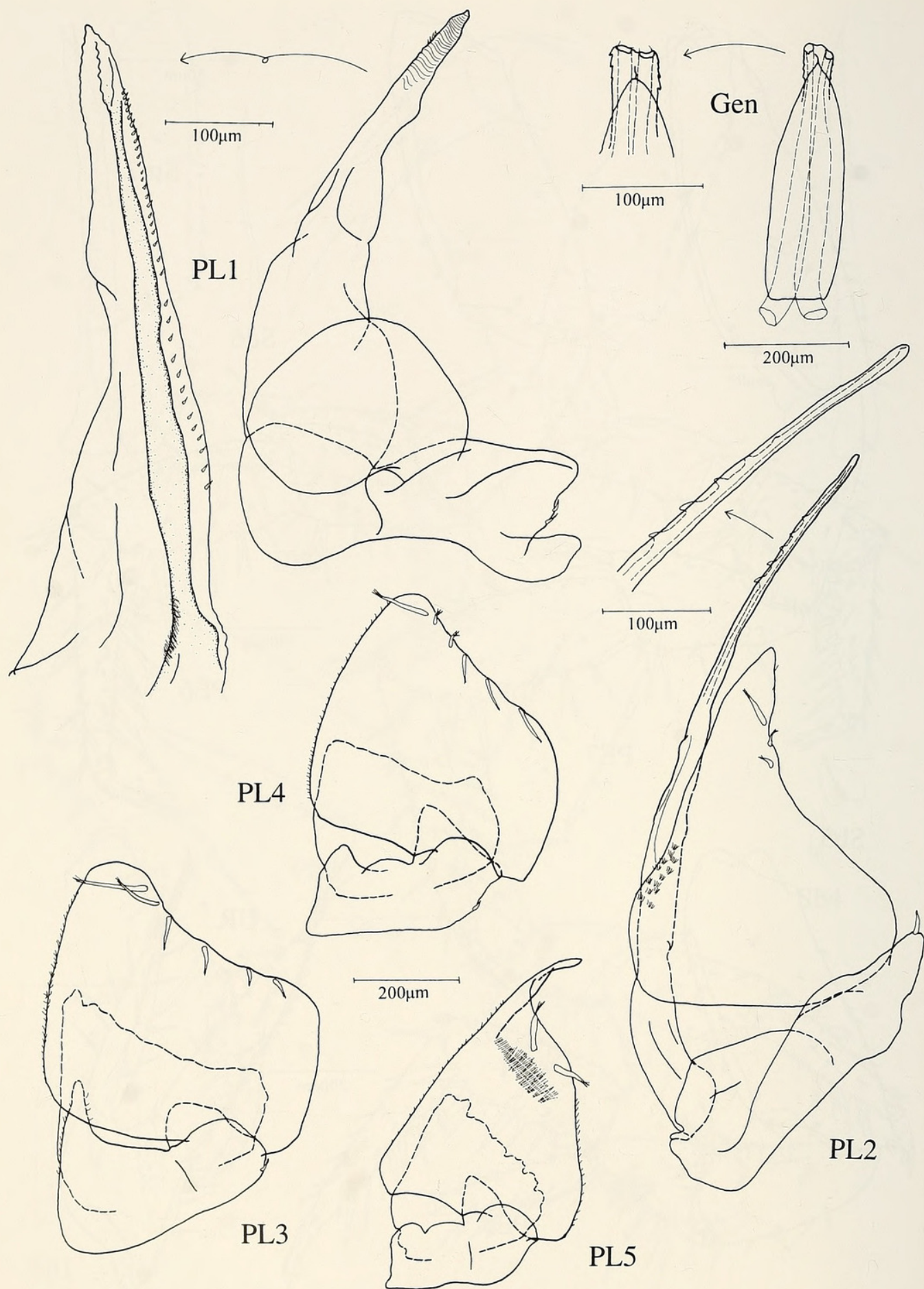


Fig. 5. *Erophiloscia waegelei*, spec. nov. Holotype male. Gen: genital papilla, with detail of apex; PL1-5: pleopods 1-5, rostral view, with details of endopodite 1 in caudal view; endopodite 2 in rostral view.

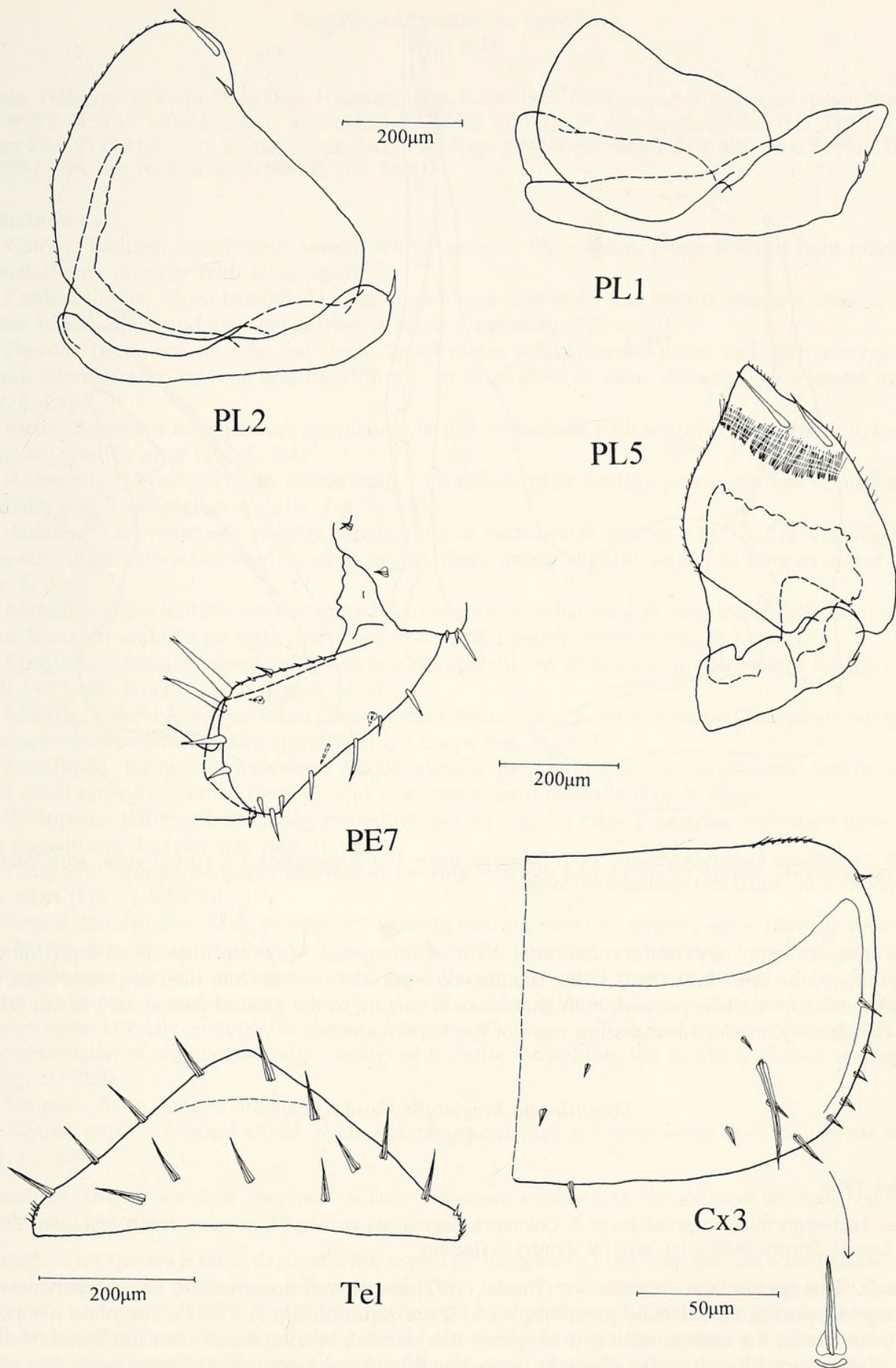


Fig. 6. *Erophiloscia waegelei*, spec. nov. Paratype female. Cx3: coxal plate 3 with detail of nodulus lateralis; PE7: ischium of pereopod 7; PL1-5: pleopod 1, 2, 5 in rostral view; Tel: pleotelson.

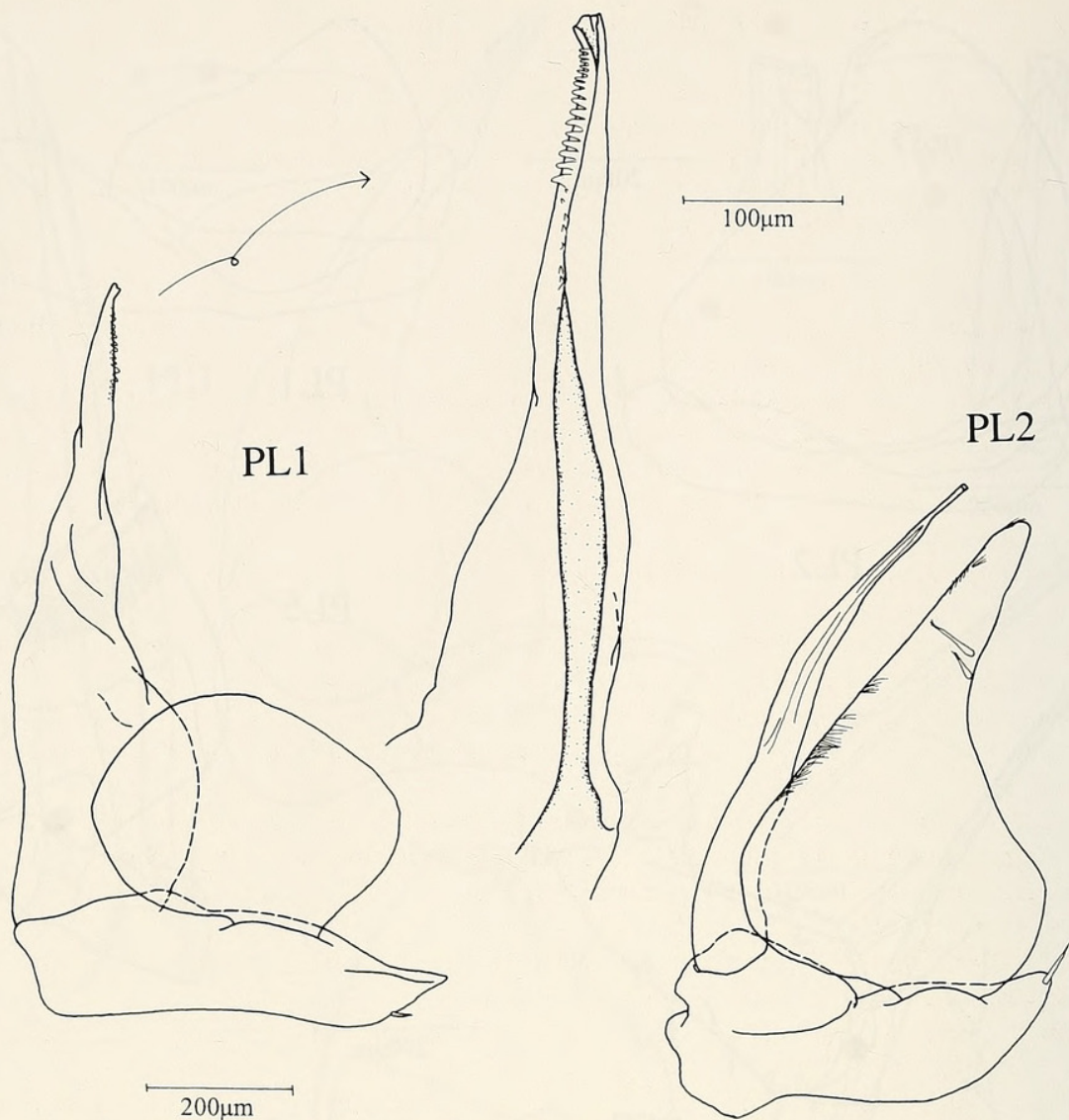


Fig. 7. *Erophiloscia longistyla* Vandel, 1972. Paratype male. PL1-2: pleopods 1-2, rostral view, with detail of endopodite 1 in caudal and mediorostral view.

E. waegelei, spec. nov. is the most basal form of this genus in several aspects of cephalothorax morphology: the linea frontalis is rather distinctive, especially medial from the compound eyes, and a faint lamina frontalis is present, both characters belonging to the ground pattern of a taxon within the crinochaete Oniscidea comprising most of the known species.

Erophiloscia longistyla Vandel, 1972

Fig 7

Vandel, 1972:

Types. Lectotype: microscopic slides of ♂: Colombia, Bogotá, above calle 71, montane forest, leaf litter, 2750 m a.s.l. Leg. H. Sturm, 14.02.1969, MNHN Vandel Collection

Remark. This species was described by Vandel (1972) and is well documented. For comparison with *E. waegelei*, spec. nov., the male pleopods 1 and 2 are figured (Fig. 7, PL1-2). The male pleopod 1 endopodite lacks the caudomedial row of spines, it is pointed, bearing transverse lamellae at its distal part. Male pleopod 2 endopodite elongate, more than three times longer than pointed exopodite which bears about 4 sensory spines laterally near its apex.

Erophiloscia recurvata, spec. nov.

Figs 8-11

Types. Holotype: ♂, 3 mm, Peru, Dept. Huanuco; Distr. Puerto Inca, Rio Yuyapichis, Biological station "Panguana" 9°37'S 74°56'W, altitude 250 m, Maniokfeld, 12.-27.XII 1975 leg. W. Hanagarth (SNMS coll. T439). – Paratypes: 2♂♂, 9♀♀, 2 juv. max. 3.5 mm, same data as holotype (SMNS coll. T440); 2♂♂, 3♀♀ max. 2.5 mm, Cocha, X.1975-I.1976, leg. W. Hanagarth (SMNS coll. T441).

Description

Colour. Reddish brown with several white spots on the tergites, pleon without light markings, cephalothorax dorsally with white spots.

Cephalothorax. Linea frontalis lacking, linea supra-antennalis and lamina frontalis present, small lateral lobes, compound eyes consisting of seven ommatidia (Fig. 8, Ctf).

Pereon. Tegument smooth and shiny, coxal plates lacking gland pores and sulcus marginalis, noduli laterales present, long and flagelliform, on coxal plate IV more distantly from lateral margin (Fig. 8, Cxp).

Pleon. Retracted from pereon, neopleurae visible, pleotelson with rounded distal margin, bearing some tricorn-like setae (Fig. 8, Tel).

Antennula. Three-articulate, rather stout with distal article bearing prominent tuft of aesthetascs medially and 2 aesthetascs apically (Fig. 8, An1).

Antenna. Comparatively slender, length ratio of peduncular articles 1 to 5 1:2:2:4:5, flagellum three-articulate with articles subequal in length, distal article slightly longer, as long as apical organ (Fig. 8, An2).

Mandible. Pars molaris consisting of a four-branched molar penicil, pars intermedia bearing two penicils on left and one on right mandible, intermedial penicil slender (Fig. 9, Mdl/r).

Maxillula. Medial endite bearing two penicils apically, no additional tip discernible. Lateral endite with 4+4 teeth, inner set cleft (Fig. 9, Mx1).

Maxilla. Lateral lobe two times broader than medial one, bearing scattered trichiform setae and pectinate scales, medial endite apically with 8 cusps (Fig. 9, Mx2).

Maxilliped. Basipodite with short sulcus lateralis, palp with one seta on proximal article, endite with small knob-like penicil rostrally and two strong teeth caudally (Fig. 9, Mxp).

Pereopods. Rather similar to the preceding species (Fig. 10, PE1-7), dactylus with short inner claw and flagelliform dactylar seta (Fig. 10, Dac).

Pleopods. Exopodites rather prominent, bearing laterally 1 to 4 sensory spines, endopodites with two lobes (Fig. 11, PL1-5).

Sexual dimorphism. Male pereopod 7 ischium bearing only one sensory spine laterally instead of two in the female. Male pleopod 1 exopodite small, rounded, endopodite long and slender, at halflength bent laterally and apex turned caudally, row of small spines reduced, medial border of spermatic furrow crenulate near apex (Fig. 11, PL1). Male pleopod 2 exopodite triangular with one sensory spine laterally, endopodite slender, bent laterally (Fig. 11, PL2). Male pleopod 5 exopodite with long protrusion of mediodistal edge, decurved laterally for holding the similarly shaped endopodite 2 (Fig. 11, PL5).

Uropod. As in generic diagnosis.

Genital papilla. Ventral shield ovate, ductus ejaculatorii not surpassing apex of ventral shield (Fig. 11, Gen).

Etymology. The species name "*recurvata*" is latin and means incurved, i.e. the shape of the male copulatory devices bent laterally.

Remark. This species is more derived with respect to the lack of a linea frontalis and a well accentuated lamina frontalis, yet *Erophiloscia recurvata*, spec. nov. is a typical member of its genus with elongate pleopod 2 endopodite and prolonged tip of pleopod 5 exopodite in the male. The peculiar form of the male endopodite 1 and the laterally bent distal half of all the copulatory devices are unique among its congeners. Similar to the other species of *Erophiloscia* save *E. waegelei*, spec. nov., the mediocaudal row of spines on the endopodite 1 is reduced.

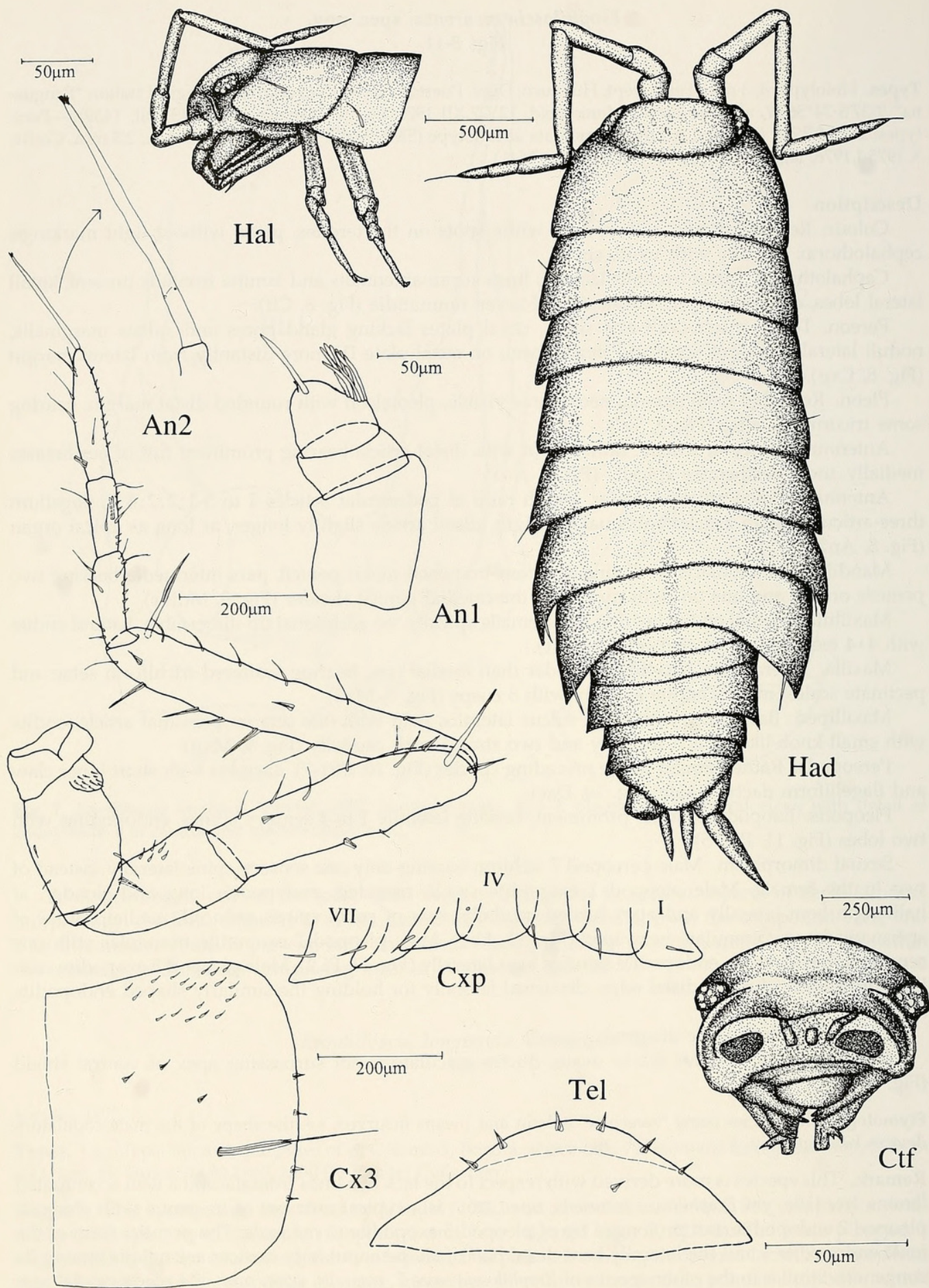


Fig. 8. *Erophiloscia recurvata*, spec. nov. Holotype male. An1: antennula; An2: antenna with detail of apical organ; Ctf: cephalothorax in frontal view; Cxp: coxal plates with position of noduli laterales; Cx3: coxal plate 3; Had: habitus in dorsal view; Hal: habitus in lateral view; Tel: pleotelson.

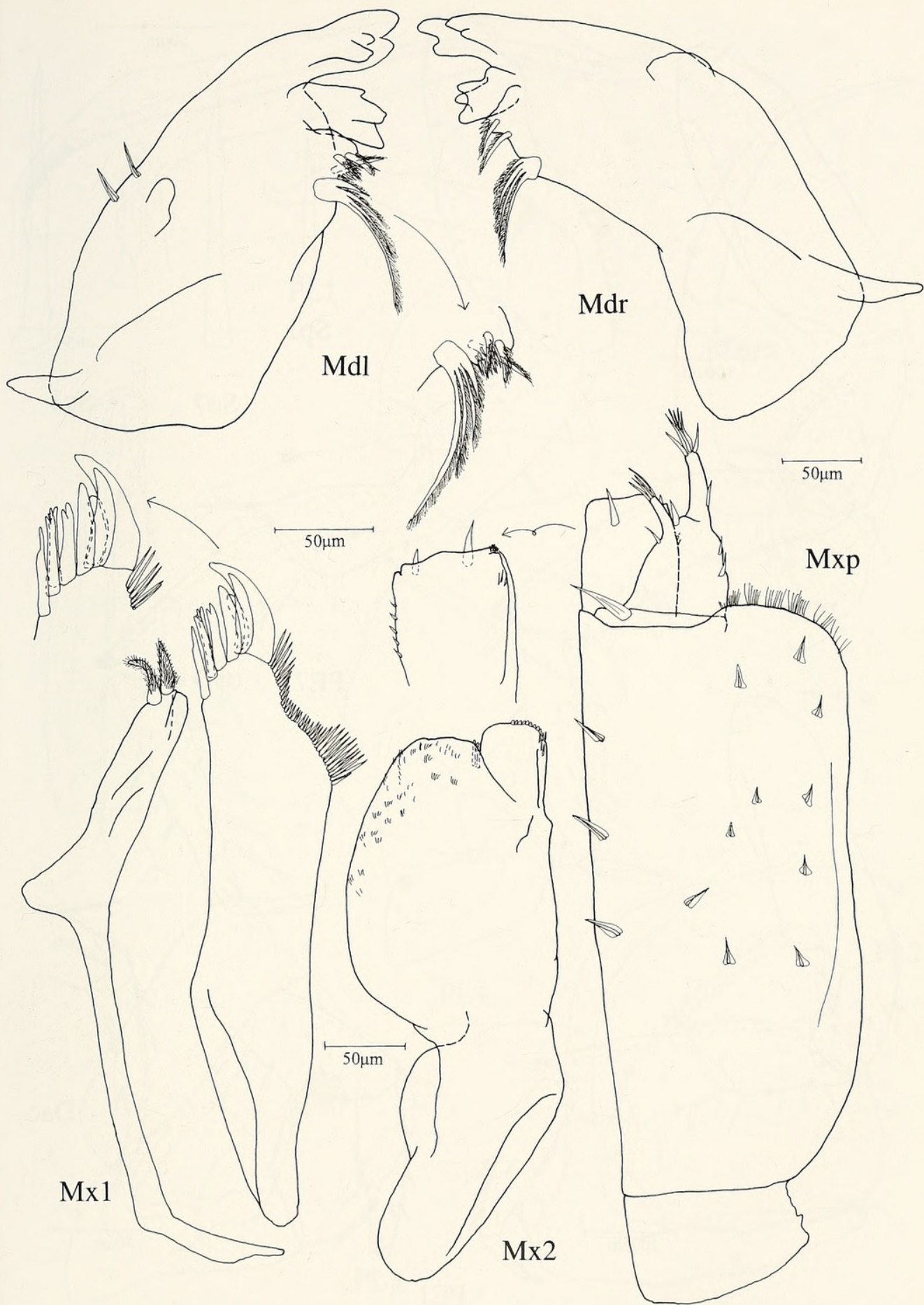


Fig. 9. *Erophiloscia recurvata*, spec. nov. Holotype male. Mdl: left mandible, with detail of pars intermedia; Mdr: right mandible; Mxp: maxilliped with detail of endite in rostral view; Mx1: maxillula with detail of apex of lateral endite in caudal view; Mx2: maxillula.

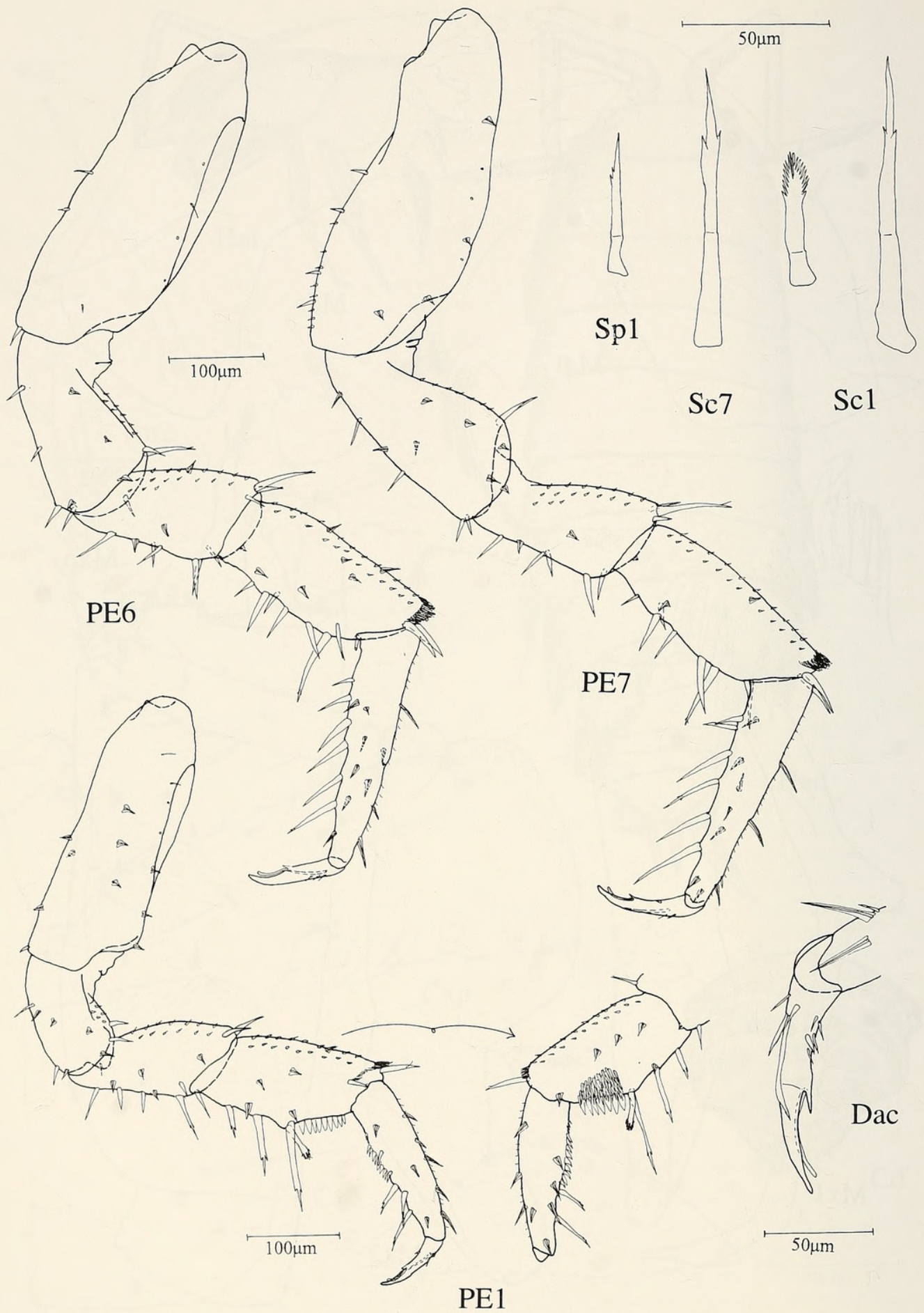


Fig. 10. *Erophiloscia recurvata*, spec. nov. Holotype male. Dac: dactylus 1 in rostral view; PE1-7: pereopods 1, 6, 7 in caudal view, with detail of carpus 1 in rostral view; Sc1: ornamental and longest sensory spine of carpus 1; Sc7: sensory spine of carpus 7; Sp1: distal sensory spine of propus 1.

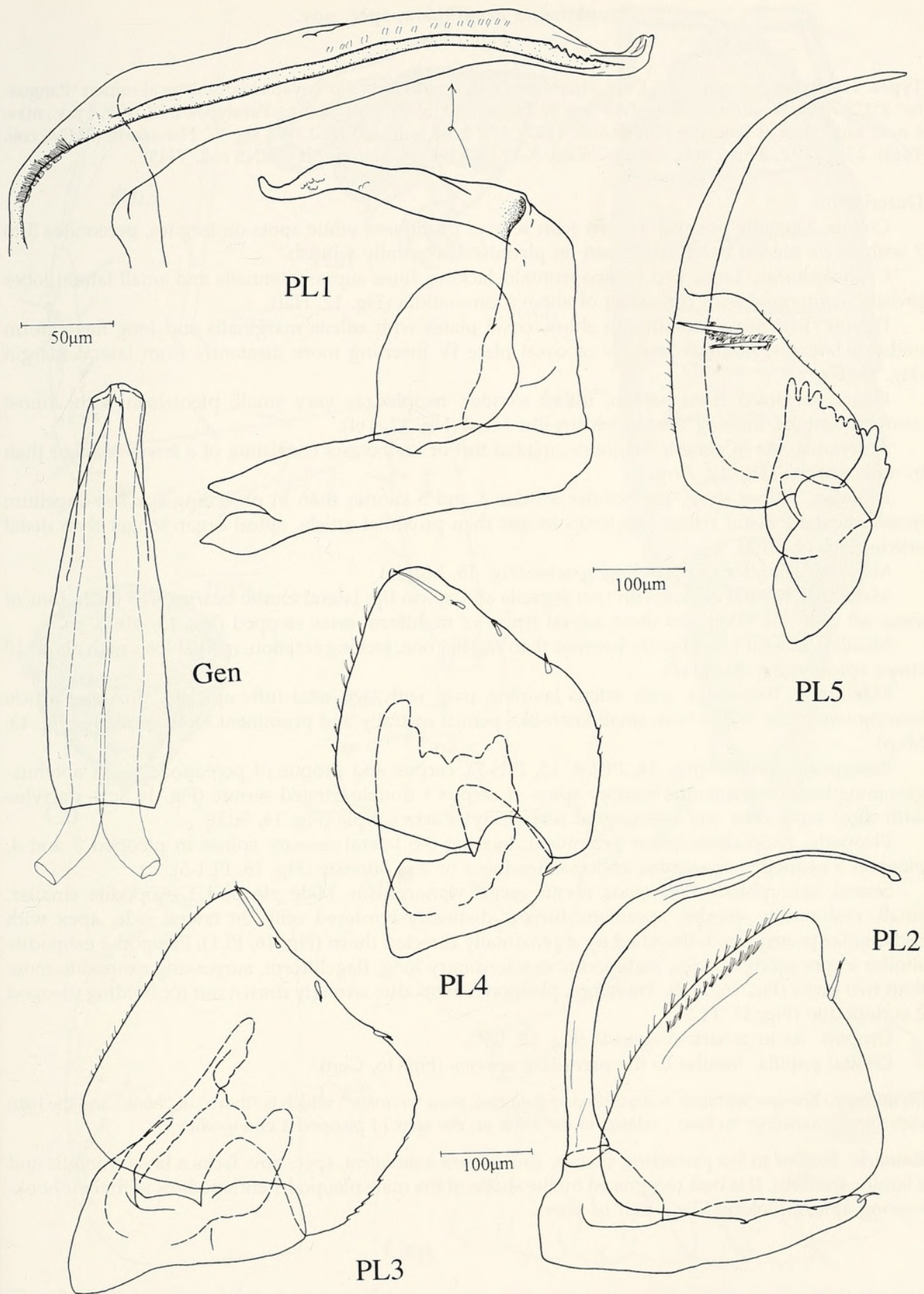


Fig. 11. *Erophiloscia recurvata*, spec. nov. Holotype male. Gen: genital papilla; PL1-5: pleopods 1-5, rostral view, with details of endopodite 1 in caudal view.

Erophiloscia acanthifera, spec. nov.

Figs 12-16

Types. Holotype: ♂, 4 mm, Peru, Dept. Huanuco; Distr. Puerto Inca, Rio Yuyapichis, Biological station "Panguana" 9°37'S 74°56'W, altitude 250 m, "A3" leg. W. Hanagarth (SMNS coll. T442). – Paratypes: 2♂♂, 5♀♀, 1 juv., max. 4 mm, same data as holotype (SMNS coll. T443); 4♂♂ 2.5-4 mm, A2, 1.XII.1975 leg. W. Hanagarth (SMNS coll. T444); 2♂♂, 27♀♀, 3 juv., max 3.5 mm, Wald, X-XI.1975 leg. W. Hanagarth (SMNS coll. T445).

Description

Colour. Dorsally purplish brown with several prominent white spots on tergites, pereonites 5 to 7 with white medial band, continued on pleonite 1, ventrally whitish.

Cephalothorax. Linea and lamina frontalis lacking, linea supra-antennalis and small lateral lobes present, compound eyes consisting of about 7 ommatidia (Fig. 12, Hal).

Pereon. Tegument smooth and shiny, coxal plates with sulcus marginalis and long flagelliform nodulus lateralis, nodulus lateralis of coxal plate IV inserting more disatantly from lateral margin (Fig. 12, Cxp).

Pleon. Retracted from pereon, rather slender, neopleurae very small, pleotelson with almost straight margins, bearing several tricorn-like setae (Fig. 12, Tel).

Antennula. As in generic diagnosis, medial tuft of aesthetascs consisting of a fewer number than in other species (Fig. 12, An1).

Antenna. Rather short, peduncular articles 4 and 5 shorter than in preceding species, flagellum three-articulate, distal article two times longer than proximal article, apical organ longer than distal article (Fig. 12, An2).

Mandible. Similar to preceding species (Fig. 13, Mdl/r).

Maxillula. Medial endite with two penicils and apical tip, lateral endite bearing 4+5 teeth, four of inner set cleft, the other one short, lateral fringe of trichiform setae stepped (Fig. 13, Mx1).

Maxilla. Lateral lobe slightly broader than medial one, lacking setation, medial lobe with about 10 cusps apically (Fig. 13, Mx2).

Maxilliped. Basipodite with sulcus lateralis, palp with two setal tufts apically, proximal article bearing two setae, endite with small knob-like penicil rostrally and prominent tooth caudally (Fig. 13, Mxp).

Pereopods. Slender (Fig. 14, PE1-4, 15, PE5-7), carpus and propus of pereopod 1 with antenna-grooming brush, ornamental sensory spine of carpus 1 double-fringed serrate (Fig. 14 Sc1), dactylus with short inner claw and interungual seta, dactylar seta simple (Fig. 14, Sd3).

Pleopods. Exopodites rather prominent, bearing 5-6 lateral sensory spines in pleopod 3 and 4, pleopod 5 exopodite triangular, endopodites more or less bilobate (Fig. 16, PL1-5).

Sexual dimorphism. Pereopods ithout sexual dimorphism. Male pleopod 1 exopodite circular, small, endopodite slender, spermatic furrow distinctly bordered only on lateral side, apex with rectangular protrusion, terminated by a proximally directed thorn (Fig. 16, PL1). Pleopod 2 exopodite similar to preceding species, endopodite extraordinary long, flagelliform, surpassing exopodite more than two times (Fig. 16, PL2). Therefore, pleopod 5 exopodite strongly drawn out for holding pleopod 2 endopodite (Fig. 16, PL5).

Uropod. As in generic diagnosis (Fig. 15, UR).

Genital papilla. Similar to the preceding species (Fig. 16, Gen).

Etymology. The species name is composed of the greek term "*acanthos*", which is "thorn" or "hook" and the latin verb "*ferre*", meaning "to bear", related to the hook on the apex of pleopod 1 endopodite.

Remark. Similar to the preceding species, *Erophiloscia acanthifera*, spec. nov. lacks a linea frontalis and a lamina frontalis. It is best recognised by the shape of the male pleopod 1 endopodites with their hook-bearing apices, looking like a pair of pliers.

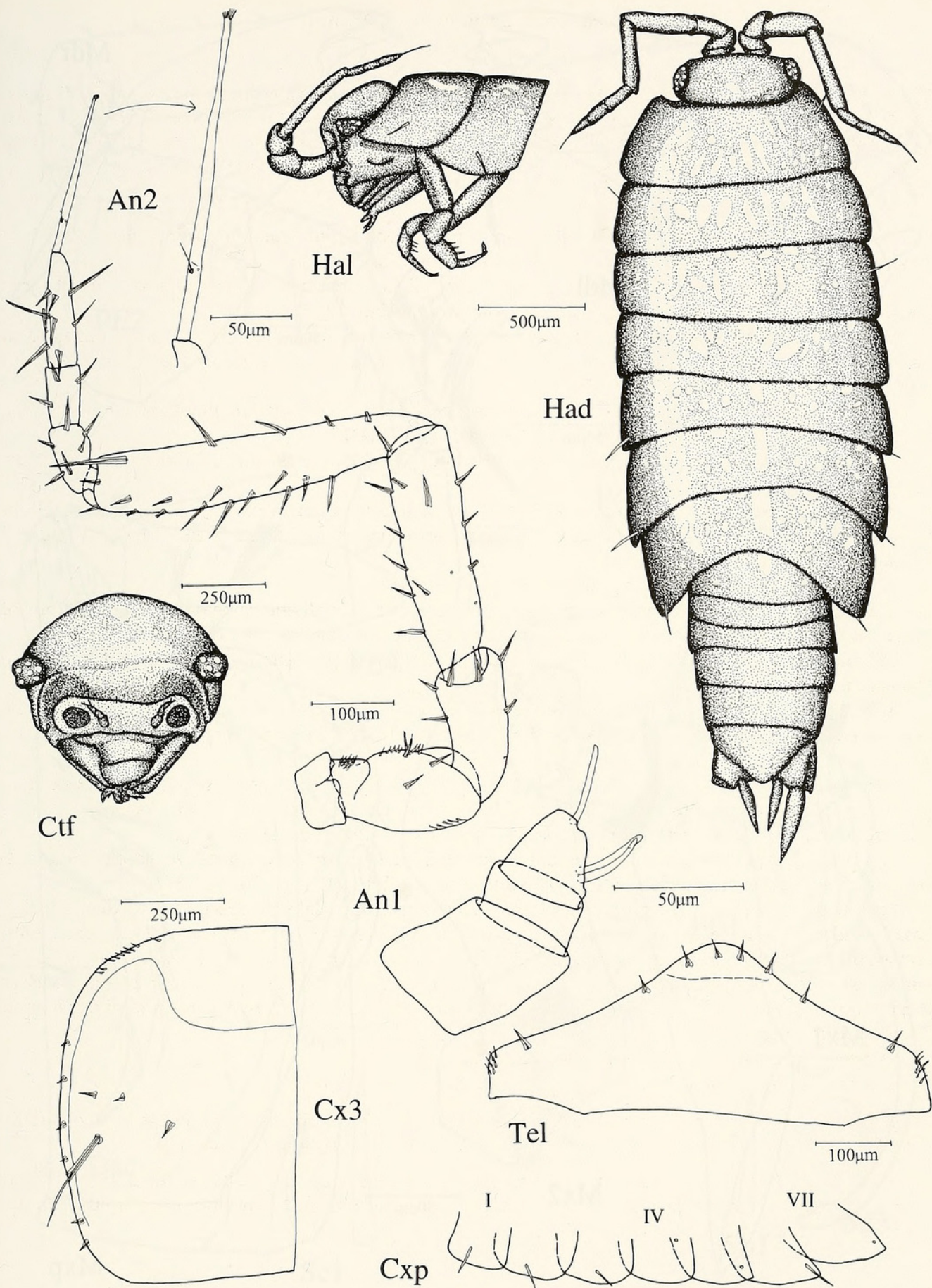


Fig. 12. *Erophiloscia acanthifera*, spec. nov. Holotype male. An1: antennula; An2: antenna with detail of apical organ; Ctf: cephalothorax in frontal view; Cxp: coxal plates with position of noduli laterales; Cx3: coxal plate 3; Had: habitus in dorsal view; Hal: habitus in lateral view; Tel: pleotelson.

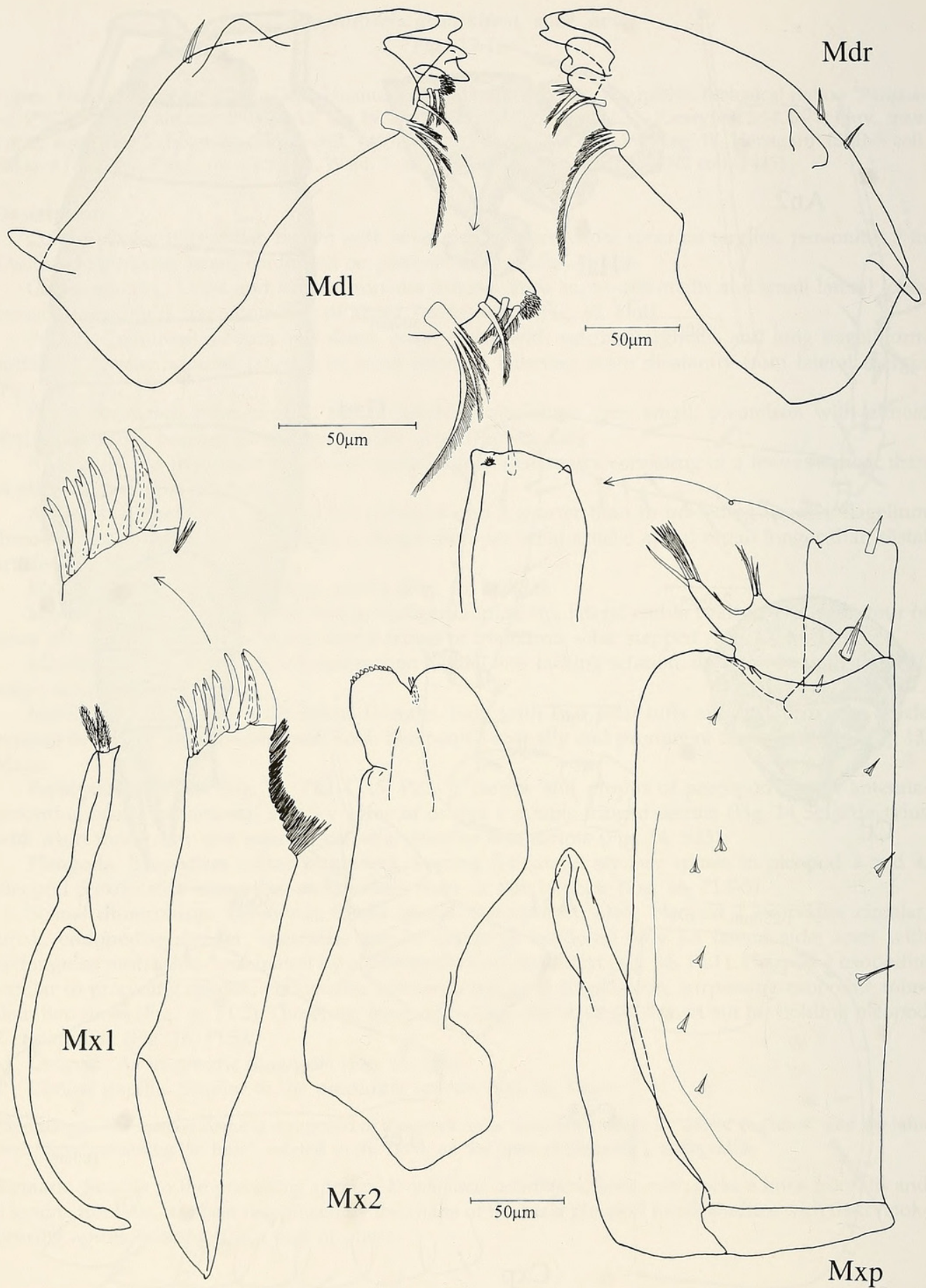


Fig. 13. *Erophiloscia acanthifera*, spec. nov. Holotype male. Mdl: left mandible, with detail of pars intermedia; Mdr: right mandible; Mxp: maxilliped with detail of endite in rostral view; Mx1: maxillula with detail of apex of lateral endite in rostral view; Mx2: maxilla.

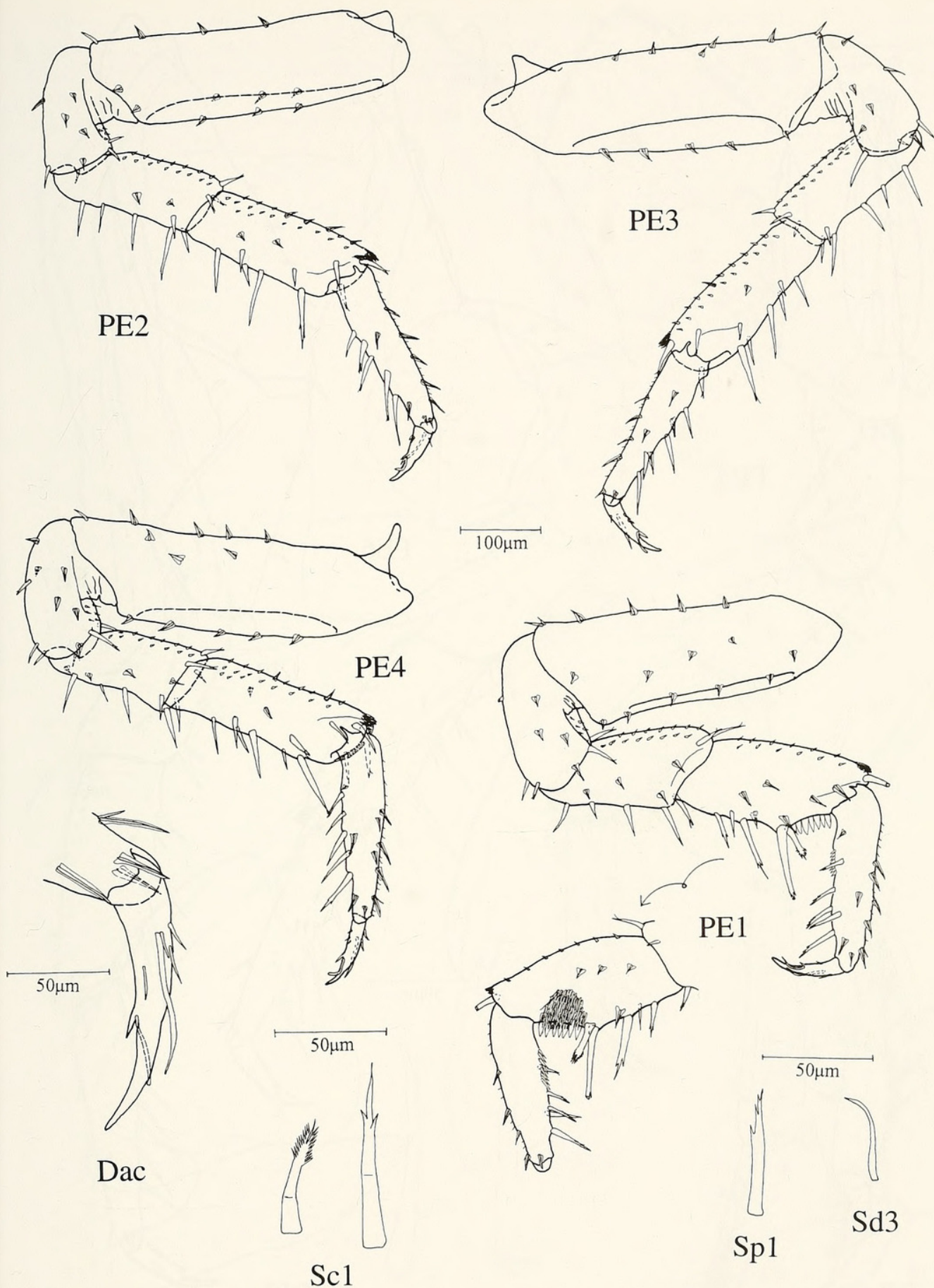


Fig. 14. *Erophiloscia acanthifera*, spec. nov. Holotype male. Dac: dactylus 1 in rostral view; PE1-4: pereopods 1-4 in caudal view, with detail of carpus 1 in rostral view; Sc1: ornamental sensory and second longest sensory spine of carpus 1; Sd3: dactylar seta of dactylus 3; Sp1: distal sensory spine of propus 1.

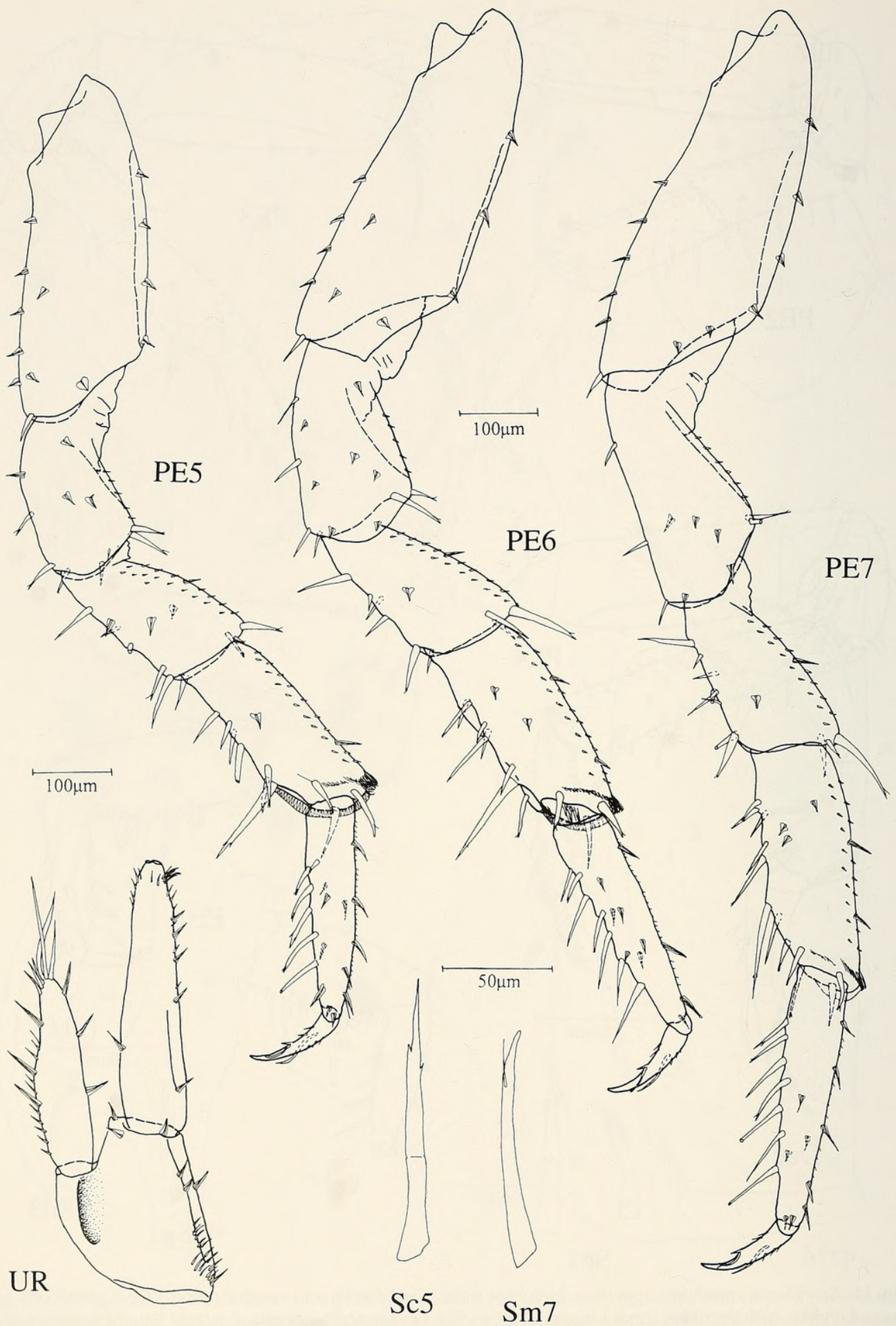


Fig. 15. *Erophiloscia acanthifera*, spec. nov. Holotype male. PE5-7: pereopods 5-7 in caudal view; Sc5: sensory spine of carpus 5; Sm7: sensory spine of merus 7; UR: uropod in rostral view.

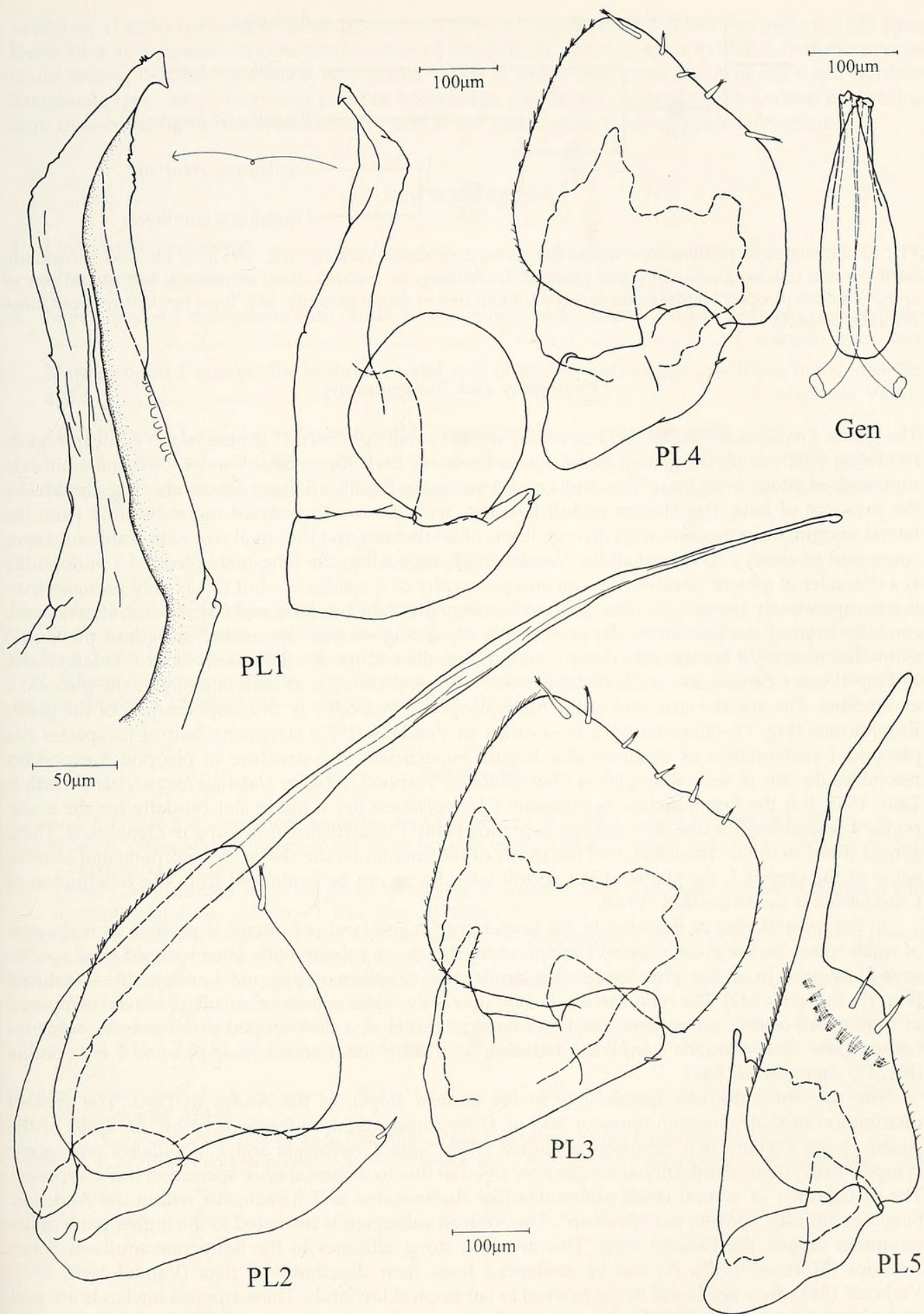


Fig. 16. *Erophiloscia acanthifera*, spec. nov. Holotype male. Gen: genital papilla; PL1-5: pleopods 1-5, rostral view, with details of endopodite 1 in caudal view.

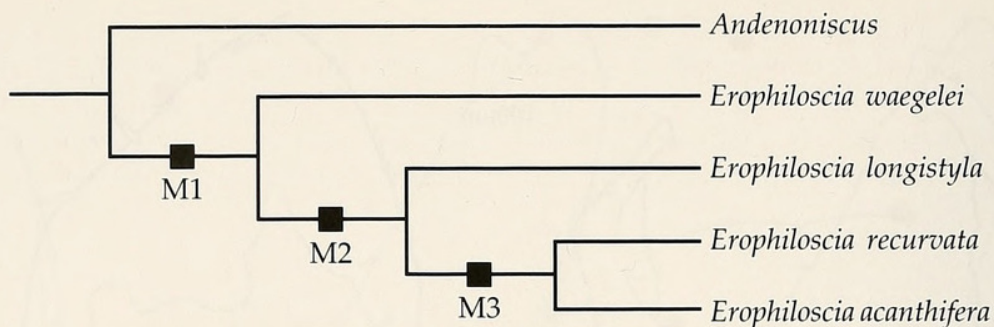


Fig. 17. Phylogenetic relationships within the genus *Erophiloscia* Vandel, 1972. M1: male pleopod 5 extraordinarily drawn out, no guide slot [male pleopod 5 subtrinarigular without distal extension]. M2: caudal row of spines on male pleopod 1 endopodite reduced [caudal row of spines present]. M3: linea frontalis reduced [linea frontalis present].

Phylogeny and Biogeography

The genus *Erophiloscia* Vandel, 1972 is one of several small “philosciid” genera of the Andean region. Its closest relatives are the genera *Andenoniscus* Verhoeff, 1941, *Xiphoniscus* Vandel, 1968 and a hitherto undescribed genus from Peru, Venezuela and Amazonian Brazil. All these genera are characterized by the presence of long, flagelliform noduli laterales, with the fourth inserted more distantly from the lateral margin, the antennula with divergent sets of aesthetascs and the small size with compound eyes composed of about 6 to 8 ommatidia. Vandel (1972) stated that the long male pleopod 1 endopodite is a character of generic importance – an autapomorphy of *Erophiloscia* – but this is only partially true. It is comparatively slender. It is the pleopod 2 endopodite which is long and flagelliform. It may reach caudally beyond the pleotelson. To protect this copulatory device, the medial margin of pleopod 5 exopodite is straight and distally drawn out, holding the endopodite 2 ventrally on this enlargement. In *Erophiloscia recurvata*, the mediobasal extension of exopodite 5 is as bent laterally as the pleopod 2 endopodite. The specific structure of the male pleopod 5 exopodite is an autapomorphy of the genus *Erophiloscia* (Fig. 17, character M1). In contrast to Vandel’s (1972) statement, half of its species has pleopod 1 endopodites of unspectacular length. Superficially the structure of pleopod 5 exopodite resembles the one of several species of *Chaetophiloscia* Verhoeff, 1908, or *Nataliscia longistylata* Ferrara & Taiti, 1985, but the fine structure is different: *Chaetophiloscia* has a guide slot caudally for the endopodite 1 resembling the one described by Legrand (1946). This structure is missing in *Erophiloscia*. These genera differ in other characters, too: the shape of the antennula, the shape of the ornamental sensory spine of the carpus 1, the shape of the noduli laterales as can be evidenced from the redefinition of *Chaetophiloscia* by Schmalfuß (1990).

In the ground plan of *Erophiloscia*, the linea frontalis and lamina frontalis is present, as is the row of small spines on the male pleopod 1 endopodite. They have subsequently been reduced in all species save *E. waegelei*. In all the other species, the caudal row of spines on pleopod 1 endopodite is reduced (Fig. 17, character M2). The type species, *E. longistyla* is the sister species of an adelphotaxon composed of *E. recurvata* and *E. acanthifera*. The latter have in common a three-tipped distal sensory spine on carpus 1, the linea frontalis completely reduced, no hyaline lobes on the male pleopod 1 endopodite (Fig. 17, character set M3).

The two most derived species live in the eastern slopes of the Andes in Peru. The area of distribution of their common ancestor and of *E. longistyla* might be fragmented by the uplift of the Andes in the Tertiary (e.g. Simpson & Haffer 1978). Since *E. recurvata* and *E. acanthifera* now occur sympatrically, their distributional ranges now overlap due to dispersal once speciation had happened. The distribution of several small philosciids like *Andenoniscus* and *Xiphoniscus* within the Andes is, biogeographically spoken, not “Andean”. The Andean subregion is restricted to the higher parts of the mountain ranges, the Paramó zone. This area has strong affinities to the temperate southern South America (Morrone 1992). As can be evidenced from their distributional data (Vandel 1968, 1972, Verhoeff 1941), they are found in the tropical to subtropical lowlands. These tropical lowlands are part of the Neotropical realm. This neotropical distribution is not surprising, since their closest relatives, the members of *Prosekia*-group are distributed in the Amazon basin and Venezuela. Further collections in the intervening area will most probably reveal more records or even undescribed species of this genus.

Leistikow (1998b) reported to some material ascribed to *Pentoniscus pruinosus* Richardson, 1913 from Costa Rica as a possible undescribed species of *Erophiloscia*. There is some evidence that this species could belong to a closely related new genus which is distributed from the Amazon basin north to Guatemala (pers. obs.). From our point of knowledge, *Erophiloscia* is purely East-Andean in distribution, thus occurring in the westernmost parts of the Amazonian biogeographic subregion.

Key to the species

1. Linea frontalis present 2.
- Linea frontalis reduced 3.
2. Male pleopod 1 endopodite with caudal row of spines, endopodite 2 with some hooks near the apex *E. waegelei*, spec. nov.
- Male pleopod 1 endopodite without caudal row of spines, endopodite 2 without hooks near the apex *E. longistyla* Vandel
3. Male pleopod 1 and 2 endopodites and 5 exopodite strongly bent laterally *E. recurvata*, spec. nov.
- Male pleopods straight, endopodites 1 plier-like *E. acanthifera*, spec. nov.

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