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New genus and new species of mite of the family *Penthalodidae (Actinotrichida, Actinedida, Eupodoidea)* from Poland

[with 8 text-figs]

Nowy rodzaj i nowy gatunek roztocza z rodziny *Penthalodidae (Actinotrichida, Actinedida, Eupodoidea)* z Polski

Abstract. *Protopenthalodes coniunctus* gen. n., sp. n., is described as the new taxon of the family *Penthalodidae (Eupodoidea)* from Poland.

Taxonomical and faunal studies of the Polish soil mites, which have been carried out at the Department of Zoology University of Szczecin, recently have been also aimed to the superfamily *Eupodoidea*. The investigation of the mites belonging to the family *Penthalodidae* which were collected in Poland revealed the new penthalodid mite of the new generic and specific status.

The morphological terminology used in this paper is taken from van der HAMMEN (1969, 1980), STRANDTMANN (1967, 1971), ZACHARDA (1980).

Protopenthalodes gen. n.

Type species: *Protopenthalodes coniunctus* gen. n., sp. n.

Soft bodied, poorly sclerotized, longitudinally oval. Legs slender, shorter than the body, similar to those in the representatives of the genus *Penthalodes*. Disjugal furrow absent. All setae on the opisthosoma ciliated, short, uniform. Opisthosomal setal pattern like in *Penthalodes*. Two pairs of opisthosomal setae: d_1 — dorsal 1 and *e. l* — external lumbar (STRANDTMANN 1971) absent.

Key to the genera of the family *Penthalodidae*

1a. Disjugal furrow present. The opisthosomal setae: d_1 and *e. l* present . . . . . *Stereotydeus* BERLESE, 1901

1b. Disjugal furrow absent. Two pairs opisthosomal setae: d_1 and *e. l* absent 2

2a. Two lines or sulci of the "V" or "Y" shape on opisthosomal dorsum pre-

sent. Body well sclerotized and reticulated. Epirostrum present. . . . . *Penthalodes* ANDREW MURRAY, 1877

2b. Two lines or sulci of the "V" or "Y" shape on opisthosomal dorsum absent. Body soft, poorly sclerotized. Epirostrum absent . . . . . *Protopenthalodes* gen. n.

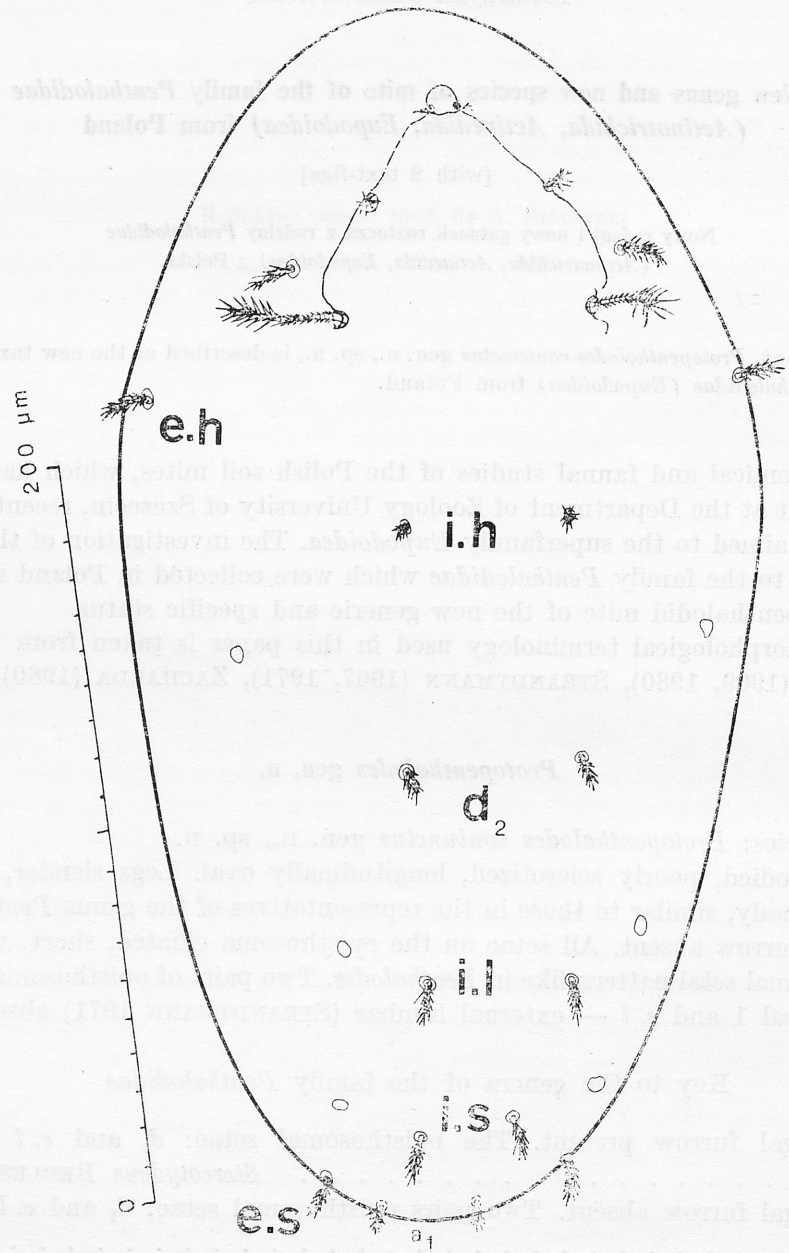

Fig. 1. *Protopenthalodes coniunctus* gen. n., sp. n., ♀, dorsal view

Protopenthalodes coniunctus sp. n.

Diagnosis. (Fig. 1, 2, 3). Body oval, soft, poorly sclerotized. Legs shorter than the body. Two pigmental eyes. Naso with two setae (Fig. 1, 5, 6C).The tegument with distinct ornamentation consisting of lines with tiny thorns. On the inside of opisthosoma-shaped consistet of granulated uric acid grains well visible "V" or "Y" structures. Length of body: 325—410 μm.

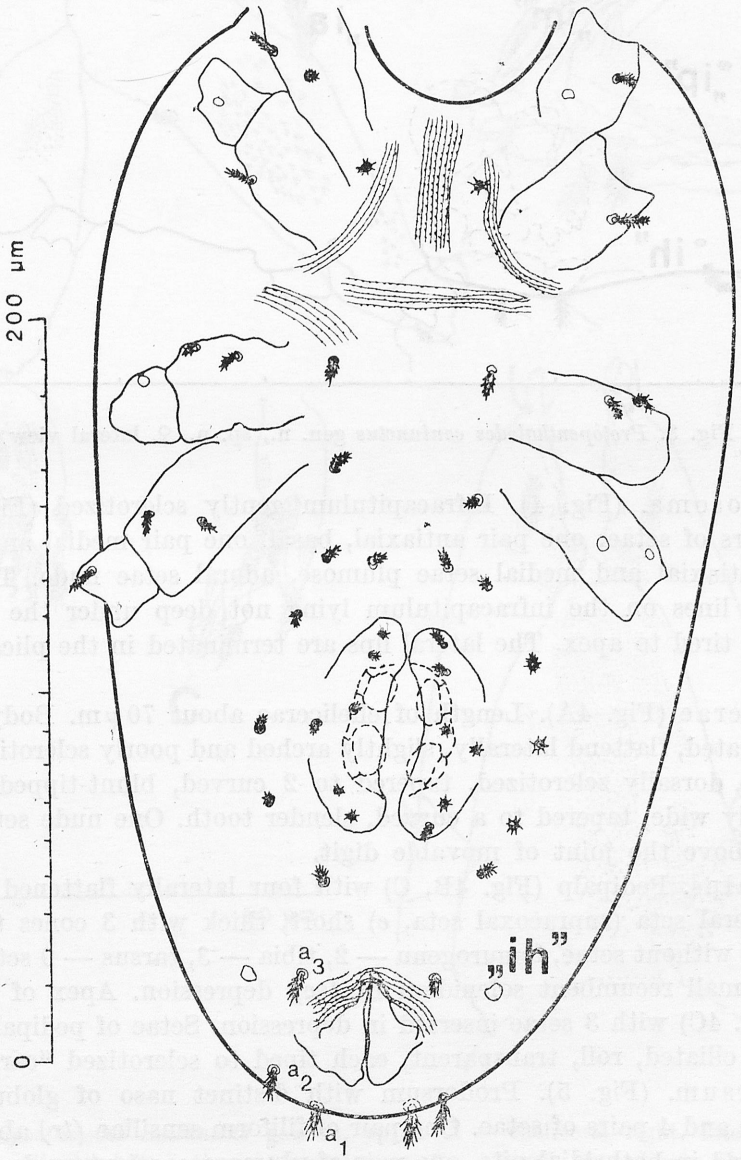

Fig. 2. *Protopenthalodes coniunctus* gen. n., sp. n., ♀, ventral view

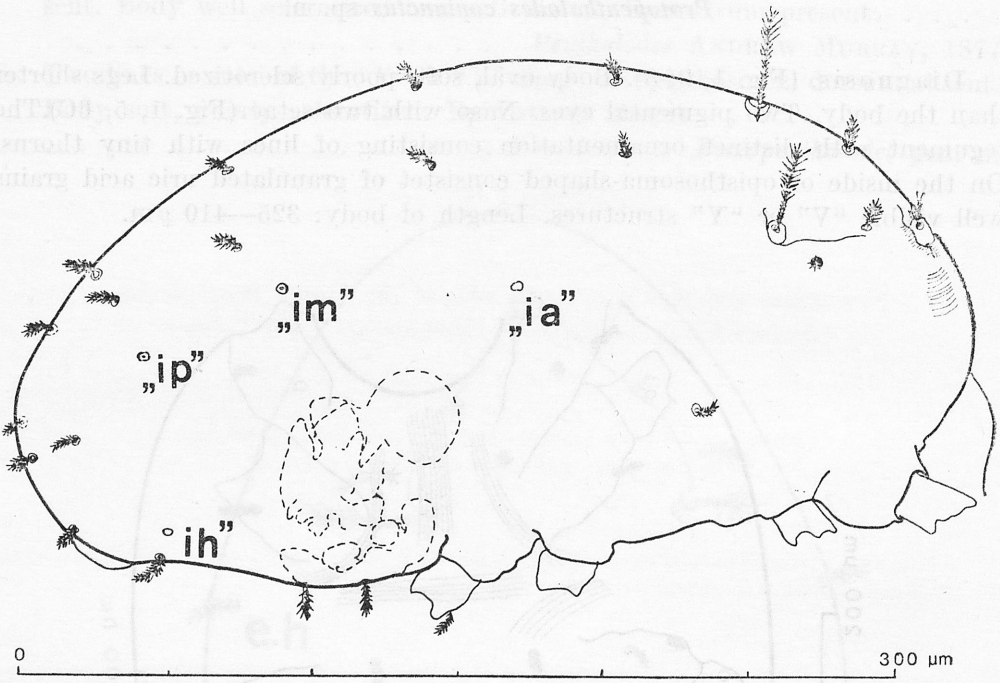

Fig. 3. *Protopenthalodes coniunctus* gen. n., sp. n., ♀, lateral view

Gnathosoma. (Fig. 4). Infracapitulum gently sclerotized (Fig. 4D, E) with 3 pairs of setae: one pair antiaxial, basal, one pair medial and one pair adoral. Antiaxial and medial setae plumose, adoral setae nude. Two strong sclerotized lines on the infracapitulum lying not deep under the tegument, run onself, tired to apex. The lateral lips are terminated in the plicate appendixes.

Chelicerae (Fig. 4A). Length of chelicerae about 70 µm. Body of chelicerae elongated, flattend laterally, slightly arched and poorly sclerotized. Fixed digit weak, dorsally sclerotized, tapered to 2 curved, blunt-tipped. Movable digit basally wide, tapered to a curved, slender tooth. One nude seta inserted dorsally, above the joint of movable digit.

Pedipalps. Pedipalp (Fig. 4B, C) with four laterally flattened segments. Supraepimeral seta (supracoxal seta, *e*) short, thick with 3 cones terminally. Trochanter without setae, femurogenu — 2, tibia — 3, tarsus — 9 setae. Tarsus with one small recumbent solenidion in deep depression. Apex of pedipalpal tarsus (Fig. 4C) with 3 setae inserted in depression. Setae of pedipalpal tarsus are poorly ciliated, roll, transparent, each tiped to sclerotized "carina".

Prodorsum. (Fig. 5). Prodorsum with distinct naso of globular shape (Fig. 5, 6C) and 4 pairs of setae. One pair of filiform sensillae *(tr)* about 50 µm long, inserted in bothridial pits, one pair of plumose *e. v* (external vertical s.), one pair of plumose *s. c* (scapular seta) and one pair of very short and branched,

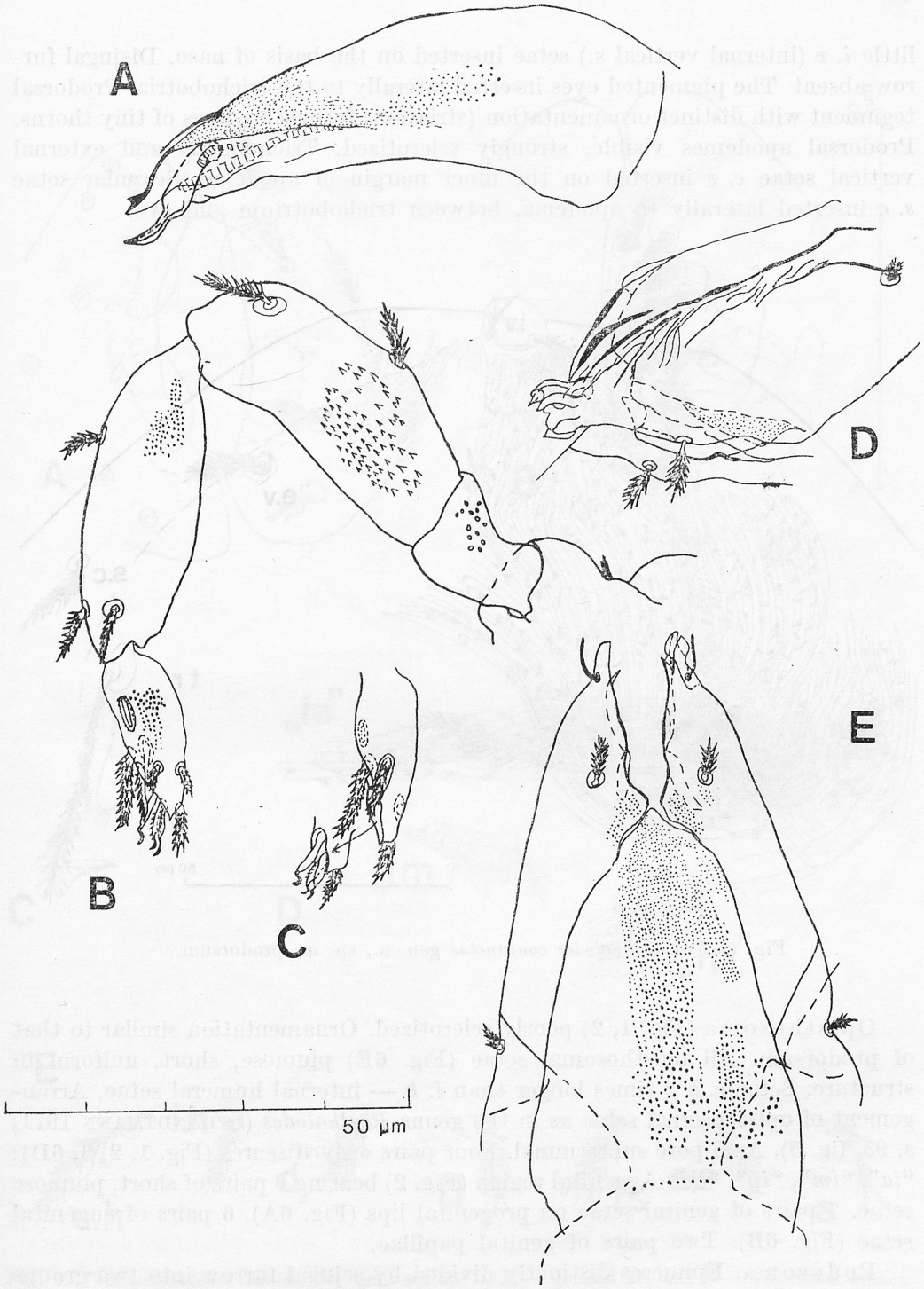

Fig. 4. *Protopenthalodes coniunctus* gen. n., sp. n. A — chelicera, right, lateral, paraxial view; B — pedipalp, left, antiaxial, lateral view; C — tarsus of pedipalp, left, paraxial, lateral view; D — infracapitulum, lateral view; E — infracapitulum, ventral view

little *i. v* (internal vertical s.) setae inserted on the basis of naso. Disjugal furrow absent The pigmented eyes inserted laterally to the trichobotria. Prodorsal tegument with distinct ornamentation (striation) formed by lines of tiny thorns. Prodorsal apodemes visible, strongly sclerotized. Trichobotria and external vertical setae *e. v* inserted on the inner margin of apodeme. Scapular setae *s. c* inserted laterally to apodema, between trichobotrium and eye.

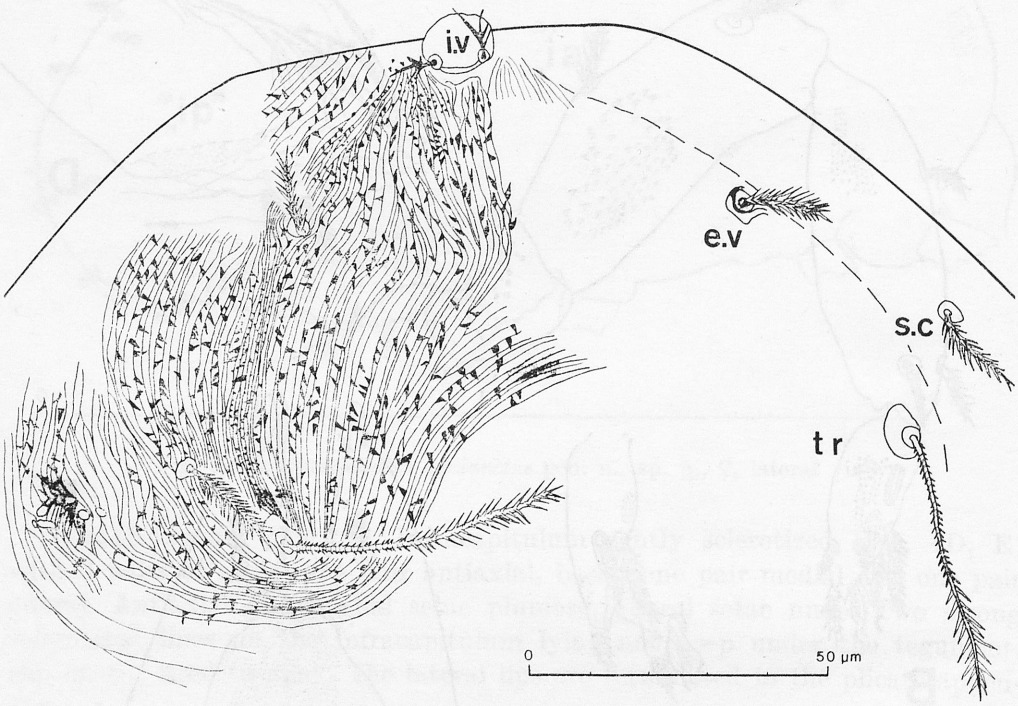

Fig. 5. *Protopenthalodes coniunctus* gen. n., sp. n., prodorsum

Opisthosoma (Fig. 1, 2) poorly sclerotized. Ornamentation similar to that of prodorsum. All opisthosomal setae (Fig. 6E) plumose, short, uniform in structure. Setae *e. h* 2 times longer than *i. h* — internal humeral setae. Arrangement of opisthosomal setae as in the genus *Penthalodes* (STRANDTMANN 1971, s. 93, fig. 5). Anal pore subterminal. Four pairs of lyrifissures (Fig. 1, 2, 3, 6D): "*ia*", "*im*", "*ip*", "*ih*". Aggenital region (Fig. 2) bearing 6 pairs of short, plumose setae. 7 pairs of genital setae on progenital lips (Fig. 6A). 6 pairs of eugenital setae (Fig. 6B). Two pairs of genital papillae.

Podosoma. Epimeres distinctly divided by sejugal furrow into two groups (Fig. 2). Epimeral formula: 2-1-2-2, sternal formula: 2-0-2-2.

Legs (Fig. 7, 8). The supraepimeral seta (supracoxal, *eI*) on the epimere I is short, basal thick, with 3 cones distally.

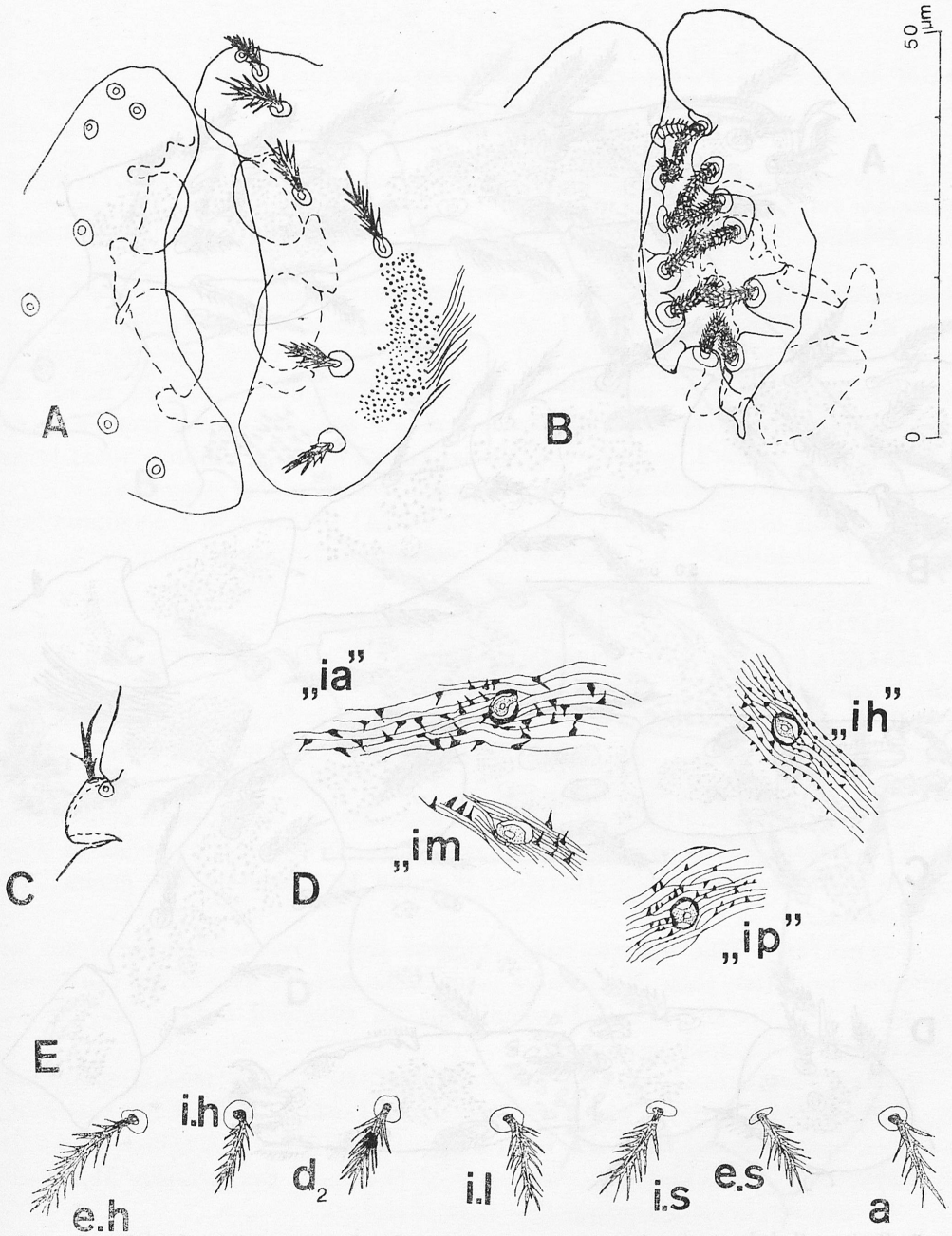

Fig. 6. *Protopenthalodes coniunctus* gen. n., sp. n. A — genital region; B — eugenital setae; C — naso, lateral view; D — lyrifissures with tegumental ornamentation; E — opistosomal setae

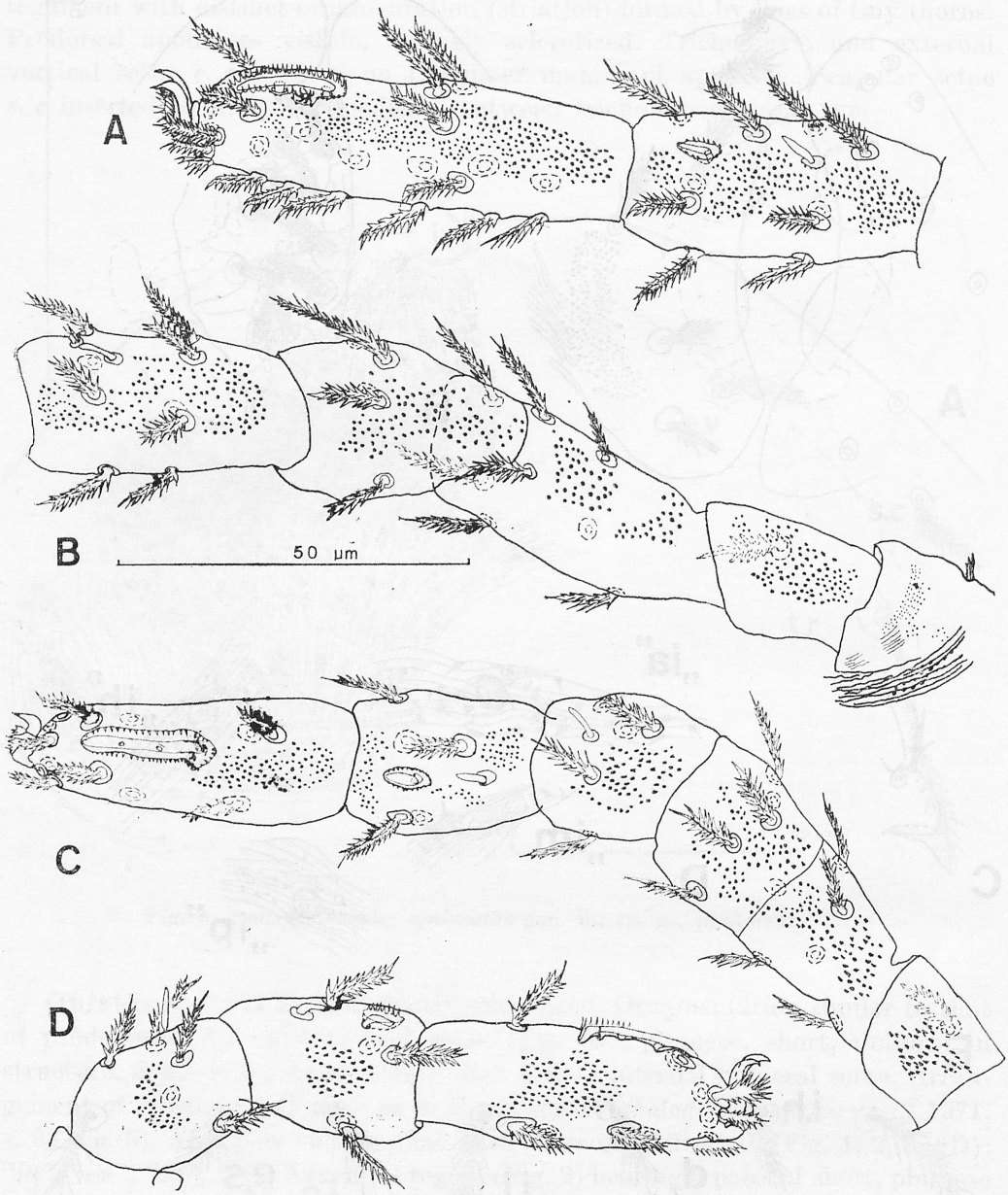

Fig. 7. *Protopenthalodes coniunctus* gen. n., sp. n. A — leg I: tarsus, tibia (left, dorsolateral, antiaxial view); B — leg I: genu, femur, trochanter, epimere (left, dorsolateral, antiaxial view); C — leg II, left, dorsal view; D — leg II: tarsus, tibia, genu (right, lateral, antiaxial view)

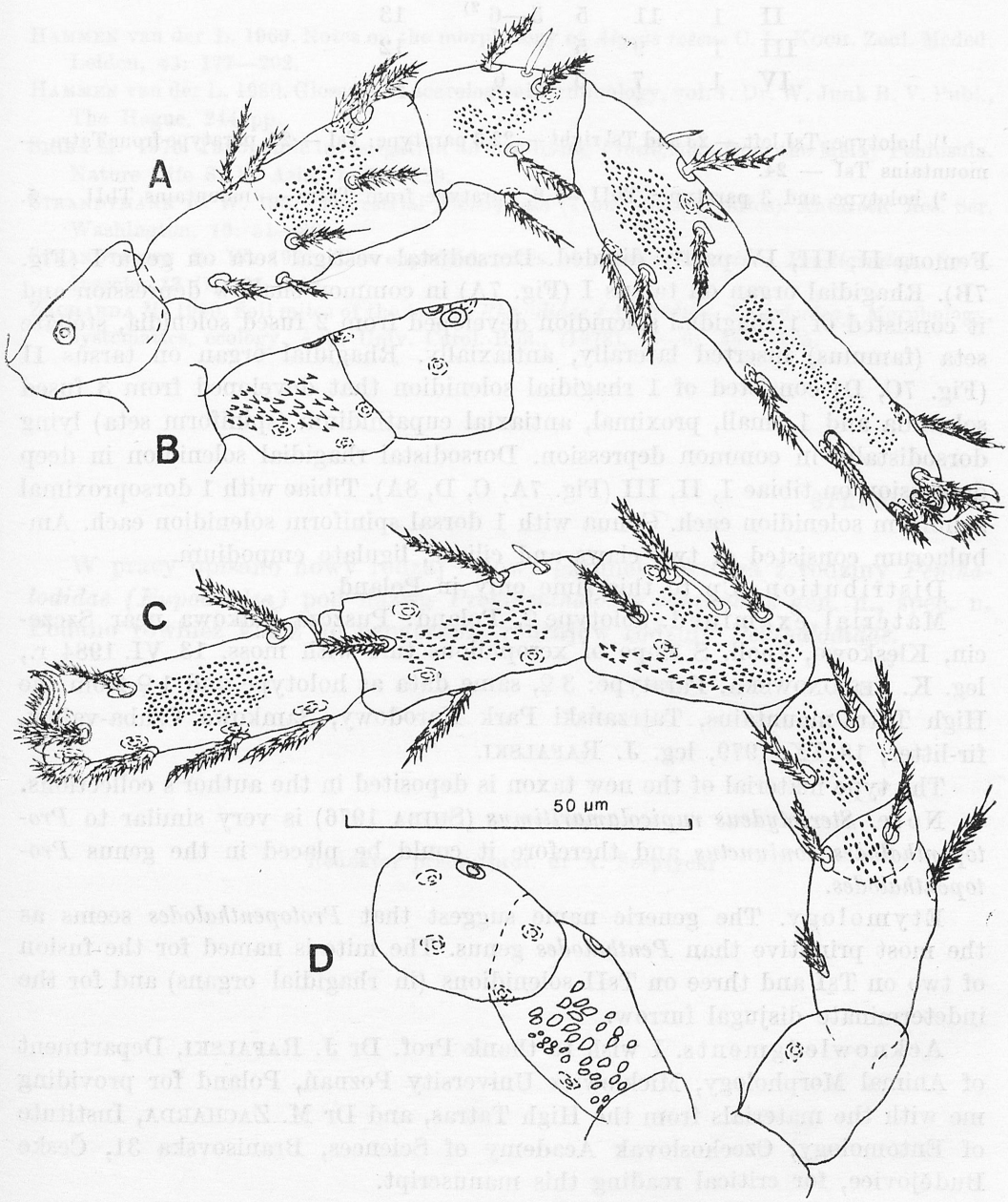

Fig. 8. *Protopenthalodes coninctus* gen. n., sp. n. A — leg III, left, antiaxial, lateral view; B — leg III: femur, ornamentation, paraxial view; C — leg IV, left, antiaxial, lateral view; D — leg IV: femur, ornamentation, paraxial view

Chetotaxy of legs:	Tr	F	G	Tb	Ts
I	1	8+5	9	10	22—24 [1]
II	1	11	5	5—6 [2]	13
III	1	9	5	5	12
IV	1	7	5	6	13

[1]) holotype: TsI left — 23 and Tsl right — 22,3 paratype: TsI — 22, paratype from Tatra — mountains TsI — 24.

[2]) holotype and 3 paratype: TbII — 6, paratype from Tatra — mountains TbII — 5.

Femora II, III, IV partly divided. Dorsodistal vestigal seta on genu I (Fig. 7B). Rhagidial organ on tarsus I (Fig. 7A) in common shallow depression and it consisted of 1 rhagidial solenidion developed from 2 fused solenidia, stellate seta (famulus) inserted laterally, antiaxially. Rhagidial organ on tarsus II (Fig. 7C, D) consisted of 1 rhagidial solenidion that developed from 3 fused solenidia and 1 small, proximal, antiaxial eupathidium (spiniform seta) lying dorsodistally in common depression. Dorsodistal rhagidial solenidion in deep depression on tibiae I, II, III (Fig. 7A, C, D, 8A). Tibiae with 1 dorsoproximal spiniform solenidion each. Genua with 1 dorsal spiniform solenidion each. Ambulacrum consisted of two claws and ciliate, ligulate empodium.

Distribution. Up to this time only in Poland.

Material examined: holotype ♀. Poland: Puszcza Bukowa near Szczecin, Klęskowo, knoll, S slope of xerophilous turf with moss, 13. VI. 1984 r., leg. K. Jesionowska. Paratype: 3 ♀, same data as holotype and 1 ♀ from the High Tatra-mountains, Tatrzański Park Narodowy, Samkowa Czuba-valley, fir-litter, 18. IX. 1979, leg. J. Rafalski.

The type material of the new taxon is deposited in the author's collections.

Note. *Stereotydeus rupicolamaritimus* (Shiba 1976) is very similar to *Protopenthalodes coniunctus* and therefore it could be placed in the genus *Protopenthalodes*.

Etymology. The generic name suggest that *Protopenthalodes* seems as the most primitive than *Penthalodes* genus. The mite is named for the fusion of two on TsI and three on TsII solenidions (in rhagidial organs) and for the indeterminate disjugal furrow.

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REFERENCES

HAMMEN van der L. 1969. Notes on the morphology of *Alycus roseus* C. L. KOCH. Zool. Meded. Leiden, **43**: 177—202.

HAMMEN van der L. 1980. Glossary of acarological terminology, vol. 1. Dr. W. Junk B. V. Publ., The Hague, 244 pp.

SHIBA M. 1976. Taxonomic investigation on free-living *Prostigmata* from the Malay Peninsula. Nature Life S. E. Asia, **7**: 83—229.

STRANDTMANN R. W. 1967. Terrestrial *Prostigmata* (Trombidiform mites). Antarctic Res. Ser. Washington, **10**: 51—80.

STRANDTMANN R. W. 1971. The eupodoid mites of Alaska *(Acarina: Prostigmata)*. Pacif. Insects, **13** (1): 75—118.

ZACHARDA M. 1980. Soil mites of the family *Rhagididae (Actinedida: Eupodoidea)*. Morphology, systematics, ecology. Acta Univ. Carol.-Biol., (1978), (5—6): 489—785.

STRESZCZENIE

W pracy opisano nowy rodzaj i nowy gatunek roztocza z rodziny *Penthalodidae (Eupodoidea)* pod nazwą *Protopenthalodes coniunctus* gen. n., spec. n. Podano również klucz do oznaczania rodzajów rodziny *Penthalodidae*.

Redaktor pracy: prof. dr A. Szeptycki