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A Review of the Family Pherolioididae Paschoal in Australia (Acarina: Cryptostigmata: Plateremaeoidea)

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ABSTRACT. The paper reviews the family Pherolioididae (Plateremaeoidea) in Australia and a rediagnosis is given for the type genus, *Pheroliodes*. A monotypic genus *Neonooliodes* n.gen. is established for *N. ceroplastes* n.sp. Eight new *Pheroliodes* species are described: *P. springthorpei* n.sp., *P. barringtonensis* n.sp., *P. concavus* n.sp., *P. lindsayae* n.sp., *P. lordhowensis* n.sp., *P. monteithi* n.sp., *P. sicarius* n.sp. and *P. transversus* n.sp. *Octoliodes robustus* (Hunt & Lee) is recombined from *Pheroliodes*, a supplementary description and new records given, and a rediagnosis given for genus *Octoliodes*. A key is given for the 11 Australian species currently placed in the Pherolioididae. Characters of special significance for the family are discussed. A key is presented for ten plateremaeoid genera represented in Australia.

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This paper is the fourth in a series on Australian Plateremaeoidea *sensu* Marshall *et al.* (1987). It focusses on the Pherolioididae and particularly *Pheroliodes* Grandjean, the second most speciose genus in the superfamily in Australia after *Pedrocortesella* Hammer (Hunt, 1996a,b,c).

Australian species mostly inhabit ground litter and soils, though *Octoliodes robustus* n.comb. can be very common on tree trunks in moist areas. The family has an essentially Gondwanan distribution, having been recorded from South America, New Zealand, Australia and South Africa, but outliers occur in Florida and in the Mediterranean region.

South American species placed in the family include 16 *Pheroliodes* species (Grandjean, 1964; Covarrubias,

1968; Hammer, 1958; Fernandez, 1987; Paschoal, 1987; Fernandez *et al.*, 1991; Baranek, 1984; 1986; Woas, 1992) and two species in *Lopholiodes* Paschoal (Paschoal, 1987). *Pheroliodes* also occurs in the Galapagos Islands (H. Schatz, pers. comm.), and one species has been recorded from Florida (Marshall *et al.* 1987). New Zealand includes two species originally placed in *Pedrocortesella* Hammer but subsequently placed in the genus *Octoliodes* by Paschoal (1987). There is a questionable record of *Pheroliodes* from South Africa (Balogh & Mahunka, 1966) and *Nooliodes glaber* (J. Balogh) from Madagascar may be referable to the Pherolioididae (see below). Mediterranean region records include two *Licnoliodes* species which Paschoal (1987) places in the Pherolioididae. Species from the eastern

Palaearctic ascribed to *Pedrocortesia*, for example by Ryabinin (1986), apparently belong in *Pedrocortesella* or closely allied taxa (Hunt, 1996a).

The Australian pherolioidid fauna now comprises 11 species, including nine species in *Pheroliodes* (see key below).

Methods

Descriptions apply to adults only. *Pheroliodes springthorpei* n.sp. is described first as an exemplar and descriptions of other species follow, arranged in alphabetical order. A Cambridge Stereoscan 120 with Robinson Detector was used for SEM. The holotype of the type species and holotypes of Hammer's New Zealand species and P. Balogh's Australian species have been examined. The following abbreviations are used to indicate the present location of material: AM—Australian Museum, Sydney; ANIC—Australian National Insect Collection, Canberra; CNC—Canadian National

Collections of Insects, Arachnids and Nematodes, Ottawa; ELU—Zoosystematical and Ecological Institute, Eotvos Lorand University, Budapest; FMNH—Field Museum of Natural History, Chicago; QM—Queensland Museum, Brisbane; SAMA—South Australian Museum, Adelaide; WAM—Western Australian Museum, Perth; ZMK—Zoologisk Museum, Kobenhavn.

Specimens are preserved in alcohol unless otherwise stated.

Many structures referred to in descriptions and the key are illustrated with their abbreviations in Figure 1 of Hunt (1996a) and Fig. 22 below. The systems of notogastral and leg setal notation used in this paper follow Grandjean (1964). Measurements are in micrometers and ratios of notogaster length to width in descriptions are given in the actual measures, e.g., 540:460, for each specimen measured. The abbreviation "ill." means the SEM was used to illustrate the species in descriptions. Illustrations used in Figures are of specimens from the type locality unless otherwise stated.

Systematics

Key to adults of plateremaeoid genera in Australia

N.B., for identification under transmitted light the animal should be cleared. Scalps, if present, should be noted and removed to make examination easier)

- 1 Prodorsum with enantiophyses present on transverse furrow (Fig. 1C) (Pherolioididae) 2
- Prodorsum without enantiophyses on transverse furrow 4
- 2 Prodorsum anterior to transverse furrow foveate (Fig. 1C) or unpatterned (Fig. 16B) *Pheroliodes* Grandjean
- Prodorsum anterior to transverse furrow conspicuously reticulate (Fig. 17B) 3
- 3 Notogaster dorsally faintly reticulate-alveolate (Fig. 19A); ventral plate strongly reticulate (Fig. 20A)..... *Neonooliodes* n.gen.
- Notogaster dorsally strongly foveate (Fig. 17F); ventral plate not reticulate but may be heavily folded (Fig. 18A) *Octoliodes* Paschoal
- 4 Sensillus filiform; notogaster more or less uniformly concave or saucer-shaped with rim the highest contour..... *Plateremaeus* Berlese
- Sensillus with a narrow petiole but expanding distally into a flat blade or rounded club; notogaster flattened or convex centrally, with or without concave areas 5
- 5 Notogaster covered with tangled threads of cerotegument; leg segments very long, narrow basally, and bearing long setae cloaked in cerotegument..... genus allied to *Gymnodamaeus* Kulczynski
(Australian species not studied in detail)
- Notogaster and legs not with these attributes 6

- 6 Sensillus terminating in a flattened blade..... *Pedrocortesella* Hammer
- Sensillus terminating in an ovoid or spherical club 7
- 7 Notogaster with a seta (seta *lm*) or its alveolus mesad of (and slightly posterior to) fissura *im*; foveae on notogaster each with central mound (central area appearing darker in transmitted light) *Hexachaetoniella* Paschoal
- Notogaster without a seta or its alveolus mesad of fissura *im*, all notogastral setae well posterior to fissura *im*; foveae if present without central mound..... 8
- 8 Anal valves with 3 pairs of setae..... 9
- Anal valves with 2 pairs of setae..... 10
- 9 Notogaster dorsally with complete oval groove or depression inside its margin; iterate setae present on tarsus of leg IV *Darthvaderum* Hunt
- Notogaster dorsally without complete oval groove or depression inside its margin, groove interrupted posteriorly; iterate setae absent from tarsus of leg IV *Pedrocortesella enigma* Hunt
- 10 Sensillus club at least partly within bothridium; subcapitulum without a mental tectum *Novazelandiella* Paschoal
- Sensillus club above rim of bothridium; subcapitulum with a mental tectum 11
- 11 In dorsal view, marginal zone of notogaster free of foveae; prodorsum with poorly developed transverse furrow *Labiogena* Hunt
- In dorsal view, foveae extend over entire width of notogaster; prodorsum with well-developed transverse furrow *Pedrocortesella nortoni* Hunt

Family Pherolioididae Paschoal, 1987

Character Descriptions

Some characters of relevance to the superfamily Plateremaeoidea, particularly the family *Pedrocortesellidae*, have been discussed by Hunt (1996a). Some characters of special relevance to the Pherolioididae are treated here.

Cerotegument. In many *Pherolioides*, the larger tubercles of cerotegument covering much of the body and legs have a fluted appearance, not unlike the head of a Phillip's screwdriver (Figs 7E, 9D) and resembling the "stellate" tubercles of *Pedrocortesella*. The smaller tubercles tend to be in the form of more uniformly rounded cushions. The tubercles have a porous appearance at high magnification.

In *Neonooliodes* n.gen. cerotegument occurs as honeycomb-like reticular masses. A survey of cerotegument forms in the Plateremaeoidea may be worthwhile. However, being derived from a secretion,

its precise form within a species may be subject to environmental influences.

Integumental sculpturing. In most Pherolioididae the integument of the prodorsum and notogaster is foveate (Fig. 10F). The reticulate prodorsum of *Octoliodes* (Fig. 17B) and notogaster of *Neonooliodes* n.gen. (Fig. 19A) are diagnostic of these taxa. The presence and nature of cuticular folds and thickenings on the notogaster and ventral plate are useful specific characters.

In *Pherolioides*, *Hexachaetoniella* and *Labiogena* the border zone of the notogaster is essentially free of microsculptural pitting (Fig. 1A), whereas in *Pedrocortesella* the foveae or other pits occur across the entire dorsal surface.

Prodorsal enantiophyses. These are opposing horns or swellings on either side of the transverse furrow on the prodorsum (Fig. 1C) and are diagnostic of the family. The horns are in contact or nearly so. Development of the anterior horn may be less strong than the posterior. Under the stereomicroscope, they are usually best recognised in lateral view.

Transverse bar anterior to transverse furrow. The prodorsum anterior to the transverse furrow tends to be rounded in form in the Pedrocortesellidae though there may also be a transverse carina. A bar of more dominant form tends to develop in some Pherolioididae. This may be of subuniform width with a steep transition towards the rostrum as in *Pheroliodes copiosus* Hunt & Lee, or it may be narrow or essentially missing mesally giving the remaining lateral portions a cheek-like appearance, as in *P. monteithi* n.sp. (Fig. 12B). Its form appears to be a useful species character although the amount of intraspecific variation in this character is not fully understood. The bar may have an accessory spur, and laterally is continuous with the carina between setae *le* and *ro*.

Seta *ex*. This seta is present in the Pherolioididae but absent in the Pedrocortesellidae.

Form of bothridium. The posterior part of the bothridial rim is high and may even tend to curve over the bothridial cavity. This contrasts to the depressed or missing posterior wall in many *Pedrocortesella* spp. which relates to its more intimate contact with the notogaster in these species. The strength of the posterolateral carina is a species character.

Form of sensillus. In Australian *Pheroliodes* spp. and *Neonooliodes* n.gen., the sensillus has a long petiole which expands very gradually into a narrow terminal lamina, appearing much more delicate than the wider lamina typical of *Pedrocortesella*. The relatively short and less delicate sensillus of *Octoliodes* may be related to the more arboreal tendencies of this species (see Hunt, 1996a,b for discussion on sensillus shape).

Notogastral setae. The pherolioidid distribution of setae is regarded as more primitive than *Pedrocortesella* (Hunt, 1996a) as it more closely resembles the nymphal condition. In *Octoliodes*, setae *p2* and *p3* are close together but removed from *p1*, which Paschoal (1987) regarded as a generic character. This condition also

occurs in some *Pheroliodes* spp., however. Insertion of setae in *Octoliodes*, particularly *h1* and *p1*, atop tubercles is a possible generic character, though *Neonooliodes* shows a similar tendency.

Pedipalp tarsus. The short apophysis supporting seta *acm* and the barbed seta *l''*, resemble the *Pedrocortesella* condition.

Epimeral enantiophyses. The posterolateral corner of epimeron 2 in Australian *Pheroliodes*, and at least some South American species (Baranek, 1984; 1986), tends to have a horn-like process which opposes a similar process on the anterolateral corner of epimeron 3.

Anal neotrichy. The usual pherolioidid number of anal setae is three pairs, but in Australian *Pheroliodes* spp. the number varies from three to seven pairs, with asymmetry common. This is apparently a neotrichous condition, a tendency which may be restricted to Australian species. Occasionally there may be four pairs of adanal setae, rather than three.

Form of the tarsal cluster on legs I and II. Seta *fi''* is not enclosed in a common rim with solenidia *omega 1* and *omega 2*, unlike the more integrated cluster typical of *Pedrocortesella* (Hunt, 1996a). The rim surrounding the solenidia is often extended distally into a lip or process which overhangs the area of tarsus proximal to the unguinal complex. This is apparently modified in two species with lateral extensions of the lip forming a concavity in the tarsus proximal to the unguinal complex. The lip is possibly restricted to Australian *Pheroliodes*. The position in the tarsal cluster of the chitinised ring surrounding the opening to the cavity containing the undeveloped famulus is a species character. It has a distad-facing position ventral to the solenidia in *Octoliodes*.

Stalk supporting claws. The length of the stalk is a species-level character.

Key to adults of Australian species of Pherolioididae

N.B., for identification under transmitted light the animal should be cleared. Scalps, if present, should be noted and removed to make examination easier)

- 1 Ventral plate with thick honeycomb-like masses of cerotegument (Fig. 19C, 20A) *Neonooliodes ceroplastes* n.sp.
- Cerotegument on ventral plate in form of discrete tubercles 2
- 2 Prodorsum with reticulate pattern anterior to transverse furrow (Fig. 17B); ventral plate heavily folded *Octoliodes robustus* (Hunt & Lee) n.comb.
- Prodorsum away from rostrum foveate or unpatterned (Figs 1C, 4B) 3

- 3 Femur of leg IV with large distoventral blade-like spine (Fig. 15E) *Pherliodes sicarius* n.sp.
- Femur of leg IV without a large distoventral blade-like spine 4
- 4 Tarsus of leg I with distal concavity (arrow, Fig. 6E)..... 5
- Tarsus of leg I without distal concavity (Fig. 3) 6
- 5 Dorsal surface of leg I tarsus extensively ribbed with cerotegument (Fig. 13B,C) and/or notogaster without strong anteromesal longitudinal furrow (Fig. 14A) *Pherliodes monteithi* n.sp.
- Dorsal surface of leg I tarsus not extensively ribbed with cerotegument and/or notogaster with strong anteromesal longitudinal furrow (Fig. 6A)..... *Pherliodes concavus* n.sp.
- 6 Notogaster in posterior view heavily folded (just visible under good stereomicroscope) (Fig. 8F) *Pherliodes lindsayae* n.sp.
- Notogaster in posterior view not heavily folded (Fig. 1E)..... 7
- 7 Setae *lp* transverse, i.e. oriented strongly towards midline (Fig. 16F)..... *Pherliodes transversus* n.sp.
- Setae *lp* not markedly transverse, i.e. not oriented strongly towards midline (Fig. 1E) 8
- 8 Notogaster with short anteromesal longitudinal carina (fig. 11E, Hunt & Lee, 1995) *Pherliodes copiosus* Hunt & Lee
- Notogaster without short anteromesal longitudinal carina but may have furrow (Figs 1A, 10A) 9
- 9 Prodorsal bar anterior to transverse furrow with transverse or slightly recurved anterior margin with accessory carina directed anteromesad (Fig. 10B). Lord Howe Island *Pherliodes lordhowensis* n.sp.
- Prodorsal bar anterior to transverse furrow with procurved anterior margin lacking an accessory carina directed anteromesad (Fig. 1C). Mainland Australia 10
- 10 Opening to cavity containing undeveloped famulus not on distal extremity of rim of tarsal cluster, placed more anteriorly (Fig. 3B) *Pherliodes springthorpei* n.sp.
- Opening to cavity containing undeveloped famulus on distal extremity of rim of tarsal cluster (Fig. 3B) *Pherliodes barringtonensis* n.sp.

Pherliodes Grandjean, 1931

Pherliodes Grandjean, 1931: 249; 1964: 383.—Covarrubias, 1968: 692.—Fernandez, 1987: 186.—Paschoal, 1987: 359; 1989b: 197.—Balogh & Balogh, 1992: 47.—Woas, 1992: 144–146.—Hunt & Lee, 1995: 235.
Pherliodes (sic): Balogh, 1972: 58.—Balogh & Balogh, 1988: 92.
Pedrocortesia Hammer, 1958: 40.—Ryabinin, 1986: 341–42 (synonymised by P. Balogh, 1985: 51)

Type species. *Cymbaeremaeus wehncke* Willmann, 1930 by original designation.

Diagnosis. Prodorsum with deep transverse furrow carrying enantiophyses, foveate or unpatterned anterior to transverse furrow, not reticulate; *ex* present; sensillus in Australian species with long petiole expanding gradually into lamina; notogaster continuously convex, without depressed area inside margin; notogaster foveate-

reticulate centrally, without foveae around its margins; ventral plate and legs not reticulate; 3–7 pairs of anal setae; distal lip of rim of tarsal cluster often present, distal recess or concavity, if present, roofed by lip; tarsus of leg IV without iterate setae.

Description

Medium to large sized plateremaeoid mites (500–1000 µm); integument with fluted tubercles of cerotegument; notogaster with or without exuvial scalps; prodorsum with deep transverse furrow carrying enantiophyses (opposing horns); prodorsum anterior to transverse furrow with a transverse bar continuous with carina between setae *le* and *ro*; prodorsum foveate or unpatterned, not reticulate away from rostrum; seta *ex* present; seta *in* small and arising from small apophysis; bothridium with strong or weak posterolateral carina; bothridium abutting notogaster but posterior wall not depressed; sensillus a flattened (though in Australian species less broad than *Pedrocortesella*), covered with tubercles; notogaster convex, not concave intramarginally, often with longitudinal anteromesal furrow or carina; foveate centrally and with foveae-free border; 5 pairs of notogastral setae, setae *p2* and *p3* situated low on the posterior flank ventrolateral to setae *p1*; *lp* situated close to fissura *ip*; *lm* (*r3*) absent; pedipalp tarsus with short apophysis supporting seta *acm*, seta *l''* with barbs; epimeral chaetotaxy 3:1:3:3; ventral plate without honey-comb reticulation pattern, 7 pairs of genital setae (10 in *P. inca* Fernandez *et al.*); 1 aggenital seta lateral to each genital valve; 3–7 anal setae on either valve, sometimes asymmetrical in number, 3–4 adanal setae, *ad1* usually lateral to posterior 20% of anal valve; legs without conspicuous reticulation pattern of cerotegument; *ft''* of tarsus I not enclosed in same rim as solenidia; famulus usually undeveloped and enclosed within cavity; claw stalk long or short; tarsus of leg IV without iterate setae.

Descriptions of *Pheroliodes* species

Pheroliodes springthorpei n.sp.

Figs 1, 2, 3A,B

Type material. New South Wales: HOLOTYPE adult. AM KS46603 SEM stub no. S/128 (ill.), Mosman, Parriwi Park, ca 33°50'S 151°15'E, berlesate litter and soil, beneath *Casuarina*, G.S. Hunt, 16 June 1992. PARATYPE adults, AM KS46604 SEM stub no. S/080 (ill.), West Head, Ku-ring-gai Chase National Park, 33°35'S 151°18'E, dry sclerophyll, *Casuarina* dominant, berlesate leaf litter, G.S. Hunt, 1 May 1992, 4 adults; AM KS46605 SEM stub no. S/088-02, same data, 2 adults (together on stub).

Diagnosis. Transverse bar in front of transverse furrow narrow mesally with procurved anterior edge; notogaster without anteromesal longitudinal carina, with weak

anteromesal longitudinal furrow, posteriorly not heavily folded; setae *lp* not oriented strongly towards midline; 3–4 pairs anal setae; dorsal surface of leg I tarsus not extensively ribbed with cerotegument; tarsus of leg I without distal concavity; rim around tarsal cluster not produced into a strong distal lip overhanging distal part of tarsus; sclerotised ring surrounding opening of cavity containing undeveloped famulus on distal extremity of rim of tarsal cluster; femur of leg IV without a large distoventral blade-like spine; stalk short.

Description

ADULT: Body light brown, length 570 µm, 650 µm. **Cerotegument:** body and legs covered in closely spaced tubercles, many fluted to resemble a Phillips screwdriver head (Fig. 2D). Setae *ro* and *le*, notogastral setae and some leg setae with dense pile of cerotegument (Fig. 1E). **Prodorsum:** transverse furrow with a smaller mesal transverse furrow anterior to it; transverse bar in front of transverse furrow narrow mesally (in comparison with *P. copiosus* Hunt & Lee (1995, fig. 7D)) with procurved anterior edge but no accessory carina directed anteromesad (Fig. 1C); area immediately anterior to bar foveate; setae *le* lateral, distance between them about 0.8 distance between *ro*, *ro* ventrolateral; pedotectal tooth smooth, strongly curved anteriorly; bothridium abutting notogaster (Fig. 1D), rim subcircular, anterolateral rim much lower than posterolateral rim, posterolateral carina strong; sensillus long, expanding gradually to blade from slightly above bothridial rim, tuberculate from bothridial rim (Fig. 1D); *in* arising from apophysis at edge of dorsosejugal suture and separated by about 0.5 bothridial diameter from bothridial wall, small, acute, proximally with heavy cerotegument (Fig. 1D); *ex* anterolateral to base of bothridium, small, largely covered with cerotegument granules; posterior margin of prodorsum between bothridia smooth and straight. **Notogaster:** exuvial scalps not seen. Ratio length: breadth 480:370; centrally foveate, smooth around borders (Fig. 1A) except for dense tubercles of cerotegument. Fissura *ia* subparallel-oblique and *im* and *ip* oblique to sagittal plane. Very weak anteromesal furrow, no anteromesal carina, posteriorly not heavily folded; posterior margin convex with a small elevation between setae *hl* when viewed dorsally, with small vertical carina between setae *p1* and a shallow transverse furrow between *hl* and *p1* when viewed posteriorly (Fig. 1E). Setae *hl* moderately long, close together and inserted near posterior margin; setae *lp* inserted on posterior margin posteromesad of *ip*, not strongly curved mesad; *p1*, *p2* and *p3* situated low on posterior flank, in decreasing size order. **Gnathosoma:** mentum with strong transverse carina immediately anterior to setae *h* and a mesal carina at labiogenal suture; rutella posteriorly with slight concave flexure (Fig. 2B); length of apophysis supporting pedipalp tarsal seta *acm* < 0.5 seta length, solenidium reaching above base of *acm*, seta *l''* strongly barbed and set ventrally on antiaxial surface (Fig. 2C). **Genitoanal region:** ventral plate foveate posterolaterally. Chaetotaxy

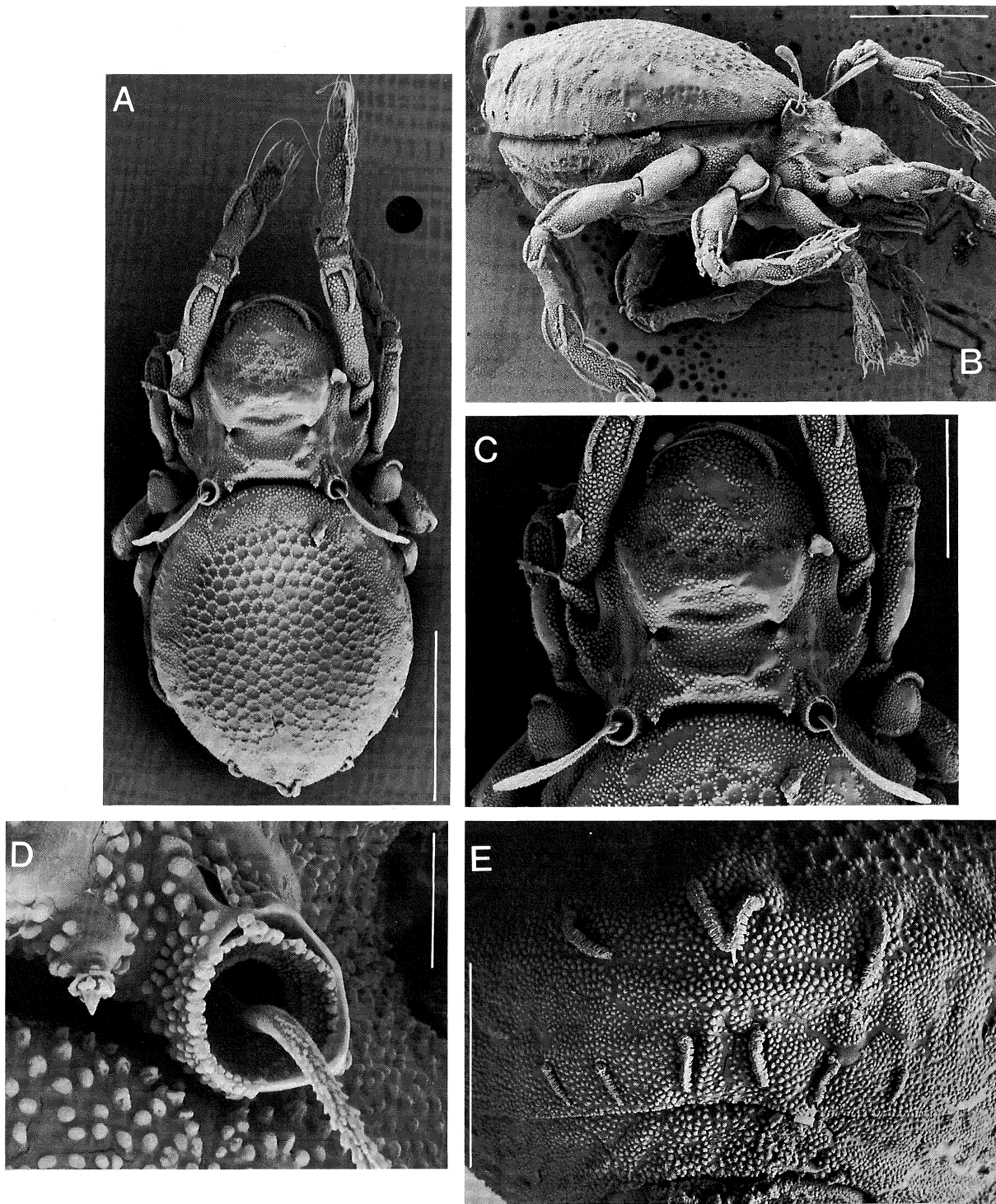


Fig. 1. *Pheroliodes springthorpei* n.sp. A,B, body, dorsal and lateral; C, prodorsum, dorsal; D, bothridium and seta *in*; E, notogaster, posterior. Scale bars: A,B = 200 μ m; C,E = 100 μ m; D = 20 μ m. A,C–E = Ku-ring-gai Chase; B = Mosman

7:1:3–4:3; setae *g1* and *g7* set in marginal notches in inner corners of genital valve, other setae in straight file close to lip of valve (Fig. 2D); seta *ag* close to lateral margin of valve (Fig. 2D); anal setae often asymmetrical in number; insertion of seta *ad1* at level of posterior margin of anal valve or slightly anterior to it, *ad2* at

about 0.5 valve length, *ad3* adjacent to proximal 40% of valve, subequal to *ad2* in separation from anal valve (Fig. 2E). *Leg I.* Smooth except for cerotegument tubercles (Fig. 3A). Apophysis on tibia overhanging about 0.25 tarsus, dorsal surface of tarsus forming a smoothly sloping crest terminating in tarsal cluster (Fig.

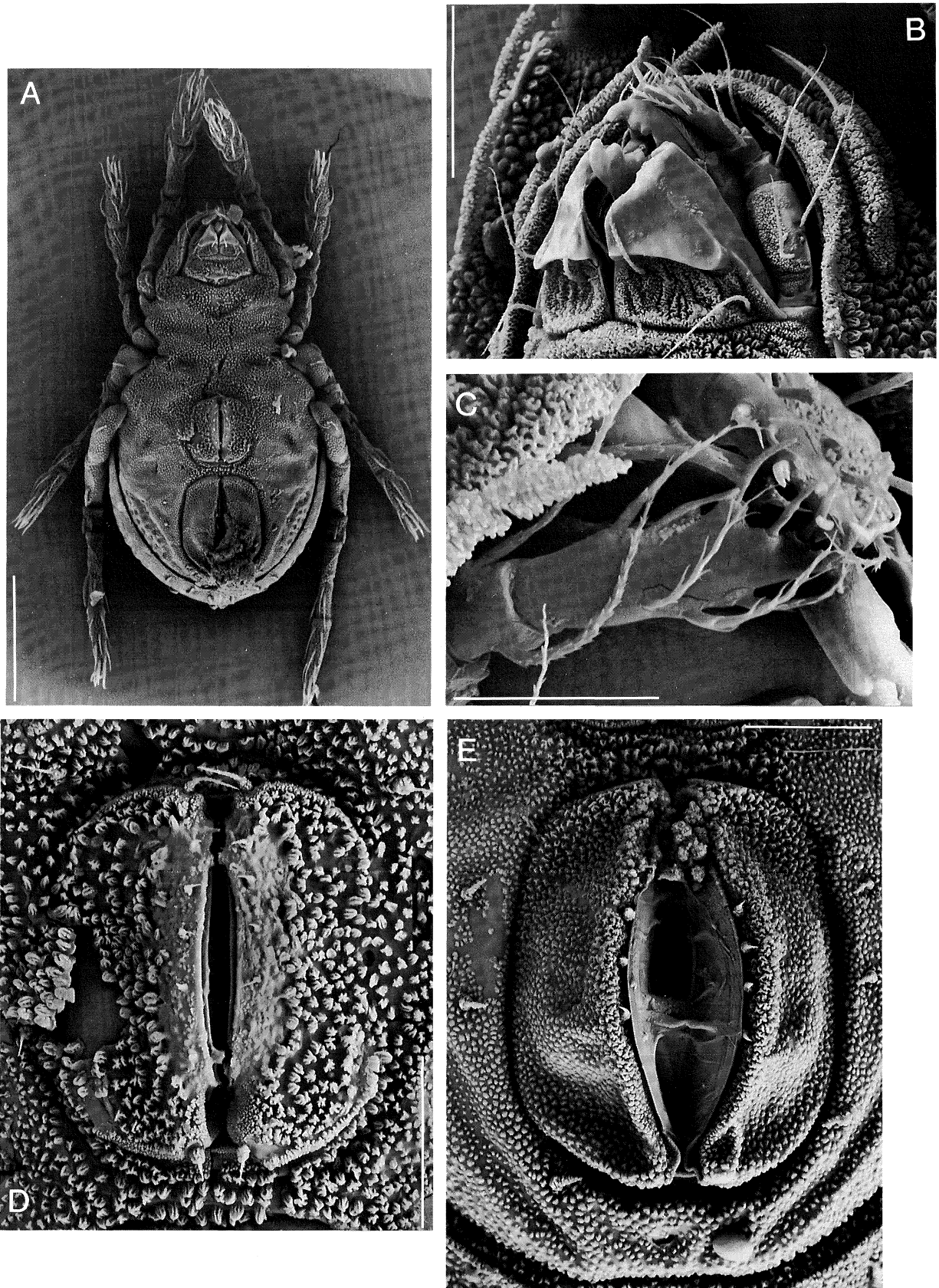


Fig. 2. *Pheroliodes springthorpei* n.sp. A, body, ventral; B, subcapitulum, ventrolateral; C, pedipalp tarsus, antiaxial; D, genital valves; E, anal valves. Scale bars: A = 200 μm ; B,D,E = 50 μm ; C = 20 μm .

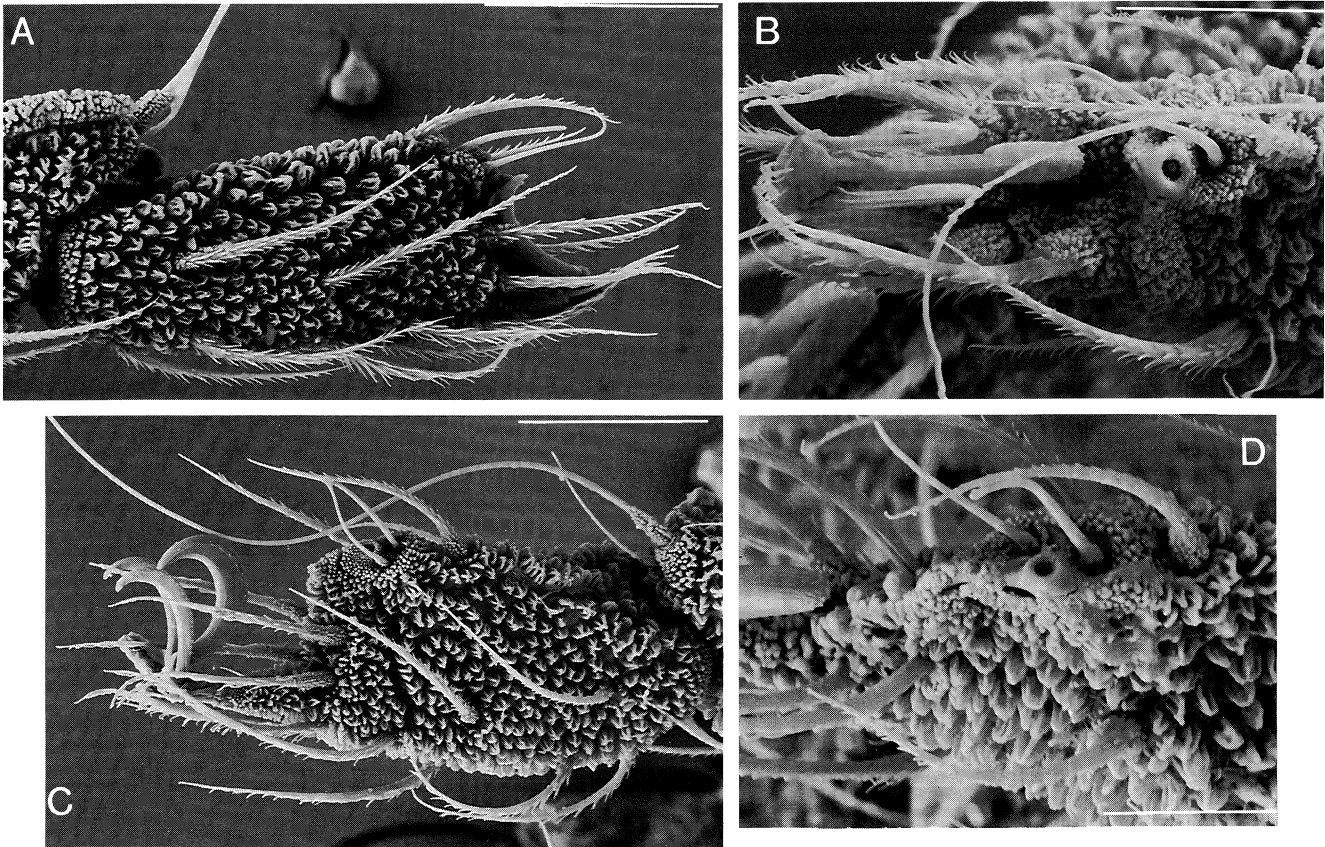


Fig. 3. *Pheroliodes springthorpei* n.sp. leg I tarsus: A, antiaxial; B, distal region, dorsal. *Pheroliodes lindsayae* n.sp. leg I tarsus: C, antiaxial; D, distal region, dorsal. Scale bars: A,C = 50 μ m; B,D = 20 μ m. A = Mosman; B = Ku-ring-gai Chase.

3A), seta *ft*" situated at highest point and arching gently distad, *omega 1* and *2* inserted at more ventral level, sclerotised ring surrounding opening of cavity containing undeveloped famulus at distodorsal extremity of tarsus paraxial to *omega 2* (Fig. 3B), seta *tc*" inserted directly ventral to *omega 2*; setal barbs long; stalk short (Fig. 3A). *Leg II* tarsal cluster rim with strong distal lip similar to *P. copiosus*.

Etymology. The specific epithet acknowledges the help Roger Springthorpe has given me for several years in the preparation of illustrations for publication.

Distribution. New South Wales: Sydney area.

***Pheroliodes barringtonensis* n.sp.**

Figs 4, 5

Type material. New South Wales: HOLOTYPE adult. AM KS46596 SEM stub no. S/424 Gloucester River, Barrington Tops National Park, 32°04'S 151°41'E, rainforest leaf litter, ANIC berlesate 750, T. Weir and A. Calder, 12–14 November 1981. PARATYPE adults. AM KS46597 SEM stub no. S/202 (ill.), same data as holotype, 1 adult; AM KS46598 SEM stub no. S/425 (ill.), Allyn River, Chichester State Forest, 32°12'S

151°26'E, rainforest leaf litter, ANIC berlesate 747, T. Weir and A. Calder, 10–11 November 1981, 2 adults; AM KS46599 SEM stub no. S/105 (ill.), same data, 1 adult; AM KS46600 SEM stub no. S/106 (ill.), same locality and collector data, ANIC berlesate 748, 1 adult.

Diagnosis. Transverse bar anterior to transverse furrow excavated mesally reducing bar to essentially a pair of lateral "cheeks"; notogaster without short anteromesal longitudinal carina or groove, posteriorly not heavily folded; setae *lp* not oriented strongly towards midline; 3–5 pairs anal setae; dorsal surface of leg I tarsus not extensively ribbed with cerotegument and lacking distal concavity; rim around tarsal cluster produced into a distal lip or process which strongly overhangs distal part of tarsus; alveolus of seta *epsilon* not on distal extremity of rim of tarsal cluster; femur of leg IV without large distoventral blade-like spine; stalk long.

Description

ADULT: Differs from *P. springthorpei* in the following: body longer, length 820 μ m. Setae *ro* and *le*, notogastral setae and leg setae without dense pile of cerotegument. *Prodorsum:* transverse furrow with only a suggestion of a smaller mesal transverse furrow anterior to it; transverse

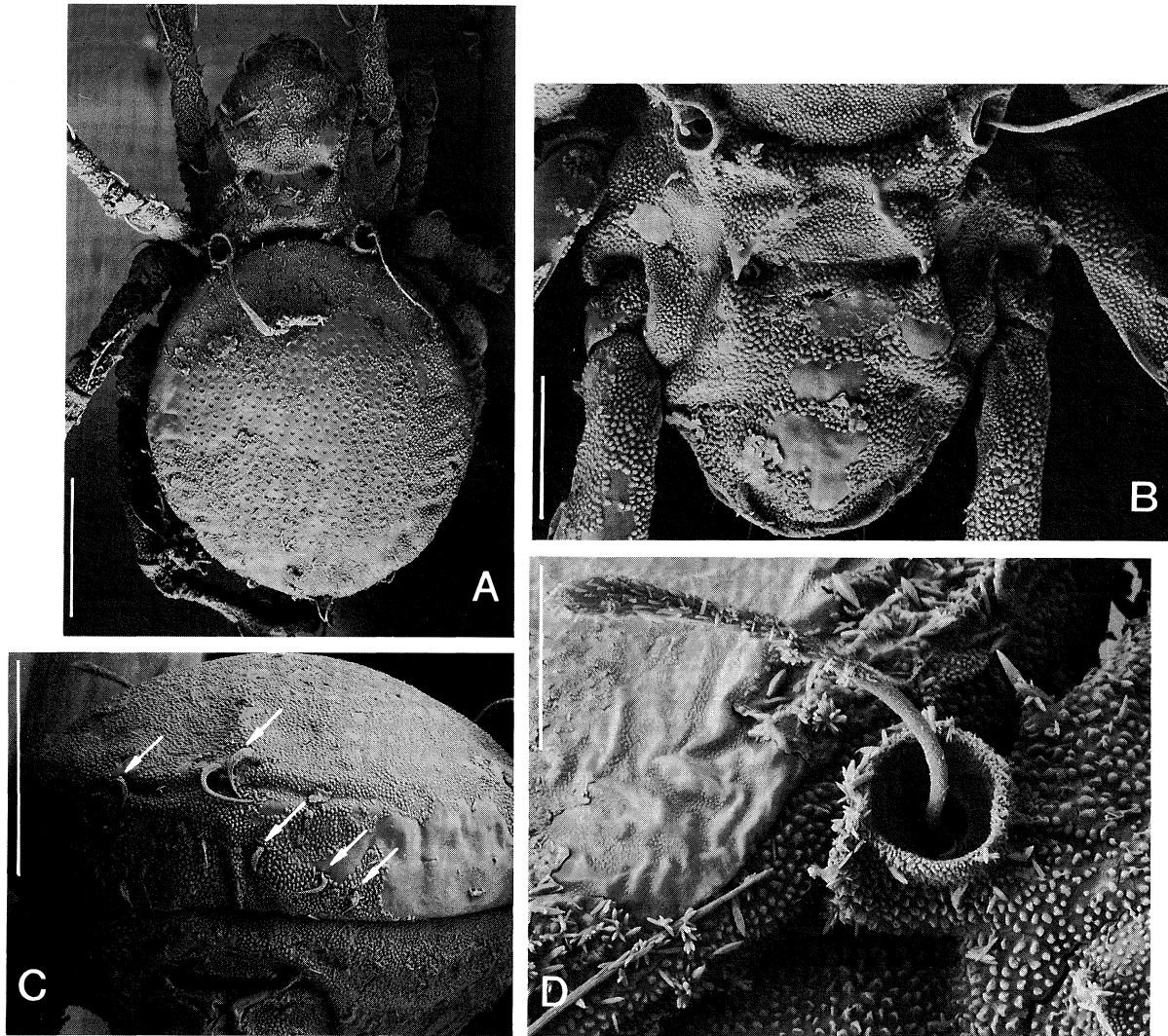


Fig. 4. *Pheroliodes barringtonensis* n.sp. A, body, dorsal; B, prodorsum, dorsal; C, notogaster, posterior, arrows left to right label setae *lp* (left side) and setae *hl* (right side), *p1*, *p2* and *p3*; D, bothridium, sensillus, setae *in* and *ex*. Scale bars: A–C = 200 μ m; D = 50 μ m. A–D = Allyn River.

bar anterior to transverse furrow excavated mesally reducing bar to essentially a pair of lateral “cheeks” (Fig. 4B), no area of prodorsum obviously foveate though some dimpling of integument occurs; setae *le* dorsolateral, distance between them about 0.75 distance between *ro*; sensillus blade narrower; margin of prodorsum between bothridia gently curved. *Notogaster*: ratio length: breadth 530:470; foveae more widely spaced (Fig. 4A); fissura *ia*, *im* and *ip* oblique to sagittal plane. Anteromesal groove absent; setae *hl* short, tending to be twisted to one side; *Gnathosoma*: mentum without strong transverse carina (Fig. 4B). Pedipalp not studied. *Genitoanal region*: ventral plate not obviously foveate but dimples probably equivalent (Fig. 4A,C); genital valve with small longitudinal foveae. Genitoanal chaetotaxy 7:1:4–5:3–4; anal setae often asymmetrical in number; insertion of seta *ad1* at level of posterior margin of anal valve or slightly anterior to it, *ad2* adjacent to posterior 40% of valve, *ad3* adjacent to proximal 40% of valve, *ad4* if

present adjacent to anterior 25% of valve (Fig. 4C). *Leg I*. Femur 2 with short mid-ventral keel. Tarsus with dorsal anti-axial carina (Fig. 5D) continuous with rim of tarsal cluster; rim of tarsal cluster projecting distad in lip similar to *P. copiosus* (Hunt & Lee, 1995, fig. 16G); *omega 1* and *2* inserted at about same dorsal level as *ft*”, sclerotised ring surrounding opening of cavity containing undeveloped famulus not at distodorsal extremity of tarsal cluster rim, located paraxially between *omega 1* and *2* (Fig. 5D,F), seta *tc*” inserted ventral and slightly distal to *omega 2*; stalk moderately long (Fig. 5D). *Leg II* tarsal cluster rim with very long distal lip (Fig. 5E).

Etymology. The specific epithet refers to Barrington Tops, the general area in which the species has been collected.

Distribution. New South Wales: Barrington Tops area, near Newcastle.

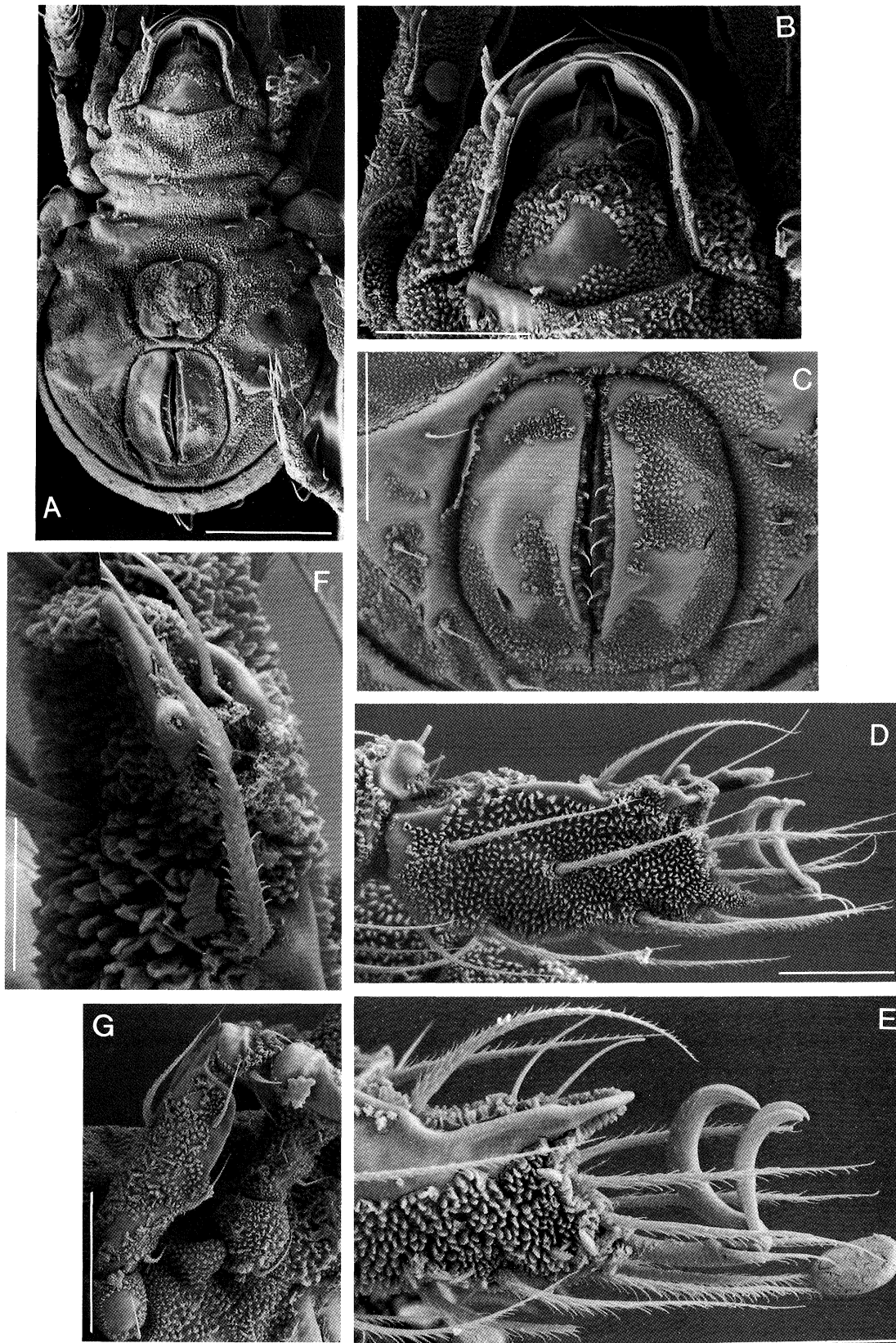


Fig. 5. *Pheroliodes barringtonensis* n.sp. A, body, ventral; B, subcapitulum; C, anal valves; D, leg I tarsus, antiaxial; E, leg II tarsal cluster, antiaxial; F, tarsus I detail, dorsodistal (proximal end at bottom); G, pedotectal tooth *p* and femur leg II. Scale bars: A = 200 μ m; B,C,G = 100 μ m; D,E = 50 μ m; F = 20 μ m. A,B,D-F = Allyn River; C = Gloucester River.

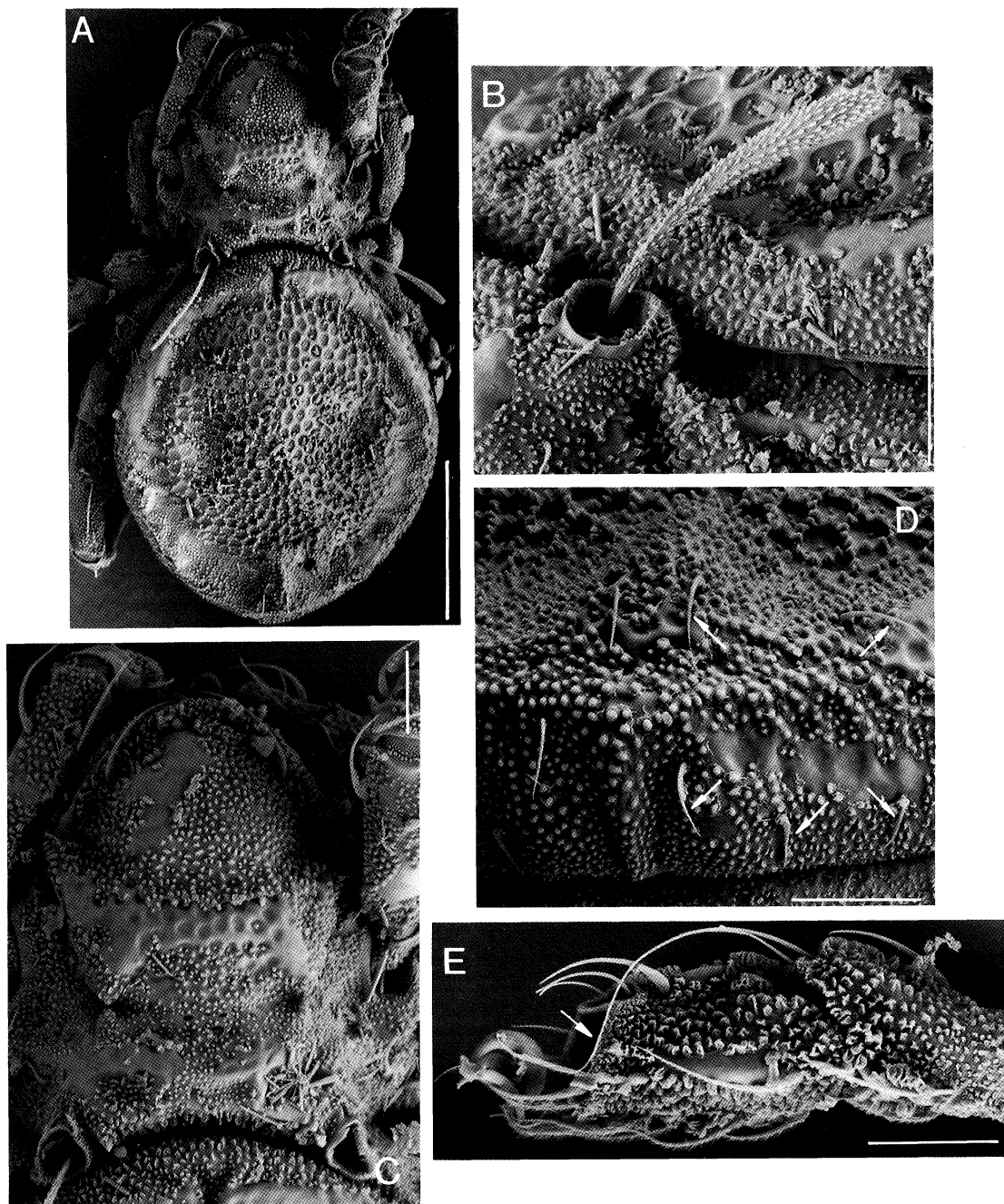


Fig. 6. *Pheroliodes concavus* n.sp. A, body, dorsal; B, bothridium, sensillus and setae *in* and *ex*, lateral; C, prodorsum, dorsal; D, notogaster, part of posterior region, upper arrows left to right label setae *hl* and *lp*; lower arrows left to right label *p1*, *p2*, and *p3*; E, leg I tibia (distal) and tarsus, antiaxial, arrow to distal concavity. Scale bars: A = 200 μ m; B–E = 50 μ m.

***Pheroliodes concavus* n.sp.**

Figs 6, 7

Type material. New South Wales: HOLOTYPE adult. AM KS43826, Kiwarrak State Forest, 31°58'S 152°26'E, berlesate of litter in central burning area, Forestry Commission, BLK/800 C/A7, A10, A14, A15 pooled, 1991. PARATYPE adults. AM KS46619 SEM stub no. S/113 (ill.), same data as holotype, 4 adults; AM KS43827, same data, 1 adult.

Diagnosis. Transverse bar in front of transverse furrow narrow mesally with procurved anterior edge; notogaster without short anteromesal longitudinal carina but with strong longitudinal furrow, posteriorly not heavily folded; setae *lp* not oriented strongly towards midline; 4–5 pairs anal setae; dorsal surface of leg I tarsus moderately ribbed with cerotegument; tarsus of leg I with distal concavity; rim around tarsal cluster produced into a distal lip or process which strongly overhangs distal part of tarsus; sclerotised

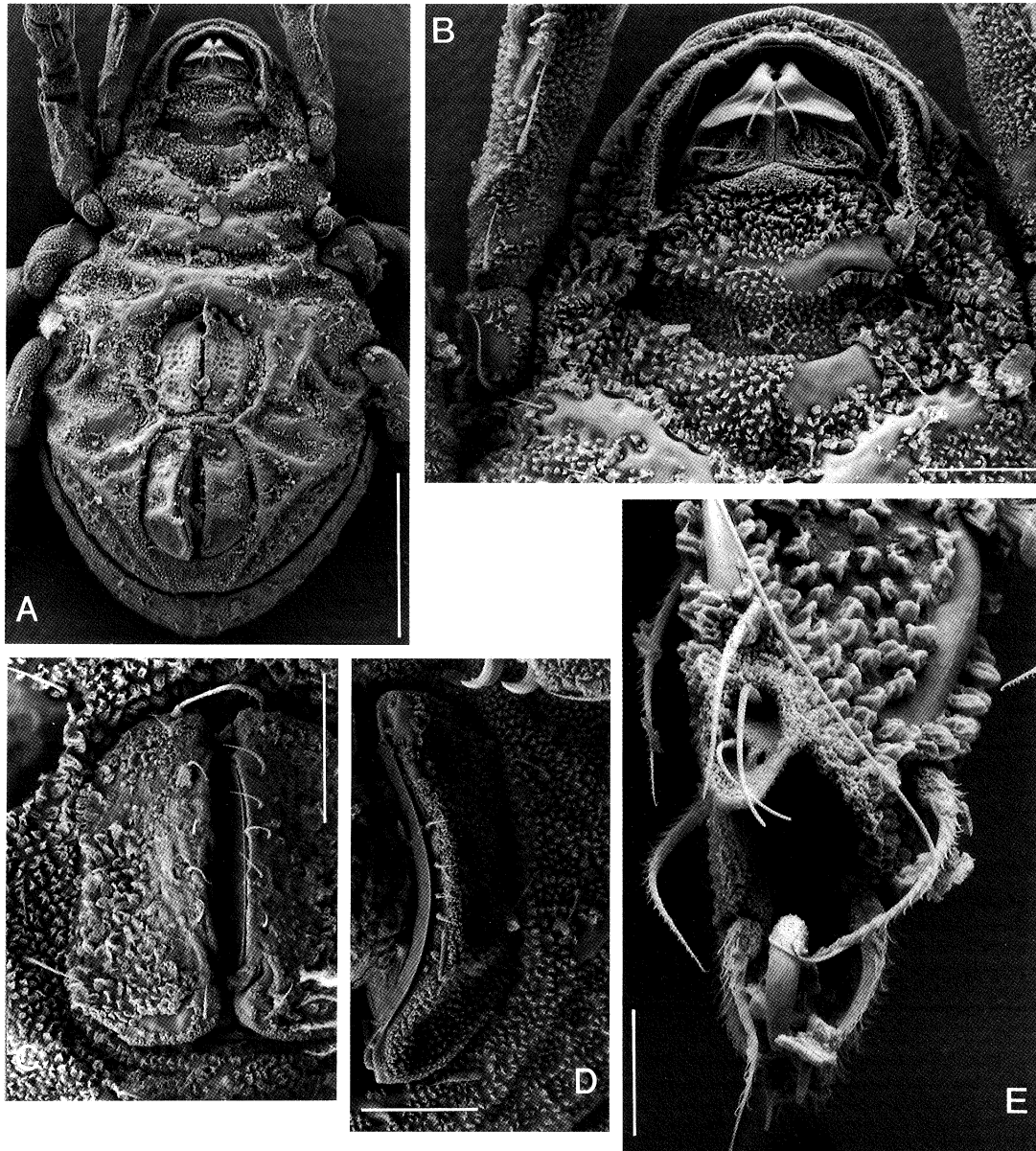


Fig. 7. *Pheroliodes concavus* n.sp. A, body, ventral; B, subcapitulum; C, genital valves; D, anal valve; E, leg I tarsus (distal), distodorsal. Scale bars: A = 200 μ m; B–D = 50 μ m; E = 20 μ m.

ring surrounding opening of cavity containing undeveloped famulus not on distal extremity of rim of tarsal cluster; femur of leg IV without large distoventral blade-like spine; stalk short.

Description

ADULT: Differs from *P. springthorpei* in the following: body longer, length 770 μ m. Setae *ro* and *le*, notogastral setae and leg setae with slight coating of cerotegument. *Prodorsum*: transverse furrow without smaller mesal transverse furrow anterior to it; transverse bar strongly foveate; setae *le* dorsolateral, very strong carina

between *le* and *ro*; bothridial rim slightly depressed posteriorly, more so anterolaterally; posterior margin of prodorsum between bothridia curved. *Notogaster*: ratio length:breadth 500:440; more flattened; central foveae very pronounced, some smaller foveae visible on lateral margins (Fig. 6A); fissura *ia* and *ip* oblique, and *im* subperpendicular to sagittal plane; notogaster with strong anteromesal groove (Fig. 6A). *Gnathosoma*: mentum with setae *h* arising from strong transverse carina; rutella posteriorly with strong concave flexure (Fig. 7B); pedipalp not studied. *Genitoanal region*: ventral plate more generally foveate, with strong triangular cuticular thickening adjacent to anal valves continuous with strong thickening flanking genital

valves; genital valves foveate (Fig. 7C); chaetotaxy 7:1:5:3. *Leg I*. Tarsus with strong dorsolateral carina on each side (Fig. 7E), and with very strong distal concavity presumably to receive retracted claw complex; solenidia *omega 1* and *2* opening to cavity containing famulus enclosed in saucer-like rim, the distal lip of which overhangs distal concavity in tarsus (Fig. 7E); seta *tc* inserted distal to *omega 2*; stalk short (Fig. 6E).

Etymology. The specific epithet is Latin for "hollowed" and refers to the distal concavity in the tarsus of leg I.

Distribution. New South Wales: Type locality near Kempsey.

Pheroliodes lindsayae n.sp.

Figs 3C,D, 8, 9

Type material. Tasmania: HOLOTYPE adult. ANIC, Mount Michael, 41°10'S 148°00'E, pyrethrum knock-down from tree, R. Coy, 28 November 1989. PARATYPE adults. AM KS46613 SEM stub no. S/270 (ill.), same data as holotype, 4 adults; AM KS43824, same data, 3 adults; ANIC, same data, 3 adults; CNC, same data, 3 adults; FMNH, same data, 2 adults; QM, same data, 2 adults.

Other material examined. Tasmania: AM KS46614 SEM stub no. S/315 (ill.), Big Sassy Creek, 42°08'S 147°54'E, 400 m, rainforest site 1, moss on tree, J. Diggle and H. Mitchell, 17 May 1989, 1 adult; AM KS46615 SEM stub no. S/316, same data, 1 adult; AM KS46616 SEM stub no. S/321, Big Sassy Creek, 42°08'S 147°54'E, 400 m, rainforest site 1, tree fern sample, H. Mitchell, 17 May 1989, 3 adults; AM KS46617 SEM stub no. S/326 (ill.), Bradshaws Road (Anthony Road), Mount Murchison, 41°49'S 145°37'E, 840 m, rainforest site 2, moss on rocks, P. Greenslade, 21 April 1989, 1 adult; AM KS46618, SEM stub no. S/322 (ill.), Mount Mangana, Bruny Island, site 2, 43°22'S 147°17'E, 540 m, moss at base of tree, J. Diggle, P. Greenslade, 4 October 1989, 4 adults; ANIC, Mount Michael, 41°10'S 148°00'E, in moss, A. Trumbull-Ward, 11 June 1990, 2 adults; AM KS43825, Mount Victoria, 41°20'S 147°49'E, 900 m, pyrethrum knockdown from trees, H. Mitchell and R. Coy, 25 November 1989, 4 adults; ANIC, same data, 18 adults; ANIC, Rivaux Creek, ca 43°10'S 146°39'E, rainforest litter, P. Greenslade, 20 December 1988, 1 adult; ANIC, Sandspit River, 42°42'S 147°52'E, rainforest leaf litter, P. Greenslade, 22 May 1989, 5 adults.

Diagnosis. Transverse bar in front of transverse furrow with gradually sloping transition towards rostrum; notogaster with marked anteromesal grooving, posteriorly heavily folded; setae *lp* oriented strongly towards midline; 5–7 pairs anal setae; dorsal surface of leg I tarsus not extensively ribbed with cerotegument; tarsus of leg I without distal concavity; rim around

tarsal cluster not produced into a distal process which strongly overhangs distal part of tarsus; sclerotised ring surrounding opening of cavity containing undeveloped famulus not on distal extremity of rim of tarsal cluster; femur of leg IV without large distoventral blade-like spine; stalk medium.

Description

ADULT: Differs from *P. springthorpei* in the following: larger, length 790 µm, 800 µm, 850 µm; body and leg setae without dense cerotegument (Fig. 8B,F). *Prodorsum:* transverse bar anterior to transverse furrow depressed mesally (Fig. 8C) and slopes gradually towards rostrum in comparison with *P. copiosus* (Hunt & Lee, 1995, fig. 11D); bar sparsely foveate; strong carina between *le* and *ro*; sensillus not expanding as quickly and terminating in smaller lamina; posterior margin of prodorsum more curved and puckered. *Notogaster:* ratio length:breadth 630:500; foveae more widely separated (Fig. 8A,C); fissura *ia* subparallel to sagittal plane; very strong anteromesal grooves; posterior flank of notogaster heavily folded in characteristic pattern, prominent carina between setae *p1* (Fig. 8F); setae *lp* curved strongly mesad; *p1*, *p2* and *p3* long. *Gnathosoma:* mentum without transverse carina immediately anterior to setae *h* (Fig. 9B). *Genitoanal region:* chaetotaxy 7:1:5–7:3–4; setae *g7* not set in marginal notches in inner posterior corner of genital valve; adanal setae long, *ad1* postanal (Fig. 9E); ventral plate with distinct groove lateral to separation of anal and genital plates (Fig. 9A). *Leg I.* Solenidia *omega 1* and *2* inserted at same dorsal level as *ft*; sclerotised ring surrounding opening of cavity containing undeveloped famulus somewhat proximal to distodorsal extremity (Fig. 3D), seta *tc* inserted somewhat distad to *omega 2*; setal barbs shorter; stalk moderately long (Fig. 3C). *Leg II* tarsal cluster rim with weak distal lip.

Variation. One specimen from Big Sassy Creek lacked a supplementary transverse furrow anterior to the deep transverse furrow.

Etymology. The specific epithet acknowledges the help that Sue Lindsay has given me in scanning electron microscopy.

Distribution. Tasmania.

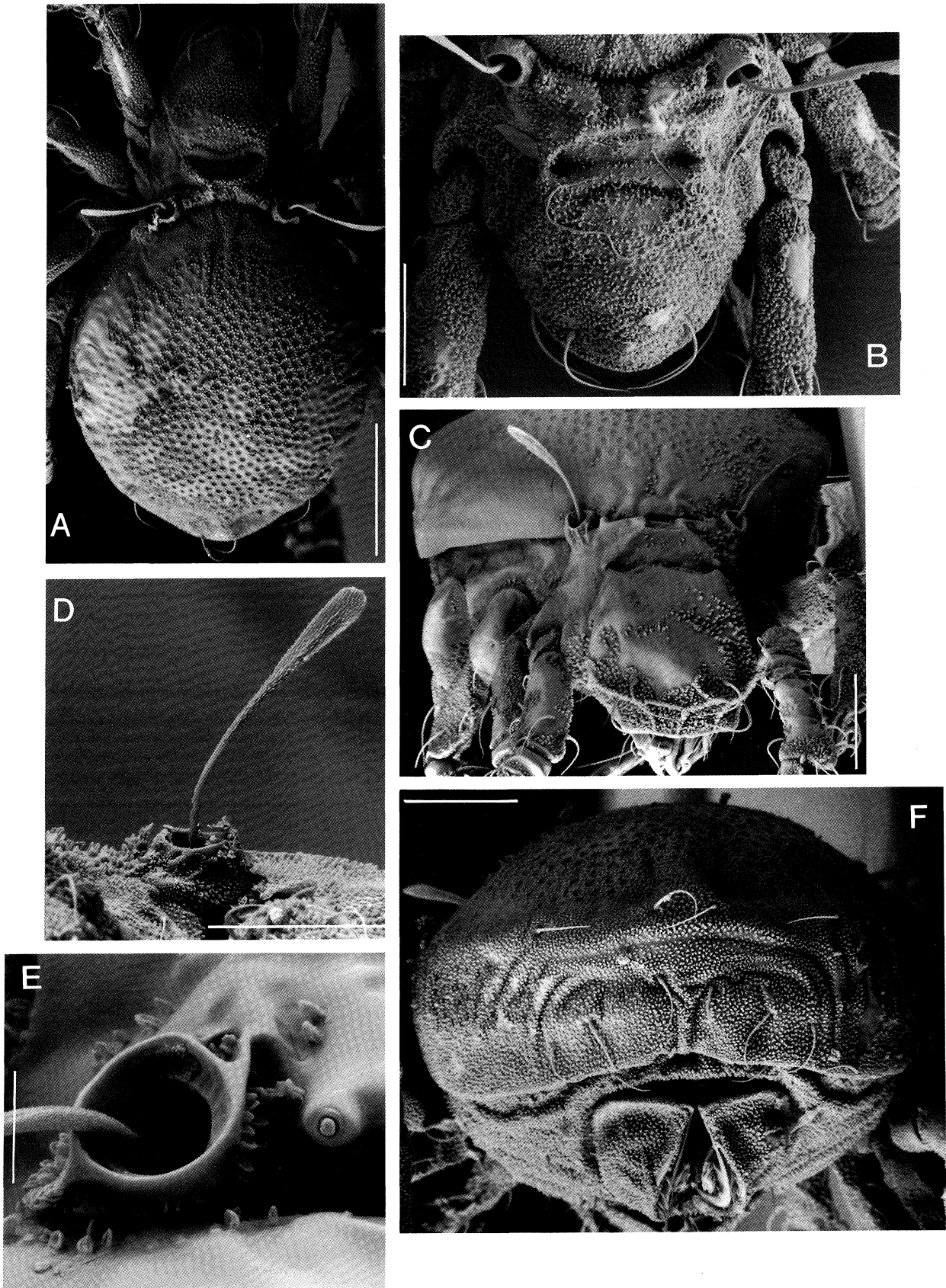


Fig. 8. *Pheroliodes lindsayae* n.sp. A, body, dorsal; B,C, prodorsum, dorsal and frontal; D, bothridium, sensillus and seta *in, lateral*; E, bothridium and seta *in, dorsal*; F, body, posterior. Scale bars: A = 200 μ m; B,C,D,F = 100 μ m; E = 20 μ m. A,D,F = Bradshaws Road; B = Mount Mangana; C,E = Mount Michael.

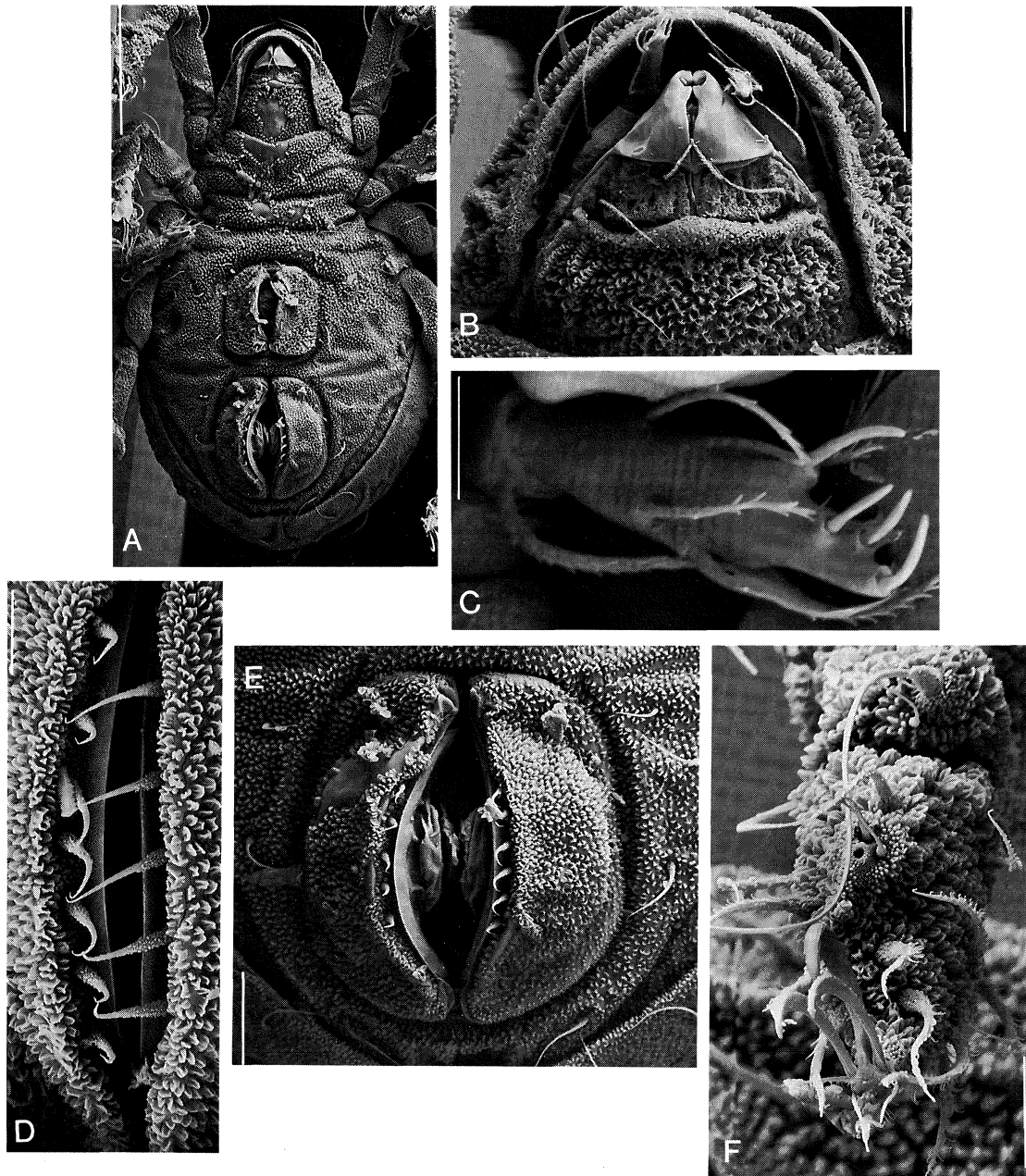


Fig. 9. *Pheroliodes lindsayae* n.sp. A, body, ventral; B, subcapitulum; C, pedipalp tarsus, antiaxial; D, anal setae; E, anal valves; F, leg I tarsus, distodorsal. Scale bars: A = 200 μ m; B,E = 50 μ m; D,F = 25 μ m; C = 10 μ m. A,E,F = Bradshaws Road; D = Mount Mangana; B = Big Sassy Creek; C = Mount Michael.

***Pheroliodes lordhowensis* n.sp.**

Figs 10, 11

Type material. Lord Howe Island: HOLOTYPE adult. QM, base of Mount Eliza, 31°31'S 159°03'E, 10 m, volcanic soil, QM berlesate 131, G.B. Monteith, 7 November 1979. PARATYPE adults. AM KS46601 SEM stub no. S/234 (ill.), same data as holotype, 3 adults. QM S20135, SEM stub no. S/055 (ill.), Mount Eliza summit, 31°31'S 159°03'E, 150 m, volcanic soil, QM berlesate 154, G.B. Monteith, 19 November 1979, 1 adult.

Diagnosis. Transverse bar in front of transverse furrow narrow mesally, carrying accessory carina directed anteromesad; notogaster without short anteromesal longitudinal carina, with strong anteromesal furrow, posteriorly not heavily folded; setae *lp* not oriented strongly towards midline; 4 pairs anal setae; dorsal surface of leg I tarsus not extensively ribbed with cerotegument; tarsus of leg I without distal concavity; rim around tarsal cluster produced into a distal process, robust in lateral view, which strongly overhangs distal part of tarsus; sclerotised ring surrounding opening of cavity containing undeveloped famulus not on distal

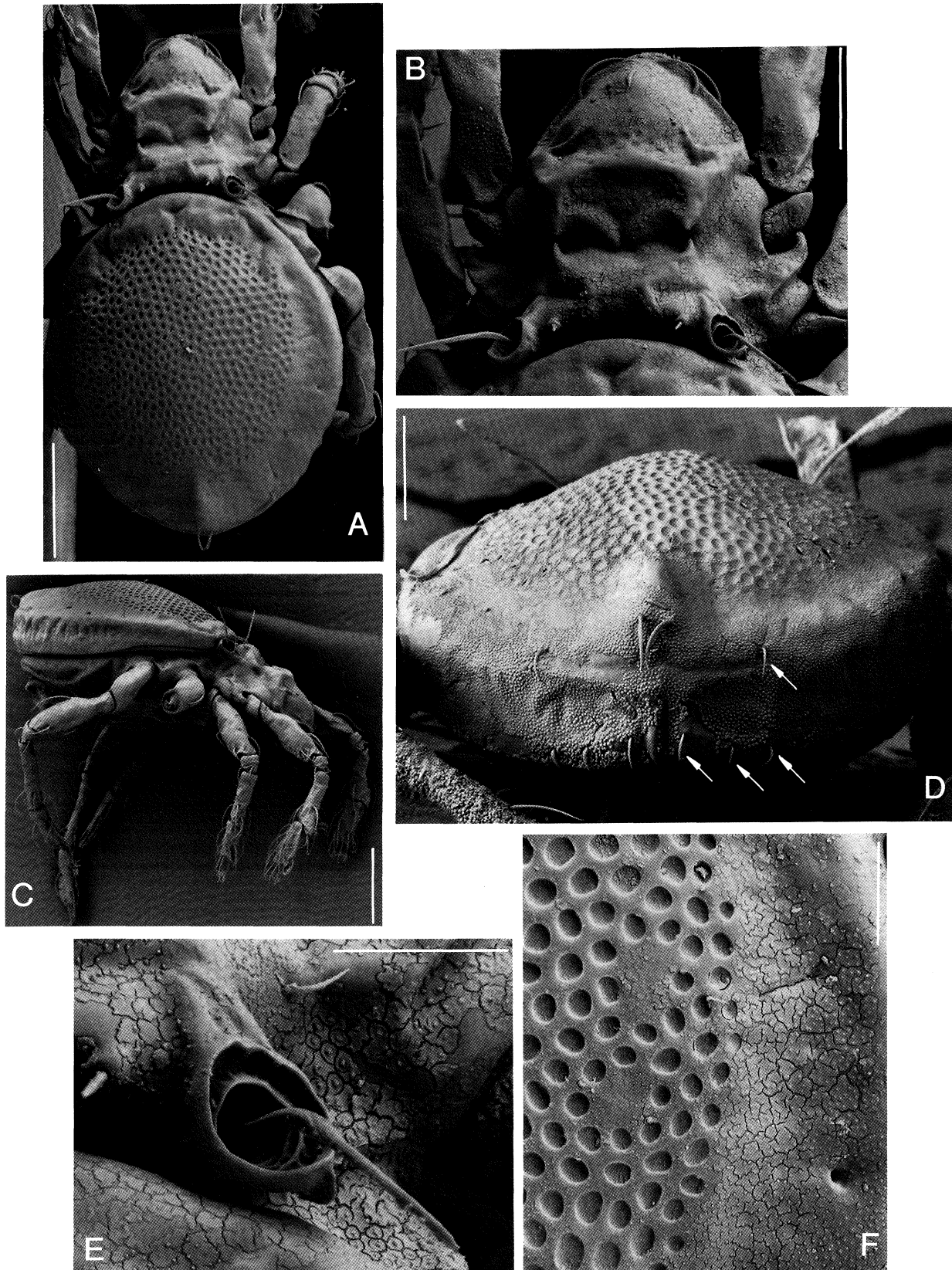


Fig. 10. *Pheroliodes lordhowensis* n.sp. A, body, dorsal; B, prodorsum, dorsal; C, body, lateral; D, notogaster, posterior, arrows left to right label setae *p1*, *p2*, *lp* and *p3* (conspicuous *hl* not arrowed); E, bothridium, setae *in* and *ex*, sensillus broken, cerotegument removed, cracking an artefact; F, notogastral foveae, fissura *im* and *gla*, cracking an artefact. Scale bars: A,C = 200 μ m; B,D = 100 μ m; E,F = 50 μ m.

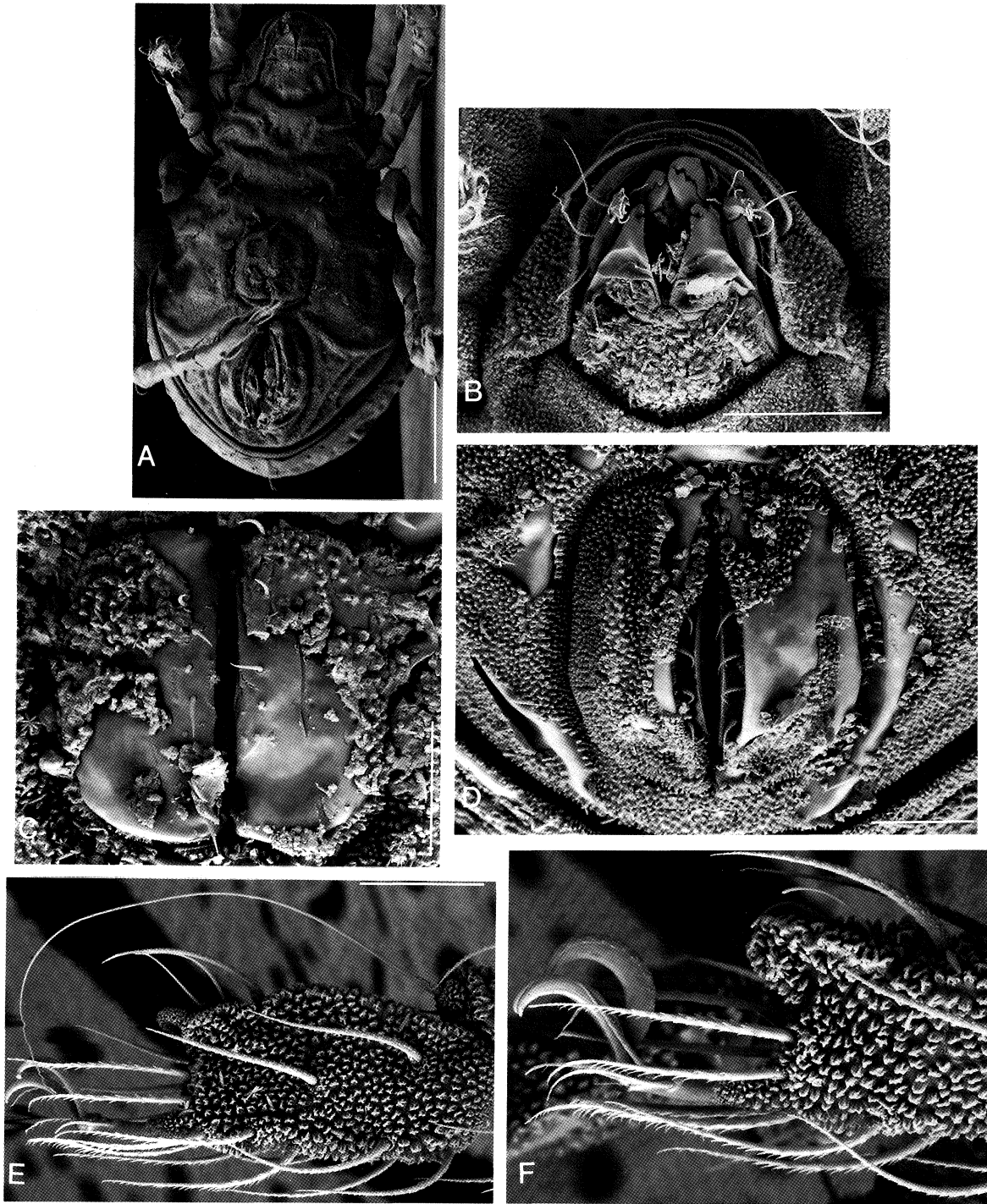


Fig. 11. *Pheroliodes lordhowensis* n.sp. A, body, ventral; B, subcapitulum; C, genital valves; D, anal valves; E, leg I tarsus, antiaxial; F, tarsus, detail. Scale bars: A = 200 μ m; B = 100 μ m; C–F = 50 μ m.

extremity of rim of tarsal cluster; femur of leg IV without large distoventral blade-like spine; stalk long.

Description

ADULT: Differs from *P. springthorpei* in the following:

body longer, length 890 μ m, 900 μ m. Setae *le* and *ro*, notogastral setae and leg setae with thin coating of cerotegument. *Prodorsum*: transverse furrow without smaller mesal transverse furrow anterior to it; transverse bar anterior to transverse furrow narrower mesally being relatively depressed in mesal zone anterior to transverse furrow carrying a small accessory

carina directed anteromesad (Fig. 10); mesal area immediately anterior and posterior to bar foveate; posterior margin of prodorsum between bothridia smoothly curved. *Notogaster*: ratio length: breadth 570:520; fissura *ia* and *ip* subparallel and *im* subperpendicular—oblique to sagittal plane. *Gnathosoma*: mentum without strong transverse carina anterior to setae *h*; rutella posteriorly with very concave flexure (Fig. 11B); pedipalp not studied. *Genitoanal region*: ventral plate not foveate but with cuticular thickenings lateral to anal valves (Fig. 11A,D); genitoanal chaetotaxy 7:1:4:3; setae *g1* and *g7* set near inner corners of genital valve, not in marginal notches (Fig. 11C); insertion of seta *ad1* at level of posterior margin of anal valve or slightly anterior to it, *ad2* adjacent to posterior 40% of valve, *ad3* adjacent to proximal 30% of valve, closer to valve than *ad2*. *Leg I*. Dorsal surface of tarsus forming a smoothly sloping crest with highest point proximal to *ft*" (Fig. 11E), *omega 1* and *omega 2* inserted similar level to *ft*", sclerotised ring surrounding opening of cavity containing undeveloped famulus paraxial to *omega 2*, rim around tarsal cluster produced distally into a prominent bulge (Fig. 11E); seta *tc*" inserted ventral and slightly distal to *omega 2*; setal barbs short; stalk long. *Leg II* tarsal cluster rim with very robust distal lip (Fig. 11F).

Etymology. The specific epithet derives from Lord Howe Island on which the species occurs.

Distribution. Lord Howe Island.

Pheroliodes monteithi n.sp.

Figs 12, 13

Type material. Queensland: HOLOTYPE adult. QM S20028, Upper Brookfield, 27°29'S 152°52'E, rainforest litter, R. Raven, 19 March 1982. PARATYPE adults. QM S20052, SEM stub no. S/013 (ill.), Gold Creek, Brookfield, ca 27°30'S 152°55'E V.E.Davies & R. Raven, 17 Sept. 1980, 2 adults; QM S20083, SEM stub no. S/042 (ill.), Bulburin State Forest (barracks) via Builyan, 24°32'S 151°34'E, 600 m, rainforest, QM berlesate 826, G.B. Monteith, 16 Sept. 1989, 2 adults; QM S20033, Upper Brookfield, 27°29'S 152°52'E, with *Araucaria* litter, V. Davies and R. Raven, 3 March 1981, 4 adults; QM S20035, same site and collector data, 18 March 1981, 1 adult; QM S20158, Gold Creek, Brisbane, ca 27°28'S 153°01'E, litter, R. Raven and V.E. Davies, 23 June 1980, 3 adults; AM KS43828, same data, 3 adults; ANIC, same data, 3 adults; CNC, same data, 2 adults; FMNH, same data, 2 adults; SAMA, same data, 2 adults; ZMK, same data, 2 adults.

Other material examined. Queensland: QM S20115, 5 km E. of Benarkin at the foot of the Blackbutt Range, 25°52'S 152°12'E, rainforest, sieved litter, QM berlesate 522, J. Gallon and G. Thompson, 30 March 1983, 5 adults and 5 immatures; QM S20070, Bahrs Scrub, 27°44'S 153°10'E, litter, R. Raven, 30 April 1980, 19 adults; QM S20031, Upper Brookfield, 27°29'S 152°52'E, rainforest litter, R. Raven and V.E. Davies,

20 January 1982, 2 adults; QM S20146, Mount Brisbane, 27°05'S 152°32'E, R. Raven, 6 October 1979, 4 adults; AM KS46620 SEM stub no. S/052, Booloumba Creek, Conondale Ranges, 26°31'S 152°39'E, 520 m, rainforest litter, R. Raven, 13–18 May 1976, 2 adults; QM S20148, same data, 1 adult.

Diagnosis. Transverse bar in front of transverse furrow largely missing mesally and restricted to lateral cheek-like prominences; rostrum with reticulations of cerotegument; notogaster without anteromesal longitudinal carina or furrow, posteriorly not heavily folded; setae *lp* not oriented strongly towards midline; 3–5 pairs anal setae; dorsal surface of leg I tarsus extensively ribbed with cerotegument; tarsus of leg I with distal concavity; rim around tarsal cluster contributes to formation of distal concavity; famulus developed as short seta; femur of leg IV without large distoventral blade-like spine; stalk very short.

Description

ADULT: Differs from *P. springthorpei* in the following: body much longer length 990 µm. *Cerotegument*: setae *ro* and *le*, notogastral setae and some leg setae with thin coating of cerotegument; rostrum with reticulate mass (Fig. 12B,C), mentum anteriorly with reticulate mass (Fig. 12C); tarsus 1 dorsally and paraxially with longitudinal crests of cerotegument. *Prodorsum*: transverse furrow without smaller mesal transverse furrow anterior to it; transverse bar anterior to transverse furrow virtually lacking mesally, restricted to a pair of lateral "cheek-like" prominences anterior to enantiophyses (Fig. 12A,B); most of prodorsum foveate; posterolateral carina on bothridium weak; sensillus relatively narrow; *ex* long (Fig. 12F); posterior margin of prodorsum smoothly curved. *Notogaster*: ratio length: breadth 690:610; fissura *ia* oblique and *im* and *ip* subparallel to sagittal plane; no anteromesal groove; setae *hl* short, close together, *pl* more widely separated (Fig. 12E). *Gnathosoma*: mentum with transverse carina with seta *h* embedded in strong cerotegument reticulations (Fig. 12C); pedipalp not studied. *Genitoanal region*: ventral plate largely foveate; chaetotaxy 7:1:3:3; setae *g7* set slightly anterior to inner corner of genital valve; *Leg I*. Apophysis on tibia overhanging about 0.2 tarsus; *omega 1* separated from *omega 2* by partition, famulus developed as short seta immediately distad of *omega 1* (Fig. 13B,C), seta *tc*" inserted distal to *omega 2*; distal recess for retracted unguinal complex present, more complete than *P. concavus*; setal barbs short; stalk very short (Fig. 13B).

Etymology. The specific epithet acknowledges the substantial and long term effort of Dr Geoff Monteith in collecting and documenting the invertebrate fauna of Queensland and northern New South Wales.

Distribution. South-eastern Queensland.

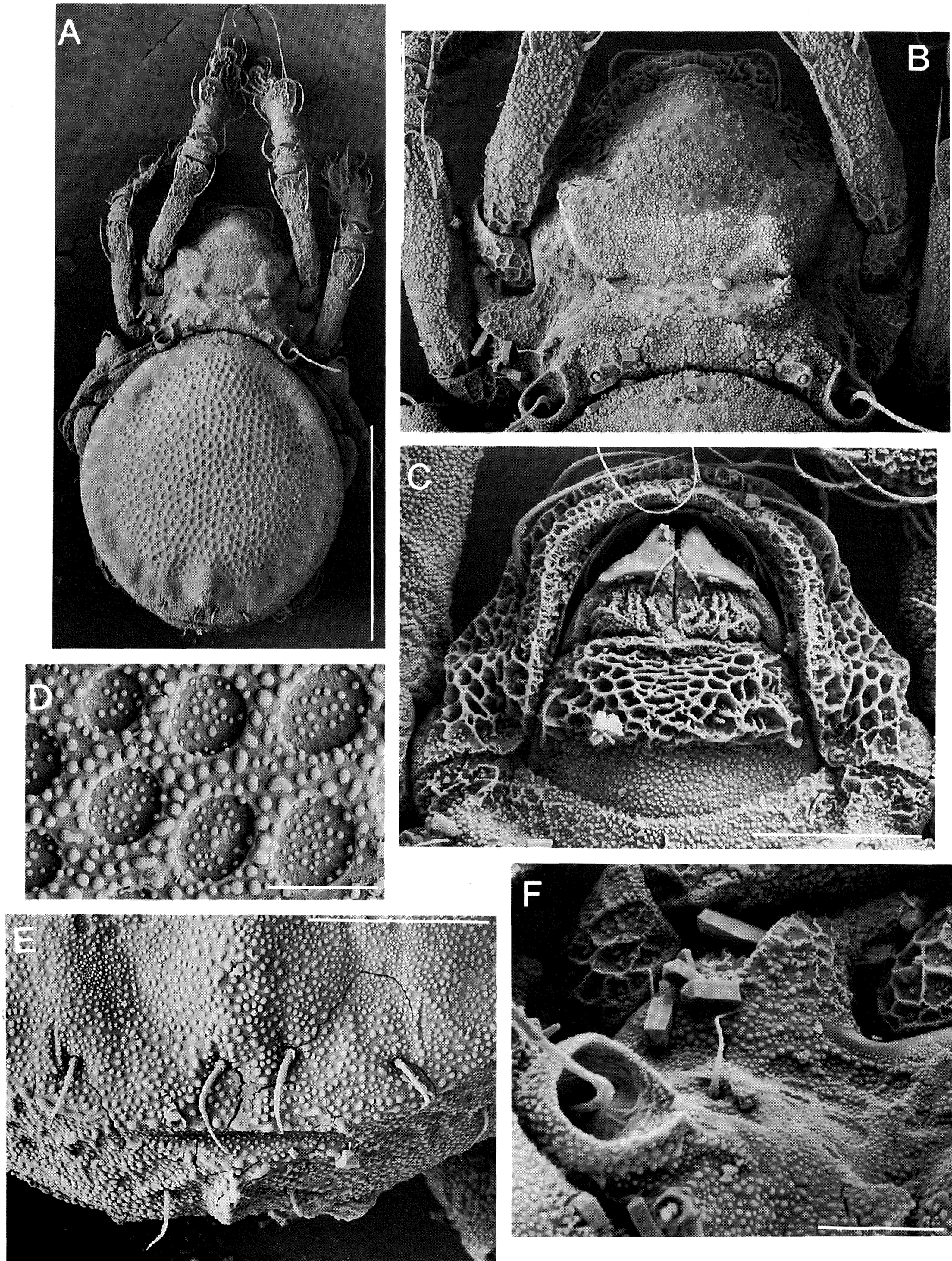


Fig. 12. *Pheroliodes monteithi* n.sp. A, body, dorsal; B, prodorsum, dorsal; C, subcapitulum; D, notogastral integument; E, notogaster, posterior region, dorsal; F, bothridium, setae *in* and *ex*, crystals an artefact. Scale bars: A = 500 μ m; B = 200 μ m; C,E = 100 μ m; F = 50 μ m; D = 20 μ m.

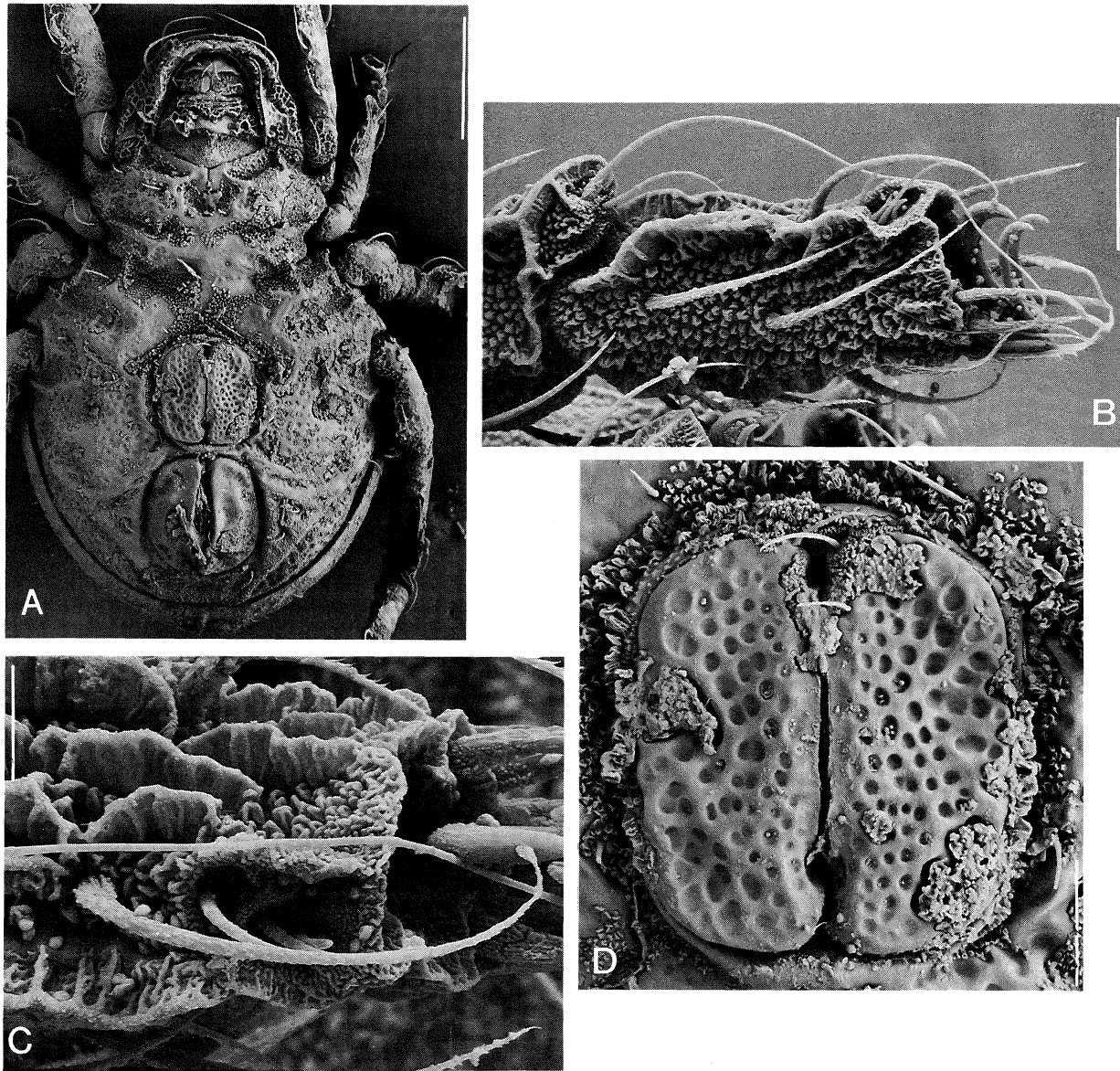


Fig. 13. *Pheroliodes monteithi* n.sp. A, body, ventral; B, leg I tarsus, antiaxial; C, tarsus (distal) dorsal; D, genital valves. Scale bars: A = 200 μ m; B,D = 50 μ m; C = 20 μ m.

***Pheroliodes sicarius* n.sp.**

Figs 14, 15

Type material. Queensland: HOLOTYPE adult. QM, Bulburin State Forest, via Builyan, 24°32'S 151°34'E, rainforest, litter and soil berlesate, G.S. Hunt, 6 July 1993. PARATYPE adults. QM, same data as holotype, 1 adult; AM KS43822, same data, one adult; AM KS46612 SEM stub no. S/265 (ill.), same data, 4 adults.

Other material examined. Queensland: QM S20084, Bulburin State Forest (barracks), via Builyan, 24°32'S 151°34'E, 600 m, rainforest, sieved litter, QM berlesate no. 826, G. Monteith, 16 Sep. 1989, 1 adult.

New South Wales: AM KS43823, Beaury State Forest, 28°29'S 152°23'E, ca 700 m, litter under *Araucaria bidwillii*, ANIC berlesate 777, T. Weir and A. Calder, 15–17 February 1983, 5 adults; ANIC, same data, 5 adults.

Diagnosis. Transverse bar in front of transverse furrow essentially absent mesally, restricted to cheek-like lateral prominences; notogaster with faint anteromesal longitudinal furrow, posteriorly not heavily folded; setae *lp* not oriented strongly towards midline; 4–5 pairs anal setae; dorsal surface of leg I tarsus not extensively ribbed with cerotegument; tarsus of leg I without distal concavity; rim around tarsal cluster produced into a slight distal process which weakly overhangs distal part of tarsus; sclerotised ring surrounding opening of cavity containing

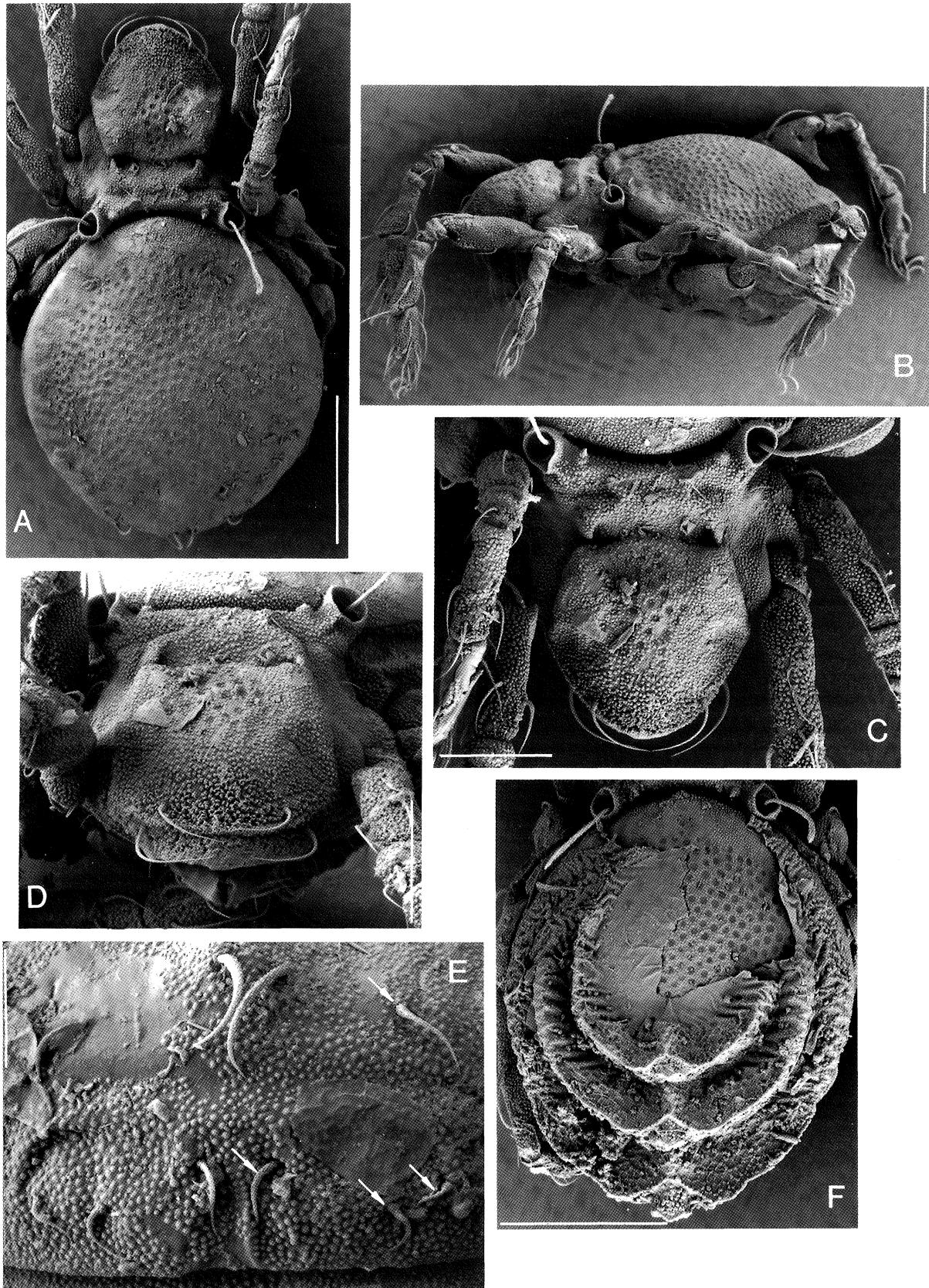


Fig. 14. *Pheroliodes sicarius* n.sp. A, body, dorsal; B, body, lateral; C, prodorsum, dorsal; D, prodorsum, frontal; E, notogaster, posterior, arrows left to right label setae *p1*, *p2*, *lp* and *p3* (conspicuous *h1* not arrowed); F, notogaster with scalps (partly removed). Scale bars: A,B,F = 200 μ m; C,D = 100 μ m; E = 50 μ m.

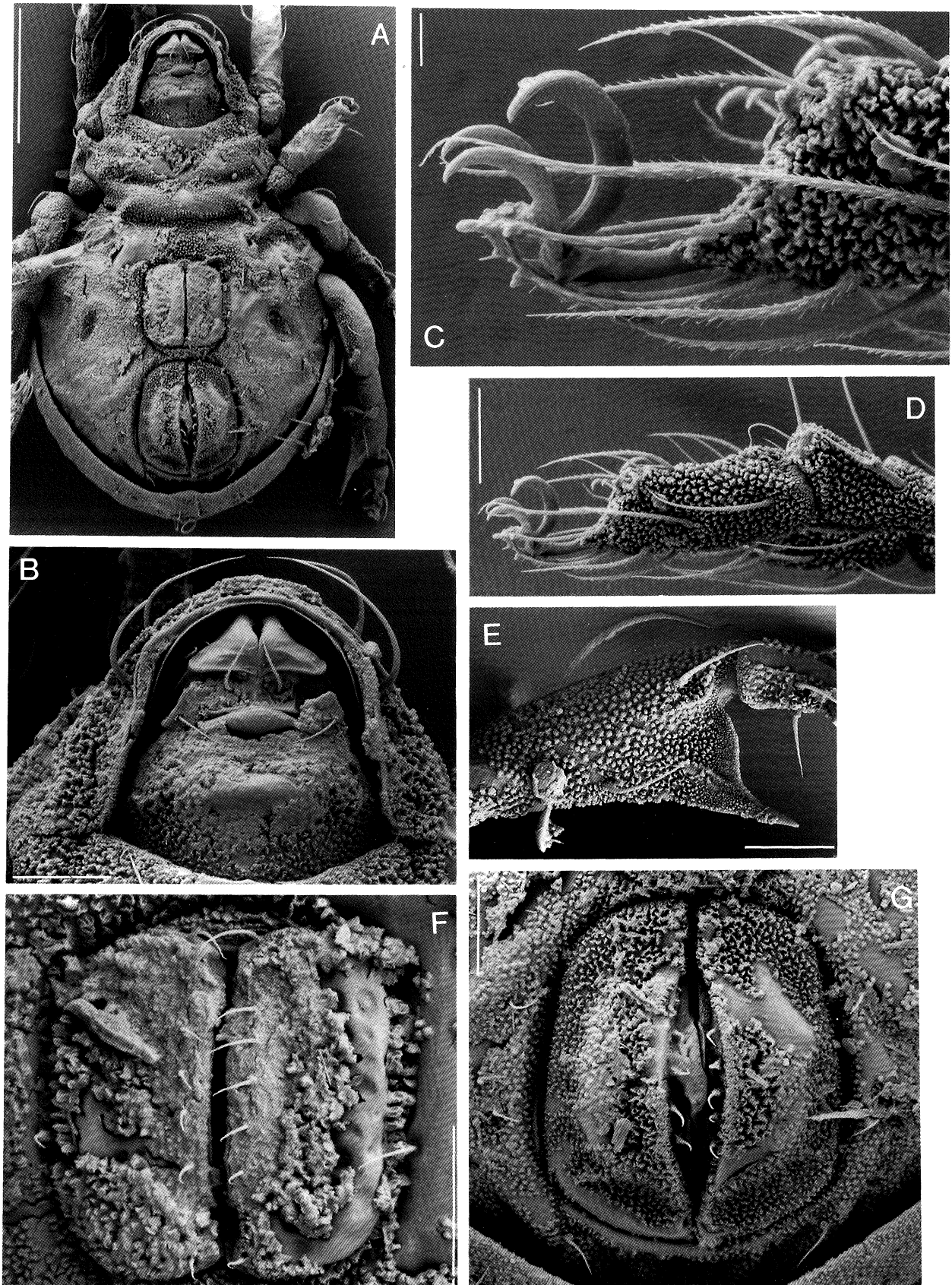


Fig. 15. *Pheroliodes sicarius* n.sp. A, body, ventral; B, subcapitulum; C, leg I tarsus, distal, anti-axial; F, tarsus and tibia (distal), anti-axial; E, leg IV femur, anti-axial; F, genital valves; G, anal valves. Scale bars: A = 200 μ m; B,D-G = 50 μ m; C = 20 μ m.

undeveloped famulus not on distal extremity of rim of tarsal cluster; femur of leg IV with large distoventral blade-like spine; stalk long.

Description

ADULT: Differs from *P. springthorpei* in the following: body length. Setae *ro* and *le*, notogastral setae and some leg setae with light covering of cerotegument. Transverse furrow without smaller mesal transverse furrow anterior to it; enantiophyses with well-developed posterior horn but vestigial anterior horn; transverse bar anterior to transverse furrow essentially absent mesally, restricted to cheek-like lateral prominences (Fig. 14C); mesal area of prodorsum anterior to transverse furrow foveate; setae *le* dorsolateral, distance between them about 0.75 distance between *ro*, posterolateral carina weak; sensillus very slender, expanding more gradually; margin of prodorsum between bothridia smoothly curved. *Notogaster*: exuvial scalps sometimes present (Fig. 14F). Foveae separated by about their diameter (Fig. 14F); fissura short, *ia* and *ip* subparallel and *im* subperpendicular to sagittal plane. Anteromesal groove if present weak; notogastral setae as in Fig. 14A,E. *Gnathosoma*: mentum with strong transverse carina in which setae *h* inserted (Fig. 15B); rutella posteriorly with slight concave flexure (Fig. 15B); pedipalp not examined. *Genitoanal region*: chaetotaxy 7:1:4–5:3; insertion of seta *ad1* at level of posterior margin of anal valve or slightly anterior to it, *ad2* inserted level with posterior half of genital valve at about 0.6 valve length, *ad3* adjacent to about 0.3 valve length (Fig. 15G). *Leg I*. Tarsal cluster situated distodorsally, *omega 2* situated ventrad to *omega 1*, seta *tc* situated ventrodorsad of *omega 2*, sclerotised ring surrounding opening of cavity containing undeveloped famulus situated paraxially between *omega 1* and 2, stalk long (Fig. 15C). *Leg IV*. Femur with very strong distoventral blade-like spine (Figs 14B, 15E).

Etymology. The specific epithet is Latin for “assassin” and refers to the blade-like spine on femur 4.

Distribution. Far northern New South Wales to southern Queensland.

Pheroliodes transversus n.sp.

Fig. 16

Type material. New South Wales/Australian Capital Territory: HOLOTYPE adult. AM KS43818, beside Federal Highway, just N. of Canberra on NSW/ACT border, 35°23'S 149°23'E, open forest beneath *E. viminalis*, berlese extraction of leaf litter, G.S. Hunt, 10 May 1992. PARATYPE adults. AM KS46606 SEM stub no. S/076 (ill.), same data as holotype, 2 adults; AM KS46607 SEM stub no. S/077 (ill.), same data, 3 adults; AM KS43819, same data, 3 adults; AM KS43820, same data, 1 adult with scalp; ANIC, same data, 2 adults; CNC, same data, 1 adult; FMNH, same data, 1 adult; QM, same data, 1 adult; ZMK, same data, 1 adult.

Other material examined. New South Wales: AM KS46608 SEM stub no. S/184, Granite Hills, 28 km S. of Tenterfield by the New England Highway, 29°17'S 151°58'E, berlese extraction of litter, G.S. Hunt, 10 July 1992, 3 adults; AM KS43821, same data, 1 adult.

South Australia: AM KS46609 SEM stub no. S/226 (ill.), 86 km S of Meningie, ca 36°22'S 139°45'E, leaf litter in sandy soil, ANIC berlesate 74, E.B. Britton, 30 April 1968, 4 adults; AM KS46610 SEM stub no. S/209, 4.8 km W. of Parilla, 35°18'S 140°39'E, Mallee, ANIC berlesate 184, R.W. Taylor, 12 January 1970, 1 adult; AM KS46611 SEM stub no. S/220, 3.2 km W. of Sherlock, 35°19'S 139°46'E, Mallee, ANIC berlesate 182, R.W. Taylor, 12 January 1970, 4 adults; ANIC, same data, 6 adults.

Diagnosis. Transverse bar in front of transverse furrow narrow mesally with transverse anterior edge; notogaster with strong anteromesal longitudinal furrow; posteriorly not heavily folded; setae *lp* oriented strongly towards midline; 3–4 pairs anal setae; dorsal surface of leg I tarsus not extensively ribbed with cerotegument; tarsus without distal concavity, rim around tarsal cluster produced into small process which overhangs distal part of tarsus; leg I with sclerotised ring surrounding opening of cavity containing undeveloped famulus on distal extremity of rim of tarsal cluster; femur of leg IV without large distoventral blade-like spine; stalk long.

Description

ADULT: Differs from *P. springthorpei* in the following: Body length 600 µm. *Prodorsum*: transverse bar anterior to transverse furrow depressed posteromesally (Fig. 16B); without obvious foveae; posterior margin of prodorsum between bothridia more curved. *Notogaster*: scalps occasionally carried. Ratio length:breadth 460:340; foveae more widely separated; fissura *ia* oblique, *im* subperpendicular and *ip* subparallel to sagittal plane, *ip* long; strong anteromesal groove; setae *lp* strongly curved mesad (Fig. 16A,F). *Gnathosoma*: mentum setae *h* inserted in strong transverse carina; pedipalp not studied. *Leg I*. Solenidia *omega 1* and 2 inserted at same dorsal level as *ft* (Fig. 16G); stalk long. *Leg II* tarsal cluster rim with very small distal lip.

Variation. The Tenterfield specimen resembles *P. springthorpei* in having a short stalk supporting the claw complex on leg I and in having *omega 1* and 2 at a more ventral level than *ft*.

Etymology. The specific epithet is Latin for “transverse” and refers to the transverse orientation of notogastral setae *lp*.

Distribution. New South Wales and South Australia. From the limited data available, the species seems to occur west of the Great Dividing Range.

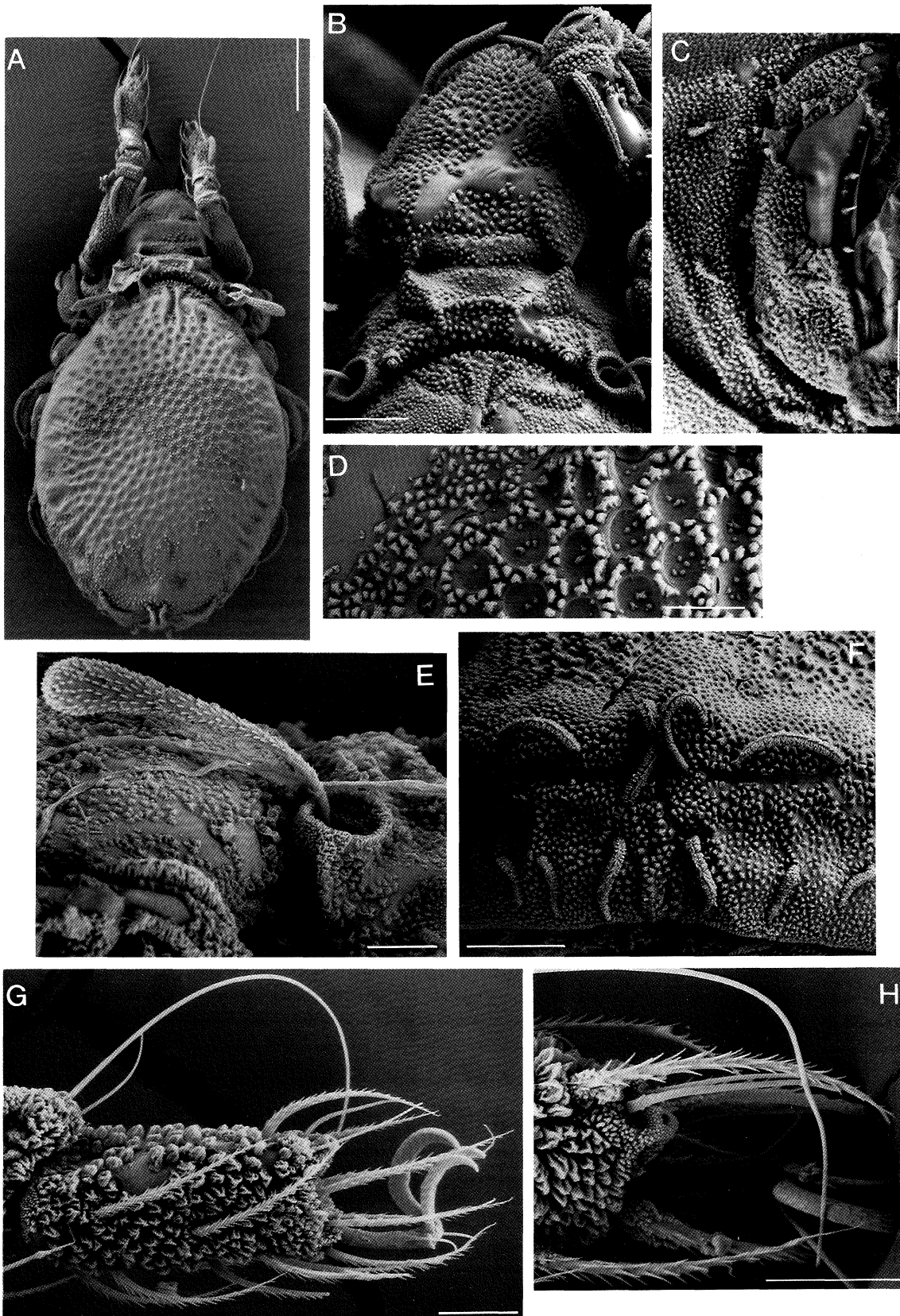


Fig. 16. *Pheroliodes transversus* n.sp. A, body, dorsal; B, prodorsum, dorsal; C, anal valve; D, notogastral integument and fissura *im*; E, bothridium, sensillus and seta *in*, lateral; F, notogaster, posterior; G, leg I tarsus, antiaxial; H, tarsal cluster, dorsolateral. Scale bars: A = 100 μ m; B,C,F = 50 μ m; D,E,G,H = 20 μ m. A–D,F–H = Canberra; E = Meningie.

Octoliodes Paschoal, 1987

Octoliodes Paschoal, 1987: 377; 1989b: 187.—Balogh & Balogh, 1992:47.

Diagnosis. Cerotegument in form of rounded cushions; prodorsum with enantiophyses and seta *ex*, strongly reticulate, with smoothly rounded contours anterior to transverse furrow, without clearly differentiated transverse bar; sensillus short, with short twisted petiole and stout blade; notogaster with or without scalps; notogaster continuously convex, without depressed area inside margin; notogaster foveate centrally, without foveae in zone around its margins; notogastral setae arising from tubercles; epimera 2 and 3 with opposing horns laterally; epimeral chaetotaxy 3:1:3:3; genitoanal chaetotaxy 7:1:3:3; ventral plate may be extensively folded; legs reticulate; tarsus without distal recess or concavity; tarsus of leg IV without iter setae.

Octoliodes robustus (Hunt & Lee) n.comb.

Figs 17, 18

Pheroliodes robustus Hunt & Lee 1995: 240, figs 6A,9,10.

Type material. South Australia: HOLOTYPE female: SAMA, N1993681, Piccaninnie Ponds Conservation Park, 38°03'S 140°57'E, coastal closed scrubland, berlesate soil, litter, sparse grass under coastal wattle (*Acacia sophorae*), D.C. Lee, 3 August 1974. PARATYPE female: AM KS46641 SEM stub S/200, same data as holotype.

Additional records. New South Wales: AM KS46621, SEM stub no. S/334, Slaven Cave via Wallarawang, 33°24'S 150°00'E, open sclerophyll forest, berlesate litter and moss, G.S. Hunt, 20 May 1994, 1 adult; AM KS46622, SEM stub no. S/294, Dorrigo, 30°20'S 152°43'E, 1 adult; AM KS43829, same data, 1 adult; AM KS46623, SEM stub no. S/297, Allyn River Park via Upper Allyn, ca. 32°10'S 151°30'E, subtropical rainforest, berlesate bark scraped from trees, G.S.Hunt, 5 October 1993, 4 adults; AM KS43830, same data, 7 adults and 6 nymphs possibly of this species; AM KS46624 SEM stub no. S/434, same data, 3 adults; AM KS46625 SEM stub no. S/300, Macquarie Pass, 8 km E. of Robertson, 800 m, 34°35'S 150°38'E, laurel-sassafras rainforest, ferns, L. Masner, Agriculture Canada, 8 February 1984, 1 adult; CNC, same data, 1 adult; CNC, New England National Park, 30°29'S 152°25'E, 1600 m, *Nothofagus moorei* forest, ferns, L. Masner, Agriculture Canada, 12 February 1984, 1 adult; AM KS46626 SEM stub no. S/104, Allyn River, Chichester State Forest, 32°12'S 151°26'E, rainforest leaf litter, ANIC berlesate 747, T. Weir and A. Calder, 10–11 November 1981, 1 adult; AM KS46627 SEM stub no. S/423, same data, 1 adult.

Tasmania: AM KS46628, SEM stub no. S/273, Mount Michael, 41°10'S 148°00'E, pyrethrum knock-down from tree, R. Coy, 28 November 1989, 4 adults; ANIC, same data, a large series of adults and nymphs; AM KS43831, same data, 5 adults; SAMA, same data, 5 adults; QM, same data, 5 adults; FMNH,

same data, 5 adults; CNC, same data, 5 adults; ZMK, same data, 5 adults; AM KS46629 SEM stub no. S/277, Rivaux River, 43°10'S 146°39'E, Huon pine tree trunk, pyrethrum knock down, P. Greenslade, 20 December 1988, 3 adults; ANIC, Big Sassy Creek, 42°08'S 147°54'E, 400 m, rainforest site 2, pyrethrum knockdown, P. Greenslade, 12 May 1989, 5 adults; AM KS46630 SEM stub no. S/317 (ill), same data, 4 adults; AM KS46631, SEM stub no. S/311 (ill.), Big Sassy Creek, 42°08'S 147°54'E, 400 m, rainforest site 1, sassafras, pyrethrum knockdown, H. Mitchell, 17 May 1989, 4 adults; AM KS46632, SEM stub no. S/312 (ill.), Big Sassy Creek, same site details, moss on log, H. Mitchell, 17 May 1989, 1 adult; AM KS46633, SEM stub no. S/313 (ill.), Big Sassy Creek, same site details, pyrethrum knockdown, J. Diggle, 12 May 1989, 4 adults; AM KS46634, SEM stub no. S/314 (ill.), Big Sassy Creek, same site details, moss, H. Mitchell and J. Diggle, 12 May 1989, 1 adult; ANIC, Mount Michael, 41°10'S 148°00'E, in moss, A. Trumbull-Ward, 11 June 1990, 12 adults; ANIC, Mount Victoria, 41°20'S 147°49'E, 900 m, pyrethrum knockdown from trees, H. Mitchell and R. Coy, 25 November 1989, very large series of adults and nymphs; AM KS43832, same data, 4 adults.

Victoria: AM KS43833, Turtions Pass, Otway Ranges, ca 38°33'S 146°15'E, on *Olearia agrophylla* (Musk Daisy), V. Barnes, 16 March 1993, 1 adult; AM KS46635 SEM stub no. S/231, Phillips Track, Young Creek crossing 0.5 km N. of Triplet Falls, Otway Ranges, 38°40'S 143°29'E, moss from *Nothofagus cunninghami*, G. Milledge, P. Lillywhite, C. McPhee and B. Van Praagh, 11 December 1991, 2 adults; AM KS46636, SEM stub no. S/232, same data, 1 adult; AM KS43834, same data, 1 adult.

Additional description

ADULT: Dark brown; exuvial scalps as in Fig. 17G; prodorsum divided into two main fields—strongly reticulate anterior to transverse furrow, very weakly so posterior to it; mentum without transverse carina near setae *h*; ventral plate and anal and genital valves extensively folded (Fig. 18A); tarsal cluster of leg I distodorsal; *omega* 1 and 2 close together, opening of cavity containing undeveloped famulus directed distad, ventral to solenidia (Fig. 18F); stalk short. Leg II tarsal cluster rim lacking distal lip.

Variation. The eastern Australian and Tasmanian specimens have a less broad terminal expansion to the sensillus with a less strong transition from petiole to lamina compared with the type material from South Australia (cf., Fig. 17D and Hunt & Lee, 1995, fig. 15C). The specimen collected outside Slaven Cave, New South Wales, has a relatively longer sensillus and a smoother notogaster.

Comments. This species differs from other Australian Pherolioididae in the strongly reticulate prodorsum with closely spaced alveoli-foveae, the intensively folded ventral plate, notogastral setae arising from tubercles, the lack of a distal lip to the rim surrounding the tarsal cluster, the orientation of the opening to

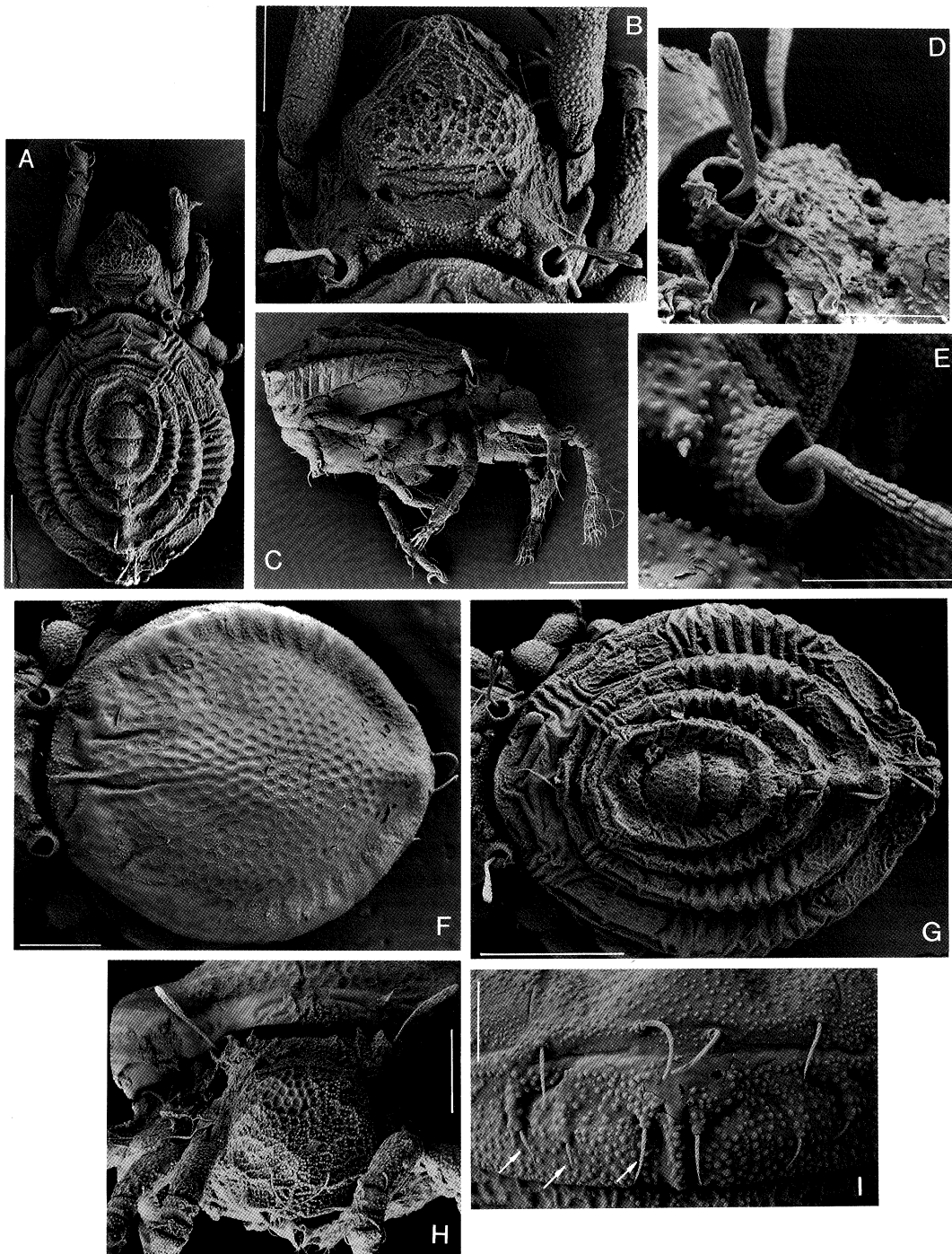


Fig. 17. *Octoliodes robustus* (Hunt & Lee) A, body, dorsal; B, prodorsum, dorsal; C, body, lateral; D, bothridium, sensillus and setae *in* and *ex*, lateral; E, bothridium and seta *in*, dorsal; F, notogaster, dorsal, without scalps; G, with scalps; H, prodorsum, frontal; I, notogaster, posterior, arrows right to left label setae *p1*, *p2* and *p3*. Scale bars: A,C,G = 200 μ m; B,F,H = 100 μ m; D,E,I = 50 μ m. A-I = Big Sassy Creek.

the cavity containing the famulus, and the shape of the sensillus. It appears very close to *Octoliodes luteomarginata* (Hammer, 1966) from New Zealand, the type species for the genus *Octoliodes* Paschoal. Accordingly, it is now placed in this genus. It differs from the New Zealand species in habitually carrying scalps. *Octoliodes robustus* exhibits the opposing

horns on epimera 2 and 3 suggesting its close relationship with Australian *Pheroliodes*.

Distribution. South Australia at type locality; Tasmania and eastern mainland Australia south of Dorrigo, New South Wales.

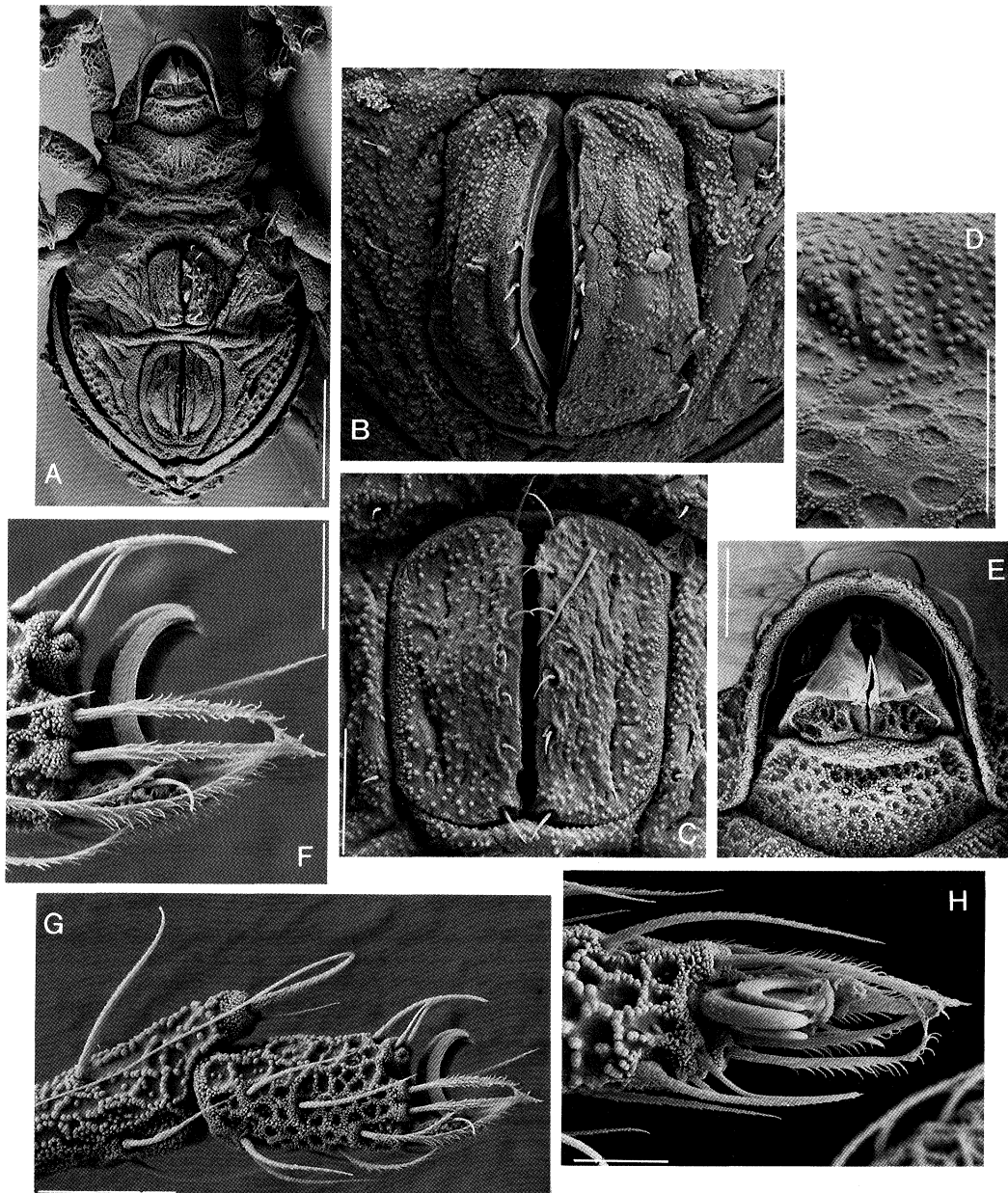


Fig. 18. *Octoliodes robustus* (Hunt & Lee). A, body, ventral; B, anal valves; C, genital valves; D, notogastral integument and fissura *im*, lateral at top; E, subcapitulum; F,H, leg I tarsus (distal), anti-axial and dorsal; G, tarsus and tibia, anti-axial. Scale bars: A = 200 μm ; B–E,G = 50 μm ; F,H = 20 μm . A–H = Big Sassy Creek.

Neonooliodes n.gen.

Type species. *Neonooliodes ceroplastes* n.sp.

Diagnosis. Prodorsum with deep transverse furrow with enantiophyses; seta *ex* present; prodorsum, venter and legs strongly reticulated with cerotegument; bothridium against notogaster; sensillus with long petiole expanding gradually into lamina; notogaster not continuously convex, with depressed area inside margin; notogaster alveolate-reticulate over entire surface, including margins; distal recess of tarsus 1 not roofed by distal lip of rim of tarsal cluster; tarsus of leg IV without iterate setae.

Description

Medium sized plateremaeoid mites (about 650–750 μm); notogaster with exuvial scalps; prodorsum, venter and legs strongly reticulated with cerotegument reflecting a more subdued underlying relief of integument; prodorsum with deep transverse furrow with enantiophyses; seta *ex* present; seta *in* small and arising from apophysis; bothridium with weak posterolateral carina; bothridium abutting notogaster but posterior wall not depressed; sensillus with long petiole and delicate blade (though less broad than *Pedrocortesella*), tuberculate; notogaster not rising continuously from margin to centre but with depressed area inside margins; alveolate-reticulate over

entire surface, including margins, not foveate; without longitudinal anteromesal furrow; with mesal furrow ventral to setae *p1* on posterior flank; 5 pairs of notogastral setae, setae *p2* and *p3* situated low on the posterior flank at the same general level as setae *p1*; *lp* situated very close to fissura *ip*; *lm* (*r3*) absent; pedipalp tarsus with short apophysis supporting seta *acm*, seta *l''* with barbs; epimera 2 and 3 without obvious opposing horns laterally; epimeral chaetotaxy 2(?)3:1:3:3; 7 pairs of genital setae forming straight file near inner margin of valves; 1 aggenital seta lateral to genital valve; 3–4 anal setae on either valve, sometimes asymmetrical in number, 3 adanal setae, *ad1* usually inserted lateral to posterior 20% of anal valve; *ft''* of tarsus I not enclosed in same collar as solenidia, opening of cavity containing undeveloped famulus directed dorsad; distal recess of tarsus not roofed by distal lip of rim of tarsal cluster; claw stalk short; tarsus of leg IV without iter setae.

Comments. The type species bears at least a superficial similarity to *Nooliodes glaber* (J. Balogh, 1962) which Paschoal (1989a) places in a separate family, Nooliodidae, on what, I believe, are genus-level characters. The Australian species differs from the Madagascan in having seven pairs of genital setae in a straight file, rather than eight pairs including one offset, and in having the pair of aggenital setae lateral to the genital valves, rather than posterior. The Australian species has a faint reticulation pattern on the notogaster, the Madagascan species is described as being smooth. Scalps are habitually carried by adults of the Australian species; it is predicted that the Madagascan species, because of its smooth (? faintly patterned) notogaster, will also be shown to habitually carry scalps.

Only two setae were seen on epimeron I; a third (most lateral) seta may have been obscured.

Etymology. The generic name emphasises the similarity of this species to the Madagascan genus *Nooliodes* Paschoal. Gender is masculine.

Neonooliodes ceroplastes n.sp.

Figs 19–22

Type material. New South Wales: HOLOTYPE adult. AM KS43835, West Head, Ku-ring-gai Chase National Park, Challenger Track, ca 33°35'S 151°18'E, remnant gully rainforest, berlesate, J. Thompson and M. Gray, 24 November 1992. PARATYPE adults. AM KS46637 SEM stub no. S/196 (ill.), same data as holotype, 6 adults; AM KS46638 SEM stub no. S/198, same data, 4 adults; AM KS43836, same data, 26 adults; AM KS43837, Mount Tomah, 33°33'S 150°25'E, closed forest, berlesate litter and top soil, red basalt soil, G.S. Hunt, 21 June 1992, 4 adults; ANIC, same data, 3 adults; FMNH, same data, 2 adults; QM, same data, 2 adults; SAMA, same data, 2 adults; CNC, same data, 1 adult; AM KS46639 SEM stub no. S/125, same data, 4 adults; AM KS46640 SEM stub no. S/144 (ill.), same data, 3 adults.

Diagnosis. As for genus.

Description

ADULT: Body dark brown, length 650 µm, 730 µm. *Cerotegument*: body (except notogaster) and legs covered with thick reticulate deposits of cerotegument reflecting underlying structure of integument (Figs 19C, 20E, 21C); notogaster (after scalps removed) with stellate deposits on reticulations uniting to give a “stitched” appearance (Fig. 21B). Anterior margin of notogaster with closely spaced cushions of cerotegument (Fig. 19F). Setae *ro* and *le*, notogastral setae and leg setae without conspicuous cerotegument. *Prodorsum*: transverse bar anterior to transverse furrow with thick deposit of reticulate cerotegument with a mesal extension connecting to the strong reticulate carina between setae *le* and *ro* (Fig. 19E); setae *le* dorsolateral, distance between them about 0.66 distance between *ro*, *ro* ventrolateral; pedotectal tooth smooth, strongly curved anteriorly; bothridium abutting notogaster (Fig. 19D), rim subcircular, anterolateral rim much lower than posterolateral rim, posterolateral carina weak; sensillus long, expanding gradually to blade from slightly above bothridial rim, tuberculate from bothridial rim (Fig. 19F); *in* arising from strong apophysis at edge of dorsosejugal suture and separated by <0.5 bothridial diameter from bothridial wall, small, acute, proximally with cerotegument (Fig. 19D–F); *ex* anterolateral to base of bothridium, very small, largely covered with cerotegument granules; posterior margin of prodorsum between bothridia strongly curved. *Notogaster*: exuvial scalps habitually carried (Fig. 19B). Ratio length:breadth 510:430; notogaster with convex central area surrounded by oval-shaped depression inside the margin (Fig. 19A); entire surface alveolate-reticulate (Fig. 19A,G); fissura *ia* and *ip* subparallel and *im* subperpendicular to sagittal plane. No anteromesal groove (Fig. 19A), posterior flank with groove ventral to setae *p1* (Fig. 19G). Setae *hl* short and twisted mesad, close together and inserted on posterior margin; setae *lp* inserted very close to fissura *ip* (Figs 19G,H; 22A); *p1* inserted close together ventral to *hl*; *p2* and *p3* situated lower on posterior flank (Figs 19G; 22B). *Gnathosoma*: mentum without strong transverse carina immediately anterior to or supporting setae *h*; rutella posteriorly convex (Fig. 20G); length of apophysis supporting pedipalp tarsal seta *acm* <0.5 seta length, solenidion reaching above base of *acm*, seta *l''* strongly barbed and set ventrad on anti-axial surface (Fig. 20B,C). *Genitoanal region*: ventral plate strongly foveate-reticulate with cuticular thickening surrounding anal valves with an oblique extension towards leg IV. Anal and genital valves foveate-reticulate, each anal valve with a longitudinal groove parallel to and close to the inner margin (Fig. 20D); chaetotaxy 7:1:3–4:3; setae *g1* and *g7* set in marginal notches in inner corners of genital valve, other setae in straight file close to lip of valve (Fig. 20F); seta *ag* close to lateral margin of valve; anal setae may be asymmetrical in number; insertion of seta *ad1* at level of posterior margin of anal valve, *ad2* inserted near posterolateral corners of valve, *ad3* adjacent to proximal 40% of valve (Figs 20D; 22B). *Leg I*.

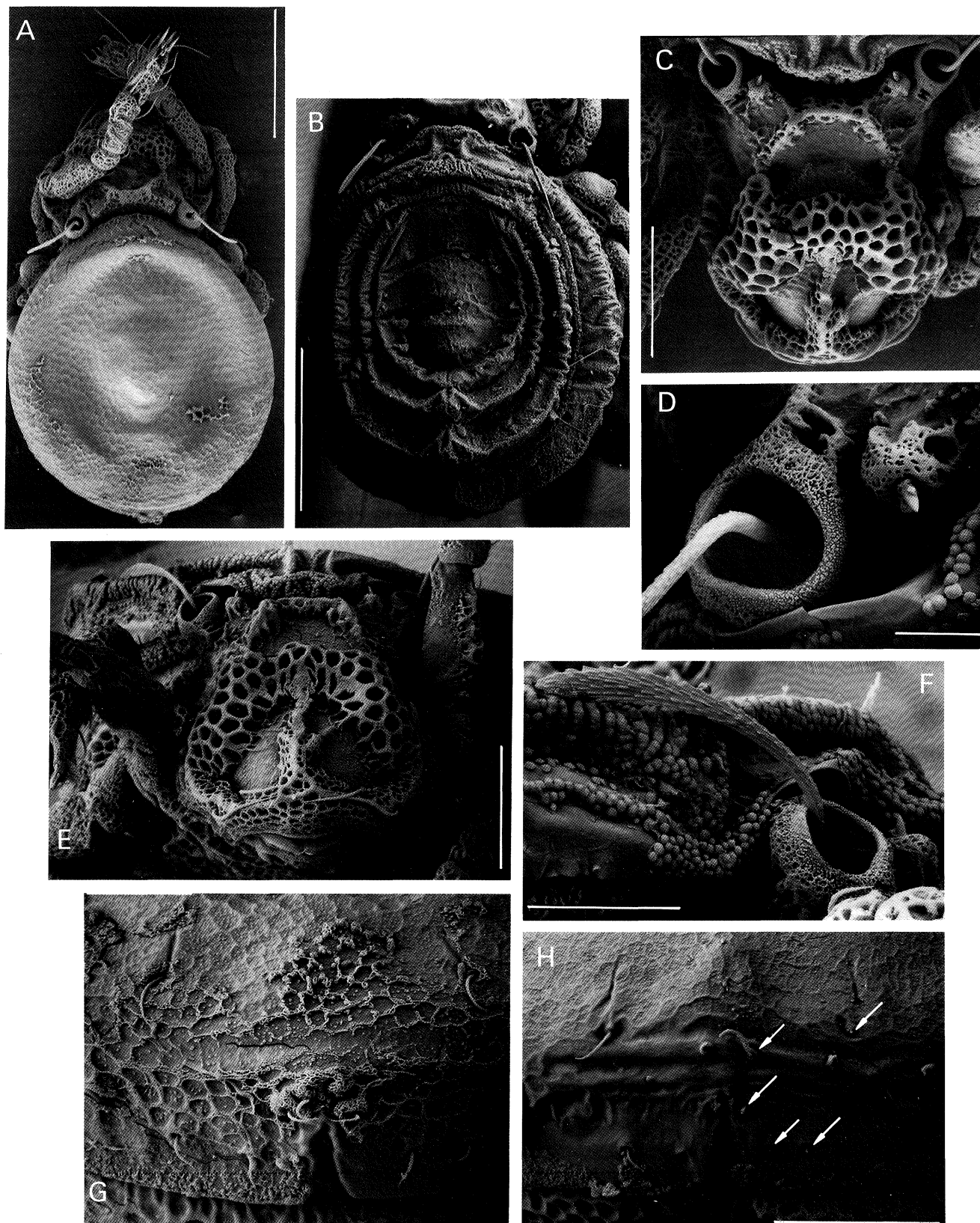


Fig. 19. *Neoonoliodes ceroplastes* n.sp. A, body, dorsal; B, notogastral scalps, dorsal; C,E, prodorsum, dorsal and frontal; D, bothridium and seta *in*, dorsal; F, bothridium, sensillus and seta *in*, laterofrontal broken; G,H, notogaster, posterior, arrows left to right label setae *p1*, *h1*, *p2*, *p3* and *lp* (all except *h1* broken). Scale bars: A,B = 200 μ m; C,E,H = 100 μ m; F,G = 50 μ m; D = 20 μ m. A–G = Ku-ring-gai Chase; H = Mount Tomah.

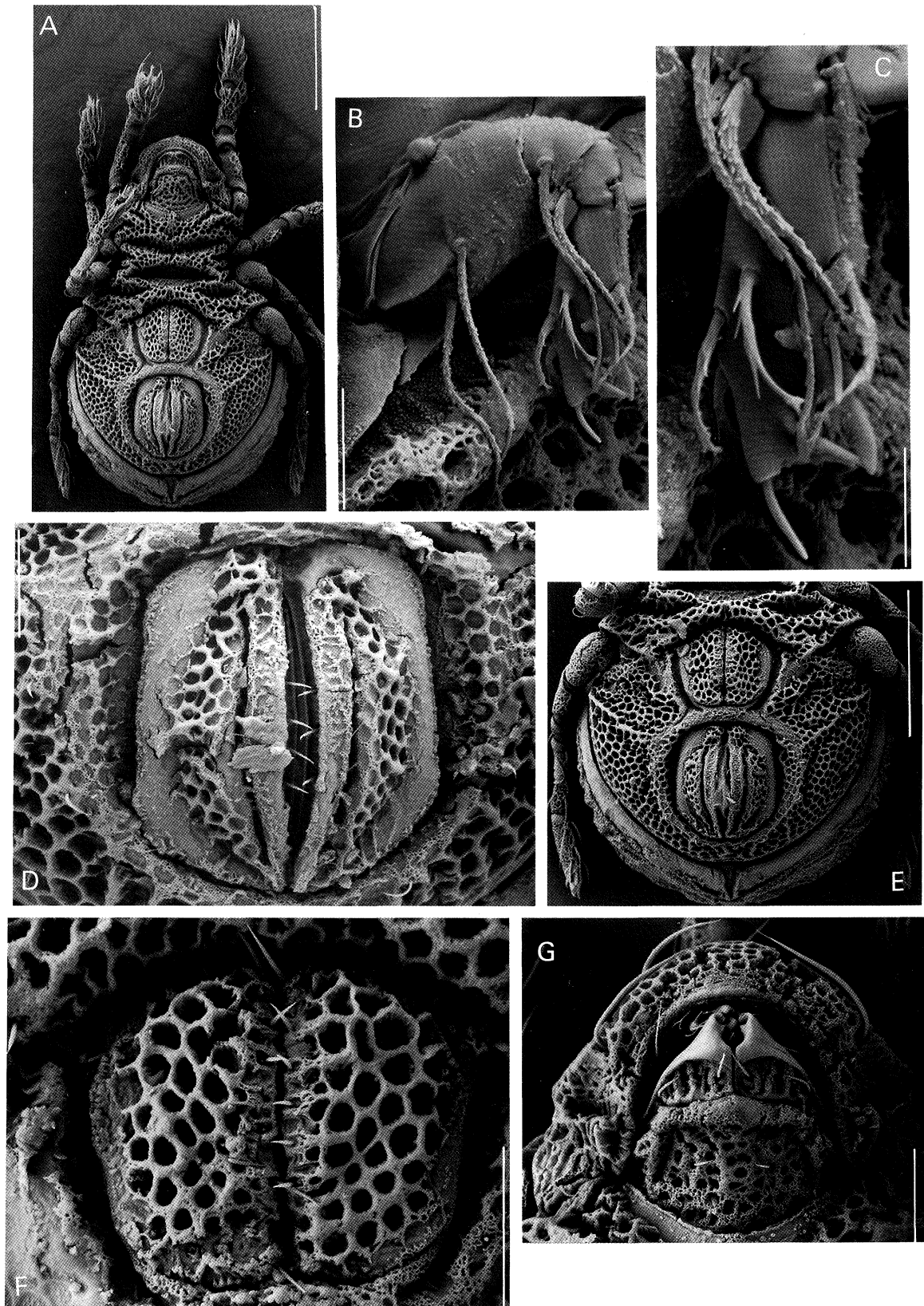


Fig. 20. *Neonooliodes ceroplastes* n.sp. A, body, ventral; B, pedipalp antiaxial; C, pedipalp tarsus, antiaxial; D, anal valves; E, ventral plate and anal and genital valves; F, genital valves; G, subcapitulum. Scale bars: A,E = 200 μ m; D,F,G = 50 μ m; B = 20 μ m; C = 10 μ m.

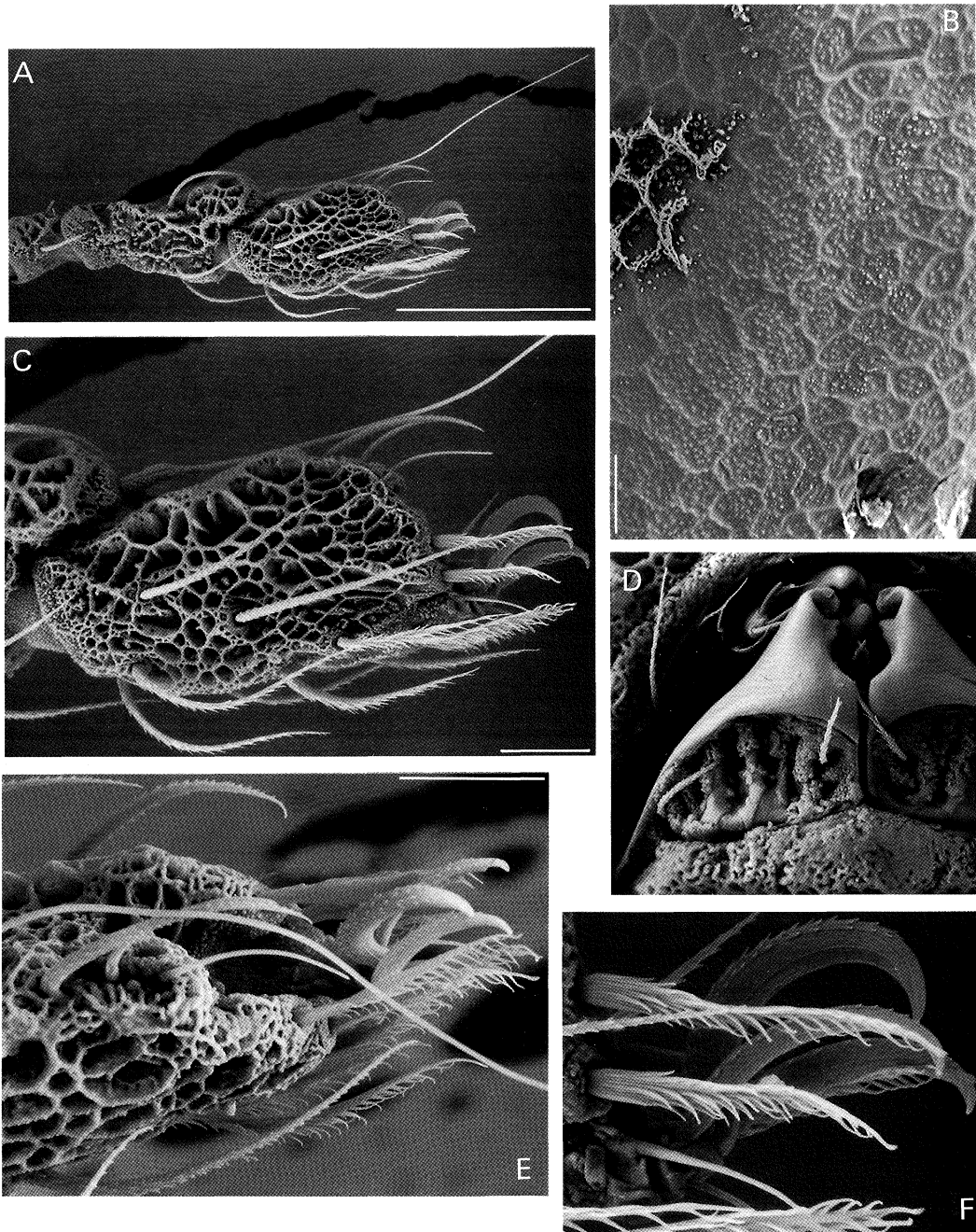


Fig. 21. *Neooliodes ceroplastes* n.sp. A, leg I tibia and tarsus, antiaxial; B, notogastral integument, fissura *im* and *gla*; C, tarsus 1, antiaxial; D, subcapitulum; E, F, distal part of tarsus 1, dorsal and antiaxial. Scale bars: A = 100 μ m; B–E = 20 μ m; F = 10 μ m. A, C–F = Ku-ring-gai Chase; B = Mount Tomah.

Strongly reticulate (Fig. 21A). Apophysis on tibia overhanging about 0.2 tarsus; seta *ft*" situated at highest point and arching gently distad, *omega 1* and 2 inserted at similar level distal to it, sclerotised ring surrounding opening of cavity containing undeveloped famulus between *omega 1* and 2 but paraxial to them (Fig. 21E), setae *tc*" and *it*" short (Fig. 21C), inserted distal to *omega 2*; deep distal recess presumably for receiving retracted claw complex (Fig. 21E), recess not roofed by distal lip

of rim of tarsal cluster; stalk essentially absent (Fig. 21F). Leg II tarsal cluster rim lacking distal lip.

Etymology. The specific epithet is Greek for "modeller in wax" and alludes to the intricate patterns of cerotegument on body and legs.

Distribution. New South Wales: Sydney area.

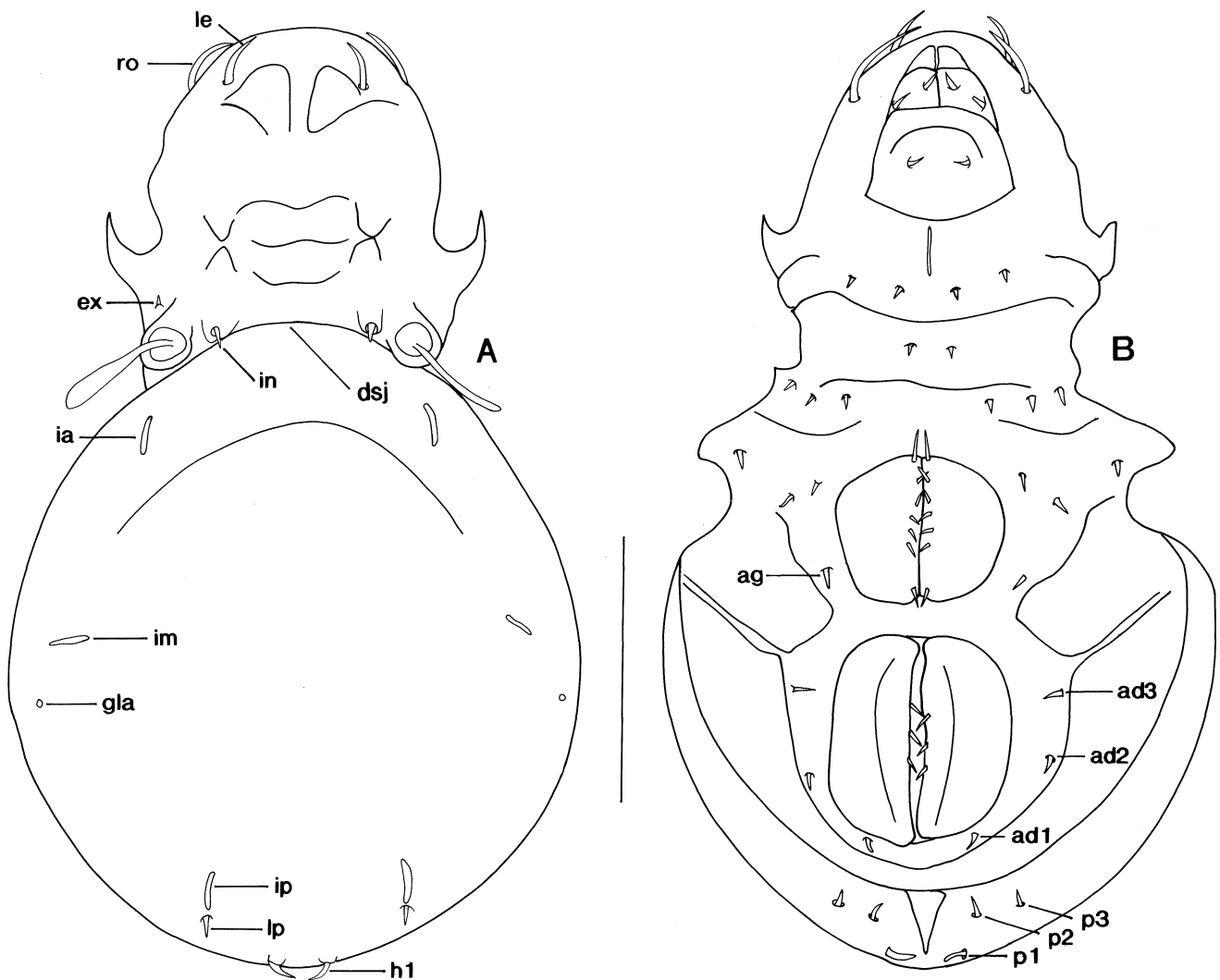


Fig. 22. *Neonooliodes ceroplastes* n.sp. A, body, dorsal (scalps removed); B, body, ventral. Scale bar = 200 μ m. dsj = dorsosejugal suture; ro = rostral seta; le = lamellar seta; ex = exobothridial seta; in = interlamellar seta; h1, lp, p1, p2, p3 = notogastral setae; ag = aggenital seta; ad1, ad2, ad3 = adanal setae; ia, im, ip = fissurae; gla = opening of lateral opisthosomal gland. (N.B., integumental microsculpture not shown in SEMs.)

General Discussion

As discussed by Hunt & Lee (1995) and Hunt (1996a), *Pedrocortesia* is now accepted as a junior synonym of *Pheroliodes*. Contrary to Paschoal (1989b), *Pheroliodes* (and other pherolioidid genera) does possess a strong transverse furrow on the prodorsum in a similar position to that in *Pedrocortesella*. The two genera also possess a posterolateral process on the bothridium and an absence of iteral setae from the tarsus of leg IV. They are evidently closely related, probably more so than their placement in separate families by Paschoal (1989b) would suggest. The differences, which include presence or absence of prodorsal enantiophyses, the contour of

the notogaster, the disposition of notogastral setae, and the number of anal setae, seem to be relevant at the generic level. However, as discussed by Hunt (1996a,c), a family level revision of the Plateremaeoidea should await a phylogenetic analysis.

A number of characters in Australian species placed in *Pheroliodes* differ from the South American type species described by Grandjean (1964): more elongate form of the sensillus, a tendency to form a distal lip to the rim of the tarsal cluster, enantiophyses on epimera 2 and 3, and a tendency for anal neutrichy. These characters may warrant separate generic status for the Australian species, but a more conservative approach is adopted here pending a phylogenetic analysis.

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