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THE ELIPSOCIDAE (Psocoptera) OF AUSTRALIA

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Abstract: A new genus and species, *Spilopsocus ruidus*, is described and *Mesopsocus stigmaticus* Tillyard, from New Zealand transferred to the same genus in the psocopteran family Elipsocidae. A key to the Australian genera of the family is given as well as all known Australian records of the family. Redescriptions are given of the species of *Pentacladus* End. and *Propsocus* McL.

This paper is an attempt to bring together available information on the species of Elipsocidae known to occur in Australia; so far six species, in five genera, are known from this region. The only species recorded from within and outside Australia is *Propsocus pulchripennis* (Perkins) for which there is a single record from Hawaii (Perkins 1899, recorded as *Stenopsocus pulchripennis* Perkins) and which is fairly widely distributed in southern Africa (Smithers 1962, recorded as *Tricladellus nitens* Hickman). It seems likely that this species has been introduced into both areas from Australia.

Material examined for this study is to be found in the following collections as indicated: South Australian Museum (SAM), National Museum of Victoria (NM), National Collection (NC) and the Australian Museum (AM).

Family ELIPSOCIDAE Pearman

Antennae long, 13-segmented. Fore wing with pterostigma usually convex, not connected to Rs by a crossvein; Rs and M usually fused for a length but may be connected by a crossvein; areola postica free (exceptionally otherwise or absent); margin and veins setose, setae sometimes small and sparse. Hind wings with Rs and M fused for a length; usually glabrous except for hairs on margin between R_{2+3} and R_{4+5}. Tarsi 3-segmented, exceptionally 2-segmented; coxal stridulatory organ present; pulvillus of various forms; claws with a stiff basal seta and a preapical tooth. Hypandrium of ♂ simple or lobed, without ornamentation. Subgenital plate of ♀ usually bilobed or with indications of lobing (a median lobe present in *Paedomorpha*) with preapical transverse band of strong setae and a small group of strong setae at the extremity of each lobe. Gonapophyses of ♀ complete; ventral valve pointed; dorsal valve usually divided at apex; external valve large, setose, with strong marginal setae. Polymorphism common; brachypterous or apterous adults occur, usually exhibiting neotenic features such as reduction of trichobothria, ocelli, antennae and number of tarsal segments and retention of duplex setae on paraprocts.

KEY TO AUSTRALIAN GENERA OF ELIPSOCIDAE

1. Cu_{1a} connected to M (discoidal cell closed); never apterous, sometimes brachypterous...2

Cu_{1a} not connected to M (discoidal cell open); macropterous, brachypterous or apterous..... 3

2. M in fore wing more than 3-branched; brachyptery unknown ..... **Pentacladus**
M in fore wing 3-branched; brachyptery common..... **Propsocus**

3. Subgenital plate with strong posterior median lobe; ventral valve of gonapophyses reduced; some setae with thin-walled, slightly expanded tips; ♀♀ apterous with 2-segmented tarsi or macropterous with 3-segmented tarsi; ♂♂ unknown..... ..... **Paedomorpha**
Subgenital plate without posterior median lobe; ventral valve of gonapophyses not reduced; setae normal; both sexes known..... 4

4. Macropterous and brachypterous forms known in both sexes; fore wings patterned; pulvillus fine; claws with strong preapical tooth; dorsal valve of gonapophyses divided at apex; ♂ paraproct sometimes with a posterior rugose dome... **Spilopsocus**
Males macropterous, ♀♀ brachypterous; wings without pattern; pulvillus broad; claw with mere suggestion of preapical tooth; dorsal valve of gonapophyses not apically divided; ♂ without rugose dome on paraproct ..... **Drymopsocus**

Species of Elipsocidae known from Australia

Paedomorpha gayi Smithers
Pentacladus eucalypti Enderlein
Propsocus pallipes (McLachlan)
Propsocus pulchripennis (Perkins)
Spilopsocus ruidus n. gen., n. sp.
Drymopsocus brunneus Smithers

Records of Australian Elipsocidae

Genus **Paedomorpha** Smithers

Paedomorpha Smith., 1963, Proc. R. Ent. Soc. Lond. ser. B, **32**: 32 (Type species: *P. gayi* Smith., 1963).

Paedomorpha gayi Smithers

Paedomorpha gayi Smith., 1963, Proc. R. Ent. Soc. Lond. ser. B, **32**: 32, figs. 1–6.

DISTRIBUTION. TASMANIA: Queen's Domain. A. C. T.: Canberra. N. S. WALES: Turramurra (Smithers, 1963). VICTORIA: 2♀♀, Blackrock, 29. IV. 1955, G. Salter (NM).

Genus **Pentacladus** Enderlein

Pentacladus End., 1906, Zool. Jb. Abt. Syst. **23**: 408 (Type species: *P. eucalypti* End., 1906).

Pentacladus eucalypti Enderlein Figs. 1–7.

Pentacladus eucalypti End., 1906, Zool. Jb. Abt. Syst. **23**: 408, tab. 23, fig. 7.—Edwards, 1950, Pap. R. Soc. Tasm. **1949**: 106, figs. 33–51.

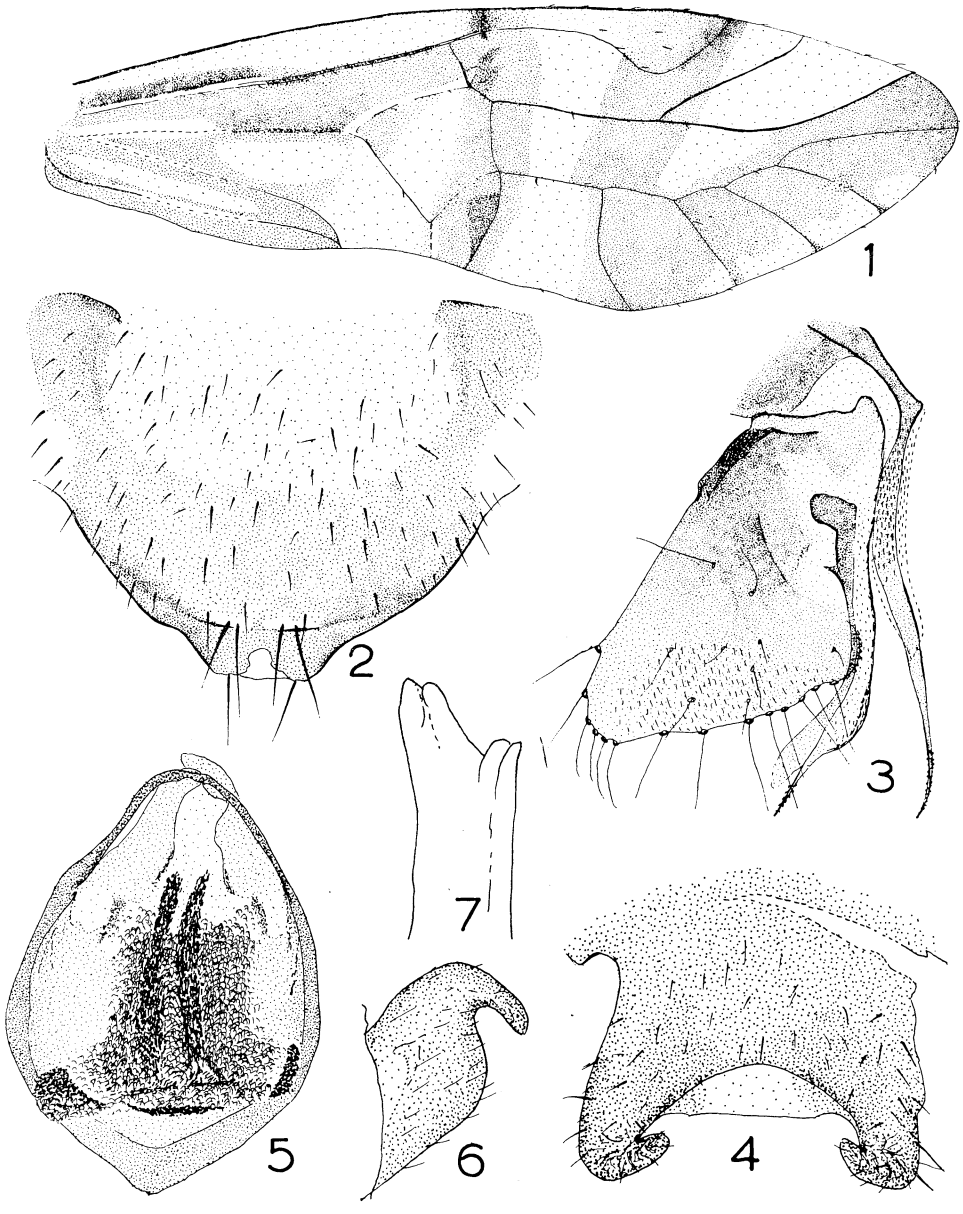
The following description is given to supplement those already published.

Female. Coloration: Head with vertex dark brown, each epicranial plate with a red-

dish stripe running forward from the top of the head, between ocelli and compound eye, ending at epistomial suture. Frons dark brown, with a paler area on each side mesad of the antennae bases. Postclypeus dark brown, paler laterally, the paler areas being continuous with those of the frons. Anteclypeus almost colorless. Labrum dark brown, a little paler laterally. Genae dark brown. Antenna with scape, pedicel and most of flagellar segment 1 pale brown; brown beyond. Eyes red. Ocelli tinged with pink. Maxillary palp with segments 1–2 brown; segments 3 & 4 darker. Mesothorax with antedorsum and lateral lobes dark brown, a reddish tinge on lateral and posterior edges of lateral lobes. Metathorax dark brown. Prothoracic legs with coxa very pale, femur and tibia pale brown; tarsal segment 1 a little darker than tibia, segments 2 & 3 darker brown. Claws very dark brown with pale tip. Meso- and metathoracic legs similar to those of prothorax but with coxa dark brown. Fore wings (fig. 1) hyaline with markings in various shades of brown, the paler areas within the brown areas having a yellowish tinge; the following tinged with red: distal border of pterostigma, an irregular patch in the area of junction of Rs and M and distal part of areola postica. Veins yellowish in basal sections, with a little red at base of M+Cu; distal sections of main veins tinged with reddish, branches brown except yellowish brown areas of membrane paler. Hind wings hyaline, marked in various shades of brown in basal 1/2 and with a brown spot at the end of R_{4+5}. Veins brown, except Cu_2 which is reddish. Abdomen pale with indications of irregular reddish annulations on dorsal surface; ventral surface very pale, terminal structres dark brown but paraprocts and epiproct paler.

Notes on color loss: When in alcohol much of the reddish coloration is lost and the eyes assume a reddish purple color.

Morphology: Length of body 3.5 mm. Median epicranial suture very distinct, anterior arms indicated by a pigmented band. Vertex smoothly arched, beset with regularly spaced, stiff, erect bristles. Frons setose, the setae larger than those of the vertex. Postclypeus slightly bulging, clothed with fine setae, much shorter than those of vertex. Lengths of antennal segments: f_1 : 0.87 mm; f_2 : 0.8 mm; $f_1 : f_2$: 1.08 : 1.0. Eyes fairly large, not quite reaching level of vertex when viewed from the side. IO/D : 1.82; PO : 0.89. Ocelli small and not prominent. Lacinia (fig. 7). Mesothorax with several strong setae, especially anterior to wing base on edge of lateral lobes. Measurements of hind leg: F : 0.9 mm; T : 1.52 mm; t_1 : 0.48 mm; t_2 : 0.1 mm; t_3 : 0.13 mm; rt : 4.8 : 1.0 : 1.3; ct : 22, 0, 0. Fore wing: length, 3.4 mm; width, 1.2 mm. Fore wings fairly pointed. Pterostigma narrow at base, broadening 2/3 along its length giving a smoothly rounded apex. Rs and M fused for a short length; stem of radial fork almost straight before bifurcation. M almost at right angles to stem of Rs; cell M broad. M 3–5-branched, but number of branches varies considerably with bifurcations and anastomoses of branches frequent (see Edwards 1950, p. 110, figs. 40–51). Areola postica tall and narrow, pointed; Cu_{1a} meeting M in a point in most cases; Cu_{1a} slightly curved after separation from M. Hairs on margin and veins few and small, often difficult to detect, a few hairs on pterostigma in distal 1/2. Hind wing: length, 2.5 mm; width, 0.8 mm. Hind wings with Cu_1 strongly recurved near distal end; a few short hairs on margin between arms of radial fork. Epiproct simple, roughly triangular, rounded posteriorly with some strong setae, especially in posterior part. Subgenital plate (fig. 2) bilobed; each lobe carries an apical bristle. Basad of apical lobe the plate has 2 small, transverse, lightly sclerotized patches each carrying a pair of bristles which are stouter than the other setae of the plate. These bristles appear to represent a



Figs. 1–7. *Pentacladus eucalypti* End. 1, fore wing; 2, ♀ subgenital plate; 3, ♀ gonapophyses; 4, ♂ hypandrium (ventral view); 5, ♂ phallosome; 6, ♂ hypandrium (lateral view); 7, lacinia.

reduced form of the transverse band of setae normally present in the Elipsocidae. Gonapophyses (fig. 3) with ventral valve long and finely pointed, armed in distal 1/4 with recurrent spinules and carrying a lightly sclerotized lobe about half way along its length.

Dorsal valve long and pointed, with recurrent spinules and a large, lightly sclerotized lobe; longitudinal sclerotized band of dorsal valve carries a dorsally directed process about 1/4 the distance from base. External valve roughly triangular, setose, with a row of setae along posterior margin, these being grouped into a close row at posterodorsal angle; posteroventral angle spinuliferous.

Male. Coloration: Similar to ♀.

Morphology: Generally similar to that of ♀. Eyes large, just reaching level of vertex when viewed from side. Length of antennal segments: f_1 : 0.9 mm; f_2 : 0.9 mm; f_1 : f_2 : 1 : 1. IO/D : 1.73; PO : 0.82. Measurements of hind leg: F : 0.87 mm; T : 1.7 mm; t_1 : 0.48 mm; t_2 : 0.08 mm; t_3 : 0.1 mm; rt : 6.0 : 1.0 : 1.25. Fore wing: length, 3.5 mm; width, 1.2 mm. Hind wing: length, 2.6 mm; width, 0.8 mm. Hypandrium (fig. 4, ventral; fig. 6, lateral) well sclerotized; hind margin carries a small internal flange on either side mesad of lateral lobes. Phallosome (fig. 5).

This species occurs singly on dead *Eucalyptus* leaves (Edwards 1950).

DISTRIBUTION. TASMANIA: Rheban; Hobart (Edwards 1950); 4♂♂, 2♀♀, dry eucalypt leaves, Cascades, 18. IV. 1961, V. V. Hickman (AM). VICTORIA: 1♂, Dynamite Creek, Bonang Highway, 28. X. 1961, D. H. Colless (NC). A. C. T.: 1♀, Uriara State Forest, 23. X. 1960, Colless; 1♀, Coree Creek, 23. X. 1960, Colless (NC). N. S. WALES: Gosford (Enderlein 1906); 1♂, Mt. Wilson, 3. IX. 1960, A. S. Smithers; 2♂♂, same locality, 12. II. 1961, C. N. & A. S. Smithers; 1♀, Wright's Lookout, New England National Park, 30. III. 1961, D. K. McAlpine; 2♀♀, Bell, Blue Mts., under dead *Eucalyptus* leaves, F. T. Fricke (AM); 1♂, 1♀, Royalla, 29. III. 1961, Colless (NC).

Genus **Propsocus** McLachlan

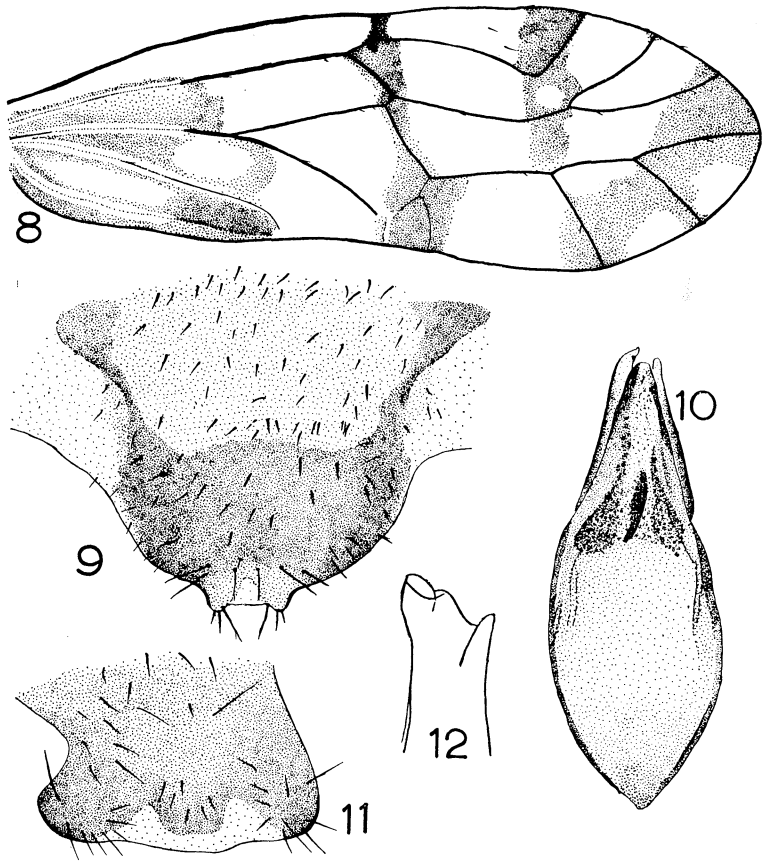
Propsocus McL., 1866, Trans. Ent. Soc. ser. 3, **5**: 352 (Type species: *Psocus pallipes* (McL)).
Tricladus Enderlein, 1906, Zool. Jb. Abt. Syst. **23**: 410 (Type species: *T. froggatti* End.).
Tricladellus End., 1909, Stett. Ent. Ztg. **70**: 273 (*Tricladus* preocc.).—Edwards, 1950, Pap. R. Soc. Tasm. **1949**: 110.

Propsocus pallipes (McLachlan) Figs. 8–12.

Psocus pallipes McL., 1866, Trans. Ent. Soc. ser. 3, **5**: 349.
Propsocus pallipes: McL., 1866, *Ibid.*: 352.—Pearman (in press).
Tricladus froggatti Enderlein, 1906, Zool. Jb. **23**: 410, tab. 23, fig. 6.
Tricladellus froggatti: End., 1909, Stett. Ent. Ztg. **70**: 273.—Edwards, 1950, Pap. R. Soc. Tasm. **1949**: 111, figs. 52, 54–59.
Tricladellus froggatti var. *brachypterus* Edw., 1950, *Ibid.*: 113, fig. 53.

The following description is given to supplement those already in the literature.

Female. Coloration: Head dark brown, slightly darker on vertex and frons than elsewhere. Antenna with scape, pedicel and 1st 2/3 of flagellar segment 1 pale brown, remainder dark brown. Eyes reddish. Segments 1–3 of maxillary palp and 1st 1/2 of segment 4 pale brown; distal 1/2 of segment 4 dark brown. Thorax dark brown dorsally, a little paler along sutures. Prothoracic legs with coxa, femur and tibia pale brown; tarsal segment 1 pale brown, segments 2 & 3 darker. Meso- and metathoracic legs as pro-



Figs. 8–12. *Propsocus pallipes* (McL.). 8, fore wing; 9, ♀ subgenital plate; 10, ♂ phallosome; 11, ♂ hypandrium; 12, lacinia.

thoracic but with darker coxae. Claws very dark brown with pale tips. Fore wing (fig. 8) hyaline, marked in shades of brown, the deepest being dark brown. Basal sections of veins R, M+Cu_1, Cu_2, Cu_{1b} and IA pale yellowish; remaining veins dark brown. Hind wings hyaline, marked with brown in costal cell and with a grayish brown area in cell Cu_2. Abdomen pale with indications of reddish brown annulations dorsally; terminal structures dark brown.

Morphology: Length of body 3 mm. Median epicranial suture very distinct; anterior arms evanescent. Vertex smoothly rounded, carrying short, erect setae; frons with setae similar to those of vertex but longer. Postclypeus with fine, pale setae. Measurements of antennal segments: f_1 : 0.48 mm; f_2 : 0.48 mm; f_1 : f_2 : 1.0 : 1.0. Antennae fine, a few setae on each segment much longer than the rest. Eyes fairly large, just reaching level of vertex when viewed from side. IO/D : 1.9; PO : 0.70. Ocelli well developed, not prominent. Lacinia (fig. 12).

Mesothorax clothed dorsally with setae similar to those of vertex. Measurement of

hind leg: F : 0.6 mm; T : 1.12 mm; t_1 : 0.38 mm; t_2 : 0.08 mm; t_3 : 0.088 mm; rt : 4.8 : 1.0 : 1.1; ct : 12, 0, 0. Pulvillus thick, expanded apically; preapical tooth of claw absent. Fore wings rounded apically. Fore wing: length, 2.8 mm; width, 1.0 mm. Pterostigma with fairly acute posterior angle. Rs and M meeting in a point or joined by a short crossvein; Cu_{1a} joined to M by a crossvein, sometimes meeting in a point; pterostigma without spur-vein. Margin and veins of fore wing with a few very small setae, difficult to detect; some specimens appear to lack setae on veins and wing margin. Hind wing: length, 2 mm; width, 0.6 mm. Hind wings with a few minute hairs on margin between arms of radial fork. Cu_1 strongly recurved near wing margin. Epiproct rounded behind, setose in posterior 1/2, some setae being longer than others. Paraproct roughly ovoid with a small field of trichobothria near base; paraproct more heavily sclerotized dorsally than ventrally; apex with 2 long setae between which arises a small seta. Subgenital plate (fig. 9); each "lobe" carries 3 apical setae. Mid setae of preapical band arising from an area which is a little less heavily sclerotized than the immediately surrounding integument. Gonapophyses with ventral valve long and pointed, with recurrent spinules near apex; dorsal valve pointed, apically divided, and with a large lobe; external valve roughly rectangular, setose, with a row of setae along posterior margin.

Male. Coloration: As in ♀.

Morphology: Length of body: 2.4 mm. Lengths of antennal segments: f_1 : 0.48 mm; f_2 : 0.48 mm; f_1 : f_2 : 1.0 : 1.0. Eyes fairly large. IO/D : 1.8; PO : 0.66. Measurements of hind leg: F : 0.65 mm; T : 1.1 mm; t_1 : 0.38 mm; t_2 : 0.08 mm; t_3 : 0.088 mm; rt : 4.8 : 1.0 : 1.1 : ct : 15, 0, 0. Fore wing: length, 2.8 mm; width, 1.0 mm. Hind wing: length, 2.1 mm; width, 0.6 mm. Paraproct with field of trichobothria larger than in ♀; no special seta arrangement at apex. Hypandrium (fig. 11). Phallosome (fig. 10).

This species is found also in a brachypterous form, short-winged individuals occurring with macropterous specimens (Edwards 1950, fig. 53).

Found on dead *Eucalyptus* leaves (Edwards 1950) and on fallen leaves (Enderlein 1906).

DISTRIBUTION. TASMANIA: Rheban; Hobart (Edwards 1950); 9♀♀, 7♂♂, East Risden, dry eucalypt leaves, 19. IV. 1961, V. V. Hickman (AM). N. S. WALES: Kenthurst; Gosford (Enderlein 1906); 3♀♀, 2♂♂, Bell, Blue Mts., under dry *Eucalyptus* leaves, F. T. Fricke; 1♂, Cascades, Katoomba, 12. II. 1961, C. N. & A. S. Smithers; 1♂ Polblue, Barrington Tops, 29. XII. 1961, C. N. Smithers (AM). QUEENSLAND: 1♂, Mt. Nebo, ex yellow tray, VI. 1962, E. Warwick (NC); 3♂♂, 2♀♀, between Tara and Dalby, VI. 1961, J. Armstrong (AM). W. AUSTRALIA: 1♀, nr. Toodyay, on *Eucalyptus rudis*, 9. IX. 1960, M. H. Wallace (NC).

Propsocus pulchripennis (Perkins) Figs. 13–18.

Stenopsocus pulchripennis Perk., 1899, Fauna Hawaiiensis **2**: 83.—Zimmerman, 1948, Ins. Haw. **2**: 250.

Myopsocus nitens Hickman, 1934, Pap. Roy. Soc. Tasm. **1933**: 81, figs. 5A, 5B.

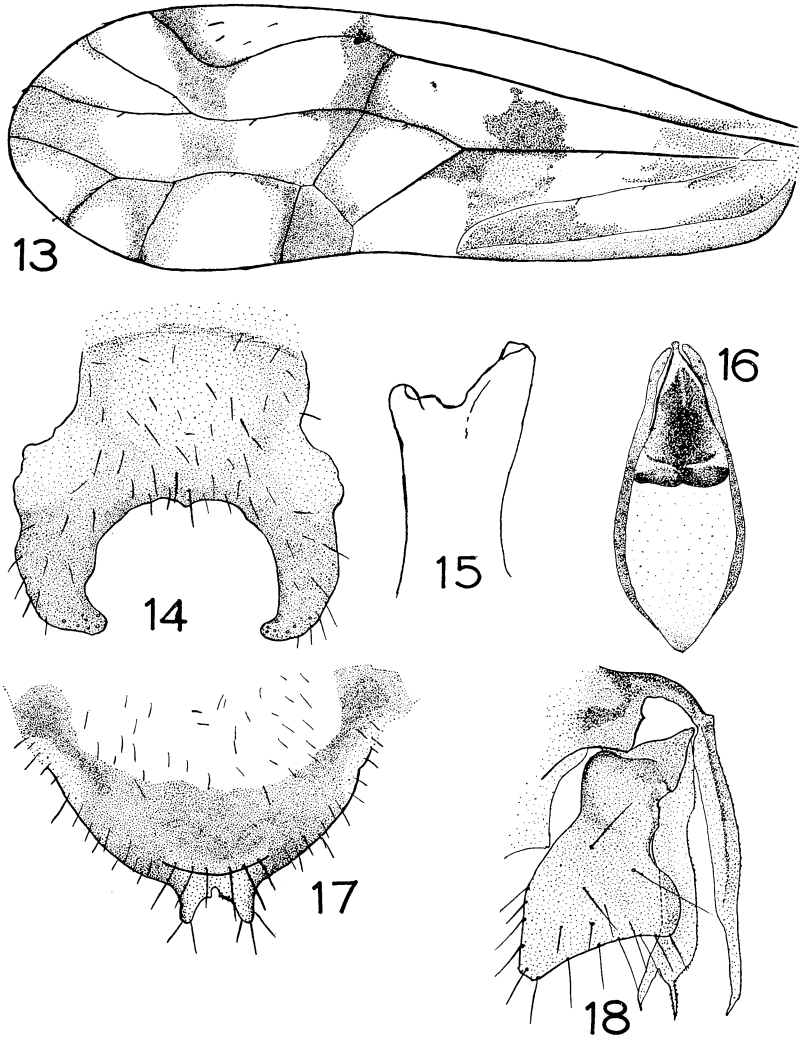
Tricladellus nitens: Edwards, 1950, Pap. Roy. Soc. Tasm. **1949**: 113, figs. 60–65, 67.—Smithers 1962, J. Ent. Soc. S. Afr. **25**: 262.

Tricladellus nitens var. *brachypterus* Edwards, 1950, Pap. Roy. Soc. Tasm. **1949**: 115, fig. 66.

Propsocus pulchripennis: Pearman (in press).

The following description and accompanying figures are given to supplement those already in the literature.

Female. Coloration: Head dark brown, except for pale anteclypeus. Antenna with scape, pedicel and basal 3/4 of flagellar segment 1 pale brown, remainder of flagellum dark brown. Eyes reddish brown. Ocelli with a pinkish tinge. Maxillary palpi dark brown. Thorax dark brown dorsally. Prothoracic legs with pale coxae, tibiae and femora and tarsal segment 1 pale brown, tarsal segments 2 & 3 brown. Meso- and metathoracic legs as those of prothorax but with dark brown coxae. Fore wings (fig. 13) hyaline, marked



Figs. 13–18. *Propsocus pulchripennis* (Perk.). 13, fore wing; 14, ♂ hypandrium; 15, lacinia; 16, ♂ phallosome; 17, ♀ subgenital plate; 18, ♀ gonapophyses.

with dark brown. Basal 1/2 of R, $M+Cu_1$, Cu_2 and IA yellowish, other veins in shades of brown. Hind wings hyaline, costal cell, area on either side of M+Cu and apical section of cell Cu_2 tinged with pale brown. Veins brown. Abdomen pale with indications of irregular reddish brown annulations dorsally. Terminal structures with more heavily sclerotized areas dark brown.

Morphology: Length of body 2.6 mm. Median epicranial suture very distinct. Vertex and frons clothed with strong, erect setae; postclypeus with finer, shorter setae, postclypeus not greatly bulging. Lengths of antennal segments: f_1 : 0.4 mm; f_2 : 0.35 mm; $f_1 : f_2$: 1.14 : 1.0. Eyes moderately sized, not quite reaching level of vertex when viewed from side. IO/D: 2.0; PO : 0.63. Ocelli well developed, not prominent. Lacinia (fig. 15). Measurements of hind leg: F : 0.58 mm; T : 1.02 mm; t_1 : 0.36 mm; t_2 : 0.062 mm; t_3 : 0.088 mm; rt: 5.8 : 1.0 : 1.4; ct: 16, 0, 0. Fore wing: length, 2.5 mm; width, 0.8 mm. Fore wing with broad, rounded apex. Fore wings with pterostigma broadening strongly to rounded apex; Rs bifurcating opposite apex of pterostigma; Rs and M meet in a point; Cu_{1a} and M may be fused for a very short length, may meet in a point or be joined by a short crossvein; areola postica relatively tall and narrow. Margin and veins with few, fine, small setae, often difficult to detect. Claws with preapical tooth. Epiproct broad with rounded hind margin, clothed sparsely with small fine setae; 4 large setae arising near hind margin and hind margin bears an irregularly arranged row of smaller setae. Paraproct roughly triangular, with a small field of about 11 trichobothria; setose in dorsal part distad of trichobothria and along posteroventral margin. Subgenital plate (fig. 17) bilobed, each lobe with 3 apical setae; preapical band of setae reduced to a single row, the stronger setae arising from a slightly less sclerotized area. Gonapophyses (fig. 18) with ventral valve long and pointed with spinules near apex; dorsal valve broad, pointed and with a broad membranous lobe; dorsal margin of valve has a small sclerotized process about 1/3 of the distance from base; external valve roughly triangular, with a few scattered setae and a setose margin, marginal setae being stronger and closer together at posterodorsal angle.

Male. Coloration: Similar to that of ♀.

Morphology: Length of body 2 mm. Antennae a little longer than in ♀. Length of antennal segments: f_1 : 0.45 mm; f_2 : 0.4 mm; $f_1 : f_2$: 1.13 : 1.0. Eyes a little larger than in ♀, reaching a little above level of vertex when viewed from side. IO/D: 1.86; PO : 0.86. Measurements of hind leg: F : 0.55 mm; T : 0.95 mm; t_1 : 0.35 mm; t_2 : 0.057 mm; t_3 : 0.087 mm; rt : 6.1 : 1.0 : 1.3; ct : 19, 0, 0. Fore wing: length, 2.4 mm; width 0.9 mm. Hind wing; length, 1.8 mm; width, 0.6 mm. Hypandrium (fig. 14) bilobed. Phallosome (fig. 16).

This species is found also in a brachypterous form, short winged individuals occurring with macropterous specimens. (Edwards 1950, fig. 66).

Found in dry grass and amongst dry leaf litter, under stones and boards (Edwards 1950, Hickman 1934). Eggs are laid in groups on grass stems, covered with a dark gray encrustation (Edwards 1950).

DISTRIBUTION. TASMANIA: New Town (Hickman 1934); Hobart (Edwards 1950); 10♀♀, 6♂♂, New Town, in dry fallen leaves, 22. II. 1961, V. V. Hickman (AM). S. AUSTRALIA: Adelaide (McLachlan 1866); 1♀, Wood's Point, 1. VI. 1934, H. Womersley (SAM). A. C. T.: 2♂♂, Dickson, ex yellow tray, 27. IV. 1961, R. Hughes; 1♀, Black Mt., Canberra, 27. IV. 1961, Colless; 1♀, Mt. Majura, 12. VII. 1961, Colless (NC);

10♂♂, 7♀♀, taken from spiders web on side of house, Dickson, 3. XII. 1961 C. E. Chadwick (AM). N. S. WALES: 3♀♀, 1♂, Brindabella, 4. XI. 1961, Colless; 1♂, 1♀, New England National Park, 13. IX. 1962, Colless; 1♂, 3♀♀, Sweetwater, Kain, 24. IX. 1960, Colless; 3♀♀, 1♂, Brown Mt., 19. I. 1961, Colless; 3♀♀, 1♂, same data but 15. III. 1961; 1♂, The Creel at Thredbo, Mt. Kosciusko, 8. XI. 1961, Colless (NC); 4♂♂, 4♀♀, Tianjara Creek, Tomerong, 19. XI. 1962, A. S. & C. N. Smithers (AM).

Genus **Spilopsocus** Smithers, n. gen.

Antennae 13-segmented; fairly long. Ocelli present. Segment 4 of maxillary palp elongate, rounded apically. Fore wing patterned, Rs and M fused for a length; areola postica free; media 3-branched; setae present, but small and sparse, on wind margin and veins; Cu_2 setose. Hind wing with Rs and M fused for a length; setae on margin between R_{2+3} and R_{4+5} fine and few. Tarsi 3-segmented. Coxal stridulatory organ present. Pulvillus fine and long. Claw with strong preapical tooth. Paraproct of ♀ in some species with sclerotized ridge along dorsal margin; in the ♂ of some species paraproct carries a rugose dome posteriorly. Trichobothria present. Duplex setae absent in macropterous form, present in brachypterous. Hypandrium with lateral lobes. Phallosome broad anteriorly, tapering posteriorly; penial bulb with sclerotizations. Subgenital plate with only suggestion of being bilobed; preapical setae arranged as a median group; a few setae on each lobe. Gonapophyses with ventral valve pointed; dorsal valve apically divided, the inner part in form of a lobe and the outer part pointed; external valve hatchet-shaped, setose, with a row of evenly-spaced marginal setae. Setae normal. Macropterous and brachypterous forms known in both sexes of some species; in other ♂♂ macropterous and ♀♀ brachypterous.

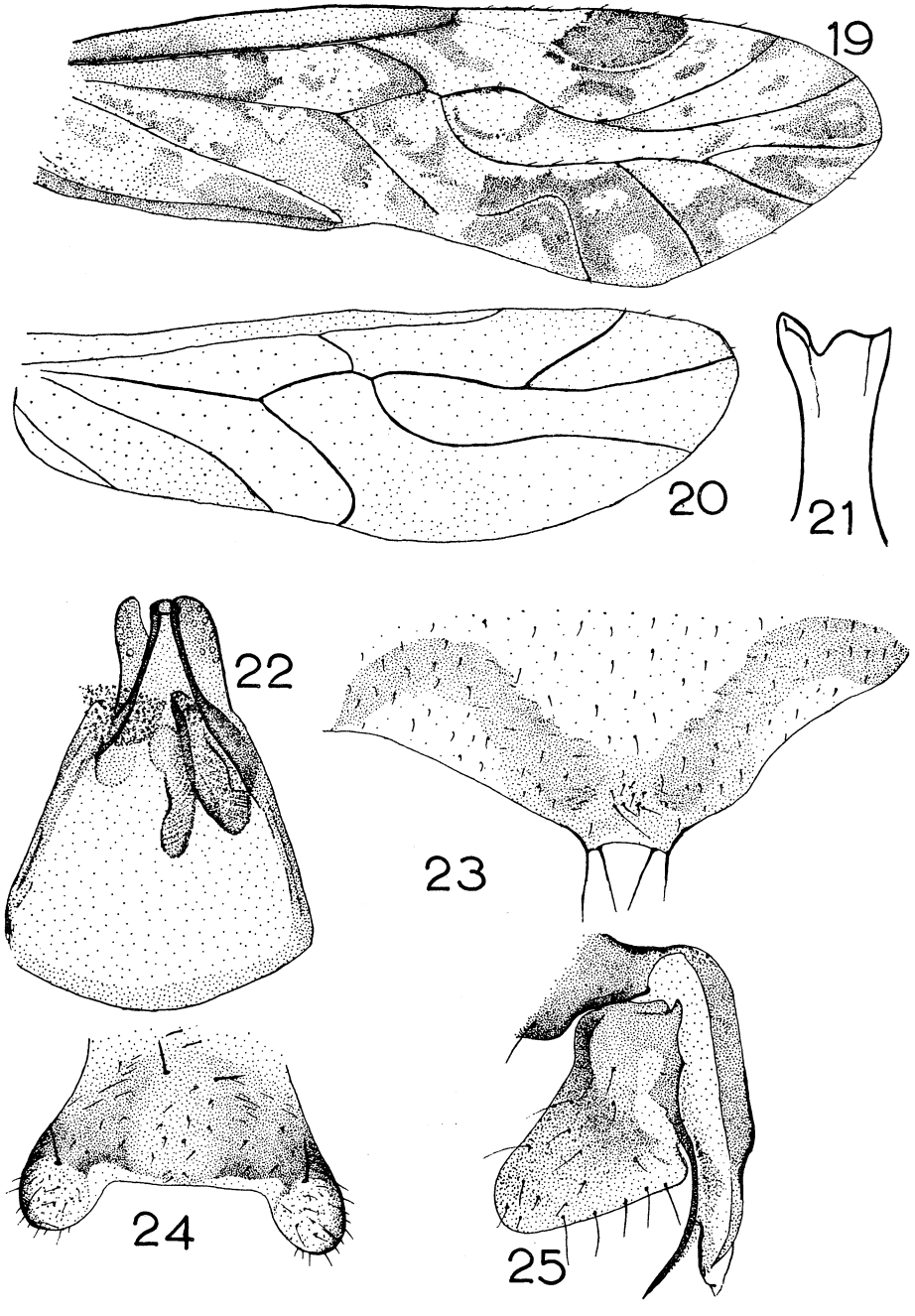
Type species: *Spilopsocus ruidus* Smithers, n. sp.

Discussion: *Spilopsocus* may be distinguished from *Elipsocus* Hagen, *Hemineura* Tetens, *Drympsocus* Smithers and *Cuneopalpus* Badonnel by its having the dorsal valve of the gonapophyses divided apically; from *Pseudopsocus* Kolbe it is distinguishable by retaining ocelli and trichobothria but lacking duplex setae in the macropterous forms. From *Paedomorpha* Smithers and related genera it differs in having a more or less distinctly bilobed subgenital plate. *Spilopsocus* is related to *Propsocus* McLachlan and *Pentacladus* Enderlein but differs from these genera in having a free areola postica and in the form of the subgenital plate.

Tillyard (1923) described *Mesopsocus stigmaticus* from New Zealand. During work on revision of *Mesopsocus* Mr. M. Clarke re-examined Tillyard's type and found that *M. stigmaticus* was not a *Mesopsocus*. I have seen material of this species, which Mr. Clarke has compared with the type, and it is clearly congeneric with *Spilopsocus ruidus*. *Mesopsocus stigmaticus* Tillyard should, therefore, be referred to as *Spilopsocus stigmaticus* (Tillyard), n. comb. A third species in this genus, from Campbell Island, is being described elsewhere.

Spilopsocus ruidus Smithers n. sp. Figs. 19–25.

Female. Coloration (in alcohol). Head very pale brown with darker confluent spots adjacent to the median epicranial suture and a double row of similar spots mesad of compound eyes. Frons with two brown spots immediately anterior to ocellar triangle. Ocelli,



Figs. 19–25. *Spilopsocus ruidus*, n. gen., n. sp. 19, fore wing; 20, hind wing; 21, lacinia; 22, ♂ phallosome; 23, ♀ subgenital plate; 24, ♂ hypandrium; 25, ♀ gonapophyses.

and position of anterior arms of epicranial suture, reddish. Postclypeus with pale brown, anteriorly converging stripes, these a little darker anteriorly than posteriorly. A fine brown line running from compound eye to base of antenna on each side. Anteclypeus pale; labrum dark brown. Eyes dark with a purplish tinge. Antenna with scape, pedicel, flagellar segment 1 and 1/2 of 2 pale brown, remainder of flagellum dark brown. Maxillary palp very pale with segment 4 black. Pronotum dark brown. Mesothorax with antedorsum brown, divided longitudinally by a pale stripe; lateral lobes brown, sutures pale. Mesothorax with pale antedorsum and brown lateral lobes. Fore wings (fig. 19) hyaline, marked in shades of brown, the darkest being dark brown. Veins, except R_1 in basal part of pterostigma and Cu_{1b}, brown, the veins in distal 1/2 of wing being darker than those in basal 1/2. Hind wings (fig. 20) hyaline with pale brown markings in costal cell, near margin between R_1 and R_{2+3}, around R_{4+5} and M where they reach the margin and in cells M and Cu_2. Veins dark brown except Cu_2 and IA, which are paler. Legs similarly colored on all segments, but coxae of prothoracic legs paler than those of meso- and metathorax. Femora pale brown, a little darker near tibiae; tibiae pale brown a little darker near femora and with slightly darker apices; tarsal segments brown; claws almost black with pale tips. Abdomen pale with irregular brown markings dorsally, terminal structures dark brown.

Morphology: Length of body 2.9 mm. Median epicranial suture fine, anterior arms indistinct, positions indicated by pigment lines. Vertex smoothly rounded with short, fine pubescence. Postclypeus bulging, pubescence a little finer than that of vertex. Measurements of antennal segments: f_1 : 0.60 mm; f_2 : 0.44 mm; f_1 : f_2 : 1.36 : 1.0. Eyes fairly small, not reaching level of vertex when viewed from side. IO/D : 2.0 : PO : 0.77. Lacinia (fig. 21). Measurements of hind leg: F : 0.65 mm; T : 1.3 mm: t_1 : 0.4 mm; t_2 : 0.075 mm; t_3 : 0.11 mm; rt: 5.3 : 1.0 : 1.4; ct: 19, 1, 2. Coxal stridulatory organ present. Claws with strong preapical tooth; pulvillus fine. Fore wing: length, 3.3 mm; width, 1.1 mm. Fore wings with apex of pterostigma smoothly rounded. Rs and M fused for a short length; areola postica free. Margin of wing and veins with a few fine, short setae, not easy to detect. Hind wing: length, 2.5 mm; width, 0.9 mm. Hind wings with Rs and M fused for a short length; Cu_1 recurved before wing margin; margin with a few short fine setae between arms of radial fork. Epiproct broad, rounded behind, setose, with 4 longer setae along hind margin. Paraproct roughly triangular, a sclerotized bar running along dorsal edge distad of trichobothrial field; setose on posterior angle, without duplex setae and with a large seta arising half way between trichobothrial field and apex. Subgenital plate (fig. 23) bilobed, each lobe carrying 2 apical setae, the transverse band of preapical setae reduced to a median group. Gonapophyses (fig. 25) with ventral valve long and pointed; dorsal valve with long, fine point and very strongly formed lobe; external valve roughly triangular, setose and with a row of setae along hind margin, no indication of grouping of setae at posterodorsal angle.

Male. Coloration: Similar to ♀.

Morphology: Length of body 2.7 mm. Measurements of antennal segments: f_1 : 0.78 mm; f_2 : 0.54 mm; f_1 : f_2 : 1.14 : 1.0. Antennae a little stouter than in ♀. Eyes large and prominent, extending well above level of vertex when viewed from side. IO/D: 1.1; PO : 0.91. Ocelli large but not prominent. Measurements of hind leg: F : 0.68 mm; T : 1.52 mm; t_1 : 0.5 mm; t_2 : 0.075 mm; t_3 : 0.1 mm; rt: 6.6 : 1.0 : 1.3; ct: 21, 0, 2. Fore wing: length,

3.4 mm; width, 1.3 mm. Hind wing: length, 2.8 mm; width, 1.0 mm. Epiproct semicircular, the rounded hind margin bearing a few short setae. Paraproct with a large field of trichobothria. Apical area expanded into a strongly sclerotized shallow dome, the dome being covered with small papillae giving it a rugose appearance; between the papillae arise some small setae. Hypandrium (fig. 24). Phallosome (fig. 22).

Variation: The extent and depth of color of markings is somewhat variable; the number of ctenidiobothria on the hind tarsi varies, in some cases they are absent from segment 2.

Brachypterous forms: Specimens from some localities include individuals in which the antennae and wings are shorter than in the specimens from the type locality; in these brachypterous specimens there is a tendency for the wing venation to be reduced and for the darker markings of the wing to become confluent. Measurements (in mm) of specimens from Wee Jasper are given below:

	Macropterous	Brachypterous
	♂	♂
Fore wing	3.3, 3.5, 3.5, 3.5	2.4
Antenna	3.1, 3.7, 3.5, 3.5	1.8
	♀	♀
Fore wing	3.4, 3.4, 3.4	1.8, 1.9, 1.7
Antenna	2.5, 2.6, 2.7	1.8, 2.3, 2.0

MATERIAL EXAMINED. N. S. WALES: Holotype ♀, allotype ♂, 7 ♀ and 5 ♂ paratypes, Munni Bridge, nr. Salisbury, 5. IX. 1961, C. N. & A. S. Smithers; 6 ♀♀ (3 brachypterous, 3 macropterous), 5♂♂ (1 brachypterous, 4 macropterous) paratypes, nr. Wee Jasper State Forest, 26. III. 1962, C. N. & A. S. Smithers; 1♀ (macropterous) paratype, Holbrook, 12. VIII. 1961, Colless; 3♀♀ (1 macropterous, 2 brachypterous) paratypes, Yarangobilly, 24. III. 1962, C. N. & A. S. Smithers. Holotype, allotype and paratypes in Australian Museum; paratype in National Collection.

Genus **Drymopsocus** Smithers 1963

Drymopsocus Smith., 1963, Proc. R. Ent. Soc. Lond. ser. B, **32**: 36, (Type species: *D. brunneus* Smith., 1963).

Drymopsocus brunneus Smithers

Drymopsocus bruneus Smith., 1963, Proc. R. Ent. Soc. Lond. ser. B, **32**: 36, figs. 7–12.

DISTRIBUTION. N. S. WALES: Mt. Wilson (Smithers 1963); 9♂♂, Monga, 19. VII. 1962, Colless; 3♂♂, Brown Mt., Bega Dist., 15. III. 1961, Colless (NC).

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CORRECTIONS TO YOSHIMOTO, 1963

"Synopsis of Polynesian Cynipoidea", Pacific Insects **5** (2): 438: Instead of "Genus *Marquesiana* Kinsey" read:

Genus **Ditanyomeria** Yoshimoto, n. gen.

Type species: *Eucoila* (*marquesiana*) *marquesiana* Kinsey (Marquesas Is.), here designated.

The Kinsey "*marquesiana* complex" (="Genus F", Weld, 1952, Cynipoidea (Hym.) 1905–1950. Privately printed: 113, 226–7) has no standing in nomenclature. Thus, a new generic name is required (*Di*=double, *tanyo*=long or length, *meris*=part or segment; ♀ gender). Known species are here listed:

Ditanyomeria marquesiana (Kinsey), n. comb.
Ditanyomeria mellosa (Kinsey), n. comb.
Ditanyomeria negatrix (Kinsey), n. comb.
Ditanyomeria orta (Kinsey), n. comb.

Also on page 441 lines 12 and 31 for "Lantana" read "Lanutoo."
〃 〃 line 26 for "Ovaluau" read "Ovalau."
〃 〃 〃 33 〃 "frons" read "frond."
〃 442 〃 34 〃 "*dacai*" read "*daci.*"

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