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PSOCOPTERA FROM CHILEAN *NOTHOFAGUS*

By Ian W. B Thornton and Ian Lyall¹

Abstract: Ten species of Psocoptera were collected from *Nothofagus obliqua* and *Nothofagus dombeyi* in south central Chile. They include *Protopsocus pulchripennis* (a species of wide distribution) and 9 new species: 1 of *Caecilius* and 3 of *Ptenopsila* (Caeciliidae), 3 of *Drymopsocus* (Elipsocidae), 1 of *Haplophallus* (Philotarsidae) and 1 of *Blaste* (Psocidae). The known representatives of *Ptenopsila*, a South American genus, are increased from 1 to 5, and placement of the genus in the Caeciliidae is confirmed. The *Haplophallus* species is a member of a species group previously known only from Australia and Melanesia and the affinities of the *Drymopsocus* species are Australian.

The psocids of Chile are inadequately known. Five species were treated by Blanchard (1851) and occasional species described by Navas (1922 a, b) and by Enderlein (1923, 1925, 1926), all without genitalic details. The monographs by Badonnel (1962, 1963, 1967, 1971) thus form the basis of knowledge of the Chilean fauna; however, these were based on specialist collections from soil, rocks, lichen, moss, bark and such cryptic habitats, and truly arboreal psocids were not collected purposely. It is therefore not surprising that 9 of the 10 species beaten from *Nothofagus* and reported upon in this paper were hitherto unknown.

In December 1975, Mr Ian Lyall collected for Psocoptera by beating *Nothofagus obliqua* (Mirb), and *Nothofagus dombeyi* (Mirb), in south central Chile.

Nothofagus obliqua was sampled in the mountains (550 m) at a locality 1 km N of Curacautin on 20.XII.1975 (3 samples), where the mean annual temperature is 13°C and precipitation 2200 mm, and on the plains (80 m) 10 km N of La Union on 23.XII.1975 (1 sample), where annual precipitation is 1250 mm. Collections were made from *Nothofagus dombeyi* in Cordillera Pelada (500 m altitude) 23 km W of La Union on 23.XII.1975 (2 samples), where the mean annual temperature is 11.5°C and precipitation is 3500 mm.

Ten species of psocopterans, representing 6 genera and 4 families, occur in the collections. All save *Protopsocus pulchripennis* (Perkins) are newly discovered species and are described below, with comments on their relationships to known forms.

Holotypes will be deposited in the Bishop Museum, Honolulu; paratype material, where available, will be deposited in the Australian Museum, Sydney, and the British Museum (Natural History), London.

The abbreviations used in this paper follow those used by Thornton & Smithers (1974). The ratio between interocular distance and eye diameter is that of Pearman (Ball 1943),

1. Department of Zoology, La Trobe University, Melbourne, Australia.

and wing veins are named according to Badonnel (1951) except that "rs" is preferred to "rr." All measurements are in millimetres. Leg markings are as seen under a binocular microscope.

FAMILY CAECILIIDAE

Caecilius crotarus Thornton & Lyall, new species

♀. *Coloration* (after about 1 month in alcohol): Head cream, vertex markings brown, ocellar protuberance dark brown, ocelli colorless; a median brown streak from protuberance anteriorly to frons, paling and splitting into 2; a broad dark brown band from anterior of orbit to clypeal suture, including antennal socket; clypeus with brown merging striae; apical segment of maxillary palp brown, darker apically. Scape and pedicel brown, basal flagellar segment pale brown, remaining segments dark brown. Thorax cream with the following exceptions: thoracic nota dark brown, a broad dark gray-brown band over pleura above coxae. Tarsal segments brown except basal segment of hind tarsus pale brown. Fore wing patterned with brown as in FIG. 1. Hind wing hyaline. Abdomen cream.

Morphology: I. O.:D=2.5:1. Head and thorax waxy. Vein cu_1 in fore wing bare. Claw without subapical tooth, apical tooth sharply bent, pulvillus broad. Basal hind tarsal segment with 25 ctenidia. Rasp of Pearman's organ present. Epiproct pointed, setose. Paraproct oval, with oval field of 13 trichobothria. Gonapophyses as in FIG. 2, remnant of outer valve bearing 1-2 setae. Spermatheca with rounded sac, glandular area of duct with 2 distinct regions. Subgenital plate as in FIG. 3. *Dimensions*: B, 2.7; Fw, 4.13; Hw, 3.1; f_1 , 0.71; f_2 , 0.57; f_1/f_2 , 1.25; F, 0.94; T, 1.36; t_1 , 0.39; t_2 , 0.16; rt, 2.44.

♂. Unknown.

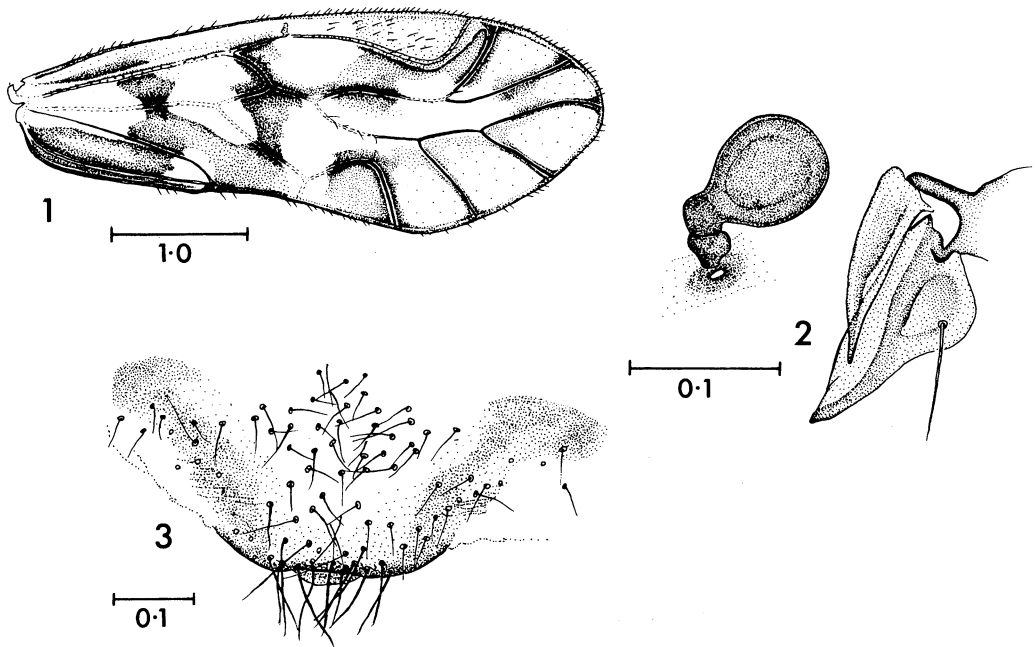


FIG. 1-3. *Caecilius crotarus*, n. sp. ♀: 1, fore wing; 2, gonapophyses; 3, subgenital plate.

Holotype ♀ (BISHOP 10,775), CHILE: 23 km W of La Union, Cordillera Pelada, 500 m, 23.XII.1975, ex *Nothofagus dombeyi*, I. Lyall; paratypes: 8 ♀♀, data as for holotype; 1 ♀, plains 10 km N of La Union, 80 m, 23.XII.1975, ex *Nothofagus obliqua*, Lyall.

C. crotarus was collected from *N. dombeyi* in the Corderilla Pelada, and from *N. obliqua* on the plains near La Union. It was absent from all 9 samples from the Curacautin area. The well marked wing pattern clearly distinguishes it from other known South American species, and it seems likely that it belongs to the *posticus* group of species (Mockford 1965) distributed in North and South America. The general distribution of pigment in the fore wing is similar to that of *Caecilius falciferrens* Williner, from Bolivia (Williner 1949).

***Ptenopsila stigmata* Thornton & Lyall, new species**

♂. *Coloration* (after about 1 month in alcohol): Head buff, marked with brown as in FIG. 4. Genae buff, a narrow dark brown mark between orbit and antennal socket; maxillary palps brown, antennal scape and pedicel brown, flagellum black. Thoracic nota and pleura brown, thorax otherwise buff; fore wing hyaline with a very pale mark in cell cu_1 , costal cell with a brown cloud, pterostigma filled with dark brown pigment; hind wing hyaline; legs brown, tarsi dark brown, hind femur very pale basally and with a line of brown patches (FIG. 5). Abdomen patterned as in FIG. 6, pattern varying, another example shown in FIG. 7. *Morphology*: I. O.:D=1.1:1. Fore wing (FIG. 8) veins with very sparse short fine setae, these more obvious and in double rank on costal margin of pterostigma; vein cu_1 bare. Hind wing bare. Claw without subapical tooth, pulvillus narrow, expanded apically. Rasp of Pearman's organ present. Basal hind tarsal segment with 25 ctenidia. Epiproct oblong with a pair of stout setae on posterior margin. Paraproct with a field of 30 trichobothria and 2 central setae without rosette sockets. On mesial margin of paraproct a short sharp spine flanked by a long stout seta and a shorter seta, (FIG. 9). Phallosome as in FIG. 10, with penis frame not sclerotized anteriorly. Hypandrium (FIG. 11) simple, setose, with sclerotized areas laterally on posterior margin bearing dense long setae. *Dimensions*: B, 3.0; FW, 5.04; HW, 3.55; f_1 , 1.16; f_2 , 1.17; f_1/f_2 , 0.99; F, 1.27; T, 1.88; t_1 , 0.51; t_2 , 0.18; rt, 2.83.

♀. Unknown.

Holotype ♂ (BISHOP 10,776), CHILE: plains 10 km N of La Union, 80 m, 23.XII.1975, beating *Nothofagus obliqua*, I. Lyall; paratypes: 3 ♂♂, data as for holotype.

***Ptenopsila hyalina* Thornton & Lyall, new species**

♂. *Coloration* (after about 1 month in alcohol): Head buff, marked with brown as in FIG. 12. Maxillary palps gray-brown. Antennae gray-brown. Thoracic nota and pleura brown; thorax otherwise buff. Fore wing and hind wing hyaline. Legs pale grayish brown, tibiae and tarsal segments somewhat darker. Abdomen with extensive granulate dark gray-brown pigment with clear areas on sutures (FIG. 13). *Morphology*: I. O.:D=1.5:1. Fore wing (FIG. 14) veins with very sparse short fine setae, these more obvious and in double rank on costal margin of pterostigma and at base of rs , a few scattered fine short setae within pterostigma, vein cu_1 bare. Hind wing bare. Claw without subapical tooth, pulvillus narrow, expanded apically. Rasp of Pearman's organ present. Basal hind tarsal segment with 28 ctenidia. Paraproct with a field of 38 trichobothria and 2 central setae without rosette sockets. Mesial face of paraproct with stout hyaline cone flanked by a long stout seta and a shorter more slender seta (FIG. 15). Phallosome FIG. 16. Hypandrium as in *Ptenopsila stigmata*. *Dimensions*: B, 3.5; Fw, 5.23; Hw, 3.75; f_1 , 1.09; f_2 , 1.13; f_1/f_2 , 0.96; F, 1.31; T, 1.99; t_1 , 0.52; t_2 , 0.23; rt, 2.26.

♀. *Coloration*: As ♂. *Morphology*: I.O.:D=2.8:1. Fore wing, hind wing and claw as ♂. Basal hind tarsal segment with 28 ctenidia. Rasp of Pearman's organ present. Epiproct semicircular, clothed with long prominent setae and about 10 short fine setae in middle of posterior margin. Paraproct with an oval field of 32 trichobothria

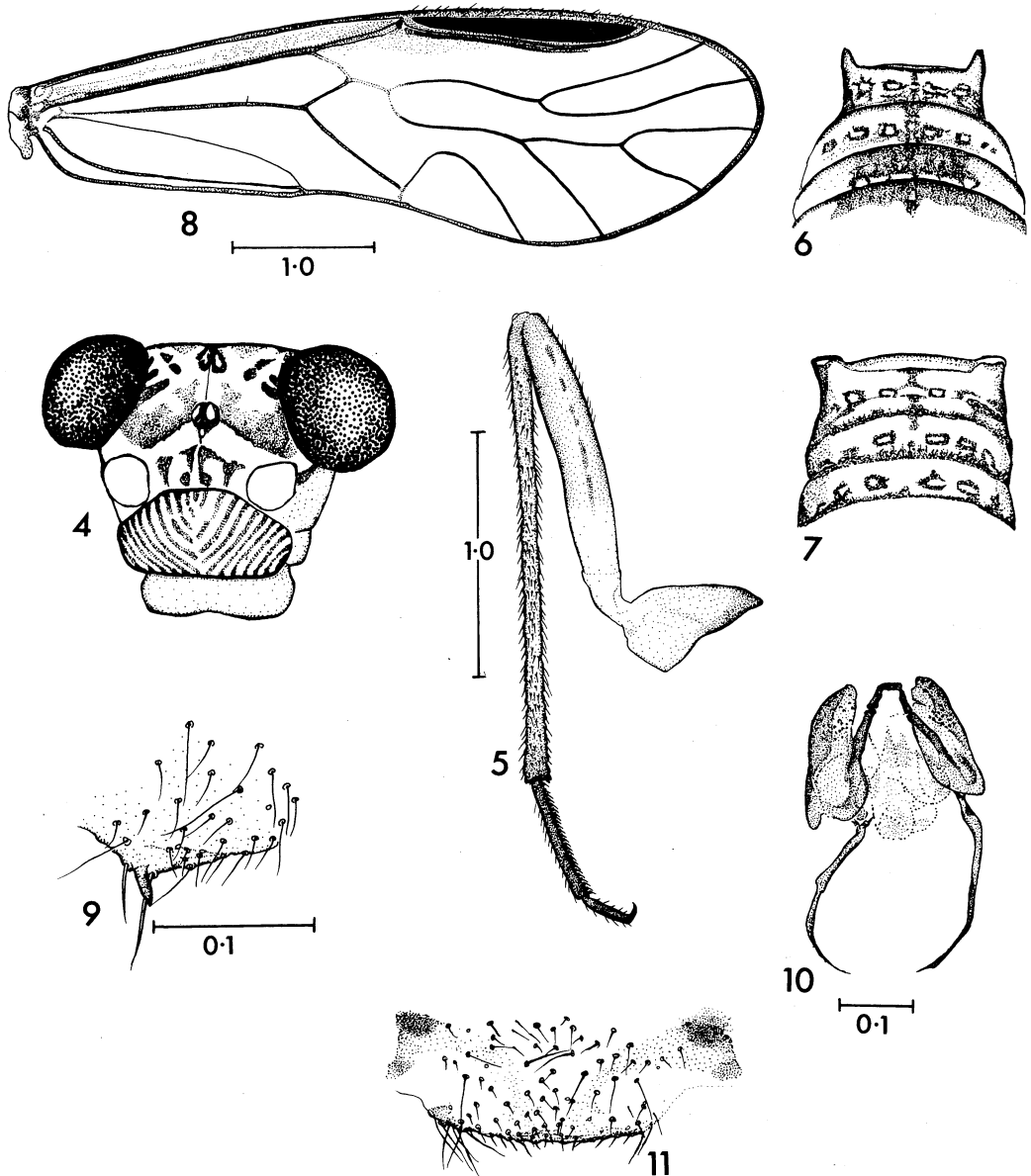


FIG. 4-11. *Ptenopsila stigmata*, n. sp. ♂: 4, head; 5, hind leg; 6, abdomen; 7, abdomen of paratype; 8, fore wing; 9, mesial margin of paraproct; 10, phallosome; 11, hypandrium. FIG. 10 and 11 to common scale. FIG. 4, 6 and 7 not to scale.

and with a hyaline cone shorter than either of flanking setae (FIG. 17). Subgenital plate as in FIG. 18. Gonapophyses (FIG. 19): remnant of left outer valve with fine seta, absent on right. Spermapore with wide sclerotized rim, glandular area of spermatheca short and wide. *Dimensions*: B, 4.2; Fw, 6.0; Hw, 3.78; f_1 , 1.44; f_2 , 1.37; f_1/f_2 , 1.05; F, 1.52; T, 2.18; t_1 , 0.54; t_2 , 0.24; rt, 2.25.

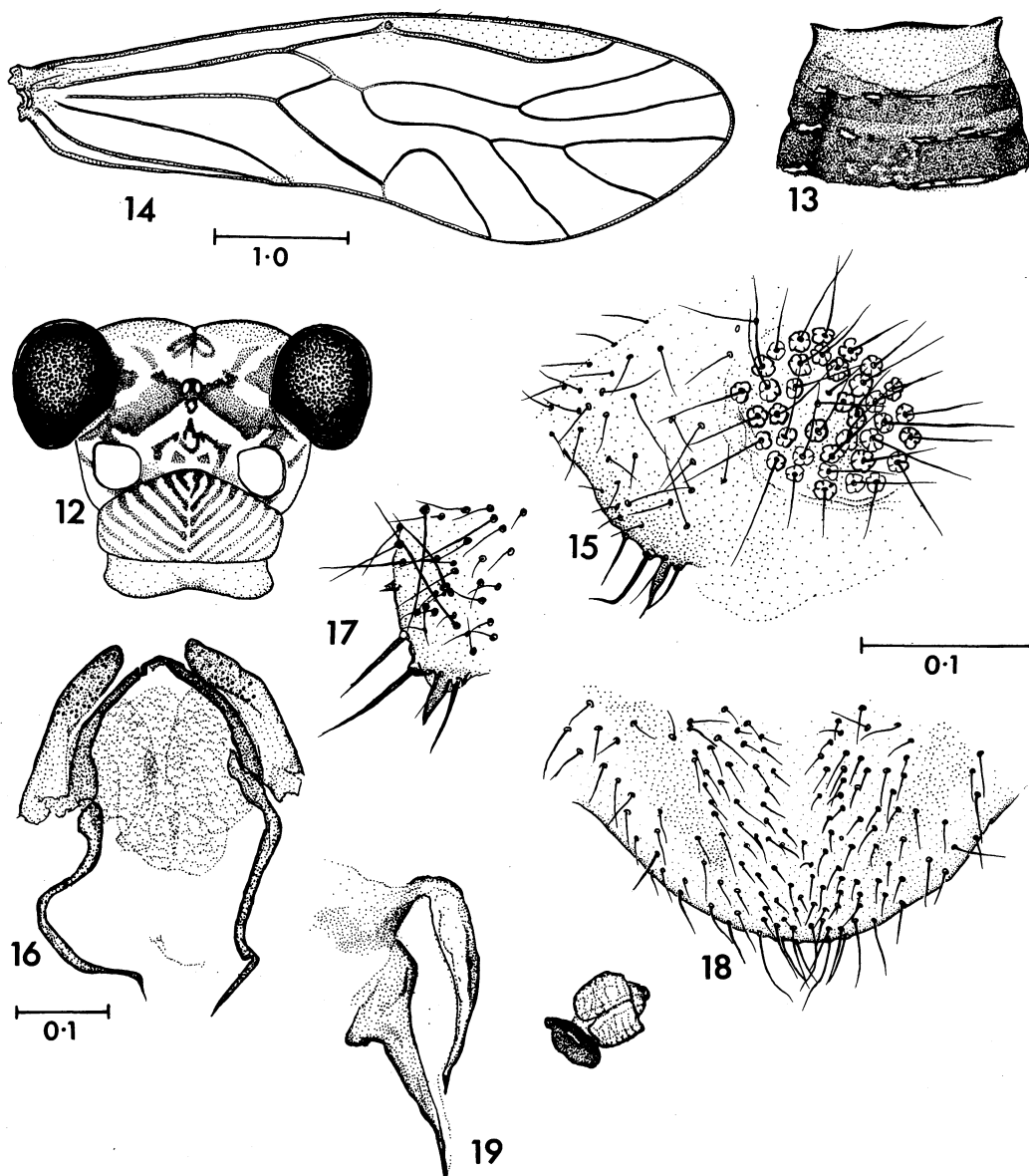


FIG. 12-19. *Ptenopsila hyalina*, n. sp. 12-16, ♂: 12, head; 13, abdomen; 14, fore wing; 15, paraproct; 16, phallosome. 17-19, ♀: 17, mesial margin of paraproct; 18, subgenital plate; 19, gonapophyses and spermatheca. FIG. 16, 18 and 19 and FIG. 15 and 17 to common scales. FIG. 12 and 13 not to scale.

Holotype ♂ (BISHOP 10,777), CHILE: 2 km N of Curacautin, 550 m, 20.XII.1975, beating *Nothofagus obliqua*, I. Lyall. Allotype ♀ (BISHOP), 24 km W of La Union, Cordillera Pelada, 500 m, beating *Nothofagus dombeyi*, 23.XII.1975, Lyall.

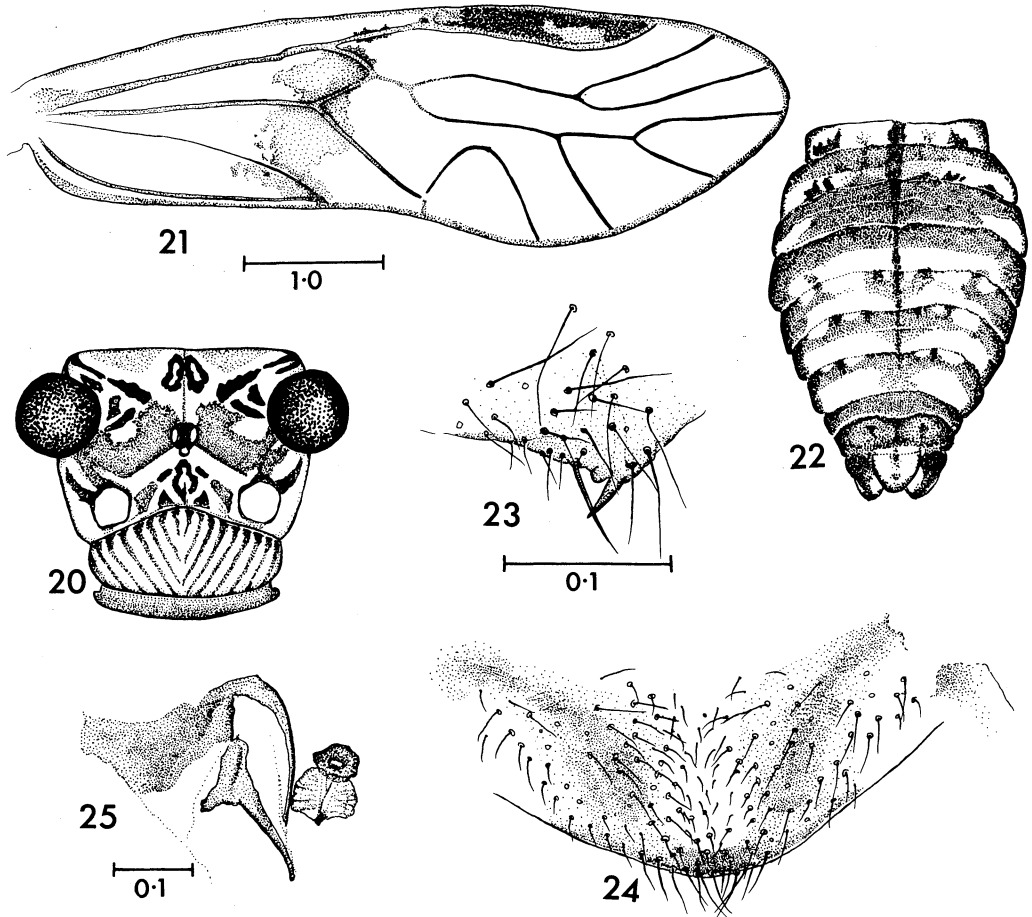


FIG. 20-25. *Ptenopsila fasciata*, n. sp. ♀: 20, head; 21, fore wing; 22, abdomen; 23, mesial margin of paraproct; 24, subgenital plate; 25, gonapophyses and spermatheca. FIG. 24 and 25 to common scale. FIG. 20 and 22 not to scale.

Ptenopsila fasciata Thornton & Lyall, new species

♀. *Coloration* (after about 1 month in alcohol): Head cream, marked with brown and dark brown as in FIG. 20. Genae cream, a narrow dark brown band from orbit to antennal socket and a large circular brown patch in middle of gena. Maxillary palp: apical segment brown, subapical segment pale brown, otherwise cream. Antenna brown. Thorax brown; thoracic nota very dark brown, tarsi and apices of tibiae darker. Fore wing marked as in FIG. 21. Hind wing hyaline, with small brown cloud at apex of anal vein and a long brown streak in costal cell. Abdomen marked as in FIG. 22, with gray-brown granulated pigment on cream background. *Morphology*: I.O.:D=2.8:1. Fore wing (FIG. 21) veins with very sparse short fine setae, these more obvious and in double rank on costal margin of pterostigma; vein cu_1 bare. Hind wing bare. Claw without subapical tooth, pulvillus narrow, expanded apically. Rasp of Pearman's organ present. Basal hind tarsal segment with 28 ctenidia. Epiproct semicircular, clothed with long prominent setae and a few minute spines in middle of posterior margin. Paraproct with a field of 37

trichobothria and 2 setae without rosette sockets. Paraproct cone as in FIG. 23. Subgenital plate as in FIG. 24. Gonapophyses and spermatheca as in FIG. 25, no setae on remnant of outer valve. *Dimensions*: B, 3.7; Fw, 5.17; Hw, 3.65; f_1 , 1.14; f_2 , 1.16; f_1/f_2 , 0.98; F, 1.5; T, 1.92; t_1 , 0.45; t_2 , 0.21; rt, 2.14.

♂. Unknown.

Holotype ♀ (BISHOP 10,778), CHILE: plains 10 km N of La Union, 80 m, 23.XII.1975, beating *Nothofagus obliqua*, I. Lyall.

While *P. stigmata* and *P. fasciata* were found only in the plains collections, *P. hyalina* was absent from these collections, but occurred at both mountain localities.

The genus *Ptenopsila* Enderlein, known previously only from the single species *Ptenopsila delicatella* (Blanchard) from Tierra del Fuego and southern Chile (Blanchard 1851), has been recently discussed by New (1973) who concluded, on the basis of an examination of further specimens from Tierra del Fuego, that the genus belonged to the Caeciliidae. The characteristics of the 3 new species described above support this conclusion.

The size, ciliation and venation of the wings of *Graphocaecilius citramans* Williner from Bolivia, shown in the photograph in Williner (1949), strongly suggest that the species was wrongly placed in *Graphocaecilius* and should also be included in *Ptenopsila*, which would thus comprise 5 South American species.

FAMILY ELIPSOCIDAE

Propocus pulchripennis (Perkins)

Stenopsocus pulchripennis Perkins, 1899: 83.

Propocus pulchripennis: Badonnel, 1963: 330.

For full synonymy see Smithers 1967.

MATERIAL EXAMINED. 1 ♂, CHILE: 2 km N of Curacautin, 550 m, 20.XII.1975, beating *Nothofagus obliqua*, I. Lyall.

This species is already known from Chile (Badonnel 1963, 1971). It was described from Hawaii, and has since been recorded from Africa, Australia and Tasmania. I have seen specimens in the Bishop Museum collected from New Zealand, and a live male was trapped from an airplane at between 2286 m and 4267 m altitude above New Zealand (Thornton 1964). The species thus has a wide distribution in the southern hemisphere.

Drymopsocus carrilloi Thornton & Lyall, new species

♂. *Coloration* (after about 1 month in alcohol): Head pale buff, ocelli slightly darker. Antennae pale gray. Thorax pale gray. Thorax and legs pale buff, tibia and tarsi with dark spines. Wings almost hyaline. Abdomen pale brown. *Morphology*: I.O.:D=4.2:1. Lacinial apex (FIG. 26) broadly bifid. Veins, including vein cu_1 , and margin of fore wing (FIG. 27) with very sparse short fine setae, about 3 fine setae in pterostigma. Hind wing bare apart from 3 fine setae on margin between ends of radial fork. Claw sharply bent, with small subapical tooth; pulvillus broad. Basal hind tarsal segment with 16 ctenidia. Rasp of Pearman's organ present. Pro-, meso- and metatibial spines 3:4:4; basal tarsal segment spines 2:1:1. Epiproct trapezoid, setose. Paraproct with oval field of 18

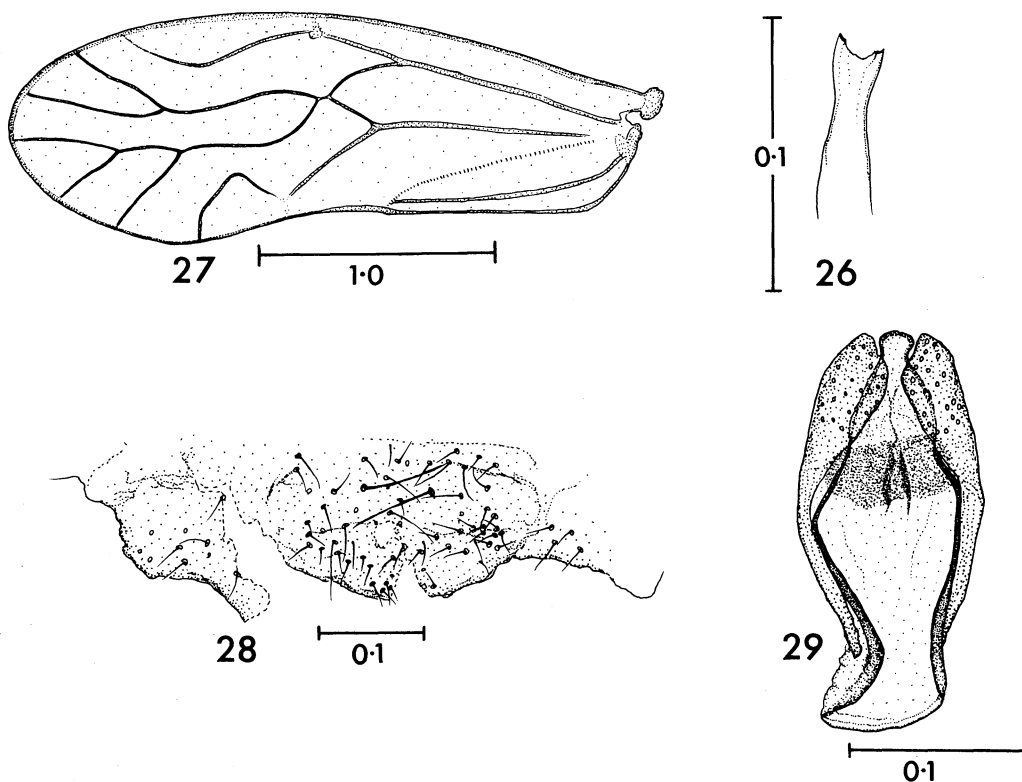


FIG. 26-29. *Drymopsocus carrilloi*, n. sp. ♂: 26, lacinial apex; 27, fore wing; 28, hypandrium; 29, phallosome.

trichobothria. Hypandrium (FIG. 28) simple, setose, with pair of long setae in middle. Phallosome FIG. 29).
Dimensions: B, 1.5; Fw, 2.73; Hw, 2.06; f_1 , 0.6; f_2 , 0.44; f_1/f_2 , 1.36; F, 0.67; T, 1.03; t_1 , 0.29; t_2 , 0.06; t_3 , 0.08; rt, 4.83:1:1.33.

♀. Unknown.

Holotype ♂ (BISHOP 10,779), CHILE: 23 km W of La Union, Cordillera Pelada, 500 m, 23.XII.1975, beating *Nothofagus dombeyi*, I. Lyall.

Drymopsocus nigrens Thornton & Lyall, new species

♂. *Coloration* (after about 1 month in alcohol): Head very dark brown, ocelli pale; maxillary palp pale buff, apical segment brown; scape and pedicel pale brown, flagellum brown. Thoracic nota and pleura very dark brown. Leg: base of coxa dark brown, coxa pale apically; femur and tibia pale brown; tarsal segments brown, apical segment dark brown. Wings pale buff. Abdomen cream. *Morphology*: I.O.:D=3.2:1. Lacinial apex (FIG. 30). Head and thoracic sclerites highly polished. Fore wing (FIG. 31) with vein cu_1 bare; other veins with very sparse minute setae, 1 or 2 within pterostigma. Hind wing bare apart from 3 setae on margin in region of apex of r_{3+4} . Claw with minute subapical tooth, pulvillus narrow, expanded apically. Basal hind tarsal segment with 15 ctenidia.

Rasp of Pearman's organ present. Pro-, meso- and metatibial spines 3:2:2; basal tarsal segment spines 2:1:2. Epiproct triangular, setose. Paraproct with a field of 17 trichobothria. Hypandrium (FIG. 32) setose, sclerotized, with a pair of long setae in middle and suggestion of a median apical lobe. Phallosome as in FIG. 33. *Dimensions*: B, 1.7; Fw, 2.72; Hw, 2.03; f_1 , 0.73; f_2 , 0.62; f_1/f_2 , 1.18; F, 0.8; T, 1.19; t_1 , 0.33; t_2 , 0.05; t_3 , 0.09, rt, 6.60:1:1.80. ♀. Unknown.

Holotype ♂ (BISHOP 10,780), CHILE: 23 km W of La Union, Cordillera Pelada, 500 m, 23.XII.1975, beating *Nothofagus dombeyi*, I. Lyall.

Drymopsocus flavus Thornton & Lyall, new species

♂. *Coloration* (after about 1 month in alcohol): Head buff, light brown markings lateral to orbit and each side of median epicranial suture; median epicranial suture black; bases of setae on head dark brown; maxillary palps light brown, apical segment brown; scape, pedicel and base of basal flagellar segment brown, remainder of flagellum very dark brown; light brown striae on clypeus. Thorax buff, thoracic nota brown; legs light brown, tarsal segments brown. Fore wing suffused with light brown uniformly (FIG. 35). Hind wing hyaline. Abdomen buff. *Morphology*: I.O.:D=3.5:1. Lacinal apex (FIG. 34). Veins and margin of fore wing with minute, sparse setae, about 10 scattered

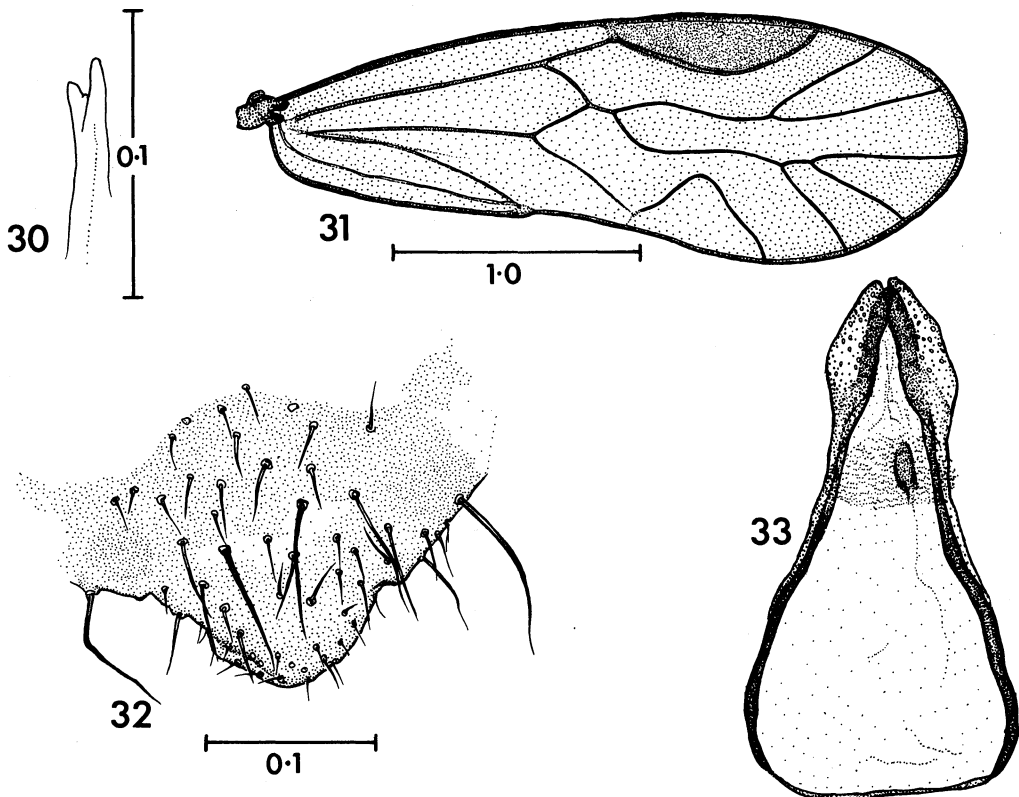


FIG. 30-33. *Drymopsocus nigrens*, n. sp. ♂: 30, lacinal apex; 31, fore wing; 32, hypandrium; 33, phallosome. FIG. 32 and 33 to common scale.

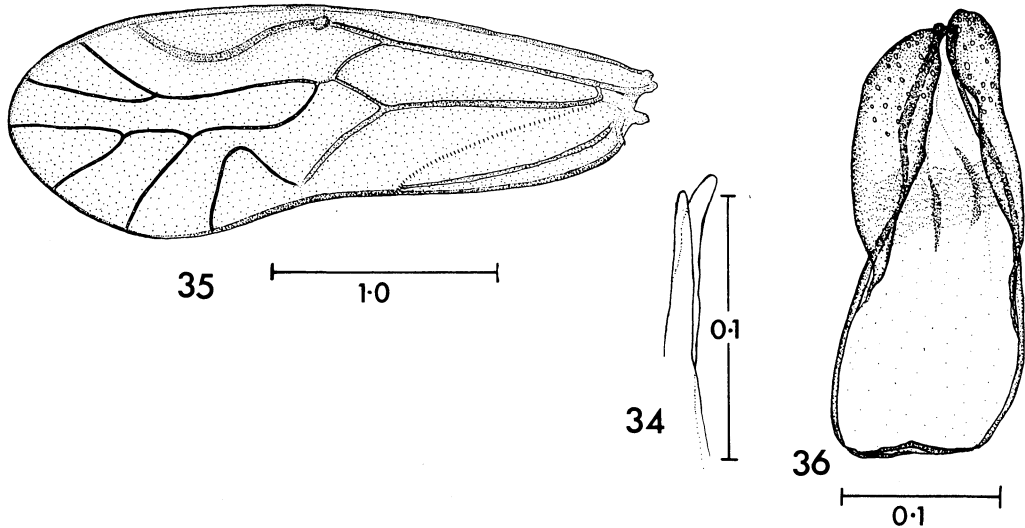


FIG. 34-36. *Drymopsocus flavus*, n. sp. ♂: 34, lacinial apex; 35, fore wing; 36, phallosome,

setae in pterostigma, vein cu_1 bare. Hind wing bare except for 10 marginal setae between r_{2+3} and r_{4+5} . Basal hind tarsal segment with 15 ctenidia. Rasp of Pearman's organ present. Claw with minute subapical tooth, pulvillus broad. Pro-, meso- and metatibial spines 2:4:4; basal tarsal segment spines 2:2:2. Epiproct trapezoid, sparsely setose. Paraproct with field of 18 trichobothria. Phallosome as in FIG. 36. Hypandrium as *D. carrilloi*. Dimensions: B, 1.7; Fw, 2.77; Hw, 2.04; f_1 , 0.58; f_2 , 0.44; f_1/f_2 , 1.32; F, 0.66; T, 1.04; t_1 , 0.28; t_2 , 0.06; t_3 , 0.08; rt, 4.67:1:1.33.

♀. Unknown.

Holotype ♂ (BISHOP 10,781), CHILE: 1 km E of Curacautin, 550 m, 19.XII.1975, beating *Nothofagus obliqua*, I. Lyall; paratypes, 4 ♂♂, data as for holotype.

The 3 species described above from male specimens run to *Drymopsocus* Smithers, an Australian genus, in the key provided by Smithers (1964). In the last decade, 4 new elipsocid genera have been erected for southern species: *Sabulopsocus* Smithers (New Zealand), *Clinopsocus* New (Australia), and *Roesleria* Badonnel and *Nothopsocus* Badonnel (Chile).

Clinopsocus has 2-segmented tarsi, a narrow pulvillus and a truncate lacinia, and *Sabulopsocus*, known only from the female, has a 10-segmented antenna, glandular setae, and a fine, knobbed pulvillus. None of these occurs in the 3 species described above. Of the 2 Chilean genera, *Roesleria* is distinguished by the long, narrow phallosome, tapered pulvillus, and 5-tined lacinia, while *Nothopsocus*, known only from females, has a fine, knobbed pulvillus, and a distribution of spines on the pro-, meso- and meta-tibiae of 2:4:4, and on the tarsi of 1:2:2. The 3 Chilean species here described have a normal phallosome, broad pulvillus, 2-tined lacinia, and a distribution of tibial and tarsal spines not as *Nothopsocus*. Thus, they do not fall into either of the Chilean genera erected by Badonnel.

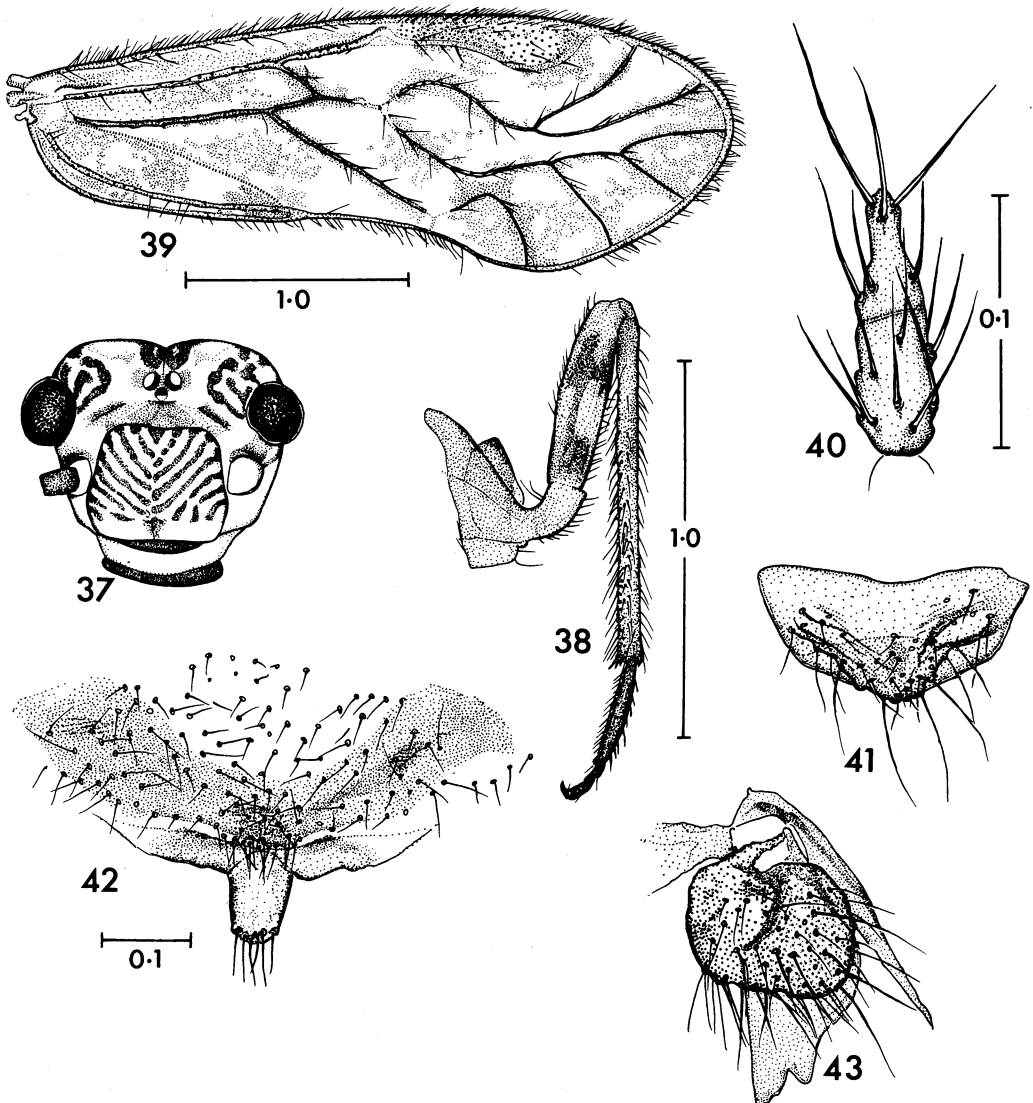


FIG. 37-43. *Haplophallus chilensis*, n. sp. ♀: 37, head; 38, hind leg; 39, fore wing; 40, apical segment of antenna; 41, epiproct; 42, subgenital plate; 43, gonapophyses. FIG. 41 to 43 to common scale. FIG. 37 not to scale.

Rather than erect a further genus on the basis of material of only 1 sex, we prefer for the present to place them in *Drymopsocus*, which until now consisted only of Australian species. The discovery of females may lead to a reassessment of this generic placement, but on present evidence the closest affinities of the 3 species are Australian.

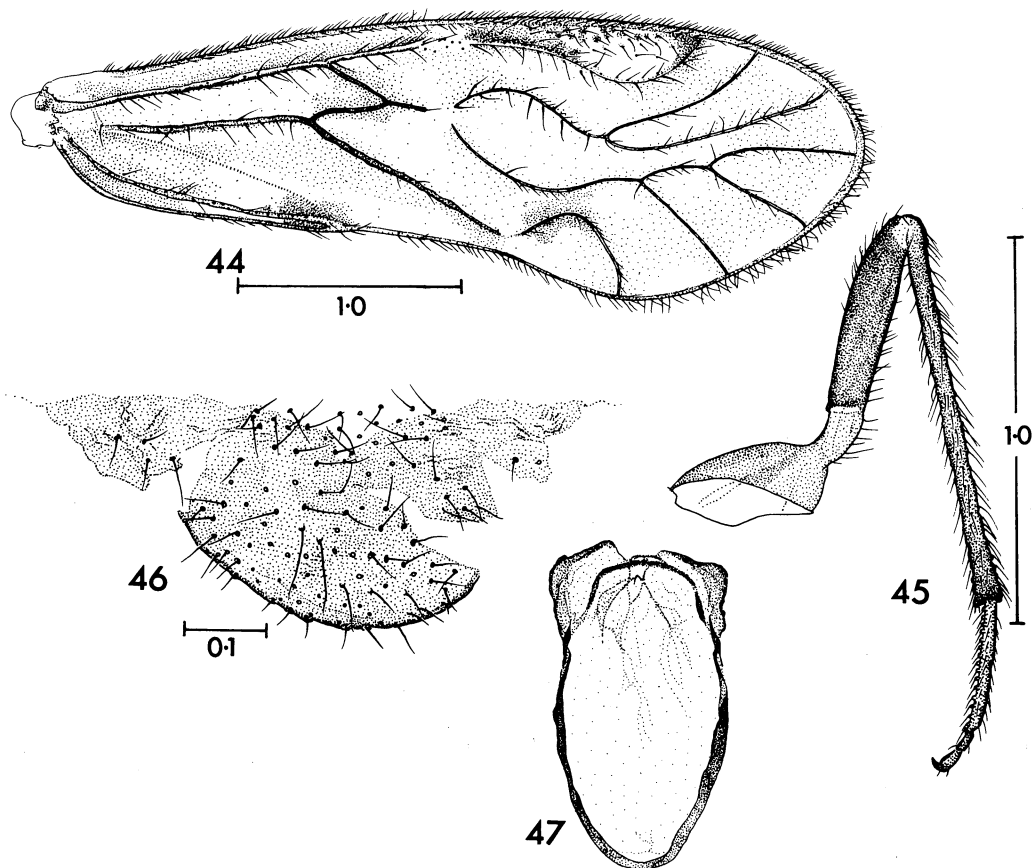


FIG. 44-47. *Haplophallus chilensis*, n. sp. ♂: 44, fore wing; 45, hind leg; 46, hypandrium; 47, phallosome. FIG. 46 and 47 to common scale.

FAMILY PHILOTARSIDAE

Haplophallus chilensis Thornton & Lyall, new species

♀. *Coloration* (after about 1 month in alcohol): Head cream with brown markings as in FIG. 37. Genae cream, clypeus with 2 semicircular cream areas anteriorly. Antenna, labrum, and maxillary palps brown, apical segment of palps darker. Thorax brown, sutures lined cream. Legs: coxa brown, femur buff with longitudinal brown mark joining subapical brown band, tibia buff, tarsal segments dark brown (FIG. 38). Fore wing patterned with brown clouds as in FIG. 39. Hind wing hyaline apart from brown cloud in angle of anal cell. Abdomen cream mottled with brown, apical segments brown. *Morphology*: I.O.:D=4.0:1. Apical segment of flagellum without a single apical seta (FIG. 40). Vein cu_1 of fore wing bare, other veins with prominent setae. Hind wing vein setae: r_1 6, rs 0, r_{2+3} 0, r_{4+5} 15, m 14, cu_1 3. Claw with subapical tooth, pulvillus fine. Basal hind tarsal segment with 16 ctenidia. Rasp of Pearman's organ present. epiproct (FIG. 41) with dorsal setose flap. Paraproct with a field of 17 trichobothria and 2 setae without sclerotized sockets. Subgenital plate (FIG. 42) with discrete apical sclerite bearing 5 apical setae, a

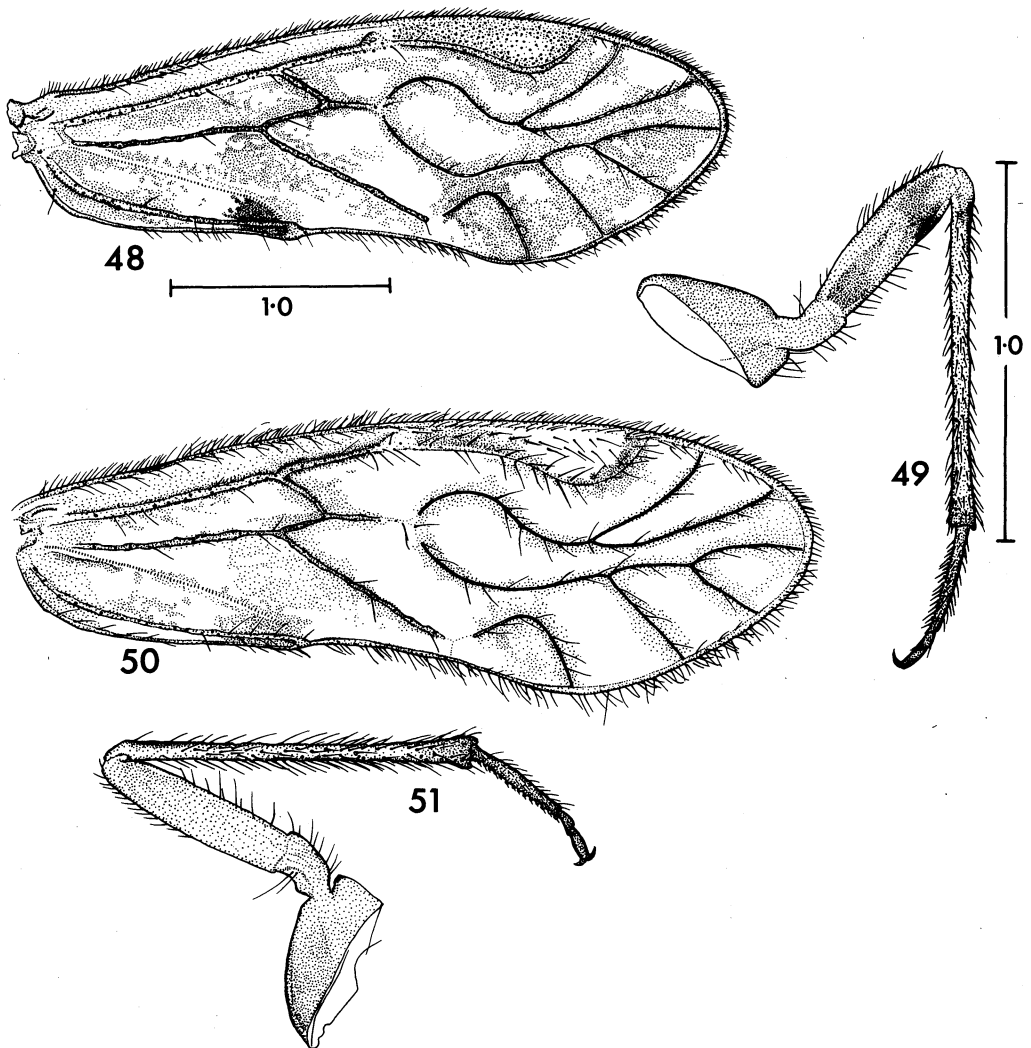


FIG. 48-51. *Haplophallus chilensis*, n. sp. 48-49, paratype ♀ taken with holotype: 48, fore wing; 49, hind leg. 50-51, paratype ♀ from Corderilla Pelada: 50, fore wing; 51, hind leg. FIG. 48 and 50 and 49 and 51 to common scales.

bare subapical sclerite. Gonapophyses (FIG. 43): ventral valve styliform, dorsal valve with prominent blunt subapical lobe, outer valve setose. *Dimensions*: B, 2.4; Fw, 3.22; Hw, 2.48; f_1 , 0.42; f_2 , 0.29; f_1/f_2 , 1.45; F, 0.62; T, 0.96; t_1 , 0.27; t_2 , 0.05; t_3 , 0.09; rt, 5.40:1:1.80.

♂. *Coloration*: As ♀, except wing pattern (FIG. 44) and leg pattern (Fig. 45). *Morphology*: I.O.:D=2.7:1. Fore wing vein cu_1 bare. Hind wing vein setae: r_1 8, rs 0, r_{2+3} 0, r_{4+5} 13, m 14, cu_1 3. Claw as ♀. Rasp of Pearman's organ present. Basal hind tarsal segment with 16 ctenidia. Epiproct semicircular, setose, a group of small spines apically. Paraproct with a field of 21 trichobothria and 2 setae without sclerotized sockets. Hypandrium semicircular, setose (FIG. 46). Phallosome as in FIG. 47. *Dimensions*: B, 2.2; Fw, 3.75; Hw, 2.68; f_1 , 0.60; f_2 , 0.38; f_1/f_2 , 1.58; F, 0.63; T, 1.03; t_1 , 0.32; t_2 , 0.06; t_3 , 0.08; rt, 5.33:1:1.33.

Holotype ♀ (BISHOP 10,782), CHILE: 1 km E of Curacautin, 550 m, 19.XII.1975, beating *Nothofagus obliqua*, I. Lyall; allotype ♂ (BISHOP), same data as holotype; paratypes: 17 ♂♂, 42 ♀♀, same data as holotype; 2 ♂♂, 8 ♀♀, 2 km N of Curacautin, 550 m, 20.XII.1975, beating *Nothofagus obliqua*, Lyall; 1 ♂, 1 ♀, plains 10 km N of La Union, 80 m, 23.XII.1975, beating *Nothofagus obliqua*, Lyall; 1 ♂, 1 ♀, 23 km W of La Union, Cordillera Pelada, 500 m, 23.XII.1975, beating *Nothofagus dombeyi*, Lyall.

This species is easily the commonest and most widespread species in Lyall's collection, having been taken on both species of *Nothofagus*, at all localities, and occurring in all 12 samples. The 75 specimens available exhibit considerable variation, most obviously in the pigment pattern of the fore wings. Extremes, one of which was taken together with the type, in the same sample, are illustrated in FIG. 48-51. The variation includes extent of pigment in the cells of the fore wing, size of window in pterostigma, definition of the pigmented subapical band on the hind femur and number of setae on the subgenital plate apical lobe (4 to 6), but none of these is correlated with any of the others. Accordingly, although the extreme wing patterns would suggest specific distinction, all specimens are regarded as being conspecific.

Haplophallus chilensis is a member of the *trepticus* group of species (Thornton & New 1977), which includes 4 other species from Australia, Lord Howe Island, Norfolk Island, New Caledonia, the Solomon Islands, Fiji and Samoa. It is most similar to *Haplophallus trepticus* Thornton & Smithers, 1974, known from New Caledonia, the Solomons, Fiji and Samoa, but is clearly distinct on wing pattern.

FAMILY PSOCIDAE

Blaste castala Thornton & Lyall, new species

♂. *Coloration* (after about 1 month in alcohol): Head cream with usual markings brown, clypeal striae distinct, ocellar protuberance distinct, ocelli pale, genae light brown. Maxillary palps light brown, apical segments brown. Thoracic nota dark brown, pleura brown. Legs: coxa brown, femur pale buff mottled with light brown, tibia brown, tarsal segments a little darker. Fore wing (FIG. 52), with dark brown pigment at pterostigma and angle of anal cell. Abdomen cream, heavily mottled with dark brown. *Morphology*: I.O.:D=1.8:1. Head and thoracic sclerites shiny. Fore wing and hind wing bare. Claw straight, with distinct subapical tooth; pulvillus fine. Basal hind tarsal segment with 20 ctenidia. Pearman's organ with rasp and mirror. Epiproct (FIG. 53) sclerotized, trapezoid, with fine setae on apical margin. Paraproct (FIG. 54) with field of about 40 trichobothria. Parameres hooked, separate (FIG. 55). Hypandrium as in FIG. 56. *Dimensions*: B, 2.5; Fw, 3.96; Hw, 3.07; f₁, 0.74; f₂, 0.54; f₁/f₂, 1.37; F, 0.73; T, 1.45; t₁, 0.42; t₂, 0.13; rt, 3.23.

♀. Unknown.

Holotype ♂ (BISHOP 10,783), CHILE: plains 10 km N of La Union, 80 m, 23.XII.1975, beating *Nothofagus obliqua*, I. Lyall.

This species may be assigned to *Blaste* Kolbe s. str. on characters of the parameres and hypandrium. Of the known South American species of *Blaste*, none has the small pigment cloud at the nodulus of the fore wing as in *B. castala*. In only 4 species have the male genitalia been described. *Blaste fusimera* New & Thornton (Brazil) has fused parameres,

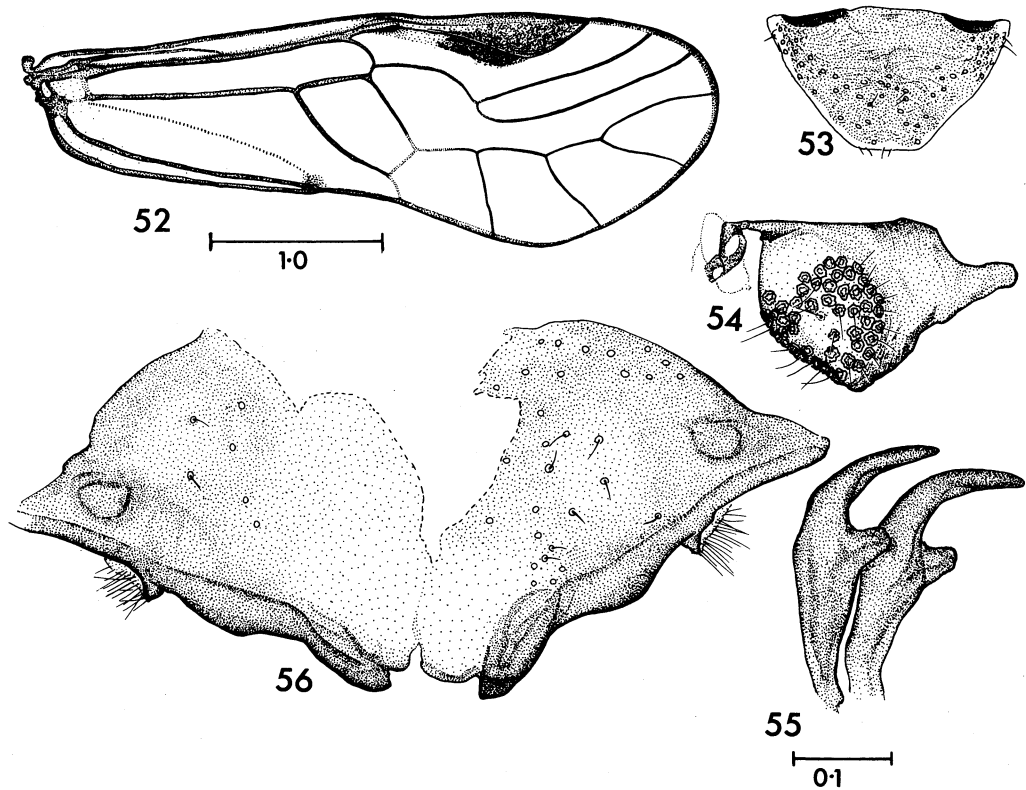


FIG. 52-56. *Blastecastala*, n. sp. ♂: 52, fore wing; 53, epiproct; 54, paraproct; 55, parameres; 56, hypandrium. FIG. 53 to 56 to common scale.

Blastecastala ligula New & Thornton (Brazil, Uruguay) has a distinct hypandrial tongue, *Blastecastala richardsi* New (Brazil) has very long, pointed hypandrial lobes, and *Blastecastala alfineta* New (Brazil) has small sclerotized pegs on the hypandrium (New & Thornton 1975; New 1972). *Blastecastala castala* can be distinguished from all these on hypandrium and paramere structure.

DISCUSSION

The most interesting finds from a distributional point of view are the philotarsid *H. chilensis*, and the 3 *Drymopsocus* species. *H. lyalli* clearly belongs to a species group previously known only from Australia and Melanesia, and the elipsocid genus *Drymopsocus* previously comprised only Australian species.

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