A new Australian species of pseudopomyzid fly (Diptera: Nerioidea) and the subgenera of *Pseudopomyza*

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The genus *Pseudopomyza* Strobl, 1893, is considered to include the following nominal genera as junior synonyms: *Protoborborus* Malloch, 1933; *Heluscolia* Harrison, 1959; *Rhinopomyzella* Hennig, 1969, n. syn. The genus is divided into the following 4 subgenera: *Pseudopomyza* s. str.; *Rhinopomyzella* Hennig; *Apops* n. subg.; *Dete* n. subg. *Pseudopomyza (Dete) collessi* n. sp. is described from eastern Australia.

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INTRODUCTION

The family Pseudopomyzidae is considered to include the following genera (mainly following Krivosheina, 1979): *Latheticomyia* Wheeler (Americas), *Tenuia* Malloch (Philippines), *Polypathomyia* Krivosheina (north-east Asia), *Pseudopomyzella* Hennig, *Heloclusia* Malloch, (both from South America), *Pseudopomyza* Strobl (syns. *Prototoborborus* Malloch, *Heluscolia* Harrison, and *Rhinopomyzella* Hennig (wide, discontinuous distribution)), and the fossil *Eopseudopomyza* Hennig (Europe, Eocene). Current investigation of phylogeny in the Nerioidea has necessitated the more accurate definition of genera and subgenera. The first known Australian species, described below, was previously mentioned under *Pseudopomyza* (Colless and McAlpine, 1970), and it is now considered that its morphology indicates separate subgeneric status. A second Australian species, known from too little material for formal description is considered to belong in another subgenus.

In Australia, as in other regions, pseudopomyzids have been rarely collected, and obtaining sufficient material for taxonomic study has sometimes been difficult.

The biology of the Pseudopomyzidae is very little known. Krivosheina (1979; 1984) recorded the larvae of *Polypathomyia stackelbergi* Krivosheina living under the bark of rotting logs. Frey (1952) stated that the adults of *Pseudopomyza atrimana* (Meigen) gather during afternoon over rotting logs, a habit which suggests a similar larval habitat to that of *Polypathomyia*.

The following collectors' names are abbreviated to the initials: J. Cardale, D. H. Colless, I. F. Common, D. K. McAlpine.

The following abbreviations are used for institutions holding material: AM, Australian Museum, Sydney; ANIC, Australian National Insect Collection, CSIRO, Canberra; CNC, Canadian National Insect Collection, Agriculture Canada, Ottawa.

Genus ***Pseudopomyza*** Strobl

Pseudopomyza Strobl, 1893: 284. Type species (monotypy) *P. nitidissima* Strobl (= *Opomyza atrimana* Meigen).

Protoborborus Malloch, 1933: 261-262. Type species (original designation) *P. neozelandicus* Malloch.

Heluscolia Harrison, 1959: 119-120 (as subgenus of *Heloclusia* Malloch). Type species (original designation) *Heloclusia (Heluscolia) antipoda* Harrison.

Rhinopomyzella Hennig, 1969: 396-398, n. syn. (as generic name). See below as subgenus.

I include in this genus pseudopomyzids with the following character combination: fronto-orbital bristles 2 or 3 pairs; setulae of cheek not forming a uniseriate fringe; mesopleuron bare; dorsocentral bristles 4 pairs; anterior acrostichal setulae or bristles in a single median series; scutellum without discal setulae; tibiae without differentiated bristles except near apices; costa broken or much weakened at humeral position; costa without spaced spines or enlarged bristles next to marginal cell; subcosta desclerotised beyond middle of second costal cell; second basal and anal cells open distally (Fig. 232 of Hennig, 1958, which shows these cells closed in *P. atrimana*, is inaccurate).

Key to subgenera of *Pseudopomyza*

1. Fronto-orbital bristles 3; anterior intra-alar bristle present 2
— Fronto-orbital bristles 2; anterior intra-alar bristle absent 3
2. Face very extensively desclerotised on lower part, with median elevation restricted to area between antennal bases; Europe, New Zealand .. *Pseudopomyza*
— Face with extensive sclerotised lateral plates only separated below by the long lightly sclerotised median carina; Neotropical Region ..... *Rhinopomyzella*
3. Lateral facial plates large, relatively narrowly separated below by the long lightly sclerotised carina; anterior cheek bristle absent; mesoscutum largely devoid of pruinescence, glossy; E. Australia ..... *Dete*
— Lateral facial plates smaller, widely separated below by membranous zone; anterior cheek bristle present behind vibrissa; mesoscutum almost entirely pruinescent, subshining; New Zealand, Western Australia ..... *Apops*

Subgenus ***Pseudopomyza*** s.str.

Synonyms: *Protoborborus* Malloch, *Heluscolia* Harrison (see under genus heading for details).

Fronto-orbital bristles 3; cheek generally with one anterior bristle (behind vibrissa) at least slightly differentiated from setulae; face extensively desclerotised ventromedially; antennal segment 2 with several moderately long ventral bristles, but no one very long bristle; anterior intra-alar bristle present; mesoscutum with almost uniform covering of inconspicuous pruinescence.

Included species are *P. atrimana* (Meigen) (Europe and Korea), *P. antipoda* (Harrison), *P. aristata* (Harrison), *P. brevicaudata* (Harrison), *P. brevis* (Harrison), *P. neozelandica* (Malloch) (last 5 from New Zealand). I am uncertain if *P. antipoda* is a synonym of *P. neozelandica*, as the apparent differences in published illustrations (e.g. Harrison, 1959) are not entirely borne out in the specimens examined. The New Zealand species have been treated by Harrison (1959; 1976) under the generic names *Heloclusia* and *Protoborborus*.

Hennig (1969) seems to have separated *Protoborborus* from *Pseudopomyza* on the basis of the great distance between the ranges of the New Zealand and European species. However, I have been unable to find other kinds of evidence for major genetic divergence between the two groups. I believe that taxonomic decisions based mainly on geographic data are undesirable, particularly in groups which, like the Pseudopomyzidae and the genus *Pseudopomyza*, appear to have a relict distribution.

Subgenus ***Rhinopomyzella*** Hennig n. stat.

Rhinopomyzella Hennig, 1969: 596-598, as genus. Type species *Rhinopomyzella nigrimana* Hennig.

Fronto-orbital bristles 3; anterior cheek bristle scarcely differentiated from setulae; lateral facial plates broad, only separated below by the long, somewhat sclerotised median carina; antennal segment 2 without single very long ventral bristle, several of them moderately long; thorax almost entirely pruinescent, lightly and evenly so on mesoscutum; anterior intra-alar bristle and sternopleural bristle well developed.

Hennig, in describing the genus *Rhinopomyzella*, gave only one character which can be considered to separate it from *Pseudopomyza* s. str. This is the presence of the median facial carina, which is combined with a greater development of the sclerotised facial plates and reduction of the ventromedian membranous zone of the face. Krivosheina (1979), without access to specimens of *Rhinopomyzella*, failed to differentiate *Rhinopomyzella* from *Pseudopomyza* in her key to genera of Pseudopomyzidae, though she discussed the differences in facial structure. My study of numerous pseudopomyzid species suggests that facial structure is no more reliable as an indicator of relationships than many points of chaetotaxy. Subgeneric status in the genus *Pseudopomyza* is therefore considered appropriate for *Rhinopomyzella*.

Rhinopomyzella includes *Pseudopomyza (Rhinopomyzella) nigrimana* (Hennig) and *Pseudopomyza (Rhinopomyzella) albimana* (Hennig) n. combs., and apparently one or two undescribed species. The geographic distribution of the subgenus is from Mexico to southern Brazil, and includes the West Indies (Hennig, 1969, and material in CNC). It includes all known New World representatives of the genus.

Subgenus ***Apops n.*** sg.

Type species *Heloclusia (Heluscolia) flavitarsis* Harrison.

Fronto-orbital bristles 2; cheek with distinct bristle behind vibrissa; paired facial plates moderately developed but well separated by a membranous zone on most of depth of face; anterior intra-alar bristle absent; mesoscutum almost entirely pruinescent, subshining.

Apops is structurally intermediate between *Pseudopomyza* s. str. and *Dete*, resembling the first in the distinct cheek bristle, extensively membranous median zone of the face, and pruinescent mesoscutum, and the latter in the 2 fronto-orbitals and absence of the anterior intra-alar bristle.

In addition to the type species from New Zealand, a single specimen from Western Australia (♀ , 1 mi.E of Jewel Cave, Augusta, 3.x.1970, D.H. Colless, ANIC), appears to represent a second, closely related species. Formal description of this species should await additional material.

The subgeneric name is from the Greek apo-, separate, and ops, face (feminine), in reference to the deeply divided facial sclerotisation.

Subgenus ***Dete*** n. sg.

Type species *Pseudopomyza collessi* n. sp.

Fronto-orbital bristles 2; no single enlarged cheek bristle behind vibrissa; paired sclerotised facial plates large, approximated along median line where separated by a narrow, somewhat sclerotised carina; membranous median zone of face thus much reduced, forming a shallow triangle above prelabrum. Antenna: segment 2 with long ventral bristle as well as dorsal bristle. Thorax, particularly mesoscutum and sternopleuron, predominantly glossy and without pruinescence; anterior intra-alar bristle absent; sternopleural bristle reduced.

Dete differs from all other subgenera of *Pseudopomyza* in the one, very strongly differentiated ventral bristle on antennal segment 2, largely glabrous, glossy meso-

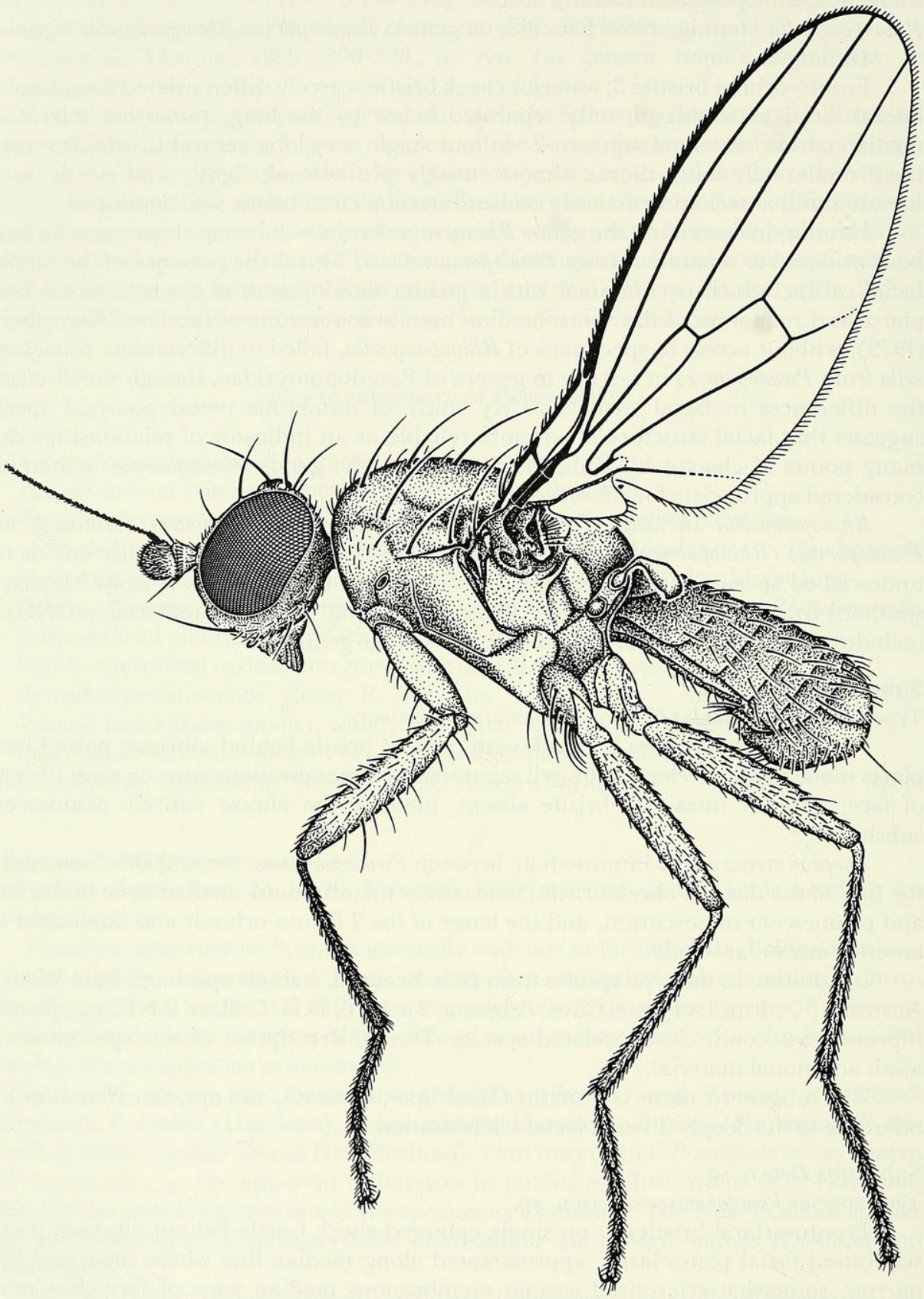
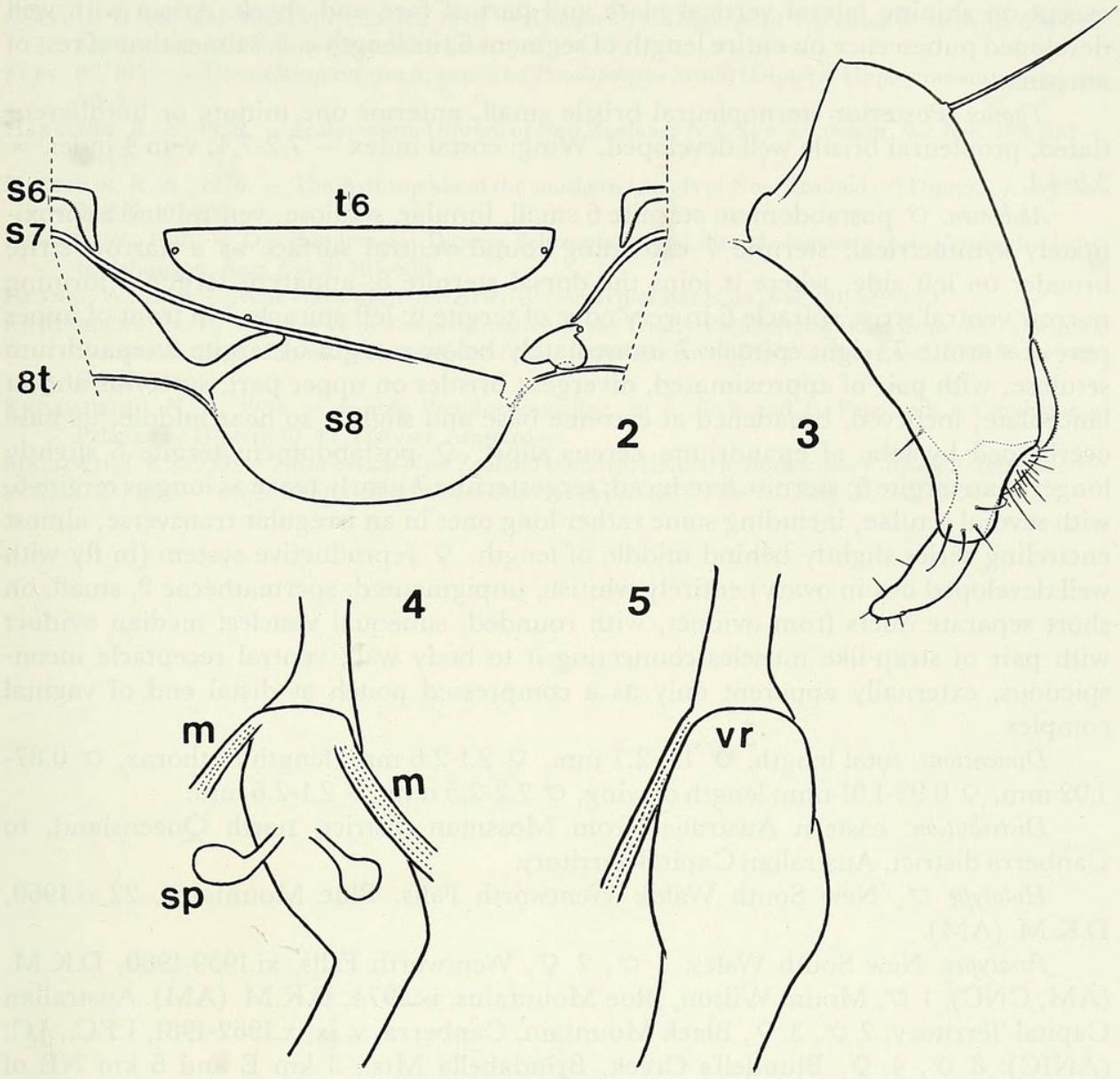


Fig. 1. Pseudopomyza collessi, holotype.

scutum, and reduced sternopleural bristle. It differs from subgenera other than *Rhinopomyzella* in having the sclerotised facial plates large and only narrowly separated medially on much of the depth of the face. It differs from subgenera other than *Apops* in having 2 instead of 3 fronto-orbital bristles and no anterior intra-alar bristle.



Figs. 2-5. Pseudopomyza collessi. 2, protandrogram — diagram of segments 6-8 of male abdomen shown as split along median ventral line and spread flat. 3, epandrium and associated parts. 4, proximal part of female reproductive system, dorsal. 5, the same, ventral. m, muscle. sp, spermatheca. s6-s8, sternites 6-8. t6-t8, tergites 6-8. vr, ventral receptacle.

The only recognized species lives in eastern Australia.

The subgeneric name is from the Greek dete, torch (feminine), in reference to the high gloss of the thorax.

Pseudopomyza (Dete) collessi n. sp.

♂ ♀. *General coloration* shining brown-black, with black bristles and clear, unmarked wings. Anterior margin of postfrons tawny; face and cheeks tawny with little brown suffusion. Antenna tawny; segment 3 suffused with brown distally; arista blackish. Prelabrum tawny; palpus and most of proboscis fulvous. Thorax with propleuron tawny. Legs largely tawny; dorsal surface of fore femur, entire fore tibia, and basal segments of fore tarsus dark brown; fore tarsus with 2 distal segments in ♂, 3 in ♀, pale yellowish.

Head rounded, somewhat higher than long; height of cheek c. 0.14 of vertical diameter of eye; vibrissal angle rounded off; vibrissa situated more posteriorly than in

related species (subgenus *Pseudopomyza*); surface of head largely thinly pruinescent except on shining lateral vertical plate and part of face and cheek. Arista with well developed pubescence on entire length of segment 6, its length c. 3.3 times that of rest of antenna.

Thorax. Posterior sternopleural bristle small, anterior one minute or undifferentiated; propleural bristle well developed. Wing: costal index = 7.2-7.4; vein 4 index = 3.5-4.1.

Abdomen. ♂ postabdomen: sternite 6 small, lunular, setulose, ventral and approximately symmetrical; sternite 7 extending round ventral surface as a narrow strip, broader on left side, where it joins the dorsal sternite 8; apparent tergite 8 forming narrow ventral strip; spiracle 6 in very edge of tergite 6; left spiracle 7 in front of upper part of sternite 7; right spiracle 7 immediately below margin of tergite 8; epandrium setulose, with pair of approximated, divergent bristles on upper part; surstylus almost lanceolate, incurved, broadened at extreme base and slightly so near middle, its base overlapped by lobe of epandrium; cercus short. ♀ postabdomen: tergite 6 slightly longer than tergite 5; sternite 6 reduced; tergosternite 7 nearly twice as long as tergite 6, with several setulae, including some rather long ones in an irregular transverse, almost encircling series slightly behind middle of length. ♀ reproductive system (in fly with well developed ova in ovary) entirely whitish, unpigmented; spermathecae 2, small, on short separate ducts from oviduct, with rounded, subequal vesicles; median oviduct with pair of strap-like muscles connecting it to body wall; ventral receptacle inconspicuous, externally apparent only as a compressed pouch at distal end of vaginal complex.

Dimensions: total length, ♂ 1.9-2.7 mm, ♀ 2.1-2.6 mm; length of thorax, ♂ 0.87-1.02 mm, ♀ 0.93-1.01 mm; length of wing, ♂ 2.2-2.5 mm, ♀ 2.1-2.6 mm.

Distribution: eastern Australia, from Mossman district, north Queensland, to Canberra district, Australian Capital Territory.

Holotype ♂. New South Wales: Wentworth Falls, Blue Mountains, 22.xi.1960, D.K.M. (AM).

Paratypes. New South Wales: 3 ♂, 2 ♀, Wentworth Falls, xi.1959-1960, D.K.M. (AM, CNC); 1 ♂, Mount Wilson, Blue Mountains, ix.1974, D.K.M. (AM). Australian Capital Territory: 2 ♂, 3 ♀, Black Mountain, Canberra, v, ix, x.1962-1981, I.F.C., J.C. (ANIC): 8 ♂, 4 ♀, Blundell's Creek, Brindabella Mts., 3 km E and 6 km NE of 'Piccadilly Circus' iii, ix, x.1984-1985, Weir, Lawrence, Johnson (ANIC, CNC, some in alcohol).

Other material. North Queensland: 2 ♂, 1 ♀, Mount Lewis Rd, c. 5-8 mi (c. 8-13 km) off Mossman-Mount Molloy Rd, iv.1967, D.H.C. (ANIC).

Habitat. At Wentworth Falls *P. collessi* has been found on ferns on the south-facing escarpment near the edge of the spray zone of the waterfall. This area only receives insolation during summer. At Mount Wilson the species was found in a deep ravine in temperate rain forest under shaded, sheltered conditions. The specimens from Black Mountain were taken at light and one in a Malaise trap, in or near dry sclerophyll forest with no notable shelter from extremes of weather, although the climate here is dryer than other recorded localities.

Acknowledgements

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