

## Drosophilidae (Insecta: Diptera) in the Cooktown Area of North Queensland

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### Abstract

An analysis of drosophilid collections made by the Division of Entomology, CSIRO, during 1980 and 1981 in the Cooktown area of north Queensland yielded the following: *Amiota* (three species); *Balara* (one); *Cacoxenus* (one); *Chymomyza* (one); *Crincosia* (two species, one new); *Dettopsomyia* (one, new record); *Drosophila* (*Drosophila*) (three); *Drosophila* (*Sophophora*) (eight); *Drosophila* (*Hirtodrosophila*) (five species, one new); *Drosophila* (*Scaptodrosophila*) (23 species, six new); *Hypselothyrea* (one); *Leucophenga* (13 species, two new); *Liodrosophila* (one); *Lissocephala* (one); *Luzonimyia* (one); *Microdrosophila* (six); *Mycodrosophila* (one); *Nesiodrosophila* (two species, one new); *Paramycodrosophila* (two); *Phorticella* (one, new record); *Sphaerogastrella* (one); *Stegana* (one); and *Zaprionus* (one). The new species and records bring the Australian drosophilid total to 247 described species.

### Introduction

The family Drosophilidae is now well known in Australia, with, at the latest estimates, 234 described species in 31 genera (Bock 1982; McEvey and Bock 1982). Most parts of the continent have been explored for drosophilids, particular emphasis having been placed on the rainforest areas of north Queensland which are known to harbour a large proportion of the total fauna. However, little attention had been paid to the rainforests in the vicinity of Cooktown before several collections made by the Division of Entomology, CSIRO, in 1980-81; these collections returned several hundred specimens, and an analysis of the latter has revealed considerable diversity as well as a number of new species. Full systematic details of these Cooktown collections together with descriptions of the new species are given below.

### Collections

The specimens reported below were recovered from 18 separate collection localities, and in most cases several species were collected at each locality. To avoid unnecessary repetition in lists of specimens examined, the following abbreviations are used:

- Annan R.: Annan River 3 km W. by S. of Black Mt, D. H. Colless (at light)
- Moses Ck: Moses Creek 4 km N. by E. of Mt Finnigan, 14-16.x.1980, D. H. Colless
- Mt Webb: 15°03'S., 145°09'E., 3 km NE. of Mt Webb, D. H. Colless
- Mt Webb N.P.: 15°04'S., 145°07'E., Mt Webb National Park, D. H. Colless
- Mt Baird: 15°10'S., 145°07'E., 3-5 km SW. by S. of Mt Baird, 3-5.v.1981, D. H. Colless
- Hope Vale N.: 15°14'S., 145°07'E., 7 km N. of Hope Vale Mission, 4.x.1980, D. H. Colless (at light)
- Hope Vale W.: 15°16'S., 144°59'E., 14 km W. by N. of Hope Vale Mission, 7-8.v.1981, D. H. Colless
- Rounded Hill W.: 15°17'S., 145°10'E., 5 km W. by N. of Rounded Hill, 7.x.1980, D. H. Colless
- Rounded Hill N.: 15°17'S., 145°13'E., 1 km N. of Rounded Hill, D. H. Colless

Rounded Hill E.: 15°17'S., 145°17'E., 4 km N. by E. of Rounded Hill, 6.v.1981, D. H. Colless (at light)

Station Ck: 15°19'S., 145°03'E., Station Creek 7 km WSW. of Hope Vale Mission, 10.v.1981, D. H. Colless

Cooktown: 15°28'S., 145°15'E., 1 km W. of Cooktown, 12-13.v.1981, D. H. Colless

Mt Cook N.P.1: 15°29'S., 145°16'E., Mt Cook National Park, 10-12.v.1981, D. H. Colless

Mt Cook N.P.2: 15°30'S., 145°16'E., Mt Cook National Park, 11-12.x.1980, D. H. Colless

Mt Cook: 15°30'S., 145°16'E., 1 km SE. of Mt Cook, 12-14.x.1980, D. H. Colless (malaise trap)

Shiptons Flat: 15°47'S., 145°14'E., Shiptons Flat, D. H. Colless

Little Forks: 15°49'S., 145°14'E., Little Forks, Annan River, 19.x.1980, D. H. Colless (malaise trap)

Gap Ck: 15°50'S., 145°20'E., Gap Creek 5 km ESE. of Mt Finnigan, 13-16.v.1981, D. H. Colless

All specimens are retained in the Australian National Insect Collection, Division of Entomology, CSIRO, Canberra.

## Results

Full citations [reference to original description, type species (for genera), holotype location and type locality (for species)] for the genera and species listed below are given in Bock (1982) and McEvey and Bock (1982), except for *Dettopsomyia preciosa* and *Phorticella bistrriata*. Full citations are therefore given below for these species; the reader is referred to the above papers for complete information on the remainder.

New species are described in the form used previously for the Australian Drosophilidae (Bock 1976, 1979, 1982). Species are numbered consecutively throughout.

### Genus *Amiota* Loew

#### ✓ 1. *Amiota albomaculata* (Duda)

*Specimens examined.* Annan R., 26.iv.1981, 1♂; Mt Webb, 2.v.1981 (at light), 4♀; Mt Webb NP, 28.ix.1980 (at light), 1♂; Rounded Hill N., 6.v.1981 (at light), 2♂.

#### 2. *Amiota* sp. A

A single specimen differs from the above in the following respects: the body is much paler (weakly brown rather than almost black, but otherwise with the typical milky white spots on the thorax); prescutellar bristles are absent; and (weak) postverticals are present. In other respects (wing venation, etc.) the two forms are similar, but in view of the differences in setation it is likely that the pale form (which is not identifiable to a known species) in fact represents a different (i.e. new) species. Formal description should, however, await the collection of one or more additional specimens in better condition.

*Specimen examined.* Shiptons Flat, 16.v.1981 (malaise trap), 1♀.

#### ✓ 3. *Amiota annulata* Malloch

*Specimen examined.* Annan R., 26.iv.1981, 1♂.

### Genus *Balara* Bock

#### ✓ 4. *Balara poecilithorax* (Malloch)

*Specimens examined.* Mt Webb, 1.x.1980, 3♀ (at light), 1♀ (malaise trap); Rounded Hill N., 6.v.1981 (at light), 1♀; Rounded Hill E., 1♀; Mt Cook N.P.1 (at light), 1♂, 1♀; Mt Cook, 1♀; Little Forks, 1♀.

Genus *Cacoxenus* Loew✓ 5. *Cacoxenus perspicax* (Knab)

*Specimens examined.* Annan R., 26.iv.1981, 1 ♀; Mt Webb, 30.iv.1981 (at light), 1 ♂, 2.v.1981 (malaise trap), 1 ♀; Rounded Hill N., 7.x.1980 (malaise trap), 1 ♀; Rounded Hill W. (malaise trap), 1 ♀; Cooktown (at light), 1 ♀; Mt Cook N.P.1 (at light), 2 ♂; Gap Ck (at light), 1 ♂.

Genus *Chymomyza* Czerny✓ 6. *Chymomyza ?eungellae* Bock

The two females noted below are very similar to *C. eungellae* but differ in the coloration of the fore-femur (basally pale in the present specimens); specific determination would be more reliably effected on males.

*Specimens examined.* Gap Ck (malaise trap), 2 ♀.

Genus *Crincosia* Bock✓ 7. *Crincosia lawgana* Bock

*Specimens examined.* Mt Webb, 3.x.1980 (at light), 1 ♂; Mt Cook N.P.1 (at light), 1 ♀, 1 ?

✓ 8. *Crincosia gugorum*, sp. nov.

*Types.* Holotype ♂: 15°17'S., 145°10'E., 5 km W. by N. of Rounded Hill, 7.x.1980 (at light), D. H. Colless. Paratypes: Mt Webb, 1.x.1980, 1 ♂. 3.x.1980, 1 ♀; Mt Baird (light trap), 1 ♂.

*Distinguishing features.* Body largely tan. Wing slightly infuscated towards costa.

*Body length.* 3.9 mm (holotype); 3.3–3.5 mm (paratype range).

*Head.* Breadth of front 0.9 × length; front tan. 2nd and 3rd antennal segments tan. Carina broadly rounded. Face pale tan. Palp large, pale tan, without large bristles but with numerous small hairs. Eye with fine, very sparse pile. Orbital bristles in ratio 3:2:3, in line, anterior reclinate orbital closer to proclinate than to posterior reclinate orbital. Ocellar and vertical bristles large; weak postverticals present.

*Thorax.* Mesonotum pollinose tan. Acrostichal hairs in numerous rows, rather irregular. Ratio anterior : posterior dorsocentral bristles 0.5. Prescutellar bristles present, slightly smaller than anterior dorsocentrals. Scutellum tan; scutellar bristles subequal, anterior bristles divergent. Pleura tan, a little paler than mesonotum. Sternopleuron with 2 large bristles. Haltere pale tan. Legs pale tan; small preapical bristles on all tibiae; small apical bristle on 2nd tibia only.

*Wing.* Hyaline posteriorly gradually becoming dusky towards costal margin. Anal vein rudimentary. *C*-index, 2.2; *4V*-index, 1.7; *5X*-index, 0.9; *M*-index, 0.45. 3rd costal section with heavy setation on basal 0.8. Length (holotype), 3.0 mm.

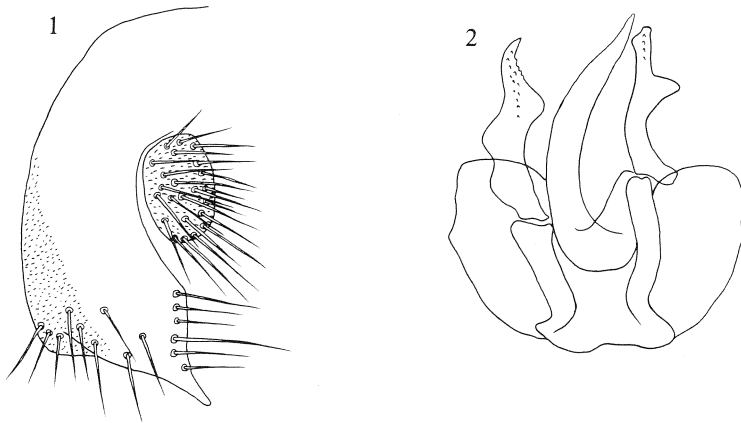
*Abdomen.* Tergite 1 tan. Tergite 2 tan, slightly dusky laterally; incurved portion tan medially, dusky laterally. Tergites 3–5 weakly dusky dorsally; incurved portions tan medially, dusky laterally. Tergite 6 weakly dusky dorsally; incurved portion tan.

*Male genitalia* (Figs 1, 2). Anal plate small. Clasper small, with prominent lower tooth-like process. Aedeagus strongly sclerotized, long, recurved. Parandrites large.

*Female genitalia*. Egg guide long, slender, with long hairs.

#### *Special Comments*

Two other species of this genus have been described, one of them (*C. lawgana*, sp. 7 above) also reported from these collections. It was noted when the genus was established that one of the species possesses large prescutellar bristles, while in the other, prescutellars are absent. The third species possesses prescutellars (as is more typical of members of the steganine genera), but also possesses weak postvertical bristles; postverticals are absent in the other two species. A further generic characteristic in which *C. gugorum* differs slightly from the other two species is in the placement of the orbital bristles, which are well up on the posterior half of the front in the original species but just within the posterior half of the front in *C. gugorum*. In other respects, the present species is a typical member of the genus. The species is named after the Gugu Yimidhirr Aboriginal people of the Cooktown area.



**Figs 1,2.** *Crincosia gugorum*, male: 1, external genitalia; 2, internal genitalia.

### Genus *Dettopsomyia* Lamb

#### ↓ 9. *Dettopsomyia preciosa* (de Meijere)

*Drosophila preciosa* de Meijere, 1911, p. 410. (Holotype in Amsterdam; type locality Java.)

*Distinguishing features.* Wing with 2 dark spots between 1st and 2nd longitudinal veins. Acrostichal hairs in 2 rows, pair at about level of transverse suture conspicuously enlarged; 2 large pairs of dorsocentral bristles present. Legs banded.

*Specimen examined.* Shiptons Flat, 17.v.1981 (malaise trap), 1 ♂.

#### *Special Comments*

This very distinctive little species is widespread in south-east Asia and New Guinea but has not previously been reported from Australia, although a few specimens were also recovered in collections made recently by a Queensland Museum group at Mt Bellenden Ker. The species is easily distinguished by its patterned wings from the only other Australian member of the genus, *D. nigrovittata* (Malloch).

Genus **Drosophila** Fallén  
Subgenus **Drosophila**

\* 10. **Drosophila persicae** Bock & Parsons

*un grouped*

*Specimens examined.* Moses Ck (malaise trap), 1 ?; Mt Webb, 1.v.1981 (on garbage), 1 ♂, 2.v.1981 (fruit bait), 1 ♂; Gap Ck (malaise trap), 1 ?.

✓ 11. **Drosophila rubida** Mather

*Specimens examined.* Annan R., 26.iv.1981, 1 ♂; Mt Webb, 2.v.1981 (fruit bait), 1 ♂; Mt Webb N.P., 30.iv.1981, trapped on rotting pawpaw, 2 ♂, 2 ♀; Shiptons Flat, 18.v.1981 [collector C. Roberts], 1 ♂; Gap Ck (malaise trap), 2 ♂.

✓ 12. **Drosophila sulfurigaster** (Duda)

*Specimens examined.* Mt Webb, 2.v.1981 (on garbage), 2 ♀; Gap Ck, rotting fruit, 1 ♀, malaise trap, 1 ♂, 1 ♀.

Subgenus **Sophophora** Sturtevant

The following seven species are members of the *melanogaster* group. Females of most species of this group are not unequivocally determinable to species, and the identifications for these species are therefore based on males only except for *D. flavohirta* (females of which are fairly easily distinguished). Records for undetermined *melanogaster* group females are given following these seven species.

\* 13. **Drosophila ananassae** Doleschall

*Specimens examined.* Mt Webb, 1-2.v.1981, fruit bait, 4, on garbage, 4; Cooktown (malaise trap), 1.

✓ 14. **Drosophila bipectinata** Duda

*Specimen examined.* Mt Webb, 2.v.1981 (fruit bait), 1.

✓ 15. **Drosophila denticulata** Bock & Wheeler

*Specimen examined.* Gap Ck, 1.

✓ 16. **Drosophila flavohirta** Malloch

*Specimens examined.* Annan R., 27.ix.1980, 1 ♂, 1 ♀; Mt Webb, 1.x.1980 (at light), 1 ♀; Mt Webb N.P., 28.ix.1980 (at light), 1 ♀, 29.ix.1980, 1 ♀; Rounded Hill N., 5.x.1980, 1 ♂, 2 ♀; Rounded Hill E., 1 ♀.

\* 17. **Drosophila ironensis** Bock & Parsons

*Specimens examined.* Gap Ck, rotting fruit, 3.

18. *Drosophila pseudoananassae* Bock

*Specimen examined.* Mt Webb, 2.v.1981 (fruit bait), 1.

19. *Drosophila serrata* Malloch

*Specimens examined.* Mt Webb, 2.v.1981 (on garbage), 1; Mt Webb N.P., 29.iv.1981, 1; Shiptons Flat, 18-19.x.1980, 2.

*melanogaster*-group females

*Specimens examined.* Annan R., 26.iv.1981, 1; Moses Ck, 1; Mt Webb, 1-2.v.1981, 7 [6 on garbage]; Mt Webb N.P., 30.ix.1980 (malaise trap), 1; Mt Baird, rotting fruit, 4; Cooktown (malaise trap), 1; Shiptons Flat, 18.v.1981 [collector C. Roberts], 2; Gap Ck, 2 [1 on rotting fruit].

20. *Drosophila ?pinnitarsus* Bock

Males of the two species *D. pinnitarsus* and *D. scopata* Bock (Bock 1976) are easily separable by reference to the fore-tarsi, which bear bushy sex-combs on the first three segments of the former species and the first two segments of the latter. Determination of the corresponding females is, however, rather equivocal, although they are rather easily assigned to the 'bushy-tarsus' complex.

*Specimens examined.* Mt Webb N.P., 27.iv.1981 (at light), 1 ♀; Shiptons Flat, 17-18.x.1980, 2 ♀.

Subgenus *Hirtodrosophila* Duda21. *Drosophila hirtominuta* Bächli

*Specimens examined.* Mt Webb N.P., 28.iv.1981, on foliaceous fungus, 3 ♂, 2 ♀.

✓ 22. *Drosophila tricolora* Bock

*Specimen examined.* Gap Ck (malaise trap), 1 ♀.

✓ 23. *Drosophila zentae* Bock

*Specimens examined.* Moses Ck, 2 ♀.

24. *Drosophila* sp. A

A single male (Moses Ck, at light) member of the *hirticornis* species-group, not determinable to a known Australian species, keys to *D. hirticornis* de Meijere in Bächli (1973), but differs from the description given for that species in several details (especially in completely lacking a carina). It is likely that this specimen represents a new species, but as it is not in perfect condition it is not considered further in this paper.

J 25. *Drosophila shiptonensis*, sp. nov.

*Type.* Holotype ♀: 15°47'S., 145°14'E., Shipton Flat, 17.v.1981 (malaise trap), D. H. Colless.

*Distinguishing features.* Body brownish. Cheek very narrow. Carina very weak. *C*-index low.

*Body length.* 2.6 mm.

*Head.* Arista rather large, with 4 rays above and 2 below plus terminal fork. Breadth of front equal to length: front dark tan, periorbits paler; ocellar triangle elevated, blackened within. 2nd and 3rd antennal segments dark tan, slightly dusky. Face tan; carina very low, but ridged. Palp infuscated, with a few long bristles. Cheek very narrow, curved. Eye with dense short pile. Middle orbital bristle  $< \frac{1}{3}$  length of other orbitals, fine, about halfway between and slightly lateral to them. Ocellar, vertical and postvertical bristles large.

*Thorax.* Mesonotum, scutellum and haltere mid-brownish; pleura a little darker. Acrostichal hairs in 6 rows in front of dorsocentral bristles, 4 rows between dorsocentrals. Ratio anterior:posterior dorsocentrals 0.65. Anterior sternopleural bristle fine, 0.4 length of posterior sternopleural, latter large; middle sternopleural absent. Legs dark tan; preapical bristles present on all tibiae; large apical bristle on 2nd tibia only.

*Wing.* Weak brownish tinge present. Shadow only of anal vein present. *C*-index, 1.1; *4V*-index, 1.9; *5X*-index, 1.7; *M*-index, 0.6. 3rd costal section with heavy setation on basal 0.7. Length, 2.3 mm.

*Abdomen.* Tergite 1 tan. Tergites 2-6 tan anteriorly, dark brown posteriorly, with same pattern on incurved portions except for (dark brown) medial margins of latter.

*Female genitalia.* Egg guide very strongly sclerotized, apically pointed, with small teeth on lower margin.

#### *Special Comments*

Although only a single specimen of this species is available, it is in very good condition and the species is quite distinctive. In lacking a carina and possessing a low costal index, the present species is reminiscent of the members of the *zentae* species-group (Bock and Parsons 1979), but in most other respects it seems best excluded from that group and left with the other ungrouped species of the subgenus.

### Subgenus *Scaptodrosophila* Duda

#### 26. *Drosophila altera* Bock

*Specimens examined.* Annan R., 26.iv.1981, 1 ♂; Mt Webb, 2.v.1981, malaise trap, 1 ♀, on garbage, 1 ♂, 1 ♀; Mt Webb N.P., 28.ix.1980 (at light), 1 ♂; Mt Cook N.P.1 (malaise trap), 1 ♀; Shiptons Flat, 17.v.1981 (malaise trap), 1 ♀.

#### 27. *Drosophila brunnea* de Meijhere

*Specimens examined.* Mt Webb N.P., 29.iv.1981, 1 ♀; Mt Cook, 1 ♀; Gap Ck (malaise trap), 1 ♂.

#### 28. *Drosophila bryani* Malloch

*Specimens examined.* Mt Webb, 2.v.1981 (on garbage), 3 ♂, 2 ♀.

#### 29. *Drosophila crocata* Bock

*Specimens examined.* Mt Webb N.P., 28.ix.1980 (at light), 1 ♂, 1 ♀, 27.iv.1981 (at light), 1 ♀; Mt Cook (at light), 1 ♀; Shiptons Flat, 17.x.1980, 6 ♀.

∨ 30. *Drosophila cultello* Bock

*Specimen examined.* Shiptons Flat, 17.v.1981 (malaise trap), 1 ♂.

∨ 31. *Drosophila eluta* Wheeler & Takada

*Specimens examined.* Moses Ck (at light), 1; Gap Ck, at light, 1 ♂, 1 ♀, malaise trap, 2 ♂.

∨ 32. *Drosophila fimbriata* Bock

*Specimens examined.* Shiptons Flat, 16.v.1981, 1 ♂; Gap Ck (at light), 1 ♂, 1 ♀.

∨ 33. *Drosophila fungi* Bock & Parsons

*Specimens examined.* Mt Webb N.P., 29.iv.1981, on decomposing fungus, 6 ♂; Shiptons Flat, 18.x.1980, 2 ♂, 2 ♀.

∨ 34. *Drosophila glauca* Bock

*Specimens examined.* Mt Webb N.P., 29.ix.1980, 3 ♂, 4 ♀ [1 ♂ at light], 29.iv.1981, 1 ♂, 1 ♀, Hope Vale W., 1 ♀; Shiptons Flat, 18.x.1980, 1 ♀.

∨ 35. *Drosophila kennedyi* Bock

*Specimen examined.* Mt Webb N.P., 28.ix.1980 (at light) 1 ♀.

∨ 36. *Drosophila metaxa* Bock

*Specimens examined.* Mt Webb, 1.x.1980, 2 ♀, 2.x.1980 (malaise trap), 1 ♀; Mt Webb N.P., 29.iv.1981, 1 ♀; Hope Vale W., 4 ♂, 3 ♀; Station Ck, 2 ♂; Mt Cook N.P.1 (malaise trap), 1 ♀; Shiptons Flat, 17-18.x.1980, 1 ♂, 2 ♀, 17.v.1981 (malaise trap), 1 ♂, 1 ♀; Gap Ck, 2 ♀ [1 malaise trap].

∨ 37. *Drosophila nimia* Bock

*Specimen examined.* Mt Webb N.P., 29.iv.1981, 1 ♂.

∨ 38. *Drosophila novoguineensis* (Duda)

*Specimens examined.* Moses Ck (on dung), 1 ♂; Mt Webb, 1.v.1981 (on garbage), 2 ♂, 2.v.1981 (fruit bait), 1 ♀; Mt Webb N.P., 28.iv.1981 (on dung), 31 ♂, 2 ♀, 30.iv.1981 (trapped on rotting pawpaw), 3 ♀; Gap Ck (malaise trap), 1 ♀, 1 ?

∨ 39. *Drosophila oenops* McEvey & Bock

*Specimens examined.* Mt Webb, 2.x.1980 (malaise trap), 1 ♂, 1.v.1981 (on dung), 1 ♂; Mt Cook N.P.2 (malaise trap), 1 ?; Mt Cook, 1 ♂.

∨ 40. *Drosophila scaptomyzoidea* (Duda)

*Specimen examined.* Annan R., 26.iv.1981, 1 ♀.



41. *Drosophila specensis* Bock

*Specimens examined.* Moses Ck (malaise trap), 1 ♂; Gap Ck (malaise trap), 2 ♀.

42. *Drosophila variata* Bock

*Specimen examined.* Mt Webb N.P., 30.ix.1980 (malaise trap), 1 ♀.

✓ 43. *Drosophila aurochaeta*, sp. nov.

*Type.* Holotype ♀: 15°03'S., 145°09'E., 3 km NE. of Mt Webb, 2.v.1981 (fruit bait), D. H. Colless.

*Distinguishing features.* Body pale brownish. Carina large. All bristles and hairs luteous.

*Body length.* 3.3 mm.

*Head.* Arista with 3 apically curved rays above and 2 almost straight rays below plus large terminal fork. Breadth of front  $0.9 \times$  length; front velvety tan, periorbits paler; ocellar triangle slightly elevated, blackened immediately adjacent to ocelli. 2nd antennal segment concolorous with front; 3rd segment dark tan, slightly dusky. Carina very prominent and strongly protuberant below, broad above and below, almost flat, lateral margins almost squared. Palp tan, with a few long bristles. Cheek moderately broad, curved. Eye with dense fine pile. Orbital bristles in ratio 2:1:2; anterior reclinate orbital posterior and slightly lateral to proclinate orbital. Ocellar, vertical and postvertical bristles large.

*Thorax.* Mesonotum, scutellum, pleura and haltere pollinose pale brownish. Acrostichal hairs in 8 rows in front of dorsocentral bristles, 6 rows between dorsocentrals. Prescutellar bristles large. Ratio anterior:posterior dorsocentrals 0.5. Legs tan; preapical bristles on all tibiae; apical bristles on 1st and 2nd tibiae.

*Wing.* Hyaline. 2nd longitudinal vein almost straight, slightly curved towards costa at apex. Anal vein rather weak. *C*-index, 2.3; 4*V*-index, 2.0; 5*X*-index, 1.6; *M*-index, 0.5. 3rd costal section with heavy setation on basal 0.7. Length, 2.4 mm.

*Abdomen.* Entirely shiny tan.

*Female genitalia.* Egg guide rather narrow, rounded apically, with strong marginal teeth.

*Special Comments*

Although many species of Australian *Scaptodrosophila* are of general brownish coloration and possess strong carinas, the above species is easily separated from most others by its possession of yellowish hairs and bristles, which impart quite a distinctive appearance to the fly. One other species (*D. anthemion* Bock) in this subgenus also possesses yellowish hairs, but the latter species is appreciably smaller than *aurochaeta*, possesses a greenish tinge to the eye and a yellowish (rather than brownish) body coloration, and differs in several other respects.

✓ 44. *Drosophila chocolata*, sp. nov.

*Type.* Holotype ♂: 15°50'S., 145°20'E., Gap Ck 5 km ESE. of Mt Finnigan, 16.v.1981 (malaise trap), D. H. Colless.

*Distinguishing features.* Body large, dark. Mesonotum dark brown with paler longitudinal markings. Abdomen blackish.

*Body length.* 4.2 mm.

*Head.* Arista large, with 3–4 curved rays above and 2 straight rays below plus terminal fork. Breadth of front  $0.9 \times$  length; front dark velvety tan; periorbits pale. Ocellar triangle elevated, dark brownish. 2nd and 3rd antennal segments dusky tan. Carina very prominent but rather narrow, smoothly rounded. Palp large, dusky, with many bristles. Cheek narrow, slightly curved; oral bristles in dark line. Eye with dense pile. Orbital bristles in ratio 3:2:3, in line; anterior reclinate orbital slightly closer to proclinate than to posterior reclinate orbital. Ocellar, vertical and postvertical bristles very large.

*Thorax.* Mesonotum and scutellum chocolatey brownish, former with paler longitudinal band on each side of middle 4 rows of acrostichals, band extending from anterior margin posteriorly to level of anterior dorsocentral bristles, forked shortly behind anterior origin, lateral branch weaker. Small pale areas also present medially on humeral callus, and about supraalar bristles. Acrostichal hairs in 6 rows in front of dorsocentral bristles, 4 rows between dorsocentrals. Ratio anterior:posterior dorsocentrals 0.7. Pleura blackish brown. Anterior and posterior sternopleural bristles large but middle sternopleural much smaller, fine. Haltere pale tan. Legs dark tan, 1st and 3rd femora darker; preapical bristles present on 1st (weak) and 2nd tibiae; apical on 2nd tibia only.

*Wing.* Weak brownish tinge present. Anal vein strong. *C*-index, 2.4; *4V*-index, 1.5; *5X*-index, 1.6; *M*-index, 0.4. 3rd costal section with heavy setation on basal 0.7. Length, 3.6 mm.

*Abdomen.* Entirely subshining blackish. Tergites 4 and (especially) 5–6 with sparse large hairs on posterior borders.

#### *Special Comments*

This species is atypical of its subgenus in lacking a strong middle sternopleural bristle, and the propleural bristle is also absent. There are, however, other *Scaptodrosophila* species lacking these two characters. The typical prescutellars are present in *chocolata*, which seems best included in *Scaptodrosophila*. With its size, coloration and mesonotal pattern, the species is very distinctive and unlikely to be confused with any other.

#### ✓ 45. *Drosophila finnigana*, sp. nov.

*Type.* Holotype ♀: 15°50'S., 145°20'E., Gap Ck 5 km ESE. of Mt Finnigan, 13.v.1981 (at light), D. H. Colless.

*Distinguishing features.* Head and thorax tan. Abdominal tergites with extensive darkening. Anterior sternopleural bristle small and fine; prescutellars weak.

*Body length.* 2.4 mm.

*Head.* Arista rather large, with 4 rays above and 2 below plus terminal fork [basal ventral ray pathologically extended to over twice normal length on left side]. Frontal breadth equal to length; front tan, with paler periorbital bands slightly widening anteriorly and running to anterior margin of front. Ocellar triangle slightly elevated, with blackening immediately adjacent to ocelli. 2nd antennal segment tan. 3rd segment tan with faint duskiess anteriorly. Carina prominent, considerably more protuberant below, not very broad, margins rounded. Face pale tan. Palp dark tan, with a few large bristles. Cheek rather narrow, gently curved. Eye with some very short pile. Orbital bristles in ratio 2:1:2; anterior reclinate orbital lateral and barely posterior to proclinate orbital. Ocellar, vertical and postvertical bristles large.

*Thorax.* Mesonotum, scutellum and pleura dark tan. Acrostichal hairs in 8 rows in front of dorsocentral bristles, 4 decreasing to 2 rows between dorsocentrals. Prescutellars weak. Ratio anterior:posterior dorsocentrals 0.6. Anterior and middle sternopleural bristles subequal, short and fine; posterior sternopleural large. Haltere pale tan. Legs tan; preapical bristles on all tibiae (weak on 1st); apicals on 1st (weak) and 2nd.

*Wing.* Hyaline. Anal vein rudimentary. *C*-index, 2.1; 4*V*-index, 2.0; 5*X*-index, 1.6; *M*-index, 0.6. 3rd costal section with heavy setation on basal 0.5. Length, 2.0 mm.

*Abdomen.* Tergite 1 tan. Tergites 2–5 with extensive weak infuscation posteriorly (more pronounced on posterior tergites); incurved portions tan. Tergite 6 infuscated except medially on incurved portions. Tergites with sparse large bristles, longest ones apical.

*Female genitalia.* Egg guide strongly sclerotized, rather slender, rounded apically, with a few hairs.

#### *Special Comments*

There are few species in the subgenus *Scaptodrosophila* which do not possess three large sternopleural bristles (cf. preceding species), and in this respect the present species is atypical. It does, however, possess the usual (if small) prescutellar bristles, and the typical propleural bristle is also present and indeed rather large. There are thus few species with which *finnigana* is likely to be confused; *D. jackeyi* Bock has a smaller than usual anterior sternopleural, but the carina in this species is rudimentary; *D. eluta* also has a small anterior sternopleural, but the mesonotum of this species is patterned.

#### ✓ 46. *Drosophila merdae*, sp. nov.

*Types.* Holotype ♀: 15°17'S., 145°13'E., 1 km N. of Rounded Hill, 5–6.x.1980, human dung trap, open forest, T. Weir. Paratypes: same data as holotype, 8 ♀; Rounded Hill N., 5.x.1980 (malaise trap), 1 ♂.

*Distinguishing features.* Recline orbital bristles broadly flattened. Carina very weak. Mesonotum with greyish and brownish bloom. Abdomen pale dorsally, darkened laterally and apically.

*Body length.* 2.6 mm (holotype); 2.2–2.6 mm (paratype range).

*Head.* Arista with 4 rays above and 2–3 rays below plus terminal fork. Breadth of front 1.3×length; front shiny dark tan; periorbits with silvery bloom; ocellar triangle large, raised, darkened with superimposed silvery bloom. 2nd and 3rd antennal segments dusky tan. Carina very low, rounded. Face brown with superimposed bloom. Clypeal margin with median notch. Palp dusky, with a few large bristles. Cheek curved, rather broad. Vibrissa large. Proclinate orbital bristle normal, rather large. Anterior reclinate orbital well anterior to proclinate orbital. Recline orbitals greatly modified, flattened; anterior bristle truncated apically, anterior margin produced into point; posterior bristle narrowing apically to fine point. Ocellar bristles large, widely divergent. Postverticals displaced on to occiput.

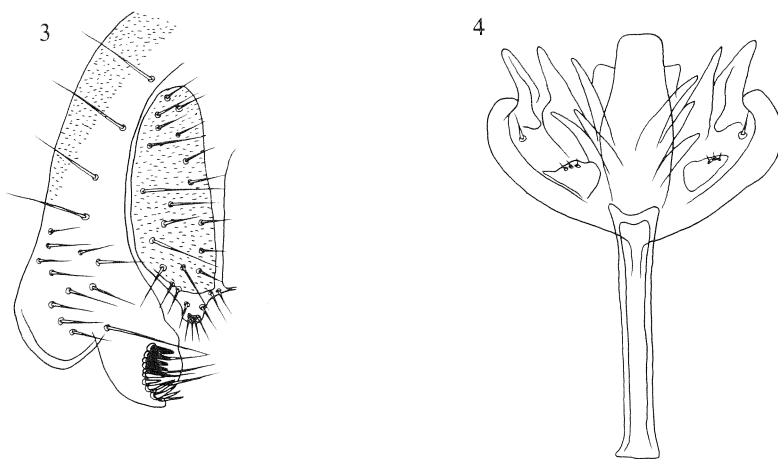
*Thorax.* Mesonotum with bluish grey bloom, brown about bases of bristles and hairs and in 2 narrow submedian longitudinal bands (most prominent centrally). Acrostichal hairs in 6–8 rows in front of dorsocentral bristles, 2–4 rows between dorsocentrals. Ratio anterior:posterior dorsocentrals 0.6. Scutellum dark tan with greyish bloom; anterior scutellar bristles divergent basally, but curved and thus convergent apically. Pleura dark brownish with bluish grey bloom. Mesopleuron with c. 4 small bristles. Haltere pale tan. Legs tan; tarsi with basal dark annuli; tibiae with weak, incomplete dark apical annuli; preapical bristles on all tibiae; apicals on 1st and 2nd tibiae.

*Wing.* Hyaline. Anal vein rudimentary. *C*-index, 2.0; 4*V*-index, 2.0; 5*X*-index, 2.2; *M*-index, 0.7. 3rd costal section with heavy setation on basal 0.45. Length (holotype), 2.1 mm.

*Abdomen.* Tergite 1 pale tan. Tergites 2–5 pale tan centrally, infuscated laterally and on incurved portions. Tergite 6 dusky.

*Male genitalia* (Figs 3, 4). Strongly sclerotized. Clasper with row of black teeth above and cluster of strong bristles below. Aedeagus swollen, with long basal apodeme. Parandrites large.

*Female genitalia.* Egg guide well developed, dark, strongly sclerotized, with slender apical process bearing 2 fine teeth.



**Figs 3,4.** *Drosophila merdae*, male: 3, external genitalia; 4, internal genitalia.

### *Special Comments*

The most distinctive feature of this species is its unusually flattened reclinate orbital bristles, which serve to distinguish it from all other members of its subgenus and indeed of the genus *Drosophila*. Such modified orbital bristles are not, however, totally unknown in the Drosophilidae, but are present in several of the steganine species with bare or micropubescent aristae. A couple of African species of the genus *Amiota* (*Erima*) with flattened orbitals have been described, and Wheeler and Takada (1964) described another such species from Micronesia as *Cacoxenus lepidothrix*. The latter species was shifted by subsequent authors into *Amiota* (*Erima*), apparently on the (unstated) assumption that the bizarre orbital bristles possessed by these species evolved only once. It is, however, clear that the species described above is a *Drosophila* (*Scaptodrosophila*); the arista is plumose, and the species agrees in the other diagnostic generic and subgeneric attributes. Flattened orbital bristles consequently appear to have been independently developed within several lineages in the Drosophilidae. Apart from these bristles, Wheeler and Takada's species is, in fact, a *Cacoxenus* and would be more appropriately returned to that genus.

*D. merdae* is further atypical in possessing a few mesopleural hairs; a bare mesopleuron is generally given as one of the diagnostic attributes of the Drosophilidae. Again, however, there are exceptions; *Mycodrosophila heterothrix* McEvey & Bock (described from Iron Range), for example, possesses a few such mesopleural hairs, and the south-east Asian *Zaprionus obscuricornis* (de Meijere) has a larger number.

✓ 47. *Drosophila valeana*, sp. nov.

*Type*. Holotype ♀: 15°16'S., 144°59'E., 14 km W. by N. of Hope Vale Mission, 8.v.1981, D. H. Colless.

*Distinguishing features*. Body brownish. Posterior reclinate orbital bristle much larger than proclinate orbital. C-index low. 3rd costal section with extensive fringe.

*Body length*. 2.1 mm.

*Head*. Arista large, with 4 straight rays above and 2 straight rays below plus large terminal fork. Breadth of front  $1.2 \times$  length; front dark tan; periorbits silvery; ocellar triangle slightly elevated, within larger silvery triangle. 2nd antennal segment dark tan; 3rd segment dark tan, slightly dusky. Carina very prominent, nose-like. Palp tan, with a few bristles. Cheek narrow, curved. Eye elongate-oval (greatest diameter vertical), with dense fine pile. Orbital bristles in ratio 3:2:6; anterior reclinate orbital lateral and slightly anterior to proclinate orbital. Ocellar, outer vertical and postvertical bristles large; inner vertical very large.

*Thorax*. Mesonotum, scutellum and haltere dark tan; pleura slightly darker. Acrostichal hairs in 8 rows in front of dorsocentral bristles, 6 rows between dorsocentrals. Prescutellar bristles large. Ratio anterior:posterior dorsocentrals 0.6. Legs tan; preapical bristles on all tibiae; apical on 2nd tibia only.

*Wing*. Hyaline. 2nd longitudinal vein straight. Anal vein absent. C-index, 1.7; 4V-index, 2.5; 5X-index, 2.4; M-index, 0.8. 3rd costal section with heavy setation on basal 0.85. Length, 1.6 mm.

*Abdomen*. Tan, gradually becoming slightly darker posteriorly.

*Female genitalia*. Egg guide broadly rounded, with small marginal teeth.

*Special Comments*

This species most closely resembles *D. bushi* Bock & Parsons, but differs most notably from the latter (and indeed from most other members of the genus) in its possession of an unusually small proclinate orbital bristle; it is also distinguished from *bushi* by its possession of dense pile on the eyes and in the structure of the egg guide.

✓ 48. *Drosophila xanthorrhoeae*, sp. nov.

*Types*. Holotype ♂: 15°14'S., 145°07'E., 7 km N. of Hope Vale Mission, 4.x.1980 (on blossoming blackboys, *Xanthorrhoea*), D. H. Colless. Paratype ♀: Rounded Hill N., 6.x.1980, on blossoming blackboys, *Xanthorrhoea*.

*Distinguishing features*. Mesonotum tan with pollinosity. Rays of arista short. Abdominal tergites with broad apical bands broadly interrupted in midline. Bristles and hairs yellowish.

*Body length*. 3.0 mm (holotype); 3.1 mm (paratype).

*Head*. Arista with 3–4 rays above and 2 rays below plus small terminal fork; all rays short and straight. Breadth of front  $0.9 \times$  length; front rufous tan, with numerous hairs; periorbits and ocellar triangle silvery. 2nd antennal segment concolorous with front; 3rd segment dusky tan. Carina very prominent, broad, rather nose-like. Palp concolorous with front. Cheek slightly curved, narrow, wider in posterior corner. Eye with dense pile. Orbital bristles in ratio 2:1:2, in line; anterior reclinate orbital a little closer to proclinate than to posterior reclinate orbital. Ocellar, vertical and postvertical bristles large.

*Thorax.* Mesonotum, scutellum and pleura dark tan with pollinosity. Acrostichal hairs in 8 irregular rows in front of dorsocentral bristles, 4 rows between dorsocentrals. Prescutellar bristles large. Ratio anterior:posterior dorsocentrals 0.5. Haltere tan. Legs dark tan; preapical bristles on all tibiae; apicals on 1st and 2nd tibiae.

*Wing.* Hyaline. Anal vein rudimentary. *C*-index, 2.6; *4V*-index, 1.6; *5X*-index, 1.0; *M*-index, 0.4. 3rd costal section with heavy setation on basal 0.75. Length (holotype), 2.5 mm.

*Abdomen.* Tergite 1 tan. Tergites 2–4 tan with apical black bands, broadly interrupted in midline, bands broader submedially and laterally, extending on to incurved portions of tergites and running forward to anterior margins of latter. Tergites 5–6 tan with submedian black spots; incurved portions also with black spots.

*Male genitalia.* Clasper with straight row of large densely packed black teeth. [Genitalia not dissected to show other features.]

*Female genitalia.* Egg guide broadly rounded, with a few hairs.

#### *Special Comments*

This species is one of a small number within *Scaptodrosophila* possessing interrupted bands on the abdominal tergites, but is easily distinguished from the others (several species in the *lativittata* complex) by its pollinosity and the unusually short rays of its arista. The latter appears to be a feature of drosophilids associated with flowers (cf. *D. hibisci* Bock) and is presumably an adaptation to movement in very confined spaces. Several species are known to breed in flowers and it would be interesting to pursue the biology of the present species further.

#### Genus *Hypselothyrea* de Meijere

##### 49. *Hypselothyrea lanigera* Duda

*Specimens examined.* Gap Ck (malaise trap), 1 ♂, 2 ♀.

#### Genus *Leucophenga* Mik

##### 50. *Leucophenga albofasciata* (Macquart)

*Specimens examined.* Annan R., 26.iv.1981, 1 ♀; Mt Webb, 2.v.1981 (at light), 1 ♂.

##### 51. *Leucophenga argentata* (de Meijere)

*Specimen examined.* Gap Ck, 1 ♀.

##### 52. *Leucophenga gibbosa* (de Meijere)

*Specimen examined.* Moses Ck, 1 ♀.

##### 53. *Leucophenga janicae* Bock

*Specimens examined.* Mt Webb N.P., 29.iv.1981, 2 ♂.

54. *Leucophenga quadripunctata* (de Meijere)

*Specimens examined.* Shiptons Flat, 19.x.1980, 1 ♀, 18.v.1981 (at light), 1 ♂.

55. *Leucophenga scutellata* Malloch

*Specimens examined.* Moses Ck, 1 ♂, 1 ♀; Mt Webb, 2.x.1980, 2 ♂; Mt Webb N.P., 29.ix.1980, 1 ♀; Hope Vale W., 2 ♀; Rounded Hill N., 7.x.1980 (south road side track), 1 ♂, 1 ♀; Station Ck, 1 ♂, 1 ♀; Shiptons Flat, 18.x.1980, 2 ♂.

56. *Leucophenga subpollinosa* (de Meijere)

*Specimen examined.* Mt Cook N.P.1 (at light), 1 ♂.

57. *Leucophenga tritaeniata* Duda

*Specimen examined.* Gap Ck (at light), 1 ♂.

58. *Leucophenga zebra* Bock

*Specimens examined.* Gap Ck, 2 ♀ [1 malaise trap].

59. *Leucophenga domanda*, sp. nov.

*Leucophenga* sp. B; Bock, 1979, p. 36.

*Type.* Holotype ♀: 15°30'S., 145°16'E., 1 km SE. of Mt Cook, 13.x.1980 [at light], D. H. Colless.

*Distinguishing features.* Wing with 4 dark spots. Scutellum apically white. Abdominal tergites black with anterior tan spots.

*Body length.* 3.5 mm.

*Head.* Arista with 6 rays above and 2–3 rays below plus terminal fork. Front 0.3 × breadth of head, tan; periorbits paler. Ocellar triangle with blackening immediately adjacent to ocelli. 2nd antennal segment tan; 3rd segment slightly dusky. Palp tan, very slightly dusky, with prominent ventral subapical bristle. Cheek slightly curved, very narrow. Proclinate and anterior reclinate orbital bristles equal and close together, c. 0.7 length of posterior reclinate orbital, latter largest bristle on head. Ocellar and vertical bristles large; postverticals rather slender but well developed.

*Thorax.* Mesonotum tan to mid-brownish, slightly darker posteriorly. Acrostichal hairs rather irregular, in c. 12–14 rows in front of dorsocentral bristles, 8–10 rows between dorso-centrals. Ratio anterior:posterior dorsocentrals 0.4. Scutellum darker than mesonotum, with clearly demarcated pale apical crescent. Pleura pale, slightly darker above. Haltere pale tan. Legs tan; mid- and hind-knees slightly darkened. Prepical bristles on all tibiae (weak on 1st and 3rd); apical bristles on 1st (weak) and 2nd tibiae.

*Wing.* Hyaline with 4 dark spots: basally, at apex of 2nd longitudinal vein, and about crossveins (figured in Bock 1979). *C*-index, 1.35; *4V*-index, 2.0; *5X*-index, 0.9; *M*-index, 0.5. 3rd costal section with heavy setation on basal 0.8. Length, 3.0 mm.

*Abdomen.* Tergite 1 pale tan. Tergite 2 black posteriorly, with tan anterior band indented in midline to posterior margin of tergite and expanding laterally into spots; incurved portion

of tergite tan medially, black laterally. Tergite 3 black with 2 pairs of small anterior (submedian and lateral) spots; incurved portion black with large tan spot. Tergite 4 black with large anterior submedian tan spots and smaller lateral tan spots; incurved portion black with tan spot. Tergite 5 black with anterior submedian tan spots and very small lateral tan spots; incurved portion black with large tan spots. Tergite 6 tan with small median black spot; incurved portion black.

### *Special Comments*

As noted previously (Bock 1979), this species was misidentified as *quadripunctata* by Duda (1924). The specimen for which Duda gave a wing photograph was probably from south-east Asia or New Guinea; that is to say, the species described above is more widespread than north-eastern Australia (the two specimens noted by Bock (1979) were collected in central Queensland and New South Wales). Several species of *Leucophenga* are known which, like the present species, possess patterned wings and lack sexual dimorphism. The following species probably also falls into this category (sexual dimorphism cannot be checked as the female only is known).

### 60. *Leucophenga lynettae*, sp. nov.

*Leucophenga* sp. C: Bock, 1979, p. 37.

*Type*. Holotype ♀: Moses Ck, 4 km N. by E. of Mt Finnigan, 13.x.1980 (at light), D. H. Colless.

*Distinguishing features*. Wing with 4 dark spots and weak 5th spot. Scutellum apically white. Abdominal tergites black with large tan spots.

*Body length*. 3.0 mm.

*Head*. Arista with 6 rays above and 2 rays below plus small terminal fork. Front 0.35× breadth of head, pale tan; ocellar triangle with blackening immediately adjacent to ocelli only. 2nd antennal segment pale tan; 3rd segment pale tan with slight duskiness. Palp dusky, with prominent subapical bristle. Cheek slightly curved, very narrow. Proclinate and anterior reclinate orbital bristles subequal; posterior reclinate orbital almost twice as long; orbital bristles in line, anterior reclinate somewhat closer to proclinate than to posterior reclinate bristle. Ocellar and vertical bristles well developed but somewhat smaller than (very large) posterior reclinate orbital; postvertical bristles well developed.

*Thorax*. Mesonotum dark tan. Acrostichal hairs in *c.* 10 rows in front of dorsocentral bristles, 6 rows between dorsocentrals. Ratio anterior:posterior dorsocentrals 0.5. Scutellum slightly darker than mesonotum, with apical white band and trace of darkening near bases of anterior scutellar bristles. Pleura pale tan. Legs tan; preapical bristles on all tibiae (weak on 1st and 3rd tibiae); apical bristles on 1st (weak) and 2nd tibiae.

*Wing*. Clear with 4 dark spots similar to those of preceding species, but spot about posterior crossvein extending along last section of 5th longitudinal vein; weak 5th spot present at end of 2nd longitudinal vein. *C*-index, 1.2; 4*V*-index, 1.9; 5*X*-index, 0.9; *M*-index, 0.5. 3rd costal section with heavy setation on basal 0.8. Length, 2.6 mm.

*Abdomen*. Tergite 1 very pale tan. Tergite 2 black posteriorly, pale tan anteriorly; incurved portion tan medially, dark laterally. Tergite 3 black with traces of anterior submedian pale areas; incurved portion tan medially, black laterally with tiny pale spot. Tergites 4–5 black with large submedian tan spots; incurved portion of each tergite black with pale lateral spot. Tergite 6 black with submedian anterior tan spots; incurved portion black.



*Special Comments*

A single specimen of this species is already known from Iron Range (Bock 1979). Both specimens now known are females, but since sexual dimorphism is absent in the other patterned-wing species to which *lynettae* appears most closely related, it is highly likely that the male of this species is distinguished from the female only by differences in genitalia. *L. lynettae* is quite similar to *L. domanda* described above, but the wing pattern of the former species is more extensive, there are noticeably fewer acrostichal hairs in *lynettae*, the apical whitening on the scutellum is crescentic in *domanda* but straight in *lynettae*, and the pattern on the abdominal tergites differs somewhat between the two species. Both species are included in Bock's (1979) key to Australian species of *Leucophenga* (as 'sp. B' and 'sp. C').

The two species recorded below are each represented by a single female [Gap Ck (at light)]. Both species are members of the group in which female palps are hypertrophied to the extent that they cannot be withdrawn into the subcranial cavity when the proboscis is retracted. In some of the species of this group there is no other sexual dimorphism, while in others a strong abdominal pattern dimorphism is also present. The specimens recorded below cannot be identified to known species, but since the male in each case is not available, it is preferable to postpone further consideration of them.

61. *Leucophenga* sp. X

Body rather large, entirely pale brown except for 3 large black spots on abdominal tergite 4. Palp black. Wing hyaline. The species to some extent resembles *L. bellula* (Bergroth), but is larger and possesses a less extensive abdominal pattern; the palp of *bellula* is also tan.

62. *Leucophenga* sp. Y

Similar to preceding species but abdomen almost entirely black. (Body otherwise tan; palp black; wing hyaline.)

Genus *Liodrosophila* DudaJ 63. *Liodrosophila moyae* Bock

*Specimen examined.* Shiptons Flat, 18.x.1981 (malaise trap), 1 ♀.

Genus *Lissocephala* MallochJ 64. *Lissocephala metallescens* (de Meijere)

*Specimens examined.* Moses Ck, 2 ♂ [1 at light, 1 malaise trap]; Mt Webb, 30.iv.1981, 1 ♂, 2.v.1981 (at light), 1 ♂; Hope Vale W., 1 ♂, 1 ♀; Mt Cook N.P.1 (malaise trap), 1 ♂; Mt Cook N.P.2 (malaise trap), 1 ♀; Shiptons Flat, 19.x.1980, 4 ♂, 3 ♀.

Genus *Luzonimyia* MallochJ 65. *Luzonimyia cineracea* Bock

*Specimens examined.* Mt Webb, 2.v.1981 (at light), 13 ♂, 12 ♀; Mt Baird (light trap), 1 ♂; Hope Vale

N., 1 ♂; Hope Vale W. (at light), 1 ♂; Rounded Hill N., 6.x.1980 (at light), 6 ♂, 1 ♀; Cooktown (at light), 2 ♂; Mt Cook N.P.1 (at light), 1 ♀; Mt Cook N.P.2 (at light), 4 ♂, 2 ♀.

### Genus *Microdrosophila* Malloch

#### ✓ 66. *Microdrosophila discrepantia* Bock

*Specimens examined.* Moses Ck (malaise trap), 1 ?; Mt Webb, 2.x.1980 (malaise trap), 1 ♀; Mt Webb N.P., 29.iv.1981, 2 ♂; Hope Vale W., 1 ♂, 1 ♀ [latter malaise trap]; Rounded Hill N. (south road side track), 7.x.1980, 1 ♂; Mt Cook N.P.2 (malaise trap), 2 ♀; Shiptons Flat, 18.x.1980, 6 ♂, 12 ♀ [1 ♂, 4 ♀ malaise trap], 17-18.v.1981, 1 ♂, 4 ♀.

#### 67. *Microdrosophila hasta* Bock

*Specimens examined.* Gap Ck (malaise trap), 6 ♀.

#### ✓ 68. *Microdrosophila ochracella* Wheeler & Takada

*Specimen examined.* Hope Vale W. (malaise trap), 1 ♂.

#### ✓ 69. *Microdrosophila pleurolineata* Wheeler & Takada

*Specimens examined.* Moses Ck, 2 ♂ [1 at light, 1 malaise trap].

#### ✓ 70. *Microdrosophila residua* Bock

*Specimens examined.* Gap Ck (malaise trap), 2 ♂.

#### ✓ 71. *Microdrosophila takadai* Bock

*Specimens examined.* Moses Ck (malaise trap), 3 ♂, 1 ♀; Shiptons Flat, 17.iv.1981 (malaise trap), 1 ♀; Gap Ck (malaise trap), 3 ♂, 1 ♀.

### Genus *Mycodrosophila* Oldenberg

#### ✓ 72. *Mycodrosophila aqua* Bock

*Specimen examined.* Mt Baird (malaise trap), 1 ♂.

### Genus *Nesiodrosophila* Wheeler & Takada

#### ✓ 73. *Nesiodrosophila lindae* Wheeler & Takada

*Specimen examined.* Gap Ck (malaise trap), 1 ♂.

#### ✓ 74. *Nesiodrosophila mosana*, sp. nov.

*Type.* Holotype ♂: Moses Ck, 4 km N. by E. of Mt Finnigan, 14.x.1980 (at light), D.H. Colless.

*Distinguishing features.* Small species. Greatest diameter of eye horizontal. Wing with some darkening.

*Body length.* 1.9 mm.

*Head.* Arista with 3–4 rays above and 2 rays below plus terminal fork. Breadth of front  $0.8 \times$  length; front pale tan and hirsute anteriorly, darker and bare posteriorly. Ocellar triangle blackened within. 2nd antennal segment pale tan; 3rd segment large, dusky except for small anterior area at base. Carina knife-like, very well developed. Palp pale tan, with moderately large apical and a few smaller bristles. Cheek very broad, pale tan. Vibrissa very slender; cheek with few other weak bristles. Eye elongate-oval, greatest diameter horizontal, with sparse pile. Orbital bristles in line and about equidistant, subequal. Ocellar, vertical and postvertical bristles well developed; ocellars at periphery of ocellar triangle.

*Thorax.* Mesonotum mid-brownish, a little darker laterally. Acrostichal hairs in 2 weak rows extending to scutellar margin plus a few extra lateral hairs anteriorly. Ratio anterior : posterior dorsocentrals 0.7. Scutellum concolorous with mesonotum; anterior scutellar bristles weak. Mesonotal coloration extending on to upper part of pleura, darkening in longitudinal line, abruptly changing to pale tan below. Anterior sternopleural bristle small and fine; posterior bristle large; middle bristle absent; sternopleuron with 1–2 other fine hairs. Haltere concolorous with mesonotum. Legs pale tan; preapical bristle on 3rd tibia only; apical bristle on 2nd tibia only.

*Wing.* Largely hyaline, darkened apically in anterior half beyond 2nd longitudinal vein. Anal vein developed. *C*-index, 1.2; *4V*-index, 1.8; *5X*-index, 2.2; *M*-index, 0.6. 3rd costal section with heavy setation on basal 0.4. Length, 1.7 mm.

*Abdomen.* Mid-brownish, a little darker apically. Incurved portions of tergites pale tan medially abruptly changing to dark brown in middle region, then becoming paler laterally.

#### *Special Comments*

This species rather resembles *N. macalpinei* Bock (known from New South Wales and Tasmania) in possessing a strong knife-like carina, an eye with greatest diameter horizontal and wings with some darkening; the two species are presumably closely related. The present species is a 'good' member of the genus in all respects except that the ocellar bristles are situated at the periphery of (rather than clearly outside) the ocellar triangle. For this reason the species does not key unequivocally to *Nesiodrosophila* in the key to genera provided by Bock (1982), but there seems little doubt that it is best included in this genus. A future key to genera should be modified to permit its inclusion.

#### Genus *Paramycodrosophila* Duda

##### 75. *Paramycodrosophila acumina* Bock

*Specimen examined.* Gap Ck, 1 ♀.

##### 76. *Paramycodrosophila pictula* (de Meijere)

*Specimen examined.* Shiptons Flat, 17.v.1981 (malaise trap), 1 ♀.

### Genus *Phorticella* Duda

#### ↳ 77. *Phorticella bistriata* (de Meijere)

*Drosophila bistriata* de Meijere, 1911, p. 397. (Holotype in Amsterdam; type locality Java.)

*Distinguishing features.* Eye large; cheek very narrow. 2nd antennal segments white. Carina weak.

*Specimens examined.* Mt Webb, 2.v.1981 (at light), 1 ♂; Cooktown, 1 ♂, 4 ♀ [malaise trap except 1 ♀]; Mt Cook N.P.1 (malaise trap), 1 ♀; Shiptons Flat, 18.v.1981 (malaise trap), 1 ?

#### *Special Comments*

*Phorticella* is a small genus of distinctive flies distinguished principally by the possession of two white longitudinal stripes on a dark mesonotum; the stripes are continued anteriorly as periorbital bands and produced posteriorly on to the scutellum, the tip of which is also more or less white. Only nine species are known, from Asia, south-east Asia and Australia (but it seems certain, given these distributions, that the genus remains to be detected in New Guinea). Only one other Australian species is known, i.e. *P. albostriata* (Malloch). The present species is known from Java, Sumatra and Taiwan (Wheeler 1981) and is a new Australian record. It differs from *albostriata* in possessing an appreciably narrower cheek and a smaller carina (the carina is low, rather narrow and smoothly rounded in *bistriata*, quite prominent, appreciably broadened below and somewhat flat in *albostriata*); the whitening on the face, second antennal segment and scutellar apex is also much more pronounced in *bistriata*, and there are some differences in the male genitalia.

### Genus *Sphaerogastrella* Duda

#### ↳ 78. *Sphaerogastrella javana* (de Meijere)

*Specimens examined.* Mt Webb N.P., 28.x.1980 (malaise trap), 3 ♂, 1 ♀, 29.iv.1981, 6 ♂, 5 ♀; Mt Cook N.P.1 (malaise trap), 2 ♀, 1 ?; Shiptons Flat, 18.x.1980 (malaise trap), 1 ♀; Gap Ck, 1 ♂, 2 ♀.

### Genus *Stegana* Meigen

#### ↳ 79. *Stegana claudana* Bock

*Specimens examined.* Station Ck, 1 ♂; Mt Webb N.P., 29.ix.1980, 1 ? ♂, 28.iv.1981 (malaise trap), 1 ♂.

### Genus *Zaprionus* Coquillett

#### ↳ 80. *Zaprionus argentostratus* (Bock)

*Specimens examined.* Shiptons Flat, 18.v.1981 [collector C. Roberts], 1 ♂, 1 ♀; Shiptons Flat, 18.v.81 (at light), 1 ♂.

### Discussion

The rainforests of the Cooktown area clearly harbour a substantial and diverse drosophilid fauna. Eighty species in 20 genera were recovered in the collections reported above, including 11 new species and two new Australian records. Indeed it is likely that more species occur in this area than were detected in the present surveys; very few *Mycodrosophila*

and *Hirtodrosophila* were collected, and if fungi are abundant, at least at some times of the year, appreciable faunas of these groups are very probably also present.

The Cooktown collections confirm both the richness of the north Queensland fauna in comparison with that of southern Australia, and the dominance within the Australian fauna of the subgenus *Scaptodrosophila*; the only drosophilid group to have speciated significantly in the south has clearly also speciated abundantly in the north.

The total number of described Australian Drosophilidae is brought to 247 by the new species and records reported in this paper.

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