

**Drosophilidae (Insecta : Diptera)  
of Three Torres Strait Islands,  
with Description of a New  
Species of *Drosophila***

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*Abstract*

Drosophilidae were collected from three Torres Strait islands: Thursday, Moa and Mount Adolphus. A total of 17 species of the six genera *Drosophila*, *Mycodrosophila*, *Lissocephala*, *Sphaerogastrella*, *Microdrosophila* and *Leucophenga* were collected, the largest island having the most diverse fauna. The new Torres Strait records given here extend the known distributions of several Australian species and link the ranges of other species found in Australia with south-east Asian records. A new species of the subgenus *Scaptodrosophila*, *Drosophila moana*, is described. An unidentified taxon of the south-east Asian *nasuta* subgroup, possessing entire frontal pollinosity, is also recorded.

**Introduction**

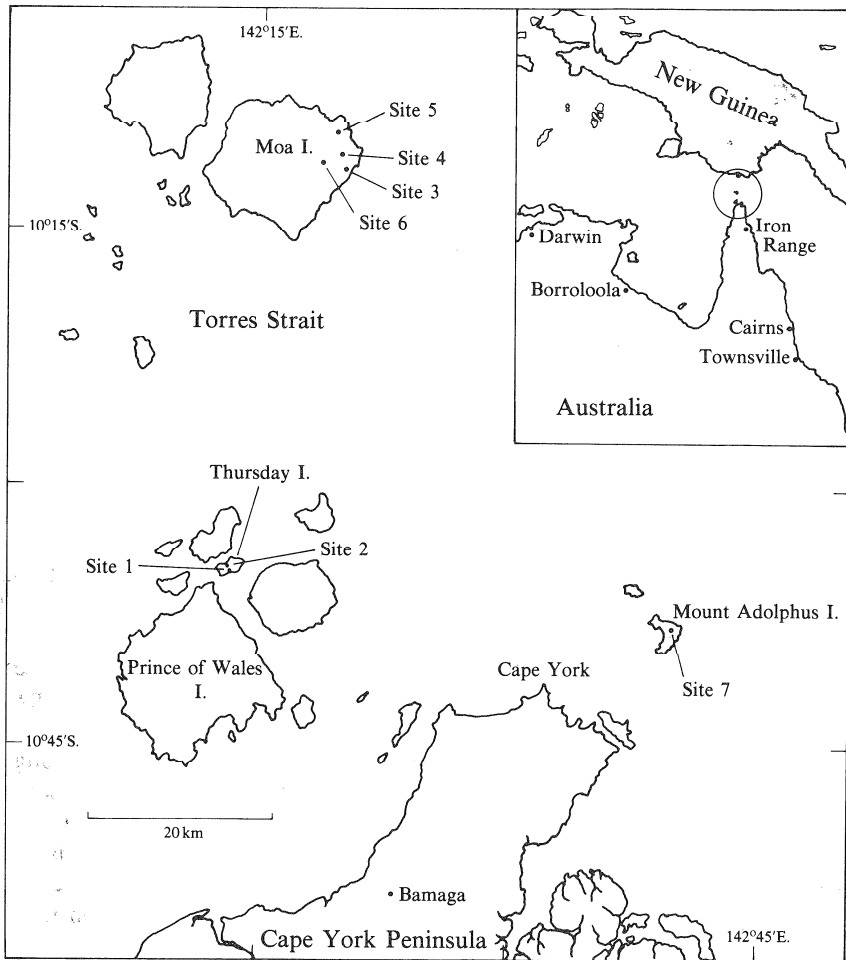
The drosophilid fauna of Australia is now rather well known, at least with respect to the largest genera (*Drosophila*, *Leucophenga* and *Mycodrosophila*) (Bock 1976, 1979, 1980), although few collections to date have been made in the rainforest localities of Cape York Peninsula which are not easily accessible. New Guinea is also known to harbour a very substantial drosophilid fauna, although the latter has also been little studied.

South-east Asian and New Guinean elements are clearly evident amongst the drosophilid fauna of Australia, and it appears certain that a large proportion of Australia's drosophilid fauna has originated by way of successive immigrations from the north. The fauna of the islands of Torres Strait is therefore of potential interest with respect to the biogeography of the Australian fauna, and the collections, the results of which are reported below, were made with this consideration in mind.

**Collecting Methods and Site Ecologies**

Torres Strait separates the Australian and New Guinean mainlands. It is everywhere shallower than 18 m and it is estimated from global glacio-eustatic curves that the land between the young New Guinea orogenic island and the old Australian continent flooded several times after the Tertiary, and that the last inundation occurred about 6500-8000 years ago. Islands are numerous; many, including Moa, Thursday and Mount Adolphus, are 'high' continental islands, eroded remnants of Carboniferous Torres Strait volcanics (Jennings 1972). Moa I. is the highest (highest point 374 m) and one of the largest (170 km<sup>2</sup>); it lies 90 km south of New Guinea and consists of a large basin draining westwards

away from a belt of granite mountains in the north-east corner and from hills of volcanic tuffs in the south and south-east. Mount Adolphus and Thursday Is have peaks of 178 m and 104 m respectively, but they cover much smaller areas (6 km<sup>2</sup> and 3 km<sup>2</sup>) and are closer to Cape York (see Fig. 1). Thursday I. is densely populated (about 3000 people) while Moa is sparsely populated and Mount Adolphus uninhabited. Thursday Island is predominantly urbanized; bio-



**Fig. 1.** Map of Torres Strait showing the three islands visited by the author and the location of the seven sampling sites. Circled area enlarged.

geographical or island-area related questions are further complicated there by its position amidst many larger islands. Superficially the Thursday I. archipelago appears to be separate from the Moa and Mount Adolphus island groups. However, there are many smaller 'linking' islands (probably possessing adequate habitats for transient or vagrant drosophilids) no two of which are more than 17 km apart; the degree of geographical isolation of drosophilid populations on any one of the three islands is therefore minimal.

Drosophilidae were sampled from seven sites on these islands; the locations are shown in Fig. 1 and descriptions given below. Although flies were collected in widely differing habitats, species of Drosophilidae were found only in places with relatively high humidity – in rainforests or in microhabitats near built-up areas.

*Site 1.* Thursday I. backyard. 11.xii.1979; 15, 18, 20.i.1980; 8.ii.1980. This site was the most urbanized of all. Fig, mango and other fruiting trees were abundant; swarms of the cosmopolitan species *Drosophila melanogaster* and *D. ananassae* could be attracted quickly to fermenting fruit baits.

*Site 2.* Green Hill 'rainforest', Thursday I. 20.i.1980. A small pocket of dense vegetation on the hill behind the main township; humidity was higher here than in surrounding open sclerophyllous woodlands. Its structure and composition were not entirely natural, apparently largely a consequence of human activity nearby.

*Site 3.* St Paul's Mission, Moa (= Banks) I. 23, 26–30.i.1980; 2, 3, 6.ii.1980. The mission is on the beach; protective or dense vegetation was scarce and the niches available for drosophilids were thus limited to humid places near buildings, rubbish bins and compost heaps.

*Site 4.* 'Mango Tree Creek', Moa I. 24, 27.i.1980; 3.ii.1980. A number of large mango trees in gallery rain forest, along a creek just north of St Paul's Mission village, had littered the forest floor with hundreds of rotting fruits; thousands of *Drosophila* utilized this resource. Specimens were collected at this site by sweeping or direct aspiration.

*Site 5.* 'Turkey Mounds' rainforest, Moa I. 26.i.1980; 1, 3.ii.1980. The high mountains of the north-east corner of the island rise steeply from a narrow lowland and a coastal belt of mangroves. Several creeks wind through the area; gallery rainforests [semi-deciduous notophyll vine forests (Webb 1968)] follow these from the densely vegetated mountains through a more open melaleuca and eucalypt woodland to the mangroves which are fringed by further rainforests. Site 5 was in this lowland area amongst the gallery rainforests.

*Site 6.* 'Aristolochia Creek Ford', Moa I. 4.ii.1980. This luxuriant site was a semi-deciduous notophyll vine forest including *Aristolochia* vines. The undergrowth was thick near the interface with the adjacent open forests; on the very wet ground fungi and rotting native fruits were plentiful. Site 6 rainforest was the southernmost extension of the large rainforest which covered the mountains of the north-east corner.

*Site 7.* Rainforest, Mount Adolphus I. 27, 28.xii.1979; 4, 6.i.1980. Mount Adolphus cradles a small (c. 0.2 km<sup>2</sup>) deciduous vine thicket sheltering it from the strong south-east trade winds which blow almost continually from June to November. There is clear evidence of wind shearing on the eastern side of the island and where the sheltered forest rises above the protective ridge. Strangling figs and stout lianes were present and before artificial fruit baiting began it was possible to sweep large numbers of *Drosophila* from rotting native fruit.

The family Drosophilidae is a diverse group of flies which utilize a range of food resources; collecting them efficiently in natural habitats therefore requires application of a range of techniques. The following four methods which have previously been shown to be successful were used: (1) fruit baiting, with either naturally fermented mangoes or native fruit or with artificially yeasted baby-food peaches; (2) sweeping through undergrowth or above rotting leaf litter with a hand-held net; (3) direct aspiration from fleshy fungi or rotted mushroom bait; (4) direct aspiration from flowers.

### Individual Species

All *Drosophila*, *Mycodrosophila* and *Leucophenga* species mentioned in this paper have been described or revised in Bock (1976, 1979, 1980) with the exception of the *nasuta* subgroup species (see Wilson *et al.* 1969) and the new species described below as *D. moana*. The description is in the form used previously for Australian *Drosophila* species (Bock 1976). The other three genera recorded here (*Lissocephala*, *Sphaerogastrella* and *Microdrosophila*) are represented in the Old World tropics including New Guinea (Okada 1970) and have only recently been noticed in the Australian fauna (Bock 1976, 1977a, personal communication). All specimens have been lodged in the Australian National Insect Collection (ANIC) and the collections of the Australian Museum (AM) and the National Museum of Victoria. Live specimens of *D. melanogaster* from Thursday Island were used to establish a culture in the Department of Genetics and Human Variation, La Trobe University.

### Genus *Drosophila* Fallén

*Drosophila* Fallén, 1823, p. 4.

#### Subgenus *Drosophila*

- 1, 2. *Drosophila sulfurigaster sulfurigaster* (Duda) and undetermined sibling species

*Spinulophila sulfurigaster* Duda, 1923, p. 48.

*D. sulfurigaster* is the most widespread member of the *nasuta* subgroup of the *immigrans* species-group; the latter is a large group of species centred in south-east Asia (Wilson *et al.* 1969). *D. sulfurigaster* is the only species in which subspecies have been recognized: *D. s. bilimbata* Bezzi extends from Fiji through Palmyra and Hawaii to Guam; *D. s. albostrigata* Wheeler occurs in south-east Asia in Borneo, continental Malaysia, Thailand and eastwards to the Philippinc Is; and *D. s. sulfurigaster* is known from New Guinea, New Ireland and northern Queensland (Wilson *et al.* 1969).

A principal diagnostic feature of the *nasuta* subgroup is that males of all but one species have distinctive silvery or pollinose patterning on the frons. *D. sulfurigaster* together with *D. pulaua* Wheeler and *D. nixifrons* Tan, Hsu & Sheng are distinguished in the subgroup by having pollinose bands only along the frontal orbits. In *D. sulfurigaster* these bands are pronounced, and in *D. pulaua* (known from Sarawak, Malaysia) they are faint. It has not been determined satisfactorily whether the marking is strong or faint in *D. nixifrons*, a species known only from a locality in China 1300 km inland. In contrast, males of *D. kohkoa* Wheeler (widespread in south-east Asia), *D. albomicans* Duda (Taiwan; Thailand) and *D. kepulauan* Wheeler (Borneo; Philippines) have pollinosity over the entire frons.

Wilson *et al.* (1969) found that small isolated island populations of the South Pacific were monospecific with respect to the *nasuta* subgroup, but at several other places they found two, and sometimes three, of these phylogenically very close species sympatrically. They further found a curious regularity in the identity of species sharing the 'same' niche. *D. kohkoa* was always found sympatrically with *D. s. albostrigata*; in addition *D. albomicans* was also present in Thailand and *D. kepulauan* was present in Borneo. Thus, in the poorly worked regions of Cape

York Peninsula and Torres Strait, not to mention New Guinea, it would not be surprising to find one of the *sulphurigaster* subspecies (the nominate subspecies) living sympatrically with at least one other member of the *nasuta* subgroup. Indeed this appears to be the case. Two taxa are represented in the Torres Strait material, differing in the pattern of their frontal pollinosity. Of 18 males, nine [site 4 (eight), and site 7 (one)] have orbital pollinosity only and are undoubtedly *D. s. sulphurigaster*, while the remainder [site 4 (five), site 6 (two), and site 7 (two)] have silvery markings distinctly covering the entire frons and thus approach the pattern found in *kohkoa*, *albomicans* and *kepuluwana*. At Iron Range, Cape York Peninsula, 300 km south, a similar mixture coexists (specimens in La Trobe University collection), but still further south at Cairns only *D. s. sulphurigaster* has been recorded. It is thus evident that two *nasuta* subgroup forms are sympatric in Torres Strait and on Cape York Peninsula. It should be noted that seven of the eight species of the subgroup have very similar if not identical male genitalia, and the male genitalia of the Torres Strait forms are virtually identical. A specific determination of the unidentified form must therefore await the collection of live specimens and their crossing with those other members of the subgroup possessing the entire frontal pollinosity.

#### Subgenus *Sophophora* Sturtevant

*Sophophora* Sturtevant, 1939, p. 137.

#### 3. *Drosophila melanogaster* Meigen

*Drosophila melanogaster* Meigen, 1830, p. 85.

This is a cosmopolitan species often abundant in cities. It occurs throughout eastern, southern and south-western Australia and has recently been found in New Guinea (Bock, personal communication). The numbers of *melanogaster* found at all seven collecting sites differed markedly but, not unexpectedly, appear to vary in proportion with the site's proximity to areas inhabited by humans. A comparison of the numbers of *D. melanogaster* (an urban species) and *D. ananassae*, also a cosmopolitan species, collected in rainforests and in built-up areas highlights the difference in their habitat preferences. The numbers of males collected at these sites are five in rainforests (sites 4 and 7) to 117 in built-up areas for *melanogaster*, and 149 in rainforests (sites 2 and 4-7) to 49 in built-up areas for *ananassae*. In a paper on the geographical distribution of *Drosophila* species of eastern Queensland by Mather (1955), *D. ananassae* was recorded as 'Thursday Is., 26.vii.1953, ... garden'. Interestingly there is no mention of *melanogaster* having been found there, although it was collected in large numbers (site 1, 105 ♂) during both dry (mid-December) and wet (early February) periods of the year in the present survey.

#### 4. *Drosophila ananassae* Doleschall

*Drosophila ananassae* Doleschall, 1858, p. 128.

*D. ananassae* is a cosmopolitan species common in rainforests of south-east Asia, the islands of the western Pacific and New Guinea. In other parts of the world it is associated with areas inhabited by humans. In Australia its range is restricted to Queensland, where it is found in urban areas from Rockhampton north. The

species has been collected in large numbers over compost heaps in suburban Townsville (Bock 1977a), yet despite extensive fruit baiting and sweeping in rainforests from near Townsville to Mossman, there are no further records (Bock and Parsons 1978a, 1979). However, in rainforest habitats closer to New Guinea it becomes abundant. At Iron Range it is the most common species attracted to fruit bait (Bock and Parsons 1978a) and at Bamaga, during a very dry period, it was one of only three *Drosophila* species recorded (Bock, personal communication). *D. ananassae* has previously been recorded from Torres Strait (Mather 1955). In this survey it was again found on Thursday I. and also at all other sampling sites on Moa and Mount Adolphus Is. With few exceptions all specimens were collected at either natural or artificially fermenting fruit baits. The species was by far the most common drosophilid in the Mount Adolphus rainforest (site 7) and along 'Mango Tree Creek', Moa I. (site 4).

#### √ 5. *Drosophila serrata* Malloch

*Drosophila serrata* Malloch, 1927, p. 6.

*D. serrata* is widely distributed in eastern Australia from Sydney northwards. It also occurs in north-western Australia, New Guinea and Christmas I. (Bock 1976). Nine male specimens were taken over fruit baits in rainforests on Mount Adolphus I. several days after the first rains of the wet season. Later, several more were taken on Thursday I. (site 2), but despite extensive fruit baiting and sweeping on Moa, none was found there. *D. birchii* Dobzhansky & Mather, a sibling species of *serrata* commonly sympatric with it further south in Australia and in New Guinea, was noticeably absent.

#### √ 6. *Drosophila pseudoananassae* Bock

*Drosophila (Sophophora) pseudoananassae* Bock, 1971, p. 274.

*D. pseudoananassae* is a rainforest species ranging from India through south-east Asia and New Guinea to northern Queensland. In New Guinea it is one of the commonest species but in Australia it is attracted to fruit baits usually in small numbers; it has been recorded in rainforests at Bartle Frere, Atherton Tableland, Mossman and Iron Range (Okada 1977; Bock 1976; Bock and Parsons 1978a). The species is also known from Bamaga. In Torres Strait it was found in relatively low numbers at two rainforest sites [site 4 (one) and site 6 (two)] on Moa I., and in slightly greater abundance (10 specimens) at site 7 on Mount Adolphus. None was found on Thursday I. but the sample was small (26 drosophilids) in the rainforest (site 2) where *ananassae* and *serrata* were found.

#### √ 7. *Drosophila ironensis* Bock & Parsons

*Drosophila (Sophophora) ironensis* Bock and Parsons, 1978a, p. 102.

Iron Range is the type locality of this species but it has also been found at two other basaltic sites, Mossman Gorge and Lake Eacham (Bock and Parsons 1978a), and is also known to occur in New Guinea. Only one female was found in this survey. It was collected at fermenting fruit bait in very wet rainforest at site 6, Moa I.

Subgenus **Scaptodrosophila** Duda

*Scaptodrosophila* Duda, 1923, p. 37 (as genus).

✓ 8. ***Drosophila concolor*** Bock

*Drosophila (Scaptodrosophila) concolor* Bock, 1976, p. 60.

*D. concolor* is the northernmost representative of the *barkeri* group of eight species, the seven others being known from localities mostly in south-eastern Australia where the group probably evolved (Bock and Parsons 1978*b*). Apart from the holotype from Claudie River (Iron Range), only four other specimens of *concolor* have been formally recorded. The latter were swept near Kuranda and near Gordonvale (Bock 1976), collected at a compost heap in suburban Townsville (Bock 1977*a*), and swept at a rainforest locality in northern New South Wales (Bock and Parsons 1979). In this survey a further 19 specimens were collected on Moa and Mount Adolphus Is, thus extending the known range of the *barkeri* species-group northwards by some 300 km. It also now seems quite likely that *concolor* will eventually be found in New Guinea. Interestingly, this is the only member of the species-group to have been collected at a fruit bait; a definite attraction to fermenting fruit in *concolor* has been demonstrated in this survey, 17 of the 19 specimens having been taken at such baits [site 4 (five) and site 7 (twelve)]. (The remaining two were taken near site 3.)

✓ 9. ***Drosophila bryani*** Malloch

*Drosophila bryani* Malloch, 1934, p. 310.

*D. bryani* is one of the more widespread species of the subgenus; its distribution is Samoa, Australia and south-east Asia (Bock 1976). During the present survey it was collected on Mount Adolphus, Moa and Thursday Is. On the Australian mainland it has been recorded from several localities in the Northern Territory, and in Queensland from Iron Range to the Glasshouse Mountains [Bock 1976; Bock and Parsons 1978*a*, 1979; Mather 1955 (as '*levis*')]. Nine specimens were collected in Torres Strait, eight at fruit baits mainly in areas away from human habitations [site 2 (one) and site 7 (seven)], although Bock (1977*a*) found the species to be common at refuse heaps in Townsville and rare in north Queensland rainforest.

✓ 10. ***Drosophila glauca*** Bock

*Drosophila (Scaptodrosophila) glauca* Bock, 1976, p. 88.

*D. glauca* is now known to occur near Cairns, at Iron Range, and at the Glasshouse Mountains (Bock 1976; specimens in La Trobe University collection). A single specimen was found at Mount Adolphus I. during this survey. The species is thus widely distributed in eastern Queensland and Torres Strait.

✓ 11. ***Drosophila scaptomyzoidea*** (Duda)

*Scaptodrosophila scaptomyzoidea* Duda, 1923, p. 37.

*D. scaptomyzoidea* is known to occur in New Guinea, Micronesia and south-east Asia; only nine specimens are previously recorded from Australia, from northern and southern Queensland (Bock 1976; Bock and Parsons 1978*b*, 1979). The species is known to be one of a small group of flower-inhabiting members of the subgenus

(Cook *et al.* 1977). In the present survey a single fly was collected by sweeping through rainforest undergrowth at site 5 (Moa I.).

✓ 12. *Drosophila (Scaptodrosophila) moana*, sp. nov.

*Type*

Holotype ♂: Moa Island, Torres Strait, ex large yellow flower, near rainforest. 1.ii.1980, S. F. McEvey (deposited in ANIC).

*Distinguishing features.* Body black. Arista with only 1 short dorsal ray plus terminal fork. Carina prominent, long. C-index low.

*Body length.* 2.2 mm.

*Head.* Arista with 1 short straight upper ray only plus large terminal fork; arista noticeably thickened basally. Front as broad as long, shiny black, brown in narrow band at anterior margin. 2nd antennal segment black medially, brown laterally; 3rd dusky brown. Carina prominent, long, rather narrow, gradually becoming broader below but narrowing again in last tenth to appear U-shaped at lowermost extremity; slightly curved anteriorly, lateral faces meeting anterior face almost at right angles. Cheek curved, very narrow, not widened posteriorly. Eye large, bare. Orbital bristles in ratio 7 : 3 : 6, almost in line and about equally spaced, anterior reclinate orbital slightly closer than other 2 bristles to orbital margin. Ocellar, vertical and postvertical bristles large.

*Thorax.* Shiny black, only pleura below wing articulation brownish. Acrostichal hairs in 8 rows in front of dorsocentral bristles, 6 rows between dorsocentrals. Prescutellar and anterior dorsocentral bristles subequal. Ratio anterior : posterior dorsocentrals 0.4; anterior dorsocentrals close to posterior dorsocentrals. Sterno-index 0.7. Propleural bristle very small. Haltere black. Scutellum broad, slightly pointed apically. Anterior scutellar bristles divergent, larger than posterior scutellars. Legs black; mid and hind tarsi pale.

*Wing.* Hyaline. C-index, 1.3; 4V-index, 2.5; 5X-index, 2.0; M-index, 0.8. 3rd costal section with heavy setation on basal 0.8. Length, 1.6 mm.

*Abdomen.* Uniformly shiny black.

*Distribution.* Moa I., Torres Strait; Claudie River, Cape York Peninsula.

*Specimens Examined*

Type as above. Queensland: Claudie R., 1 mile W. Mt Lamond, 19.xii.1971, D. K. McAlpine, G. A. Holloway and D. P. Sands, 1 ♀ (AM).

*Special Comments*

The most distinguishing feature of this species is the highly unusual arista. With very few exceptions *Drosophila* species have plumose aristae, although the south-west Australian species *D. (Scaptodrosophila) nicholsoni* Malloch has an arista which possesses a single long curved upper ray only (no terminal fork is present). The axis of the *nicholsoni* arista also possesses a row of minute hairs medially. In other respects *moana* and *nicholsoni* are quite different and there can be little doubt that the two species are not closely related.

*D. moana* is a typical member of the subgenus *Scaptodrosophila* in possessing considerably enlarged prescutellar acrostichal bristles, subequal sternopleural



bristles, a propleural bristle and a relatively small second oral bristle. However, it appears to be without close relatives. Although a few other black or dark *Scaptodrosophila* species are known in northern Queensland (*D. hibisci* Bock, *D. altera* Bock and *D. fungi* Bock & Parsons), *moana* is easily separated from them by reference to various diagnostic details, and its coloration is therefore probably the result of convergent evolution with the other species. In general morphology *moana* is closest to *altera* but is clearly distinguished by its unique arista, its black halteres and its strong prescutellar bristles; *moana* is also appreciably bigger than *fungi* and has relatively larger eyes. *D. moana* somewhat resembles *D. sydneyensis* Malloch from southern Australia in body colour, but *sydneyensis* has all tibiae and tarsi pale while *moana* has only mid and hind tarsi pale; *sydneyensis* also has a 'normal' plumose arista.

Apart from the single specimen of *moana* collected during this survey, a further specimen, as noted above, has been sighted in the collection of the Australian Museum. Although not in good condition, the latter specimen clearly agrees in all details with the former.

#### Genus *Mycodrosophila* Oldenberg

*Mycodrosophila* Oldenberg, 1914, p. 4.

##### ♣ 13. *Mycodrosophila aqua* Bock

*Mycodrosophila aqua* Bock, 1980, p. 295.

*M. aqua* was previously known only from a small number of specimens taken at the type locality and from a nearby locality in the Northern Territory (see Fig. 1). These localities (near Borroloola, and Caranbirini Waterhole) are about 900 km south-west of Moa I., where seven more specimens were collected in this survey, in the very wet rain forest at site 6. The specimens were found near small white toadstools on a rotting log; fungivory is believed to characterize all *Mycodrosophila* species (Throckmorton 1975).

#### Genus *Lissocephala* Malloch

*Lissocephala* Malloch, 1929, p. 250.

##### ♣ 14. *Lissocephala metallescens* (de Meijere)

*Drosophila metallescens* de Meijere, 1914, p. 265.

This species has not previously been formally recorded from Australia, although known to occur in northern Queensland (Bock, unpublished). The distribution of *L. metallescens* was given by Okada (1977) as Ceylon, Java, Malaya, Singapore, Sumatra, Micronesia and New Guinea. The species is here recorded from Mount Adolphus and Moa Is (sites 3-7), where it was found to be second in abundance only to *D. ananassae*. In a small area near the edge of the Mount Adolphus rain-forest, hundreds were present where, apparently, they had been attracted to decaying fungi of at least three different species. The cap of one mature toadstool (diameter 10 cm) provided a platform upon which specimens congregated, mostly, it seemed, for feeding, but several pairs were in apparent courtship. Throughout the latter, both members of each pair constantly and slowly rotated their wings which were held above their bodies in a V-shape. Despite lengthy observation, however, copulation was not observed.

### Genus *Sphaerogastrella* Duda

*Sphaerogastrella* Duda, 1922, p. 158.

#### ✓ 15. *Sphaerogastrella javana* (de Meijere)

*Camilla javana* de Meijere, 1911, p. 422.

Okada (1970, 1977) gave the distribution of *S. javana* as Ceylon, Java, Lombok, Malaya, Sumatra, Thailand, Vietnam, Moluccas and New Guinea. Bock (1977a) noted that the species is widespread in north Queensland. Only one specimen was collected in this survey; it was taken at fruit bait at site 2, Thursday I.

### Genus *Microdrosophila* Malloch

*Microdrosophila* Malloch, 1921, p. 312.

#### ✓ 16. *Microdrosophila* sp.

During this survey, extensive sweeping yielded only a single specimen of an unidentified species of *Microdrosophila* from rainforest north of St Paul's Mission (site 5, Moa I.). The genus is known to be present in New Guinea and Australia but has been very little studied.

### Genus *Leucophenga* Mik

*Leucophenga* Mik, 1886, p. 317.

#### ✓ 17. *Leucophenga scutellata* Malloch

*Leucophenga scutellata* Malloch, 1923, p. 614.

*L. scutellata* is common in north-eastern Australia but, although widespread in the Northern Territory and Queensland, it has not been recorded from south-east Asia or from New Guinea. The results of the present survey extend the known distribution to Torres Strait, six specimens (three of each sex) having been swept at sites 3 and 5-7 on Moa and Mount Adolphus Is.

### Discussion

The diversity of species of Drosophilidae found on the three Torres Strait islands sampled in this project is low; a total of only 17 species in six genera was recorded after 23 full days of collecting in seven ecologically varied habitats. Every species except *Drosophila serrata* and *D. glauca* was found on large Moa I. and only six species were recorded in collections on small Thursday I. An additional two genera, represented by the species *Scaptomyza australis* Malloch and *Acletoxenus quadri-striatus* Duda, are also known from the latter but were not detected on this occasion (Bock 1977b; Duda 1936). Fruit-baiting in the Thursday I. township attracted only the two cosmopolitan species *D. melanogaster* and *D. ananassae*, the latter being the only species found at every site during this investigation and the only member of the genus to have been recorded previously from Torres Strait (Mather 1955). Thorough collecting in the small deciduous vine thicket site on the third island, Mount Adolphus, yielded 11 species in three genera. A more diverse fauna, 14 species in five genera, was readily collected over a short period in the various suitable habitats of the Wet Monsoonal (Webb 1968) environment of Moa I. Eleven of the species collected in this survey (*D. sulfurigaster*, *D. melanogaster*, *D. serrata*, *D. ananassae*, *D. pseudoananassae*, *D. ironensis*, *D. bryani*, *Leucophenga scutellata*,

*D. scaptomyzoidea*, *Lissocephala metallescens* and *Sphaerogastrella javana*) are widespread, occurring in both Australia and New Guinea; the latter three are also widespread in south-east Asia. The remaining eight species are rare and are known only from specimens collected in Australian localities.

Substantial radiations in Australian Drosophilidae have occurred in *Scaptodrosophila* (Bock 1976; Bock and Parsons 1978b), but because of a lack of appropriate information it is not yet possible to show whether autochthonous Australian species have spread into neighbouring regions. For example the occurrence of *D. (S.) concolor* — a member of the *barkeri* species-group centred in south-eastern Australia — on Torres Strait islands as well as in more southern localities may provide some evidence of a species 'migrating' out of Australia, but alternative hypotheses require a better knowledge of the status of the group in New Guinea, the fauna of the latter region still being very poorly known.

Most (70%) of the species collected in this survey are members of the genus *Drosophila*. Three subgenera are represented, *Scaptodrosophila* (five species), *Sophophora* (five species) and *Drosophila* (two species). It is of some interest that no species of the subgenus *Hirtodrosophila* were found, but many *Hirtodrosophila* species are known to be strictly fungivorous and are thus likely to be collectable either in large numbers or not at all, depending on the occurrence or detection of suitable fungi; the latter appeared to be rare at most sites sampled in this study. Of the species with distribution records previously restricted to the Australian mainland but which are now known to include Torres Strait, the new record of *Mycodrosophila aqua* is of particular interest, this species being known previously only from about Borroloola in north-western Northern Territory. Also of interest is the discovery in great abundance of *Lissocephala metallescens*, a widespread south-east Asian species and one formerly regarded as rare in Australia.

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