

MOSQUITOES (CULICIDAE) OF FRASER ISLAND

By ELIZABETH N. MARKS*

The only previous report on Fraser I. mosquitoes seems to be that of Mackerras (1949) who took five species, 14-19 February 1949. On the Queensland Naturalists' Club excursion to Fraser I., 30 April — 6 May 1967, with assistance from Dr. E. J. Reye, Mr. J. H. Simmonds and Mr. J. Wright, I collected 27 species, including those previously recorded (marked with an asterisk) and one entirely new to science.

The similarity of Fraser I. to the Tewantin area, Moreton I. and Stradbroke I. has been remarked on by geologists and botanists (e.g. Whitehouse 1963, Blake 1968) and, as might be expected, the mosquito fauna of Fraser I. is similar to that of the Tewantin area and Stradbroke I., but richer in rainforest species. Records of mosquitoes from Moreton I. are too few for a comparison to be drawn. In the following list, the letters T and S after the species name indicate respectively that it has been taken in the Tewantin area (broadly between Boreen Point and Noosa Heads) and on Stradbroke I. The mosquitoes from these two areas have been recorded by Marks (1947, 1949, 1955, 1956); additions to the Tewantin fauna are appended here.

Factors limiting the collection were camp sites close to the ocean beach, and transport difficulties. No collections were made in the heath swamps on the west side of the island, and there was no dusk or night collecting beyond the camp sites, nor any light trapping. Records of 15 species are due to about four hours collecting in rain forest areas, Yidney Scrub 1200-1500 hours, 4 May and Forest Station 1000-1100 hours, 6 May. Factors favouring the collection were warm, humid to showery conditions in both rainforest sites; familiarity with most of the species, enabling selection for the greatest variety from those coming to bite; also the wet season, which had favoured treehole breeding species and now facilitated discovery of water-holding treeholes.

Many more species of mosquitoes may be expected to occur on Fraser I., and those already collected have posed some interesting problems. Thus we have the first biting record for *A. candidoscutellum* and exceptional numbers of *An. corethroides* and *T. marksae* biting. One might speculate whether the reason was a shortage of other mammalian hosts, or particularly suitable atmospheric conditions. Much also remains to be discovered about the new Fraser I. species of *Culiseta*.

I would suggest that perhaps at Fraser I. one may more readily than elsewhere obtain both a qualitative and quantitative picture of the original mosquito fauna of the 10 mile wide coastal strip of south Queensland, so much of which has been extensively altered since European settlement. Possibly this applies also to other groups of insects but some may have already been affected by presence of the Cane Toad on Fraser I.

SPECIES COLLECTED

**Anopheles corethroides* Theobald T, S. A small brown anopheline biting in numbers at the Forest Station, in a hoop pine plantation established in carrol scrub adjoining rainforest fringing the flowing Woongoolbver Creek. There are very few biting records for this species; it breeds along Samford Creek at Camp Mountain but in many collections there I have only once or twice taken it biting. (Recorded by Mackerras (1949) as *An. stigmaticus* Skuse.)

Toxorhynchites speciosus (Skuse) T, S. The Elephant Mosquito. Larva in a log hole in Yidney Scrub. Larvae of this species prey on other mosquito larvae and adults do not suck blood.

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Tripteroides marksae Dobrotworsky. T. Larvae in log holes in Yidney Scrub and adjoining eucalypt forest. Adults biting in Yidney Scrub. At the Forest Station site described for ***An. corethroides***, adults of ***T. marksae*** came in groups of 3-6 individuals flying round one's head, and biting at about 3 ft. above the ground. ***Tripteroides*** spp. are often numerous in forests in north Queensland and New Guinea but I have not seen them biting in such numbers in south Queensland before.

Tripteroides "sp. No. 46". Larvae in a log hole in Yidney Scrub. This is a rare undescribed species, known from several south Queensland rainforest localities.

Coquillettidia linealis (Skuse) T, S. Adults biting in the early morning in a tent and on a verandah at Happy Valley; in eucalypt forest near Yidney Lake; and numerous in the rainforest at Yidney Scrub. The life history of this species has not been worked out, although it is quite common near the coast where there are sedge swamps. In this genus the larvae have modified breathing tubes which they attach to aquatic plants and thus obtain air without coming to the water surface. Note that species of ***Coquillettidia*** were formerly listed in the genus ***Mansonia***.

Coquillettidia xanthogaster (Edwards). T. The "Golden Mosquito", biting in eucalypt forest near Yidney Lake.

Uranotaenia pygmaea Theobald. T, S. Larvae in a weedy seepage pool on the bank of First Creek. A tiny mosquito which according to Bancroft (1908) feeds on birds.

Culiseta arenivaga Marks. A small brown mosquito, this species was described (Marks 1968) from two females collected at the Forest Station site described for ***An. corethroides***; its name means "a wanderer in sandy places". ***Culiseta*** spp. breed in cool fresh waters in humid temperate climates; some Victorian species breed in crayfish burrows. This is the second species known from Queensland and the northernmost record of the genus in Australia. Its affinities with other Australian species cannot be worked out until the males and larvae are discovered.

Aedes procax (Skuse) T, S. Biting at Lake McKenzie. Breeds in rainfilled pools.

****Aedes vigilax*** (Skuse) T, S. The Salt Marsh mosquito, biting at Ungawa barracks and at Lake McKenzie.

Aedes kochi (Donitz) T, S. A small species with spotted wings, biting along a pandanus-fringed creek two miles north of Happy Valley. It breeds in leaf axils of pandanus but a search did not yield larvae.

Aedes gahnicola Marks T, S. Closely resembles ***A. kochi***. Numerous biting in Yidney Scrub. This species breeds in axils of sword-grass, ***Gahnia*** spp., but none was observed in or near Yidney Scrub. The question arises, had these mosquitoes travelled some distance from their breeding place or were they breeding in leaf axils of some other plant in this forest?

****Aedes notoscriptus*** (Skuse) T, S. This is a common container-breeding species. Larvae in a rainwater tank at Happy Valley, and in a log hole and fallen palm fronds at Yidney Scrub. Adults biting at Yidney Scrub and Forest Station.

****Aedes palmarum*** Edwards. T? Larvae in fallen palm fronds in Yidney Scrub and adults biting there and at Forest Station. Adults have a golden patch on the thorax, and were either more wary or less avid for human blood, being more difficult to catch than most.

Aedes subauridorsum Marks. This is a species of eucalypt forests. Larvae in a small treehole in a Box-tree at Lake McKenzie and a groove in a log near Yidney Scrub.

Aedes candidoscutellum Marks. An adult taken in Yidney Scrub provided the first record of this species biting man. This and the following three species breed in rainforest treeholes.

Aedes "Sp. No. 22". An undescribed species in the Quasirubithorax group, biting at Yidney Scrub and Forest Station.

Aedes quinquelineatus Edwards and **Aedes biocellatus** (Taylor). Biting in Yidney Scrub.

Aedes spinosipes Edwards. T, S. Biting in Yidney Scrub. The early stages of this small thickset mosquito with the striking large creamy patch on its thorax are unknown; it is likely to breed in narrow deep treeholes in rainforest.

Aedes multiplex (Theobald). T, S. Biting in Yidney Scrub. Breeds in temporary freshwater pools.

Aedes funereus (Theobald). T, S. Biting at Ungowa barracks. Breeds in temporary freshwater pools close to high tide level.

Culex halifaxii Theobald. T, S. Larvae in a shallow seepage from the swamp close to First Creek. The larvae prey on other mosquito larvae and adults do not bite man. This is a common widespread species.

Culex orbostiensis Dobrotworsky. T, S. Larvae from the same site as **C. halifaxii**. Adults biting at same site as **A. kochi** and by far the most numerous species biting in Yidney Scrub. This brown unornamented species is a very common bush mosquito also at Tewantin and Stradbroke I. and in other areas near the coast.

Culex edwardsi Barraud. Larvae from same site as **C. halifaxii**; a species seldom collected.

Culex annulirostris Skuse T, S. Biting at same site as **A. kochi** and at Yidney Scrub and Forest Station. A common pest species that breeds in freshwater ground pools.

***Culex sitiens** Wiedemann. T, S. Biting in Yidney Scrub. A common species, often a pest, that breeds in brackish pools.

MOSQUITOES OF THE TEWANTIN DISTRICT — EMENDATIONS AND ADDITIONS

Tripteroides marksae Dobrotworsky — recorded as **T. sp.** near **collessi** by Marks (1955).

Uranotaenia lateralis Ludlow — recorded as **U. atra** by Marks (1955).

Aedes (Ochlerotatus) procax (Skuse) — recorded as **A. rubrithorax** by Marks (1947).

Culex orbostiensis Dobrotworsky — recorded as **C. sp.** near **cylindricus** by Marks (1947, 1955, 1956).

Anopheles corethroides Theobald. In light trap, Noosa, March 1963.

Coquillettidia variegata (Dobrotworsky). In light trap, Noosa, March 1963 and March 1965. The first record of this species from Queensland (it has since been taken at Southport, in a light trap by K. Ferguson, April 1968).

Uranotaenia nivipes (Theobald). Noosa, March 1965.

Aedes burpengaryensis (Theobald). Tewantin, December 1943.

Aedes (Finlaya) rubrithorax (Macquart). In light trap, and biting by day in rainforest, Noosa, March 1963.

Aedes wasselli Marks. Biting by day and larva from treehole in rainforest, Noosa, March 1963. A very rare species, this is the first time the larva has been collected.

Culex squamosus (Taylor). In light trap, Noosa, March 1965.

This brings to a total of 40 the species recorded from this area. In addition two very distinctive species were observed flying, but not captured, by day in the rainforest at Noosa, March 1963 — **Tripteroides quasiornatus** (Taylor) and **Aedes palmarum** Edwards; the records of these two species must be regarded as tentative until specimens are collected.

Collections in March 1963 were made with the collaboration of Mr. G. B. Monteith. Collecting in Noosa National Park was by permission of the Conservator of Forests. This was the first time a light trap had been used for mosquitoes in this district and the fact that the first Queensland record of *Coq. variegata* was thus obtained indicates its value as a supplement to larval and biting collections.

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BITING MIDGES (DIPTERA: CERATOPOGONIDAE) AT FRASER ISLAND APRIL-MAY 1967

Soon after landing at Ungowa we were attacked by *Culicoides* — mostly *C. subimmaculatus* Lee & Reye but *C. ornatus* Taylor was also present. These are species of sheltered intertidal zones and their presence was not unexpected. *C. subimmaculatus* was also present for a farewell nibble as we departed.

The cool weather, strong winds and rain severely restricted collecting opportunities. The most varied catch was on 1st May along the coastal dunes and creek mouths where species of *Styloconops*, *Culicoides*, *Dasyhelea*, *Forcipomyia*, *Bezzia*, *Palpomyia* and *Monohelea* were taken: *Styloconops* was the most plentiful and is tentatively identified as *S. australiensis* Lee, a relatively common pest species biting by day along the east coast of Australia. As with the rest of the material, definitive identification must await an opportunity to study it more closely.

The only other genus taken was *Lastohelea* which was found in the Yidney Scrub hovering around the head in large numbers and biting occasionally as the day warmed up. This is probably *L. townsvillensis* (Taylor), a common pest species of north-eastern Australia in autumn and winter, which seems to be found nearly all year round in areas of rainforest.

From soaks in the side of the creek at Happy Valley we managed to separate a few larvae and pupae of a species of *Culicoides* from which a few adults were reared — this species appears to be closely related to (if not identical with) *C. austropalpalis* Lee and Reye, a common Australian bird-biting species.

—E. J. REYE

THE SIMULIDAE TAKEN ON FRASER ISLAND

Simuliidae or Black Flies are the small thick-set biting flies commonly known as "sand flies" in western Queensland, where they are a considerable pest after flood rains. The coastal species seldom attack man. Two species of *Austrosimulium* and two of *Simulium* were recorded. One of the former, *A. fulvicorne* M. & M., has not been taken elsewhere, but the others are widespread species.

Austrosimulium fulvicorne M. & M. Larvae and one pupa taken on grass in a fairly swift-flowing shaded part of Yanky Jack Creek by D. Mackerras. Adult is distinguished by having segments 4-10 of antennae yellow.