

## CERATOPOGONIDAE FROM THE SOCIETY ISLANDS \*

By

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In a previous paper<sup>1</sup> I reported on the Pacific Entomological Survey collection of Ceratopogonidae from the Marquesas Islands. The Survey collection from the Society Islands consists of 202 specimens from 9 species—4 of which are new and 3 of which were described in the Marquesan paper, representing 6 genera.

### *Forcipomyia inornatipennis* (Austen).

Tahiti: Hitiaa, November 20, 1928, 3 miles from sea, 17 males, 1 female, A. M. Adamson.

A very common and somewhat variable African species. The specimens from the Society Islands do not differ from those found in West Africa in any material respect, and since they have banded legs should be referred to *F. inornatipennis* variety *ornaticrus* Carter, Ingram, and Macfie. Probably in other parts of the world the species has received other names. *Forcipomyia excellens*, a species from Java and Sumatra recently described by Johannsen, may be this insect, but unfortunately the form of the harpes of the male is not described.

### *Lasiohelea pacifica*, new species.

Female

Length of wing, about 1.1 mm.; greatest breadth of wing, about 0.4 mm.

Head very dark brown. Eyes bare. Proboscis short. Palpi (fig. 1, *b*) dark brown: third segment inflated, with a large sensory pit; lengths of last four segments in one specimen 9, 18, 8, and 8 units respectively. Antennae (fig. 1, *c*) dark brown: segments 4-9 gradually changing from broader than long to subspherical, measuring in one specimen from 6 by 8 to 6 by 7 units, armed with rather short spines; 10 unusually long, in the same specimen 10 by 7 units; 11-15 elongate, 11-14 subequal, 18-20 by 7 units, the last longer, about 28 units, slightly waisted, and ending in a nipple-like process. The combined lengths of segments 11-15, 4-10, and 3-10 in this specimen approximately 108, 48, and 57 units respectively.

Thorax very dark brown, well clothed with narrow scales as well as bristles. Scutellum and postscutellum almost black, the former bearing fairly numerous bristles and hairs.

Wings unadorned. Macrotrichia rather numerous, 6-7 rows between *M* and *Cu* at the level of the cross-vein. Narrow scales abundant on the radial areas. Costa extending about two-thirds of the length of the wing. First radial cell narrow, slit-like; second long and narrow (fig. 1, *a*). Fork of *M* slightly beyond the cross-vein, bases of both

<sup>1</sup> Macfie, J. W. S., Ceratopogonidae from the Marquesas Islands: B. P. Bishop Mus., Bull. 114, 1933.

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branches deficient. Fork of *Cu* at about the level of the middle of the second radial cell. Halteres with brownish knobs.

Legs uniformly dark brown; well clothed with shortish bristles, and bearing also numerous narrow scales which are especially conspicuous on the terminal tarsal segments. Tarsal ratio about 2.5. Fourth tarsal segment cylindrical, about the same length as the fifth. Claws (fig. 1, *d* and *e*) strong, each with a large barb on the inner aspect. Empodium not exceptionally developed, as usual.

Abdomen very dark brown, densely clothed with short, dark brown hairs, and narrow scales. Spermathecae two, highly chitinized, subspherical, subequal, diameter about 40  $\mu$ ; the commencement of the duct hardly at all chitinized.

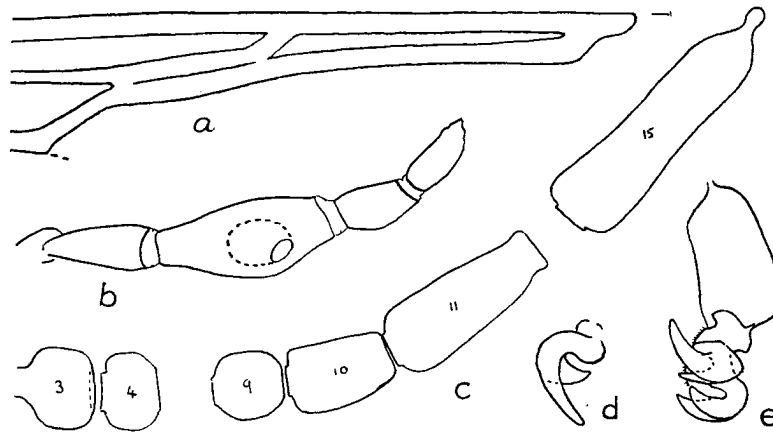


FIGURE 1.—*Lasiohelea pacifica*, new species: *a*, radial cells; *b*, palp; *c*, segments of antenna; *d*, *e*, claws.

Tahiti: Papenoo Valley, 6 miles from sea, October 25, 1928, 2 females; Papeari, November 9, 1928, 1 female, A. M. Adamson; Papara Valley, December 21, 1928, 1 female, Mumford and Adamson.

The specimen from Papeari is not so dark as the other two, dull rather than very dark brown, but appears to be otherwise indistinguishable.

This species appears to differ from all the other species of the genus which have been described in having the 10th segment of the antenna of the female unusually long, so that the abrupt change in the shape of the segments occurs between the 9th and 10th segments, and not between the 10th and the 11th as is usual.

A dark brown species, bearing narrow scales as well as bristles, with the basal segments of the antenna only slightly flattened and the tenth unusually long, and with the T. R. about 2.5.

***Atrichopogon jacobsoni* (de Meijere).**

Tahiti: Tuauru River, September 3, 1928, 1 male from sea, 26 males, 71 females; Fautaua Valley, September 6, 1928, 1 male from sea, 1 female; Papeete, September 9, 1928, at light, 1 female; A. M. Adamson.

**Atrichopogon obscuripes**, new species.

Length of wing about 1 mm.; greatest breadth of wing slightly more than 0.3 mm.

Head almost black. Eyes hairy. Palpi dark brown: in female lengths of last three segments in one specimen 12, 9 and 7 units respectively, third inflated moderately and with a deep pit in distal half. Antennae dark brown. In male, plume blackish: last three segments elongate, subequal; measurements of last five segments in one specimen 7, 9, 27, 26, and 33 (with stylet) by about 5 units respectively. In female, segments 4-10, subspherical, subequal, in one specimen about 7 by 7 units; 11-14 elongate, subequal, 18-21 by 5 units; 15 longer, 25 (with stylet) units. The combined lengths of segments 11-15, 4-10, and 3-10 in this specimen 105, 49, and 56 units respectively.

Thorax almost black. Scutellum and postscutellum almost black; the former bearing 4 bristles, and (in female only) one or two small hairs.

Wings unadorned. Macrotrichia in male very scanty, three or four at tip only; in female more numerous, a fair number in cells  $R_5$  (30-40) and  $M$  (about 10), and a few scattered along posterior border including anal cell. Costa extending about two-thirds length of wing. Venation as usual. First radial cell narrow, slit-like; second larger, fully three times as long as first. Petiole of  $M$  about same length as cross-vein. Fork of  $Cu$  distal to that of  $M$ , at about level of base of second radial cell. Angle formed by branches of  $Cu$  less than right-angle. Tip of  $Cu_1$  slightly beyond level of end of costa. Halteres dark brown, knobs with ends rather paler than bases.

Legs uniformly dark or darkish brown, but not so dark as the scutum. Segments, claws, and empodium normal. Tarsal ratio in both sexes 3 or slightly more.

Abdomen almost black in the dried insect. Spermatheca single, highly chitinized, not pitted, oval, about  $40 \mu$  by  $30 \mu$ ; the duct hardly at all chitinized. Hypopygium without distinctive features, very similar to that of the African *A. homoius* Carter, Ingram, and Macfie.

Tahiti: Vallée de la Reine, December 17, 1928, 3 miles from sea and most also labeled "over river," 26 males, 16 females; Papara Valley, December 21, 1928, 2 males (1, altitude 750 feet), Mumford and Adamson.

A small, very dark brown, almost black species, with almost black scutellum, dark brown halteres, uniformly dark brown legs, and with a few macrotrichia on the wings in both sexes.

This species resembles in some respects *A. atroscutellatus* Edwards, a Samoan species, which is also small and blackish, but differs, among other things, in having the macrotrichia on the wings of the female fewer and limited to cells  $R_5$  and  $M_1$ , the halteres orange, and the legs brownish-yellow.

**Culicoides insulanus**, new species.

## Female

Length of wing, about 0.8 mm.; greatest breadth of wing, about 0.4 mm.

Head dark brown. Eyes bare. Palpi darkish brown, short: third segment about 8 by 6 units, with a small pit; fourth and fifth subequal in length, about 4 units. Antennae almost colorless: segments 4-10 subspherical to oval, ranging in one specimen from about 6 by 5-6 units to 7 by 5 units; 11-14 subequal, about 13 by 4-5 units; 15 longer, about 21 units, without stylet. The combined lengths of segments 11-15, 4-10, and 3-10 in this specimen about 74, 46, and 55 units respectively.

Thorax yellowish-brown with scutum adorned with broad dark brown markings. Scutellum dark brown, bearing three bristles and 2-3 small hairs. Postscutellum dark brown.

Wings adorned with pale areas. Arrangement of pale spots and venation as shown in diagram (fig. 2). Macrotrichia scanty, restricted to distal quarter of wing, numerous in cell  $R_5$ , but practically none between the branches of  $Cu$ . Costa extending nearly two-thirds of wing length, radial cells infuscated, about equal in length. Fork of  $Cu$  distal to that of  $M$ . Halteres with almost colorless knobs.

Legs with basal segments entirely, and femora and tibiae partially dark brown, and tarsal segments pale, yellowish. Femora and tibiae of hind legs almost entirely dark brown, only the bases of tibiae paler; those of four anterior legs paler, the knees and the adjoining halves (fore legs) or thirds (middle legs) of femora and tibiae pale, yellowish. Tarsal ratio about 2.

Abdomen dark brown. Spermathecae two, not very highly chitinized, subequal, oval, about  $40\ \mu$  by  $25\ \mu$ ; the duct chitinized rather feebly for about  $15\ \mu$ .

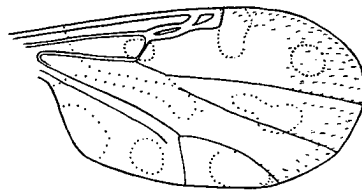


FIGURE 2.—Diagram to show adornment and venation of wing, *Culicoides insulanus*, new species.

Tahiti: Papenoo Valley, altitude 350 feet, 7 miles from sea, October 27, 1928, 1 female, on dead leaves of *Zingiber* species; Hitiaa, 4 miles from sea, November 20, 1928, on *Metrosideros* species, 1 female; A. M. Adamson.

A small brown species, with wings adorned as shown in figure 2.

The adornment of the wings of this species is distinctive, and so far as can be ascertained, different from that of any species hitherto described. The most notable characters are as follows: the pale spot covering the cross-vein small and not reaching the costa, the pale spot in cell  $R_5$  round and reaching neither  $M_1$  nor the wing margin, and the absence of pale spots in the peripheral areas between the branches of  $M$ , and between  $M_2$  and  $Cu_1$ .

#### ***Dasyhelea pacifica* Macfie.**

Tahiti: Papenoo Valley, 7 miles from sea, October 25, 1928, 3 females; altitude 1000 feet, 6 miles from sea, October 26, 1928, sweeping over grass (*Andropogon halepensis* ?), 2 females; Fautaua Valley, 1 mile from sea, September 6, 1928, 1 female; A. M. Adamson. Vallée de la Reine, 3 miles from sea, December 17, 1928, 1 male, 2 females; Mataiea, December 19, 1928, on sugar cane, 2 females; Papara Valley, December 21, 1928, 1 male; Mumford and Adamson.

This species was described from the Marquesas Islands, where it was also collected by the Pacific Entomological Survey.

***Dasyhelea fulvicauda* Macfie.**

Tahiti: Mataiea, December 19, 1928, on sugar cane, 1 female, Mumford and Adamson.

This species was also described from the Marquesas, where it was collected by the Survey.

***Dasyhelea russa*, new species.**

Length of wing, about 1 mm.; greatest breadth of wing, about 0.3-0.4 mm.

Head dark brown. Eyes hairy. Palpi pale brown, segments subcylindrical, third without pit, lengths of last three in male and female about 10, 7, and 9 units respectively. Antennae of male dark brown, plumes large and dark, segments sculptured: segments 4-11 in the single specimen ranging from about 10 by 11 to 10 by 8 units; 12-14 binodose, 15 with a stylet, lengths 22, 20, 18, and 30 (with stylet) units respectively. Antennae of female missing.

Thorax dull reddish-brown, with traces of the usual scutal adornment. Scutellum rather paler than scutum, more yellow, especially in middle; bearing about 11 bristles and hairs. Postscutellum darkish brown.

Wings with veins bordering second radial cell somewhat infuscated. Distribution of macrotrichia and venation as in *D. pacifica*, but fork of *Cu* in male at level of end of costa, in female well proximal to this level. Halteres with pale, brownish knobs which contain a white substance.

Legs almost uniformly yellowish-brown, but proximal segments of tarsi a little paler than rest, and actual knee joints blackish. Tarsal ratio in both sexes about 2.5.

Abdomen dark brown in dried insect. Spermatheca single, poorly chitinized, collapsed in the single female examined, but probably subspherical, about  $40\mu$  in diameter; duct rather broad at base, chitinized for about  $15\mu$ . Hypopygium (fig. 3, *a*, *b*) dark brown. Ninth tergite with finger-like processes on posterior border rather short, hairy at base; ninth sternite without bristles, produced posteriorly in the middle line. Sidepieces short and broad with a small bristly lobe on inner side apically; claspers unbranched, narrow, dark colored. Harpes with a long posterior blade arising from right side, with a pointed extremity which is twisted ventrally. Chitinized portions of aedeagus forming a dense transverse bar and two rods projecting posteriorly from it.

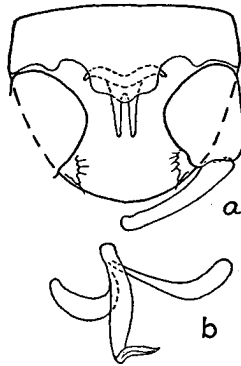


FIGURE 3.—*Dasyhelea russa*, new species: *a* and *b*, parts of hypopygium.

Tahiti: Vallée de la Reine, 2 miles from sea, November 17, 1928, 1 male, 1 female, A. M. Adamson.

This insect is perhaps akin to the Java species *D. perfida* Johannsen, but is darker brown or more reddish in color. The hypopygium of the male, although similar in type, differs in the forms of the ninth sternite and harpes.

A dull reddish-brown species, with a rather paler scutellum and almost uniformly yellowish-brown legs.

***Stilobezzia tenebrosa* Macfie.**

Tahiti: Papenoo Valley, 4 to 6 miles from sea, October 23 to 26, 1928, some labeled also "beaten from *Melastoma denticulata*," "sweeping over *Andropogon halepensis*," and "*Hibiscus tiliaceus*, dead wood," 6 males, 11 females; Papeari, November 9, 1928, 2 males, A. M. Adamson; Papara Valley, December 21, 1928, 1 male, Mumford and Adamson.

This species was described from the Marquesas Islands, where it was collected by the Survey.