

MYCETOPHILIDAE, CULICIDAE, AND CHIRONOMIDAE AND  
ADDITIONAL RECORDS OF SIMULIIDAE, FROM  
THE MARQUESAS ISLANDS\*

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BRITISH MUSEUM (NATURAL HISTORY)

In a previous publication in this series I have reported<sup>1</sup> on the Simuliidae from the Marquesas Islands in the collections of the Pacific Entomological Survey; the Tipulidae have been studied by C. P. Alexander;<sup>2</sup> and the Ceratopogonidae by J. W. S. Macfie.<sup>3</sup> This paper is a report on the remaining families of Nematocera thus far submitted to me, together with records of Simuliidae which I received since writing my earlier paper on that family.

MYCETOPHILIDAE

No species of this family has been reported from the Marquesas, and the present collection includes only a very few specimens, all belonging to the subfamily Sciarinae. Representatives of other subfamilies should occur, as the family is fairly well represented in Samoa, and endemic species of *Platyura* occur in Hawaii.

Genus *SCIARA* Meigen

*Sciara radicum* Brunetti.

Hivaoa: Tahauku, July 10, 1929, 2 females; Atuona Valley, altitude 325 feet, July 6, 1929, 1 male, 1 female; Adamson.

Eiao: Vaituha, 2 males, 2 females, Adamson.

This is a widely distributed species in the tropics, and has recently been found to occur also in hothouses in England.

*Sciara*, species 2.

A small species of rather distinctive coloring: mesonotum mainly ochreous, with a narrow dark brown border on each side which extends inwards above each wing-root, forming a pair of dark brown patches just before the scutellum; pleurae mainly dark brown on upper half, lower half pale yellowish. The three specimens are all much damaged.

Fatuhiva: Omoa [Oomoa] Valley, near sea level, August 21, 1930, 1 female, LeBronnec.

<sup>1</sup> Edwards, F. W., Marquesan Simuliidae: B. P. Bishop Mus., Bull. 98, pp. 103-109, 1932.

<sup>2</sup> Alexander, C. P., New and little-known Tipulidae from the Marquesas: B. P. Bishop Mus. Bull. 98, pp. 87-92, 1932.

<sup>3</sup> Macfie, J. W. S., Ceratopogonidae from the Marquesas Islands: B. P. Bishop Mus., Bull. 114, 1933.

\* Pacific Entomological Survey Publication 7, article 6. Issued July 29, 1933.

Uahuka: Hanahoua Valley, altitude 250 feet, March 10, 1931, 1 female, LeBronnec and H. Tauraa.

Eiao: Vaituha, October 2, 1929, at light, 1 female, Adamson.

**Sciara**, species 3.

Another small species resembling the last two, but with distinctive coloring of thorax. Mesonotum ochreous-brown, with three dark brown stripes, middle stripe lighter than side stripes and including three narrow, slightly darker lines. Pleurae pale ochreous with three large dark brown patches, one on anepisternite, one on pleurotergite, and one occupying lower part of sternopleura. Four damaged specimens.

Nukuhiva: Tekao Hill, altitude 3250 feet, July 23, 1931, 2 females; Tapuaooa, altitude 2600 feet, July 18, 1931, 1 female; LeBronnec and H. Tauraa.

Uahuka: Vaipae Valley, altitude 150 feet, March 10, 1931, 1 female, LeBronnec and H. Tauraa.

Genus **PLASTOSCIARA** Berg

**Plastosciara pernicios**a Edwards.

Eiao: Vaituha, sea level, October 1, 1929, 1 male, Adamson.

A widely distributed species, first found in England, but afterwards reported from Samoa.

Genus **SCYTHROPOCHROA** Enderlein

**Scythropochroa** species.

Hivaoa: Hanaheka [Tanaeka] Valley, altitude 1100 feet, June 4, 1929, 1 male (much damaged), Mumford and Adamson.

This is possibly the male of *S. samoana* Edwards of Samoa and Fiji.

CULICIDAE

Only two species of this family are found in the Marquesas, both widely spread forms and evidently recently introduced.

Genus **AEDES** Meigen

Subgenus **STEGOMYIA** Theobald

**Aedes (Stegomyia) scutellaris** Walker variety **pseudoscutellaris** Theobald  
*Aedes variegatus* Bigot.

This has evidently been established on the islands for a considerable time, as it occurs throughout the group from sea level to above 2000 feet altitude. Material in the present collection is from the following localities:

Hivaoa: Atuona Valley; Hanaheka [Tanaeka] Valley, altitude 1100 feet; Mataovau; Tahauku; Tapeata, Mount Ootua, altitude 2500 feet.

Tahuata: Hanatuuna valley, altitude 1000 feet; Hanamiai Valley, altitude 1300 feet.

Fatuhiva: Ihiota, Hanavave Valley, altitude 600 feet; Tevaitapu [Teavaitapu] Valley, altitude 350 feet; Tepeia, Omoa [Oomoa] Valley, altitude 300 feet.

Mohotani: altitude 160-700 feet.

Nukuhiva: Teuanui, Tovii [Toovii], altitude 2000 feet; Vaioa, Hakau Valley; Vaiotekea, altitude 2200 feet.

Uahuka: Hane Valley, altitude 150 feet; Vaikivi Valley, altitude 900 feet; Matapopo, Hane Valley, altitude 800 feet; Penau Ridge, altitude 2000 feet and 2170 feet; Hitikau Ridge, altitude 2900 feet.

Eiao: Vaituha, sea level to 200 feet; altitude 1900 feet; uplands, north end, east side, altitude 1815 feet.

#### Genus CULEX Linnaeus

**Culex fatigans** Wiedemann (**quinquefasciatus** Say of American authors).

Hivaoa: March 7, 1930, Adamson.

Eiao: Vaituha, October 2, 1929, in house, Adamson.

Probably a more recently introduced species which has only been found near the coast.

#### CHIRONOMIDAE

No Chironomidae have hitherto been recorded from the Marquesan Islands, and the family is evidently very poorly represented in the archipelago, although examples of 10 or 11 species are present in the collection. Three of these are marine species, two at least being widely distributed; the third is new to science, but will probably be found to have a wide distribution in the Pacific. Seven species belong to one group of the genus *Spaniotoma*, and some or all of these may be truly endemic, although so little is known as yet of the smaller Chironomidae of the Pacific islands and New Guinea that no positive opinion on the point can be given.

#### Genus THALASSOMYIA Frauenfeld

This marine genus, until recently recorded only from European coasts, is now known to have a very wide distribution, and its occurrence in the Marquesas was to be expected, although it is somewhat surprising to find it represented by two distinct species, one of these having previously been found only on the East African coast.

**Thalassomyia pilipes** Edwards.

Eiao: Vaituha, October 2, 1929, one male at light, Adamson.

This species, recorded by me from Samoa, is most probably identical with *T. (Galapagomyia) longipes* Johnson of the Galapagos Islands. Since the description of *T. pilipes* was published, I have examined a number of *Thalassomyia* (all unfortunately lacking the abdomen) collected by Miss L. E. Cheesman in the Galapagos; these have long hair on the femora and tibiae and, so far as can be seen, agree in all respects with the Samoan type and with the specimen from Eiao.

***Thalassomyia africana* Edwards.**

Eiao: Vaituha, October 2, 1929, 3 males, 4 females, at light, Adamson.

I have compared these specimens carefully with the type male from Dar-es-Salaam and can find no specific difference. The male hypopygium is identical in structure, and differs in several respects from *T. frauenfeldi* or *T. pilipes*, notably in the form of the style which is scarcely swollen basally and not bilobed, the presence of a thumb-like, somewhat chitinized bare projection at base of coxite beneath and the numerous short but not flattened hairs at base of coxite above (on the morphologically ventral surface). *Thalassomyia africana* is easily distinguished from *T. pilipes* by its small size and by having the hair on the male legs quite short.

The female, hitherto unknown, has the cerci rather longer and more slender than in other species, gradually tapering from base to tip as in *T. pilipes*.

Genus TELMATOGETON Schiner

This genus includes marine species occurring in South Africa, Saint Paul Island (South Indian Ocean), and Chile, also fresh-water forms in Hawaii. The new species described below is presumably marine, as it was taken in company with *Thalassomyia africana*.

***Telmatogeton pusillum*, new species.**

Brownish; thorax with irregular greyish pruinescence shifting with incidence of light; scutal stripes moderately dark brown; scutellum, legs, and halteres yellowish. Antennae 7-segmented, last segment suddenly narrowed just before tip as in most other species. Dorso-central hairs of thorax of moderate length, about 20 in each row. Trochanters of male simple. Last tarsal segment with median terminal projection finger-like, not broadened towards tip, lateral projections in male very short, in female slightly longer, but still less than half as long as median projection. Claws of male short, equal, rounded at tip, with a small sharp tooth on inner side before middle, this tooth difficult to see and perhaps sometimes absent. Claws of female much longer than those of male, curved, simple, and sharp-pointed. Membranous plate arising from base of claw large in female, small or absent in male. Wings scarcely darkened, fully developed in both sexes; venation much as in other species of the genus, but  $R_1$  about half as long as  $R_{4+5}$  and  $Cu_2$  rather suddenly bent beyond middle, its distal portion reflexed and almost straight. Wing-length 2 mm.

Eiao: Vaituha, October 2, 1929, 6 males, 3 females, at light, Adamson.

This is the smallest species of the genus known, being slightly smaller

even than the Chilean *T. simplicipes* Edwards. It is well distinguished structurally by the short lateral lobes of the last tarsal segment and by the bent instead of curved vein  $Cu_2$ .

### Genus SPANIOTOMA Philippi

#### Subgenus SMITTIA (Holmgren) Edwards

The six or seven species of this subgenus represented in the collection all agree with my definition<sup>4</sup> in having the squama completely bare, wing membrane devoid of microtrichia and faintly brownish-tinged by transmitted light,  $R_{2+3}$  separate from  $R_{4+5}$ , and  $fCu$  well beyond  $r-m$ . They further agree with the European *S. brevifurcata* Edwards and *S. albipennis* Goet. in having bare eyes, no pulvilli, vein  $An$  terminating well before  $fCu$ , its tip usually followed by an oblique fold, and anal area of wing reduced.

This group of species apparently has numerous representatives in the tropics; it includes the Tahitian *Orthocladius brachydicranus* Edwards and the Samoan *O. macrobrachius* Edwards, in addition to some species described by Kieffer from the Seychelles Islands under the genus *Dactylocladius*.

The Marquesan material is in poor condition, and most of the species are therefore left unnamed, but brief diagnoses are given below.

#### **Spaniotoma (Smittia) maculiventris**, new species.

##### Male

Ground-color pale yellow, including prescutellar area, scutellum, most of abdomen, legs and halteres; scutal stripes and postnotum orange-brown, former fused; shoulders whitish; pleurae mostly dark brown; abdomen with a transverse blackish band on each of tergites 2-5, leaving all margins pale, a narrower dark band on tergite 8. Antennae 14-segmented as usual, but last two joints very indistinct, antennal ratio about 0.4. Pronotum well developed. Wings very narrow at base.  $R_{4+5}$  scarcely reaching beyond level of middle of  $Cu_1$ ; costa strongly produced, reaching level of tip of  $Cu_1$ ;  $Cu_2$  strongly bent in middle; no distinct transverse fold beyond  $Cu_2$ . Wing-length, 1 mm.

Uahuka: Putataua, Vaipae Valley, altitude 880 feet, September 20, 1929, one male on dead banana leaves, Adamson.

A species with extremely distinctive coloration.

#### **Spaniotoma (Smittia) species 2.**

A small black species, closely related to *S. brachydicranus* Edwards of Tahiti, but differing in having the thorax almost all black, and to *S. macrobrachius* Edwards of Samoa, differing in having the costa produced only a short distance beyond  $R_{4+5}$ , which ends above the tip of  $Cu_1$ ;  $Cu_2$  almost straight.

Tahuata: Amatea, altitude 2600 feet, June 28, 1930, beating on *Reynoldsia* species, 33 males (all much damaged), LeBronnec and H. Tauraa.

<sup>4</sup> Edwards, F. W., British Non-Biting Midges (Diptera, Chironomidae): Ent. Soc. London, Trans., p. 357, 1929.

**Spaniotoma (Smittia) species 3.**

Ground-color of thorax, also legs and halteres, yellowish. Scutal stripes separate and brown, lateral darker than median; abdomen entirely blackish. Antennal ratio in male about 0.9. Wings with  $R_{4+5}$  ending above or scarcely before level of tip of  $Cu_1$ ; costa strongly produced;  $Cu_2$  almost straight.

Hivaoa: Kopaafaa, altitude 2770 feet, August 2, 1929, 2 males, Adamson.

Nukuhiva: Ooumu, altitude 3700 feet, November 12, 1929, 1 male, Mumford and Adamson.

Eiao: Vaituha, altitude 200 feet, October 3, 1929, 1 female, Adamson.

**Spaniotoma (Smittia) species 4.**

Similar to species 3, but smaller,  $R_{4+5}$  shorter, ending little beyond middle of  $Cu_1$ , costa only about reaching level of tip of  $Cu_1$ .

Eiao: Vaituha, altitude 200 feet, October 3, 1929, 1 female, Adamson.

**Spaniotoma (Smittia) species 5.**

Thorax yellowish-brown, scutal stripes very little darker than ground-color; mesosternum blackish. Abdomen blackish except for the ochreous cerci. Halteres yellow. Wings with  $R_{4+5}$  ending above tip of  $Cu_1$ , costa very long, reaching wing-tip;  $Cu_2$  almost straight.

Nukuhiva: Ooumu, altitude 3600 to 3700 feet, November 10 and 12, 1929, 2 females, Mumford and Adamson.

**Spaniotoma (Smittia) species 6.**

Resembles species 5, but rather larger (wing-length 1.7 mm.); thorax wholly orange-yellow; abdominal tergites 2-7 with basal yellow bands, sternites mainly yellow;  $R_{4+5}$  longer, reaching well beyond level of tip of  $Cu_1$ .

Nukuhiva: Ooumu, altitude 3600 feet, November 10, 1929, 1 female, Mumford and Adamson.

Specimens of this, or a closely allied species, have recently been collected in the Owen Stanley Range, New Guinea, by H. O. C. Littlechild.

**Spaniotoma (Smittia) species 7.**

Yellowish; abdomen scarcely darker than thorax. Wings much as in species 5.

Hivaoa: Tepuna, altitude 3010 feet, August 1, 1929, 1 female, Mumford and Adamson.

Genus **CHIRONOMUS** Meigen

The only species of this genus in the collection belongs to a group which is widely distributed in the Oriental and Australian regions; the members of the group are closely allied to typical European species such as *C. dorsalis* Meigen, and specific differences are rather indefinite.

**Chironomus samoensis** Edwards, variety?

Hivaoa: Tahauku, July 10, 1929, 1 male, Adamson; Anatikaue, altitude 1750 feet, August 1, 1929, 2 males, Mumford and Adamson.

Nukuhiva: Tapuaooa, altitude 2500 feet, May 30, 1931, 1 female, and altitude 3100 feet, November 10, 1929, 1 female, Mumford and Adamson.

Uahuka: Hane Valley, altitude 30 feet, February 23, 1931, 1 female; and Teavamataiki, altitude 730 feet, March 24, 1931, 3 females; LeBronnec and H. Tauraa.

Eiao: Vaituha, October 2, 1929, 1 female at light, Adamson; altitude 1800 feet, April 22, 1931, 2 males, 3 females, LeBronnec and H. Tauraa.

The males differ from the Samoan form in having no dark marks on abdominal tergites 2-4, and much less obvious silvery dusting on abdominal tergites 5-8.

#### SIMULIIDAE

The following records are added to those made in my earlier paper<sup>5</sup>:

##### *Simulium buissoni* Roubaud.

Nukuhiva: Tapuaooa, altitude 2600 feet, June 2, 1931, females, and also larvae and pupae on stone in stream; Ooumu summit, altitude 3890 feet, July 28, 1931, females, on *Metrosideros collina*; Muake, north side, altitude 2500 feet, August 3, 1931, larvae and pupae; Tovii [Toovii] plateau, altitude 2500 feet, August 3, 1931, larvae; LeBronnec and H. Tauraa. Vaioa, Hakau Valley, November 16, 1930, females, Mumford and Adamson.

Uahuka: Tehaveva, Hane Valley, altitude 500 feet, February 27, 1931; Hitikau Ridge, altitude 2000 feet, March 3, 1931; Pouau, Hokatu Valley, altitude 500 feet, March 9, 1931; Hanahoua Valley, altitude 250 feet, March 10, 1931, and altitude 30 feet, on *Rhynchosia minima*; Haave [Haevei] Valley, altitude 250 feet, March 19, 1931; Matapopo, altitude 800 feet, February 27, 1931; LeBronnec and H. Tauraa.

Eiao: altitude 500 feet, May 1, 1931, LeBronnec and H. Tauraa.

##### *Simulium*, species uncertain.

###### Larva

Length of full-grown specimen about 6 mm., and therefore considerably larger than *S. buissoni*. Body blackish, much darker than *S. buissoni*. Head capsule mainly dark brown, dorsal markings consisting of a median blackish-brown line on each side of which is a single dark brown spot. Structural characters much as in *S. buissoni*, but apparently more rows of hooks in terminal circlet.

###### Pupa

Respiratory organ formed of ten branches; it is divided at the base into three portions, the branching of which is as follows: ventral division forking dichotomously very close to base; outer dorsal division forking at some distance from base, upper branch again forking some distance beyond first fork; inner dorsal division divided into three near its base, upper branch forking again near its base, middle branch simple, lower branch forking well beyond its middle. Cocoon as in *S. buissoni*.

<sup>5</sup> Edwards, F. W., Marquesan Simuliidae: B. P. Bishop Mus., Bull. 98, pp. 103-109, 1933.

Uapou: Vaikokoo, Paaumea Valley, altitude 2200 feet, November-December, 1931, one pupal skin and numerous larvae on stones in stream, LeBronnec.

Owing to their size it seems improbable that these larvae and pupae can belong to the form described as *S. buissoni gallinum*, which is the only species of adult *Simulium* hitherto found on Uapou. It is possible that they may belong to *S. mumfordi* or *S. adamsoni*, but perhaps more likely that they represent another new species of the same group.