

TAHITIAN SIMULIIDAE *

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The Simuliidae collected in Polynesia by the Pacific Entomological Survey in 1928 and 1929 were submitted to me for study and a report on the Marquesan species has already been published.¹ In the collection from the Society Islands, the two species previously described by me²—*S. tahitiense* and *S. cheesmanae*—are represented, as well as a third—*S. oviceps*, new species, here described.

In addition to these, the Marquesan *S. buissoni* Roubaud has been reported from Society Islands. As I stated in the Marquesan paper, this was incorrect, the specimens referred to *S. buissoni* belonging to another species more nearly related to *S. tahitiense*.

The three Tahitian species, along with the three from the Marquesas, constitute a distinct group within the subgenus *Eusimulium*; the characters common to them are set forth in the Marquesan paper.

Simulium tahitiense Edwards (fig. 1, *a*; fig. 2, *a*, *c*, *e*).

Adult Female

Blackish species with little or no ornamentation, in many respects resembling *S. buissoni*, but larger, and differing very markedly in the development of the abdominal tergites of the female. In *S. tahitiense*, tergites 3 to 6 are all large, 3 to 5 being quite twice as broad as long, 6 somewhat broader, and 7 broader still, occupying the whole width of the abdomen. Further, all the tergites are dull (even 7 to 9), and there is a distinct sternite to the sixth segment; the front is somewhat broader above the antennae; the third hind tarsal segment is perhaps a little longer, as is the basal tooth of the claws; the yellowish pubescence of the whole body is perhaps finer and scantier, and there is little or none on the frons (most of the specimens examined are denuded). In the development of the abdominal tergites this species shows more affinity with *S. mumfordi* Edwards and *S. adamsoni* Edwards than with *S. buissoni* Roubaud (as described in my Marquesan paper, 1932), but in the first two of these species tergites 3 to 5 are not so large as in *S. tahitiense*, and there are also other differences.

Larva

Head mainly, sometimes almost entirely, blackish, in the lightest specimens with a large solid dark area posteriorly on the frontoclypeus. Fans large, with about 30 stout rays (fewer than in most species), with long, close and regular pectinations (no short hairs alternating with the longer pectinations as described by Puri for *S. nölleri* and other species). Labral appendages bearing in addition to the fans the usual two rows of simple setae. Antennae long, 4-segmented as in *S. buissoni*. Mandibles of the normal form, with sharp teeth apically (one of which is much longer and stouter than the others)

¹ Edwards, F. W., Marquesan Simuliidae: B. P. Bishop Mus., Bull. 98, Pacific Ent. Survey Pub. I, art. 9, 1932.

² Edwards, F. W., Diptera Nematocera from the South Pacific collected by the St. George Expedition, 1925: Ann. Mag. Nat. Hist., 9th ser., vol. 20, pp. 236-244, 1927.

* Pacific Entomological Survey Publication 6, article 7. Issued January 14, 1933.

and with a large subapical brush of hairs. Mentum with the middle tooth prominent, but the sublateral teeth scarcely prominent and scarcely larger than the five teeth which intervene between them and the median tooth. No ventral tubercles on last segment. Terminal circlet of hooks with about 140 rows of hooks and about 18 to 20 hooks in each row. Chitinous band below anus normal, its arms passing scarcely halfway round the body. Each of the three anal gills split almost to the base into from two to four branches.

Pupa

Respiratory organ not much more than half as long as the pupa itself, formed of 8 branches arranged in 4 pairs; an outer pair with a short common stalk, and 3 inner pairs arranged more or less vertically one above the other and provided with longer stalks; the two filaments of the uppermost pair are little if any shorter than the others; stalks of all 4 pairs rather variable in length individually. Abdominal armature much as in *S. buissoni* Roubaud, but 2nd tergite with an apical row of recurved hooks similar to those of the 3rd and 4th tergites, though rather smaller. Cocoon as in *S. buissoni*.

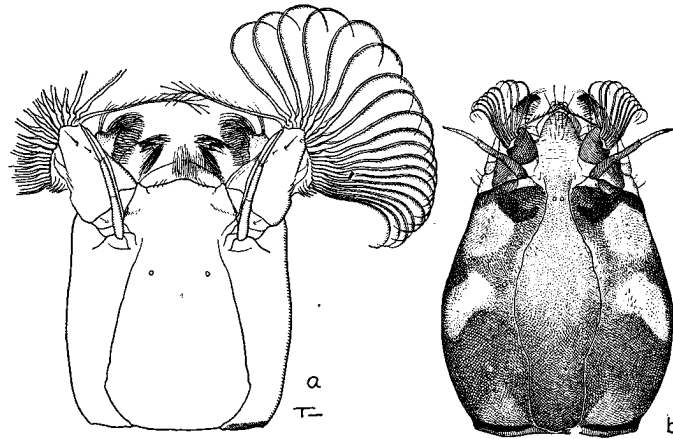


FIGURE 1. Heads of larvae: a, *Simulium tahitiense* Edwards; b, *Simulium oviceps*, new species (more enlarged).

Tahiti: Papeari, Vallée de la Reine, Faraura Valley, Fautau Valley, Papara Valley, Papenoo Valley, Tipaerui Valley, and other localities, altitude 500 to 1,150 feet, adults, Mumford and Adamson; in the Papara and Papenoo Rivers, and Vallée de la Reine, numerous larvae and pupae.

Among the present series are some adults which agree with the types (collected by Cheesman at Tautira) in having a wing-length of about 2 mm. to 2.5 mm., dark brown legs, with the hind tibiae paler at base and in the middle, first hind tarsal segment pale on basal two-thirds, and halteres yellow. In other specimens, however, the legs and halteres are much darker, sometimes almost wholly black. Among the larvae and pupae collected in the Papara and Papenoo rivers and in the Vallée de la Reine, two species are represented, the larger of which (described above) is almost certainly *S. tahitiense*.

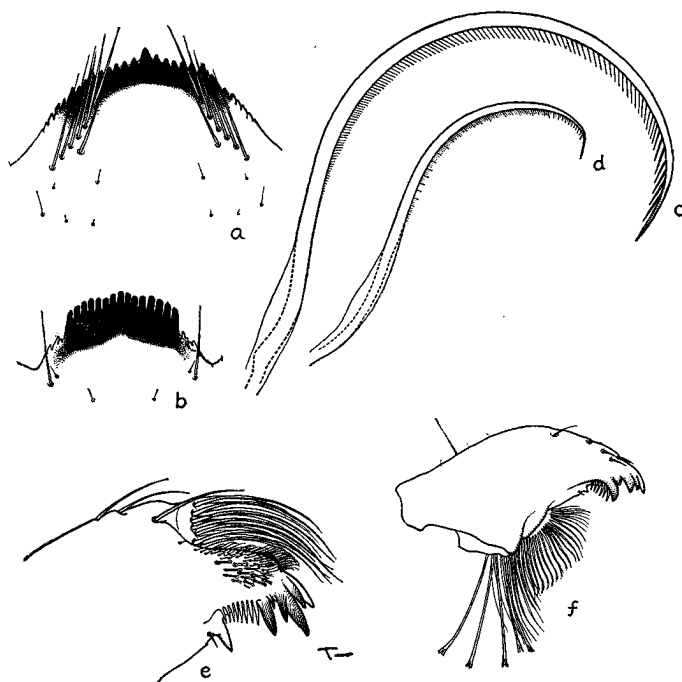


FIGURE 2. Mouth parts of larvae. *Simulium tahitiense*: a, mentum; c, single fan ray; e, tip of mandible. *Simulium oviceps*: b, mentum; d, single fan ray; f, mandible.

Simulium oviceps, new species (fig. 1, b; fig. 2, b, d, f).

Adult Female

Closely resembles *S. tahitiense*, but usually smaller and with darker halteres.

Larva

Head oval, much narrower than in other *Simulium*, the shape being largely due to the alteration in the form of the fronto-clypeus, which is broadest in the middle, narrowed in front and behind; this alteration in the fronto-clypeus is probably a result of the great reduction in size of the labral fans and therefore of the muscles which work them. Fans very small, with only about 12 short slender rays, which appear to have very short pectinations; there are no accessory rows of shorter setae on the labral appendages. Antennae much shorter than in *S. tahitiense*. Anterior edge of head-capsule thickened and blackened to an unusual extent around bases of fans and mandibles, remainder of head largely pale, but with some rather well-defined dark markings posteriorly both above and at the sides. Mandibles more conspicuous from above than usual, owing to the reduction of the fans, also different in form from other *Simulium*, having four equally large and strong blunt teeth (besides one smaller tooth) in a nearly vertical row at the tip, and the subapical brush rudimentary. Mentum small, with 13 rather blunt teeth which are subequal in size (the median tooth scarcely larger than the others) and form a regular and slightly arched row. Thoracic proleg shorter than usual, but otherwise similar. No ventral tubercles on last segment. Hook-rows in posterior circlet 80 to 100 in number, with about 15 teeth in each row. Anal gills and armature as in *S. tahitiense*.

Pupa

Respiratory organ formed of eight filaments, arranged in four pairs precisely as in *S. tahitiense*, but the filaments of the uppermost pair are much shorter than the others, the upper filament of this pair being again considerably shorter than the lower. (This condition was found in two specimens dissected from larvae and also in one whole pupa, but it may not be normal.)

In company with *S. tahitiense* in all the localities visited by Mumford and Adamson, large numbers of a small black *Simulium* were obtained, which evidently correspond with those collected by Cheesman and Tonnoir which I formerly took to be *S. buissoni*. As already noted, this determination was incorrect; the small specimens have large abdominal tergites as in *S. tahitiense*, and I have in fact been unable to discover any structural difference between these two species even in mounted specimens. Nor does there appear to be any constant difference in size or coloring, though the small specimens (with average wing-length, 1.5 mm. or less) tend to have the legs and halteres darker than the large ones. Nevertheless, it is certain that these small specimens represent a distinct species, if, as I believe, they have hatched from the larvae and pupae here described. Unfortunately, no males were obtained which can be associated with certainty with these small females rather than with the larger *S. tahitiense*.

In each collection of larvae made in Tahiti, among more numerous larger larvae of *S. tahitiense* were a few smaller larvae with a totally different head-structure. So little, in fact, do these larvae resemble any other *Simulium* in the form of the head and mouth-parts, that without the evidence of the adult, one would not hesitate to place them in a distinct genus. Fortunately, however, two or three of them were sufficiently advanced in development to show the pupal respiratory organs; on dissecting these out, they were found to be so similar to those of *S. tahitiense* that the close relationship of the two cannot be doubted. These small larvae can hardly be regarded as merely a form of *S. tahitiense*, and I therefore name them *S. oviceps*, in reference to the peculiar shape of the head, which at first sight resembles a chironomid more than any other *Simulium*.

***Simulium cheesmanae* Edwards.**

Tahiti: Papara, Papenoo, Fautaua, Tipaerui Valleys, Mumford and Adamson.

A few specimens which seem referable to *S. cheesmanae* were obtained in company with *S. tahitiense*. None of these are quite so pale as the type. As described by me (1927), *S. cheesmanae* differs from *S. tahitiense* in having the antennae and legs more or less completely orange or yellowish. There are no obvious structural differences, however, and as some specimens are intermediate both as regards size and coloring, the validity of the species is somewhat doubtful; until the early stages and the male sex are obtained, its status cannot be determined.