

NEW FIGITIDAE FROM THE MARQUESAS ISLANDS¹

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The collections made by the Pacific Entomological Survey include perhaps nine species of cynipoids from the Marquesas Islands and two from Tahiti. All are parasitic forms belonging to the family Figitidae.

Any systematic data from oceanic islands as remote as the Marquesas should be of considerable importance in evolutionary analyses; but, unfortunately, only one of the eleven species which the Survey has forwarded for my study is represented by a series large enough to allow me to distinguish individual from group variation. Without such series there is no sound basis for recognizing the slight differences which ordinarily separate insular species. Having to depend on such small series (in half the present instances on single specimens of each species) one may be misled into believing the material from each island distinct because of characters which larger series might show up as individual variation on a single island. Or, if one ventures to recognize identity in scant collections from two different islands, it is at the risk of overlooking minute variations or differences in averages which are often the most significant differences between island races.

With these things in mind, it seems necessary to conclude that the cynipoid material now available from the Marquesas Islands can add little to our knowledge of insular species, although it may serve as a preliminary check against which additional collections from these and other parts of Oceania may be compared.

Perhaps 800 "species" of parasitic cynipoids are "described" in the literature; but in all the collections of the world there are probably not more than five or ten thousand specimens of this group. If all this material were brought together at one place, it would provide no sound understanding of such a long list of forms. On the other hand, many of the species of gall-making Cynipidae are represented by thousands of individuals, one species by over 100,000 individuals in my collection. It is from such series that data of evolutionary significance are to be derived. However, most of the species of parasitic cynipoids are known from single specimens or from perhaps half a dozen specimens per species, scattered in museums and private collections all over the world. From a number of these collections material has been sent

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me, during the last twenty years, for determination and description. I have usually pronounced such material inadequate for study and returned the collections to the far-spread museums. In no single place is it possible to find a collection of parasitic cynipoids large enough to warrant serious taxonomic treatment. If collectors who find these insects would forward them to me or to some other specialist for study at such future time as the accumulated material might warrant, or if collectors would forward their material to such central depositories as the U. S. National Museum, or for Oceania to the Bishop Museum in Honolulu, enough material might be gathered to allow us to straighten out the chaos into which the book descriptions have already thrown our knowledge of this group.

Under the circumstances I describe here only the one species of Marquesan cynipoids which is represented by a fair series of specimens, and three other species which are so closely related to the first that they may be evaluated to some extent by comparison with the first. There remain eight specimens, representing possibly seven species, all in the tribe Eucoilinae if not in the genus *Eucoila* itself, which I refrain from describing until more material is available. Types of the new species and the undescribed material will be deposited in the Bishop Museum where it may prove significant when additional material is collected from Oceania.

The species described below belong to a single group which is possibly a single complex of closely related species. Two of the species are from the island of Uapou and two from Hivaoa, but the apparent occurrence of the first species on both islands, and the occurrence of more than one species on each island suggests that these are not island races. As parasitic insects they may prove to be isolates occurring on distinct hosts.

The generic relations of the complex are not precisely determinable. Three of the species run to *Aglaotoma* in the Dalla Torre and Kieffer key (Das Tierreich, 1910), but the new complex is distinct in several respects from the descriptions of the species assigned to *Aglaotoma*. One of the species of the complex, because of the terminal segments of the antennae, runs to some undetermined subgenus of the genus *Eucoila* (fig. 1, *c, d*). Until material is available for a sound evolutionary redefinition of these groups, it would merely add to the confusion to describe a new genus here. The new species are, therefore, put into the already over-flowing genus *Eucoila*, without any opinion as to their relationship with the type of that genus.

Holotypes are stored in Bishop Museum, paratypes in the Kinsey collection. Some paratypes of *Eucoila (marquesiana) marquesiana* are also in Bishop Museum.

EUCOILA

MARQUESIANA COMPLEX

The characters common to all four of the species described below are as follows:

Female. Body almost entirely black, smooth, and shining. Head almost entirely black, naked, smooth, and shining, rufo-piceous to black on mouth parts; fully as wide as thorax, with eyes rather large, slightly protuberant, making front profile somewhat triangulate; with a very fine but distinct malar furrow. Antennae of moderate length, slender, with 13 segments; light yellow to dark brown; finely pubescent especially on terminal segments; first segment short, vase-shaped, second nearly globular, third distinctly long and slender, but fourth longer than third, the remaining segments increasingly shorter to the last which is shortest, with only a suggestion of a club in the terminal segments.

Thorax rather narrow, slender, considerably elongate back of scutellum, well rounded on dorsal surface; entirely black, entirely smooth, naked, and shining except on scutellum; dorsally without lines or grooves; scutellum definitely marked off from rest of mesonotum by its lower level, but without a scutellar ridge to separate the two parts, anteriorly with two large, rounded, shallow but well defined, finely separated foveae which are smooth at bottom, the median line which separates the two foveae connected posteriorly with a well-raised area which has an elongate oval center, the depressed area in the oval and the steeply sloping sides of the oval being roughened, with stray hairs about the margin of the scutellum; pronotum very narrow dorsally, but very broadly triangulate laterally, entirely smooth and naked; propleuron very narrow, almost linear; mesopleuron almost as broad as high, with a fine, deep groove, about as deep as grooves between other thoracic segments, extending across the mesopleuron parallel to and rather near the lower margin, with a few faint aciculations paralleling the anterior end of this groove; metapleuron similarly divided by a horizontal groove which is, however, nearer the middle of the segment.

Abdomen no larger than thorax, somewhat triangulate, only short petiolate, rather compressed laterally, with second segment covering nearly the whole area, exposing only tips of posterior segments and nothing of ventral segments; entirely black, smooth, shining, and naked except for a narrow ring of short, matted hairs on very anterior margin; hypopygium usually not visible, with a very short, hardly noticeable, blunt spine which bears a few stray hairs.

Legs long and slender, finely punctate and finely hairy; with two short, inconspicuous spines at terminal end of tibiae; tarsal claws fine, very weak, simple.

Wings a little longer than body, the wing-body ratio from 1.08 to 1.12, averaging nearer 1.10; well rounded at tip; only slightly tinged yellowish; finely hairy, rather long ciliate on margin, especially on outer hind margin; veins fine, light honey brown, subcosta, basalis, and veins bounding radial cell most evident; terminal portion of cubitus faint to obsolete, cubitus from areolet to basalis practically obsolete but with suggestion enough of its position to indicate its origin at ventral tip of basalis; discoideus similarly gone; subcosta depressed at its union with basalis, without any break between there and point of union with radius; terminal portion of subcosta long, straight; first abscissa of radius nearly straight but with downward curve near areolet; second abscissa of radius long but curved upward so radial cell is distinctly short, broad, and rather triangulate; radial cell closed; marginal vein sometimes extending a bit on either side of radial cell, areolet closed; hind wing with subcostal vein only.

Very small insects, 1.3 to 2.2 mm. long.

Male. Hardly different from female except in having antennae longer and more slender, with 15 segments; abdomen slightly smaller; wing slightly longer, with wing-body ratio nearer 1.15. The third and fourth segments of antennae are as in the female, and the abdomen is not more petiolate and hardly more pointed posteriorly, although the hypopygium is not so well developed.

***Eucoila (marquesiana) marquesiana*, new species (fig. 1, a-b, d-e).**

Female and male. Antennae light golden rufous, dark brown on first segment, browner on terminal third to half, with last 3 to 7 segments (the number varying even in the two antennae of one individual) more moniliform and distinctly shorter; legs largely rich rufous, dark piceous on coxae and rarely on centers of femora; whole insect 1.5 to 2.2 mm., averaging near 2.0 mm. long

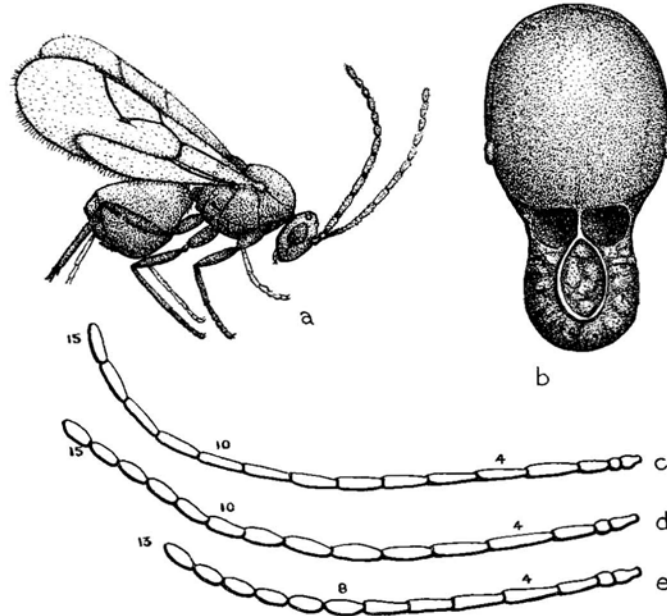


FIGURE 1.—New *Eucoila* species from the Marquesas: a, *E. marquesiana*, female; b, *E. marquesiana*, detail of mesonotum showing sculptured scutellum typical of generic group ($\times 15$); c, *E. negatrix*, antenna, male; d, *E. marquesiana*, antenna, male; e, *E. marquesiana*, antenna, female; c-e show differences in terminal segments of antennae used as a basis for distinguishing "genera" in current classifications of *Eucoila*; the species shown clearly belong to one complex of closely related species.

Uapou: holotype female, Tekohepu Summit, alt. 3,000 ft., beaten from *Weinmannia* sp., Nov. 30, 1931; 2 female and 4 male paratypes from same locality, beaten from *Metrosideros collina*, *Weinmannia* sp. and *Cyrtandra* sp., Nov. 28, 30, 1931; 3 female paratypes from Teavanui, alt. 2,900 ft., on *Bidens lantanoides* and *Angiopteris* sp., Nov. 27, 28, 30, 1931; 1 female and 3 male paratypes, Paaumea Valley, Teavanui, alt. 2,900 ft., beaten from *Bidens lantanoides* and *Freycinetia* sp., Nov. 27, 1931; 2 female and 1 male paratypes, Teavaituhai, Hakahetau Valley, alt. 3,020 ft., beaten from *Freycinetia* sp., Nov. 20, 1931; 3 male paratypes, Teavaituhai, Paaumea side, alt. 3,020 ft., beaten from *Vaccinium* and *Cyrtandra* spp., Nov. 19, 20, 1931. All collected by Le Bronnec.

Hivaoa: 1 female specimen, Matauuna, alt. 3,760 ft., on *Weinmannia* sp., July 24, 1929, Mumford and Adamson; 1 female specimen, Kaava Ridge, alt. 2,800 ft., beaten from *Weinmannia* sp., Jan. 7, 1932, Le Bronnec.

The two females from Hivaoa appear identical with the type insects from Uapou, but the series is too small to make the identity of the material from the two islands quite certain.

***Eucoila (marquesiana) mellosa*, new species.**

Female and *male*. Antennae light yellow-brown, light yellow basally, light golden yellow on basal segments, terminal segments still rather elongate, not moniliform; legs entirely light rufo-yellow; whole insect very small, about 1.3 mm. long.

Uapou: holotype female, Teavaituhai, Hakahetau Valley, alt. 3,020 ft., beaten from *Freycinetia* sp., Nov. 19, 1931; paratype male, Tekohepu Summit, alt. 3,200 ft., beaten from *Freycinetia* sp., Nov. 28, 1931; both collected by LeBronnec.

***Eucoila (marquesiana) negatrix*, new species (fig. 1, c).**

Male. Antennae distinctly brown on all but first three segments, these basal segments rufo-yellow, the terminal segments more slender, cylindrical, not moniliform; legs entirely light golden yellow to light rufo-yellow, even on coxae; whole insect 1.7 to 1.9 mm. long.

Hivaoa: holotype male and 1 male paratype, Kopaafaa, alt. 2,770 ft., miscellaneous sweeping, Aug. 2, 1929, Mumford and Adamson.

In the collections now on hand, there is one male from the island of Uapou (Tekohepu Summit) which is very close to the present species from Hivaoa, but the legs are somewhat more rufo-yellow, the antennae a bit heavier, and the whole insect a bit larger. This may represent an island isolate of *E. negatrix*, but the material is too scant to warrant naming.

***Eucoila (marquesiana) orta*, new species.**

Female. Antennae almost entirely rich, dark brown, touched more rufous only on basal segments; legs entirely amber rufous, even on coxae; whole insect small, about 1.3 mm. long.

Hivaoa: holotype female, Teava Uhia i te Kahu, alt. 2,100 ft., beaten from *Hibiscus tiliaceus*, Feb. 15, 1930; 1 female paratype, Mt. Temetiu, north-east slope, alt. 2,500 ft., miscellaneous beating, July 24, 1929; both collected by Mumford and Adamson.

In addition to the two females from Hivaoa, there is a single female from Fatuhiva which is very similar, but it has the base of the antennae more amber rufous. More adequate material might show it to be an island isolate of *E. orta*.