

ARCTIIDAE, NOCTUIDAE, AND SPHINGIDAE OF THE
MARQUESAS ISLANDS*

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In the present paper are enumerated 18 species of Arctiidae, Noctuidae, and Sphingidae taken by the Pacific Entomological Survey in the Marquesas. Of these, *Lambula erema* and *Macroglossum marquesanum* are described for the first time. In addition, 6 species of Noctuidae, *Perigea serva* Walker, *Earias huegeli* Rogenhofer, *Hypaetra discolor* Fabricius, *Hypena longfieldae* Collenette, *Hypena sanctigeorgii* Collenette and *Hyblaea puera* Cramer, 4 of which were taken during the St. George Expedition and 2 by Commander J. J. Walker in 1883, are listed in my paper of 1928, making a total of 24 species occurring in the archipelago.¹

Among these 24 species, 16 are of wide distribution throughout the tropics, occurring also in Tahiti, and 5 of them extending to Hawaii. In addition, *Hyblaea puera* Cramer is found throughout the world in the warmer countries and has been taken in Samoa and Fiji, but it has not yet been recorded from Tahiti. Two other species have a limited distribution: *Earias huegeli* Rogenhofer, in Australia, Fiji, Samoa, and Tahiti; *Hypena longfieldae* Collenette, so far as is known, only in Rapa in addition to the Marquesas.

The remaining five species, *Lambula erema* Collenette, *Callopietria ouria* Collenette, *Achaea marquesanus* Collenette, *Hypena sanctigeorgii* Collenette, and *Macroglossum marquesanum* Collenette, are endemic, all of them taken above 1950 feet, the *Callopietria* having interesting island races. No close relationship is shown among these five species between the Marquesas and Hawaii, and no comparison is yet possible with Tahiti, as insufficient work has hitherto been done in the mountains of that island. All, however, have affinities with the Indo-Australian region and not with the neotropical region.

Whereas the Survey and St. George collections contained long series of the majority of the cosmopolitan species, 4 out of the 5 endemic species were taken sparingly. This was not entirely owing to the difficulty of working "light" at an elevation. There is little doubt that additional species remain to be discovered above 2000 feet in the larger islands, and it is to be hoped that future workers will endeavor to supplement the records in this direction.

In this paper the Comstock-Needham system has been employed for the

* Pacific Entomological Survey Publication 7, article 15. Issued March 15, 1934.

¹ Collenette, C. L., The Arctiidae, Noctuidae, and Sphingidae of the St. George Expedition, from French Oceania: Ent. Soc. London, Trans., vol. 76, pt. 2, p. 469, 1928.

wing-neuration, and Ridgway's Color Standards and Color Nomenclature, 1912, for descriptions of color in new species.

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FAMILY ARCTIIDAE

SUBFAMILY LITHOSIINAE

Lambula erema, new species (fig. 1).

Male

Palpus pinkish buff, beneath at the base Prout's brown. Antenna sayal brown. Head, thorax, and abdomen pinkish buff, mixed on the abdomen with fuscous black, the segments ringed distally with pinkish buff. Pectus, venter, and legs pinkish buff, mixed on the legs with sayal brown. Forewing Saccardo's umber mixed in the terminal and costal areas with cinnamon buff; fringe pinkish buff. Hindwing Saccardo's umber; fringe pinkish buff to cinnamon buff, these colors slightly invading the wing in terminal and apical areas. Under side of both wings as on upper side. Expanse, 18-19 mm.

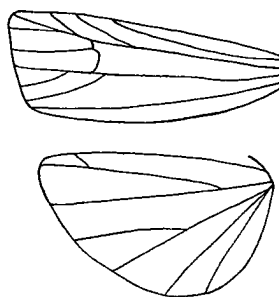


FIGURE 1. Venation of wing of *Lambula erema*, new species.

Hivaoa: Feani Summit, altitude 3970 feet, January 13, 1932, at light, holotype male and paratype male, LeBronnec.

The species of this genus range from Sula and New Guinea to Australia. The present species is the first to be described from the Pacific islands, but it is probable that others have been overlooked.

The illustration of the venation may be compared with those of the same genus² and the absence of a cross vein in the hindwing should be noted.

² Hampson, F., Catalogue of the Lepidoptera Phalaenae in the British Museum, vol. 2, pp. 98-101, 1900.

FAMILY NOCTUIDAE

SUBFAMILY HADENINAE

Tiracola plagiata (Walker).

Agrotis plagiata Walker, List Lep. Ins. Brit. Mus., 11, p. 740, 1857.

Hivaoa: Kaava Ridge, altitude 2460 feet, January 7, 1932, at light, 1 female; Avaoa Valley, altitude 2820 feet, January 6, 1932, 1 female; Feani Ridge, altitude 3970 feet, January 13, 1932, at light, 5 males, January 14, 1932, at light, 2 males; LeBronnec.

Uapou: Tekohepu Summit, altitude 3200 feet, November 28, 1931, at light, 1 male, 1 female; LeBronnec.



a



b

FIGURE 2. Forewings of *Callopietria ouria*: a, *C. o. nannodes*, new subspecies; b, *C. o. ouria* Collenette.

SUBFAMILY ACRONYCTINAE

Callopietria ouria ouria Collenette (fig. 2, b).

Callopietria ouria Collenette, Ent. Soc. London, Trans., p. 472, pl. 21, fig. 3, 1928.

Hivaoa: Kaava Ridge, altitude 2460 feet, January 6-7, 1932, at light, 2 males, 3 females; Kakahopuanui [Kakaho Puanui], altitude 2460 feet, January 5, 1932, at light, 1 female; Feani Ridge, altitude 3970 feet, January 13,

1932, at light, 3 males, 3 females; Feani Ridge, Tenatinaei, altitude 3970 feet, January 14, 1932, at light, 17 males, 1 female; LeBronnec.

Callopietria ouria nannodes, new subspecies (fig. 2, a).

Male and Female

Differ from *C. o. ouria* Collenette in smaller size and in pattern of forewing. In *C. o. ouria* the subterminal fascia is sharply angled inwards and produced to a point between veins M_1 and M_2 , while in *C. o. nannodes* the fascia at the same spot is rounded or produced only slightly to an angle. Furthermore, the postmedial fascia in *C. o. ouria* is, in nearly all specimens, more sharply angled in its course than is the case in the other subspecies. The genitalia do not appear to differ.

Expanse: *C. o. nannodes*, males, 33, 33, 33, 34 and 34 mm.; females, 32, 33, 34, 34, 35, 35, 35, and 35 mm. *C. o. ouria*, males 36, 37, 37, 37, 38, 38, 38, 38, 38, 38, 38, 39, 39, 39, 39, 39, 39, 40, 40, and 40 mm.; females, 36, 38, 39, 39, 39, 39, and 40 mm.

Uapou: Tekohepu Summit, altitude 3200 feet, November 28, 1931, at light, 1 holotype male, 1 allotype female, 3 males and 6 females, paratypes; Teoatea, Hakahetau Valley, altitude 1950 feet, November 17 and 20, 1931, at light, 1 male and 1 female, paratypes; LeBronnec.

C. o. ouria has been taken in Hivaoa and Fatuhiva (St. George Expedition), *C. o. nannodes* in Uapou. Less collecting appears to have been done at an elevation elsewhere in the group, and the species has not been recorded from any of the remaining islands.

Prodenia litura (Fabricius).

Noctua litura Fabricius, Syst. Ent., p. 601, 1775.

Hivaoa: Tenatinaei, Feani Ridge, altitude 3970 feet, January 14, 1932, at light, 1 female, LeBronnec.

Tahuata: Vaitahu, May 21, 1930, at light, 1 female; Amatea, altitude 2700 feet, June 26, 1930, 1 male; LeBronnec and H. Tauraa.

Eiao: altitude 50 feet, April 17, 1931, at light, 1 female, LeBronnec and H. Tauraa; above Vaituha, altitude 1200 feet, October 3, 1929, 1 female, A. M. Adamson.

Spodoptera mauritia (Boisduval).

Hadena mauritia Boisduval, Fauna Ent. Madag., p. 92, 1833.

Tahuata: Vaitahu Valley, seashore, June 17, 1930, 1 female, LeBronnec and H. Tauraa.

Chasmina tibialis (Fabricius).

Bombyx tibialis Fabricius, Syst. Ent., p. 578, 1775.

Hivaoa: Kaava Ridge, altitude 2460 feet, January 7, 1932, at light, 1 male, LeBronnec.

Fatuhiva: ridge east of Omoa [Oomoa] Valley, altitude 3100 feet, August 28, 1930, 1 male, LeBronnec.

Uapou: Teavanui Pass, altitude 2900 feet, November 28, 1931, 1 female, LeBronnec.

SUBFAMILY ERASTRINIÆ

Amyna octo (Guenée).

Perigea octo Guenée, Noct., 1, p. 233, 1852.

Tahuata: Hanahevane Valley, seashore, July 15, 1930, 13 males, 6 females, July 16, 1930, 7 males, 4 females; Vaitahu, May 21, 1930, at light, 2 males; Kiinui Valley, altitude 1100 feet, April 16, 1930, 26 males, 11 females, and altitude 1200 feet, June 14, 1930, 3 males, 3 females, LeBronnec and H. Tauraa.

Uapou: Hapava, altitude 500-600 feet, December 13, 1929, on bunch grass, 1 male; Hakahetau Valley, altitude 1000-2000 feet, January 29, 1930, 1 male; R. R. Whitten.

Nukuhiva [Nukahiva]: Taiohae, sea level, June 4, 1931, at light, 2 males, 1 female, LeBronnec and H. Tauraa.

Uahuka: Hanahoua Valley, altitude 45-60 feet, March 9, 10, 1931, 2 males, 4 females; Hane Valley, altitude 150 feet, March 9, 1931, 3 males; Vaipae Valley, altitude 250 feet, March 17, 1931, 1 female; Haavei Valley, altitude 270-300 feet, March 19, 1931, 4 males, 3 females, and (without record of height), March 19, 1931, 6 males, 1 female; Teanatuhiwa, altitude 300 feet, March 18, 1931, 9 males, 1 female, LeBronnec and H. Tauraa.

Eiao: altitude 50 feet, April 24, 1931, at light, 2 females, LeBronnec and H. Tauraa; Vaituha, altitude 200 feet, October 3, 1929, at light, 1 male, A. M. Adamson.

Hatutu [Hatutaa]: altitude 1500 feet, April 28, 1931, 4 males, 1 female, LeBronnec and H. Tauraa.

SUBFAMILY CATOCALINÆ

Achaea marquesanus Collenette.

Achaea marquesanus Collenette, Ent. Soc. Lond., Trans., p. 476, pl. 21, fig. 1, 1928.

Hivaoa: Kakahopuanui [Kakaho Puanui], altitude 2460 feet, January 5, 1932, at light, 2 males; Kaava Ridge, altitude 2460 feet, January 7, 1932, at light, 2 males; Feani Ridge, altitude 3970 feet, January 13, 1932, at light, 2 males; Tenatinaei, Feani Ridge, altitude 3970 feet, January 14, 1932, at light, 1 female; LeBronnec.

This species was described from a single male, taken at 3500 feet on Hivaoa in January 1925. Three of the present males have the basal and distal thirds of the forewing colored pinkish buff, contrasting with the cinnamon brown or Prout's brown of the medial third. Expanse: males, 61-70 mm.; female, 68 mm.

Achaea janata (Linnaeus).

Geometra janata Linnaeus, Syst. Nat., Ed. 10, p. 527, 1758.

Hivaoa: Kaava Ridge, altitude 2460 feet, January 7, 1932, at light, 3 females, LeBronnec.

Eiao: Vaituha, sea level, October 2, 1929, 7 males, 3 females; altitude 200 feet, October 3, 1929, at light, 1 male, 1 female, A. M. Adamson.

Mocis frugalis (Fabricius).

Noctua frugalis Fabricius, Syst. Ent., p. 601, 1775.

Fatuhiva: Uia [Ouia] Valley, altitude 100 feet, September 2, 1930, 1 female; Teatapu, altitude 1400 feet, August 19, 1930, 1 female; Hanavave Road, altitude 1560 feet, August 23, 1930, 1 female; LeBronnec.

Mocis trifasciata (Stephens).

Catephia trifasciata Stephens, Ill. Brit. Ent. Haust., 3, p. 128, 1829.

Hivaoa: Tahauku [Tahuaku], sea level, July 10, 1929, 1 male, 1 female, Mumford and Adamson.

Fatuhiva: Uia [Ouia] Valley, altitude 100 feet, September 2, 1930, 1 female, LeBronnec.

Uapou: Tekohepu Summit, altitude 3200 feet, November 28, 1931, at light, 1 female, LeBronnec.

Nukuhiva [Nukahiva]: Taiohae, sea level, June 4, 1931, at light, 2 males, LeBronnec and H. Tauraa.

Uahuka: Hane Valley, altitude 30-50 feet, March 13-16, 1931, at light, 1 male, 4 females; Hane Valley, altitude 150 feet, March 9-15, 1931, at light, 3 males, 3 females; Hanahoua Valley, altitude 60 feet, March 10, 1931, 1 male, 1 female; Haave [Haavei] Valley, altitude 270-300 feet, March 19, 1931, 6 males; Teanatuhiwa, altitude 300 feet, March, 18, 1931, 1 female; Hanatekeo, Hane Valley, altitude 950 feet, February 24, 1931, 1 male; LeBronnec and H. Tauraa.

Eiao: altitude 50 feet, April 17 and 25, 1931, at light, 2 females, LeBronnec and H. Tauraa.

SUBFAMILY PHYTOMETRINAE

Phytometra chalcites (Esperance).

Noctua chalcites Esper, Nat. eur. Schmett., 4, pl. 141, fig. 3, 1789; p. 447, 1798.

Uahuka: Hane Valley, altitude 30 feet, March 15, 1931, at light in the laboratory, 1 male, LeBronnec and H. Tauraa; Hanahoua Valley, altitude 45 feet, March 9, 1931, 1 female, LeBronnec and H. Tauraa.

SUBFAMILY OPHIDERINAE

Anomis flava flava (Fabricius).

Noctua flava Fabricius, Syst. Ent., p. 601, 1775.

Uapou: Tekohepu Summit, altitude 3200 feet, November 28, 1931, at light, 2 females, LeBronnec.

Nukuhiva [Nukahiva]: Tapuaooa, altitude about 2500 feet, May 30, 1931, 1 female, LeBronnec and H. Tauraa.

Eiao: Vaituha, sea level, October 2, 1929, 2 males, 1 female, A. M. Adamson.

The two males and one female from Eiao are rather small for the species, measuring in expanse respectively 29, 26, and 28 mm. The female from Nukuhiva measures 33 mm., and the two females from Uapou, 34 and 35 mm.

Anticarsia irrorata (Fabricius).

Noctua irrorata Fabricius, Spec. Ins., Append. 2, p. 506, 1781.

Uahuka: Hanahoua Valley, altitude 45-60 feet, March 9 and 10, 1931, 1 male, 1 female; Vaihaatiki, altitude 250 feet, March 11, 1931, 1 female; Haave [Haavei] Valley, altitude 270 feet, March 19, 1931, 1 female; Vaipae Valley, altitude 250 feet, March 17, 1931, 1 male, 2 females; Maninoa Valley, altitude 570 feet, March 11, 1931, 1 female; LeBronnec and H. Tauraa.

SUBFAMILY HYPENINAE

Simplicia caeneusalis (Walker).

Sophronia (?) *caenusalis* Walker, List Lep. Ins. Brit. Mus., 16, p. 94, 1858.

Hivaoa: Kaava Ridge, altitude 2460 feet, January 6, 1932, at light, 1 female, LeBronnec.

Tahuata: Vaitahu, seashore, June 3, 1930, 1 female, LeBronnec and H. Tauraa.

Uapou: Tekohepu Summit, altitude 3000 feet, November 30, 1931, beaten from *Weinmannia* species, 1 male, LeBronnec.

FAMILY SPHINGIDAE

SUBFAMILY ACHERONTIINAE

Herse convolvuli (Linnaeus).

Sphinx convolvuli Linnaeus, Syst. Nat., Ed. 10, p. 490, 1758.

Eiao: Vaituha, sea level, October 2, 1929, 2 males, A. M. Adamson; altitude 50 feet, April 24, 1931, at light, 2 males, 1 female, LeBronnec and H. Tauraa.

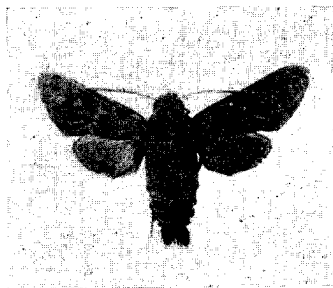
The red color of the metanotal and abdominal patches in these specimens is largely, but not entirely, replaced by warm buff.

SUBFAMILY PHILAMPELINAE

Chromis erotus eras (Boisduval).

Deilephila eras Boisduval, Voy. Astrol., Lep., p. 185, 1832.

Hivaoa: Atuona, May 15, 1929, 1 female, May 24, 1929, 1 female, May 25, 1929, 1 male; Mumford and Adamson.



a



b

FIGURE 3. *Macroglossum marquesanum*, new species: a, type specimen, male; b, genitalia.

Fatuhiva: Omoa [Oomoa] Valley, near sea level, August 18, 1930, 1 male, September 26, 1930, 1 male, 1 female, LeBronnec.

Nukuhiva [Nukahiva]: Taiohae, sea level, July 23, 1931, at light, 1 male, LeBronnec and H. Tauraa.

Uahuka: Hane Valley, altitude 150 feet, March 13, 1931, at light, 1 female, LeBronnec and H. Tauraa.

Eiao: altitude 50 feet, April 16, 1931, at light, 1 male, April 24, 1931, at light, 1 male, LeBronnec and H. Tauraa.

Macroglossum marquesanum, new species (fig. 3, *a*, *b*).

Male

Palpus, head, and thorax brownish olive, the palpus lighter beneath. Antennal shaft sepia. Abdomen brownish olive, segments 3 and 4 with large Sanford's brown dorso-lateral patches and with small whitish lateral patches distally; segments 5 and 6 with large fuscous black dorsolateral patches, changing to Sanford's brown laterally; segments 2 to 7 with a narrow band of fuscous black distally, bordered narrowly with Sanford's brown; anal tuft brownish olive narrowly bordered with Sanford's brown. Pectus and legs brownish olive, the tarsi irrorated thickly with darker scales. Venter Sanford's brown, with a narrow band of fuscous black distally on each segment. Forewing bistre to brownish olive; three faintly defined straight bands across the wing, the antemedial and medial broader than the postmedial; between veins R_4 and R_5 , about 4 mm. from the apex, a faintly defined patch of Sanford's brown; fringe bistre. Hindwing and fringe Sanford's brown, the brownish olive of the abdomen slightly invading the base of the wing. Under side of forewing Sanford's brown, a terminal border of fuscous, broadening from apex to vein M_2 , thence narrowing to a point at the tornus; fringe fuscous. Under side of hindwing Sanford's brown, basal area orange buff, costa bordered narrowly with fuscous; fringe Sanford's brown. Expanse: males, 60-65 mm.; length of antenna, 15-16.5 mm.

Hivaoa: Kaava Ridge, altitude 2460 feet, January 7, 1932, at light, 3 males, LeBronnec.

This interesting endemic species appears to be most nearly related to *M. vacillans* Walker (1864), which has a range from Sumbawa eastwards to Queensland. The palpus is shorter and less pointed than in *M. vacillans*, the antenna thicker and nearly twice the length, the upper side of hindwing without dark marking. In the genitalia, the harpe of *M. marquesanum* is blunt-ended and much broader than in *M. vacillans*. *M. marquesanum* is rather widely separated in structure and appearance from *M. hirundo* Boisduval (1832) of Tahiti and other islands further west. The genus is not represented in Hawaii.