NEUROPTERA

NEUROPTEROID INSECTS FROM GUAM

By NATHAN BANKS
HARVARD UNIVERSITY

In 1936, O. H. Swezey and R. L. Usinger collected insects on Guam, and through the kindness of Mr. Swezey, I have examined the neuropteroid forms. There are 20 species present in the collection, the great majority psocids; five species are new. The others were first described from various parts of the Pacific area, but their real distribution is not known, since these fragile insects have been collected from but few islands. Fair sized collections have been made in only two island groups, the Hawaiian and Philippine, and these have almost nothing in common. Guam, however, has species from both groups.

CORRODENTIA

FAMILY PSOCIDAE

1. **Psocus kauaiensis** Perkins, Fauna Haw. 2(2): 79, 1899.

Mt. Tenjo, May 5; Dededo, May 11; Machanao, June 5; Sumay Road, June 21, on *Heritiera littoralis;* 8 specimens.

This is a common species in the Hawaiian islands.

2. **Myopsocus bakeri** Banks, Phil. Jour. Sci. **11,** D: 199, pl. 1, fig. 3, 1916.

Tarague, May 17, 5 specimens.

All are darker than the type from Luzon, but the marks are in the same place, and the venation and hind border of the wing the same as the type, which came from the Philippines.

3. **Hemipsocus chloroticus stenostigmus,** new variety (fig. 1, *d*).

Differs from the numerous *chloroticus* seen in having the pterostigma much narrower, only little more than one half as wide as the costal area before it, and the posterior side, instead of being plainly bowed, is straight for most of the distance; the radial sector and medius connected by a short cross vein usually united at one point. Fork of radial sector is as long as its pedicel; fork of medius 3 times as long as pedicel; areola postica subtriangular, more than twice as long as high.

Agana, May 4, 1 small male.

Variations are so common in the venation of Psocidae that it is hardly safe to call this a separate species, even though the shape of the pterostigma is quite constant.

True *H. chloroticus* occurs from Ceylon eastward to Formosa, and also in the Philippines.

4. Caecilius arotellus, new species (fig. 1, *a, c*).

Body pale yellowish, no mark on clypeus; vertex sometimes a little darker, and sometimes darker on sides of thoracic notum; legs and antennae pale. Wings hyaline, sometimes very faintly yellowish, often yellowish on pterostigma, not at all fumose. The wings are moderately slender; in the forewings the stigma is long, swollen behind, and tapering to tip; the union of radial sector and medius is quite short, but little more than one half the basal section of radial sector; the fork of radial sector is very slender; much longer than its pedicel; the branches of the medius nearly straight; the areola postica, nearly twice as long as high, highest toward base, and reaching fully one half way on hind margin to the branch of medius; the principal veins have one row of hairs, the stigma with many hairs. In hindwing, the medius curves up less divergent from the radial sector than usual; union of radial sector and medius is about twice as long as the basal section of radial sector. Length of forewing, 2 to 2.2 mm.

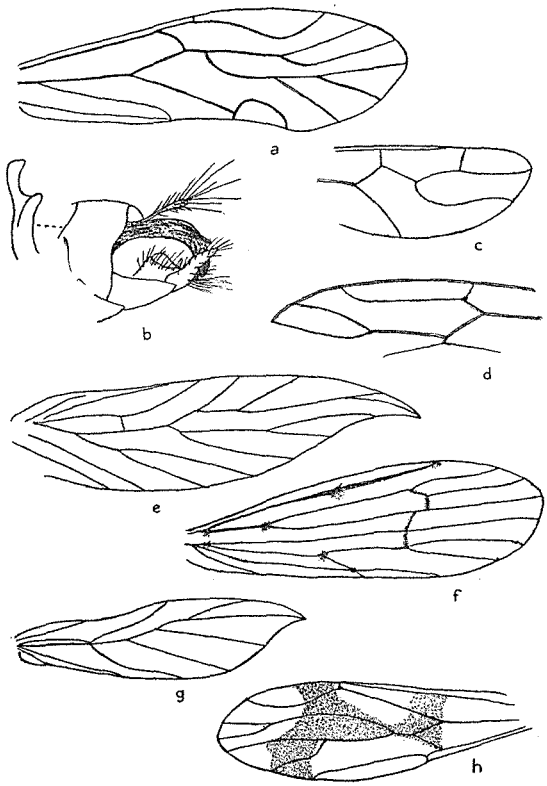

FIGURE 1.—**a,** *Caecilius arotellus,* forewing; **b,** *Œcetinella punctata,* genitalia from side, and lower appendage from below; **c,** *Caecilius arotellus,* part of hind wing; **d,** *Hemipsocus chloroticus* variety *stenostigmus,* stigma; **e,** *Echmepteryx pretiosa,* forewing; **f,** *Œcetinella punctata,* forewing; **g,** *Echmepteryx pretiosa,* hindwing; **h,** *Mepleres ornatus,* forewing.

Piti, Machanao, Mt. Tenjo, Dededo, Fonte Valley, Sumay, Merizo, Upi Trail, Santa Rosa Peak, May, July, August, October, November, many speci-

mens. Type and paratypes in collection of Hawaiian Sugar Planters' Association, paratypes also in Museum of Comparative Zoology (no. 23828).

The venation is similar to that of *C. luridus* Enderlein of New Guinea, but the wing is more slender, the areola postica larger, and the wing not fumose. The apical half of forewing is very much like *C. angustus* Enderlein of Australia, but the wing is not so long, and the cubitus runs nearer to the anal than to the medius; from *C. castella* Banks of the Philippines it differs in having the fork of the radial sector much more slender, and in the larger areola postica; these differences hold in a considerable series of each species.

5. **Mepleres ornatus,** new species (fig. 1, *h*).

Head and thorax rather rufous, both with long, nearly erect, pale hairs, numerous on the lower part of face; legs yellowish; antennae yellowish with many long, stiff hairs; abdomen yellowish brown, short. Wings whitish, with whitish veins, except in the brown areas. Forewing with a transverse mark behind base of stigma back to hind margin, connected to a broad median streak behind radial sector over the median but stopping before fork of medius, and extending above to costal margin beyond stigma, and behind over basal part of the areola postica. Hindwings with a faint brown mark over the basal part of radial sector and wing tip faintly clouded. Hairs along veins and wing margin long as usual. Fore wing slender; stigma as long as width of wing, but not enlarged beyond middle, sides parallel; radial sector and medius united for a short distance; fork of radial sector wide at base and as long as its stem; fork of medius very slender and about one half as long as fork of radial sector. Areola postica very long, nearly as long as the stigma, nearly evenly convex, and at greatest width much wider than the space above to the medius. In the hind wing, the union of radial sector and medius is twice as long as in forewing; the branch of radial sector is much nearer to the forking than to the tip of wing. Length of forewing, 2 mm.

Piti, July 5, 1 specimen; Barrigada, June 12, 1 specimen. Type in collection of Hawaiian Sugar Planters' Association, paratype in Museum of Comparative Zoology (no. 23829).

6. **Pseudocaecilius marshalli** Karny, Jour. Ent. Res. **16**: 288, 1926.

Piti, July 5, Oct. 27; Sumay, Oct. 17; Machanao, June 5; Libugon Farm, July 10.

One specimen has the radial sector and medius united at only one point, and in some others there is only a very short space of union; in one it is united for a greater distance than figured by Karny. It was described from the Fiji islands.

7. **Peripsocus suffitus** Enderlein? Hist.-Nat. Mus. Nat. Hung., Ann. **1**: 293, pl. 14, fig. 71, 1903.

Tumon, Nov. 13.

This specimen is much like *suffitus* in wing shape and color, but the stigma is darker and slopes more toward tip, and fork one is longer. *P. suffitus* was described from one specimen from New Guinea.

8. **Ectopsocus hawaiiensis** Enderlein, Zool. Anzeig. **41**: 356, 1913.

Machanao, June 5, 2 specimens.

9. **Micropsocus waterstradti** Enderlein, Zool. Jahrb. Syst. **14**: 547, pl. 35, figs. 11, 12, 1901.

Mt. Tenjo, May 3, 3 specimens.

The stigma shows a distinct basal dark spot as is usual in this genus, although it is not shown in Enderlein's original figure. The branches of the medius are nearer each other than in his figure, but vary in the three specimens. The species was described from New Guinea.

10. **Psyllipsocus ramburii** Selys-Longchamps, Ent. Mo. Mag. **9**: 146, 1872.

Piti, Nov. 2, 8, two specimens.

Widely spread, often in houses or greenhouses. Both specimens have the venation with the five-sided cell as figured by Enderlein (Mus. Nat. Hung., Ann. **1**: pl. 11, fig. 59c) but the forks of the radial sector and medius are not connected by a cross vein.

11. **Psylloneura simbangana** Enderlein, Hist.-Nat. Mus. Nat. Hung., Ann. **1**: 316, figs., 1903.

Piti, Sept. 20, 2 specimens.

Enderlein's type was perhaps teneral and thus reddish; these are wholly dark, and wings evenly fumose; they agree in venation with his figure 58c. It was described from southern Dutch New Guinea.

12. **Sva dahliana** Enderlein, Zool. Jahrb. Syst. **20**: 110, 1904.

Machanao, June 5; Agana, May 25; Tarague, May 17. One specimen each.

This species was described from an alcoholic specimen from Ralum, Bismarck Archipelago. In these dried specimens, the scales are more numerous; those on the wing, seen from behind, have a decidedly purplish hue, and those on the thorax above, seen from in front, are also purplish. The body and wings are very dark brown, in one the head is almost black; the antennae are pale, except the brown basal part; the hair around outer margin of forewing is snow white, before it, the hair on costa is nearly black.

13. **Echmepteryx pretiosa,** new species (fig. 1, *e, g*).

Face yellowish to gray, hair in middle and below white, darker each side by eyes; eyes with short, erect hair; vertex pale, with white hair, sometimes a dark spot each side; thorax with mostly pale yellowish hair, a tuft of dark each side in front; antennae gray, with basal joint brown, covered with fine, stiff hair; legs pale, tibiae with two dark bands; wings with mostly yellowish to whitish scales, but with spots and transverse bands of dark brown to black; two brown spots near base; an almost black band near middle, widened in middle behind, more or less connected to lateral dark spots beyond, and thence to a larger median spot; the extreme wing tip dark; anterior fringe mostly yellowish, but from middle out with patches of dark; hind fringe white toward base, then a large black patch beyond which is mostly whitish to gray.

Fringe on outer side fully one half width of wing. The scales as usual in genus are partly broad and short, with erect scales longer and slender, pointed; these scales in the proper light have a golden shimmer. Hind wings whitish hyaline, with gray fringe toward

tip in front, and a very long white fringe on outer side, which toward base is fully two thirds of the wing width.

Both wings are falcate at tip, the fore pair more strongly so; hindwing with the front margin toward base plainly concave; venation as figured. Length of forewing, 1.4 to 1.6 mm.

Piti, Agat, Machanao, Upi Trail, Mt. Tenjo, Mt. Chachao, and Mt. Alifan, mostly in May, a few in late April and early June.

Type and paratypes in Hawaiian Sugar Planters' Association collection, also paratypes in Museum of Comparative Zoology (no. 23830).

NEUROPTERA

Family NOTHOCHRYSIDAE

1. **Chrysopa oceanica** Walker, List Neur. Ins. Coll. British Mus. (2) : 238, 1853.

Yigo, Piti, Orote Peninsula, Umatac, Barrigada, Sumay, March to November, many specimens.

This species is known from various islands of the Pacific.

2. **Chrysopa tagalica** Banks, Wash. Ent. Soc., Proc. **15** : 174, 1913.

Mt. Alifan, May 21, Usinger, 1 specimen.

This species differs from *C. basalis* in lacking the black mark on the basal joint of the antennae. It was described from the Philippines.

3. **Chrysopa satilota** Banks, Psyche **17** : 102, 1910.

Merizo, June 11; Piti, Sept. 15, April 30.

Known from Samoa, Australia and elsewhere.

Family MICROMIIDAE

1. **Eumicromus pusillus** (Gerstaecker).

Micromus pusillus Gerstaecker, Ver. Neu-vorpom., Mitt. **25** : 171, 1893.

Piti, Inarajan, Tarague, Agana, Fadian, Dededo, Barrigada, Machanao, April to November, many specimens.

Widely distributed from Malacca out over much of Oceania.

Family MYRMELEONIDAE

1. **Distoleon perjurus** (Walker).

Myrmeleon perjurus Walker, Cat. Neuropt. Ins. British. Mus., 340, 1853.

Piti, Yona, two specimens.

I identify these with this species of Walker, since they are closely related to his *striola* (*bistrigatus* Rambur), but differ in having the last tarsal joint marked with black, as I noted on the type in 1912. They show the spot at the

rhegma more plainly than in *bistrigatus,* and these two specimens show a fainter mark where the anal connects with the cubital fork; the mark near stigma is distinct, and the last radial cross vein is also dark; the radius in these specimens has several moderately long dark streaks (not in *bistrigatus*) and at these places the radial cross vein is also dark. The wings are more slender than in *bistrigatus. M. torvus* Walker appears to be the same, and its description fits one of the specimens better in that the streak in the hindwing is broken; the type also has the last tarsal joint partly dark.

I noted in 1912 that *M. violentus* Walker was also the same species, except that the streak in the hindwing was not distinct; this, however, varies in many species. *D. perjurus* and *D. violentus* were described from the "Sandwich Islands"; *D. torvus* without locality.

Petersen (1918) puts *perjurus* as a synonym of *bistrigatus* for which he makes a new genus, *Eidoleon,* based on the fact that *bistrigatus* in the hindwing has a "third anal vein", or rather a cross vein from the second anal to the wing margin. These specimens I have identified as *perjurus* do not possess that vein, so go in *Distoleon;* however, I am doubtful of the value of this vein as a generic character.

2. **Myrmeleon celebensis** McLachlan, Tidjschr. Ent. 18: 5, pl. 1, fig. 8, 1875.
Agat, May 31; Piti, Aug. 18.

Recorded from many of the islands in the northern parts of Oceania, from Philippines, Sunda Islands, and Malacca.

TRICHOPTERA

Family LEPTOCERIDAE

1. **Œcetinella punctata,** new species (fig. 1, *b, f*).

Body pale yellowish, head with white hair, also white hair on palpi; antennae pale, scarcely darker at tips of joints; legs pale, unmarked.

Wings hyaline, with pale, almost white hair; fringe of hindwings gray; on forewings the forkings are clouded with brown, also a brown spot at base of the thickened part of the radius, and one at the tip, cross veins dark and narrowly margined with dark; on each side of thickened part of radius the membrane is opaque. In forewing, the discal cell reaches much farther basad than the base of the fifth fork (in *confluens* nearly equal); the forking of medius is near base of wing, opposite to the origin of the radial sector. In hind wing, the forking of radial sector more basad than in *Œ. confluens;* fully twice the length of the cross vein before base of fork three.

The male genitalia show a heavy, dark median piece from above, bent downward, near its base each side is a slender spatulate process, with long hairs at tip, near the turn of the heavy dark piece is a slender projection; the lower appendages are rather slender, but little curved, and, seen from below, show an inner projection near apical third. Length of forewing, 5 mm.

Piti, Nov. 29, 1 specimen. Type in collection of Hawaiian Sugar Planters' Association.