

## Notes on Hawaiian Psyllidae.

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A small collection of Psyllidae submitted to me by Mr. O. H. Swezey is the basis for the following notes:

*Trioza ohiacola* Crawford is represented by a number of specimens from various parts of Oahu—Waimalu, Tantalus, and Kaala Mountain. One lot, from Tantalus, is of special interest, as these specimens were bred from galls on the leaves of *Metrosideros glaberrima*. These are very typical of the species, but another lot from the same locality bred from galls on the stems and buds of the same food plant (lehua) are not typical. These are closer to *Trioza iolani* Kirkaldy. It shows that these two species are very closely related, apparently now in the process of evolution.

*Trioza iolani* Kirkaldy is represented by specimens from Waimalu, Palolo, Tantalus, Konahuanui and Punaluu, all on Oahu, on Ohia lehua (*Metrosideros*).

*Hevaheva perkinsi* Kirkaldy is represented by specimens from leaf galls bred on *Pelea*, from Palolo, Mount Kaala, and Mount Konahuanui.

The same species occurs on Hawaii, several specimens having been taken by Swezey on the Upper Hamakua Ditch Trail, on leaves of *Pelea*. This is the first time this species has been found on Hawaii. The specimens differ from the Oahu representatives in having shorter hairs on the wing veins.

This species is now noted for the first time as occurring on Kauai, a number of specimens having been collected by Swezey at Alakai Swamp on August 22, 1921. The nymphs are reported as living free on the surface of leaves of *Pelea*, not forming galls. There seem to be two habits of larval life or else two species which are morphologically distinct, for one finds galls formed by this species on *Pelea*, and yet some individuals are found living free in the nymph stage and not forming galls. Both of these conditions have been noted on Oahu, while the

Kauai specimens, so far as noted, were only of the non-gall forming type. A more thorough study of this would be desirable.

*Hevaheva silvestris* Kirkaldy is a resident of Kauai, although it has not been previously reported from there. A good series of this species was obtained by Swezey on leaves of *Pelea*, not forming galls, but living free on the surface of the foliage. This appears to be an incipient species, for there are several minor differences to be noted between the Kauai and Oahu specimens. The Kauai specimens have a long, narrow, whitish or clear area on the costal margin, in addition to the clear spot at the end of the clavus characteristic of the species. A few individuals, however, do not have the costal spot. The genal cones are shorter than in the Oahu specimens, and are usually tipped with white. The antennae are usually a little shorter.

These were collected by Swezey at Kalalau, August 20, 1921, and at Nualolo on September 1, 1921, on *Pelea*.

***Hevaheva minuta* n. sp.**

A very small species, somewhat resembling *H. perkinsi*, of which it is probably a derivative. Length of body (female) 0.8 to 1.0 mm., (male) 0.6 to 0.9 mm., length of forewing 1.2 to 1.5 mm. General color, orange to lemon-yellow, eyes often brown or black. Vertex and thoracic dorsum pubescent.

Head short, strongly deflexed; vertex foveate on each side of median line; genal cones very short, acutely pointed, situated well under head and visible only in frontal aspect. Antennae short, only a little longer than width of head (including eyes), black at tip.

Thorax small, pubescent; legs short. Forewings hyaline, rounded at apex, veins setiferous, without the three marginal spots on apical angle (as is characteristic of the genus).

Abdomen short. Female genital segment almost as long as rest of abdomen, dorsal valve with long pubescence; dorsal and ventral valves nearly equal in length, subacute. Male genital segment small, forceps as large as anal valve in lateral view, both broadest at base and tapering to subacute apex.

Locality. Kauai—Nualolo (September 1, 1921) and Kōkee (August 21, 1921), collected by O. H. Swezey on leaves of *Pelea*, reported as living free on the leaf surface. The nymphs, according to Swezey, "exude two long blue filaments from anal end."



*Trioza kauaiensis* n. sp.

A large species suggestive of *T. iolani* and *T. hawaiiensis*, but different in several characteristics. Male about 2 mm. long, and female about 2.5 mm. long, with forewings over 3 mm. in length. General color, orange-yellow; abdomen of female black.

Head: Vertex foveate, pubescent; genal cones short and broad, about half as long as vertex or less, bluntly rounded at apex. Antennae a little over twice as long as width of head (including eyes), slender. Thorax strongly arched, slightly pubescent. Forewings large, broadly rounded, costa pubescent. Abdomen large; female genital segment short, blunt at apex. Male genital segment small, forceps very broad at base, tapering to a subacute point, triangular in lateral aspect; anal valve with a broad flange on posterior margin, about as long as forceps.

Locality: Kauai—Kalalau, Nualolo, and Kokee (August and September, 1921), collected by O. H. Swezey on Ohia lehua and on *Suttonia* and *Dodonaea*; probably the two latter are not food-plants.

The black abdomen of the female, the very broad anal valve of male, and the short genal cones are the most distinctive characteristics of this species.

*Trioza lehua* n. sp.

A small, very pretty species suggestive of *Kuwayama minuta*, the entire insect to tip of wings being about 2 mm. or less in length. General color, orange to lemon color; eyes black.

Vertex foveate; genal cones small, short, acutely pointed. Antennae short, only a little longer than width of head (including eyes), slender. Thorax slender, not strongly arched; legs short. Wings hyaline, clear. Abdomen slender, female genital segment about half as long as rest of abdomen, subacute. Male genital segment small; forceps slender, acutely pointed; anal valve small.

Locality: Kauai—Nualolo (September 1, 1921), collected by O. H. Swezey on Ohia lehua (*Metrosideros*).

*Kuwayama gracilis* Crawford on Ohia lehua from Waimalu and Waialae Nui, Oahu.

*Kuwayama nigricapita* Crawford is represented by several specimens from the Upper Hamakua Ditch Trail, some of these being typical and some showing a tendency toward darker color of the entire dorsal half of the body. Ohia lehua is the food-plant.