

was already about 10 feet tall. Some of the lower leaves were dying, and investigation had shown them to be rotten at the base, as well as part of the main stem of the plant, and the beetle and its larvae quite numerous, apparently the cause for the decay.

I examined this plant Jan. 1st, and also some others nearby and found them to be infested also. Specimens of the larvae and pupae were obtained for preservation.

There has been some uncertainty as to the species of this insect. The Mexican sisal borer is **Scyphophorus acupunctatus* Gyll. Our specimens agree fairly well with specimens from Mexico which are in the cabinets at the Experiment Station, H. S. P. A. Some of the present lot of specimens have been sent away for comparison and determination.

Hyposoter exiguae (Viereck) in Hawaii. (Hymenoptera).

BY O. H. SWEZEY

(Presented at the meeting of June 3, 1926.)

Recently this ophonid has been found parasitizing armyworms quite abundantly. It was first discovered at the Waiialae Ranch, October 28, 1925, when a few cocoons were found on grass leaves and the parasite reared from them. It was not till some more cocoons were found on grass in a field of sorghum at the Hind-Clarke dairy at Wailupe, November 13, that the host was determined in these cases. Beside each cocoon was the caterpillar skin of the host, which could be identified as that of *Spodoptera mauritia* (Boisd.). Similarly, two cocoons of this parasite were found on corn leaves at the U. S. Experiment Station, November 25. In each case, a caterpillar skin of *Spodoptera exigua* (Hüb.) was present. A few small larvae of this moth were feeding on the corn leaves. On November 27 the cocoons were found very abundant on grass at Koko Head, where caterpillars of *Spodoptera* were numerous. Several hundred of these cocoons were collected and sent to Oloa, Hawaii, in an attempt to establish the parasite on that island, as we did

*This determination was confirmed by Dr. Guy A. K. Marshall of the Imperial Bureau of Entomology in letter dated February 5, 1926. [Editor.]

not then know of its being established there. A small number of cocoons were taken to Molokai in December, where the adults that issued were liberated.

On February 7, 1926, cocoons were found on Bermuda grass near the shore between Waimanalo and Makapuu Point. A few *Spodoptera mauritia* caterpillars were present in the grass and indicated what the host was in this case.

On February 21, in Kawaihapai Valley on the north side of the Waianae Range, I found some *Dodonaea* trees on which the caterpillars of *Scotorythra paratactis* Meyrick were quite numerous. Several cocoons of *Hyposoter* were found on the trees and several of the parasites were reared from caterpillars that were collected for rearing.

On February 27, at Spreckelsville, Maui, I found cocoons on the leaves of *Nicotiana glauca*, and reared the parasite from a caterpillar of *Spodoptera exigua*, several of which were feeding on the same leaves.

On March 3, at Waiopai, Maui, on the south side of Haleakala, at about 700 feet elevation, quite a good many old cocoons were found on grass which had been infested with armyworms. Only a few were present at the time, and they were *Cirphis unipuncta* (Haw.). Three of this same armyworm were found parasitized by *Hyposoter* in Bermuda grass near the Haleakala Ranch office, March 4.

March 5, Mr. Van Zwaluwenburg found the cocoons abundant and parasitized armyworms in waste land across an irrigation ditch from a cane field at Wailuku Sugar Co., Wailuku, Maui. On the same day, at Lahaina and Olowalu, Maui, cocoons were found in nut grass at the former and in Bermuda grass at the latter.

May 13 I found two cocoons on ferns in the Olinda koa forest on Maui. I could not be positive of the host in this instance, but the old caterpillar skins appeared to be those of *Nesamiptis obsoleta* (Butl.) a grass-feeding caterpillar. These records indicate quite a wide spread on Maui already, where the parasite has become established of itself and dispersed naturally.

Apparently the parasite became established from the colony sent to Olaa, Hawaii, in November, 1925, for on May 8, 1926, I found their cocoons readily in a cane field near where the

colony was placed. I also collected two adults. Their host there was the common armyworm (*Cirphis unipuncta*), except that I found one of their cocoons with the empty skin of the caterpillar of *Plusia chalcites* (Esp.) attached. A few cocoons were found in grass of a roadside some little distance from this field. From this beginning, it will no doubt spread very widely on Hawaii.

On May 11, I found two cocoons in grass at Waikii in the Parker Ranch at an elevation of 4,700 feet. *Cirphis unipuncta* was the host there. The parasite must have reached this place independently, for I know of no colonies having been sent there for liberation.

Specimens of the parasite were sent to the U. S. Bureau of Entomology for determination, and in a letter from Dr. Howard dated May 4 he informs me that Mr. Cushman has determined it as *Hyposoter exiguae* (Viereck), originally described from California, where it was reared from *Laphygma exigua*. He stated that it had been reared from *Prodenia ornithogalli* also in Arizona. *Hyposoter* is a subgenus of *Campoplex*, which name I had been using while awaiting authoritative determination.

It is not known of course how this parasite arrived here from California. Perhaps as living cocoons in baled hay, or more likely on some kind of fresh vegetables. At any rate, it is already widely spread, and gives promise of being a very valuable armyworm parasite. So far its known hosts here include *Cirphis unipuncta*, *Spodoptera mauritia*, *S. exigua*, *Plusia chalcites*, *Nesamiptis obsoleta*(?), and *Scotorythra paratactis*. The latter being a close relative of the caterpillar (*Spodoptera paludicola*) that recently defoliated the koa forest at Olinda, Maui, and the fact that I found *Hyposoter* already there, may indicate that it might help in preventing a repetition of such defoliation of the koa forests. Of 35 caterpillars of *Spodoptera mauritia* collected at Koko Head, November 27, this parasite was reared from 8.6% of them. The large number of cocoons found on the grass at that place would indicate a much higher rate of parasitism.

Spodoptera mauritia caterpillars were very readily parasitized in a breeding jar, mostly the smaller or half-grown ones being used. The parasite larva makes a rapid growth inside the

caterpillar, but I neglected to take note of the dates for record. When the parasite larva is full-grown, the caterpillar dies on the leaf where it has been feeding and the parasite larva emerges from the skin and spins its cocoon in this position, the empty caterpillar skin remaining attached at one end of the cocoon. One parasite larva was observed to commence spinning the network for its cocoon before it had fully issued from the skin of the caterpillar. The cocoon is cylindrical, symmetrically rounded at both ends, about 6 mm. long, rather dense, white with a few dark patches. In one instance observed, the adult issued from the cocoon 8 days after the cocoon was commenced. The life cycle, though not accurately determined, is probably about 3 or 4 weeks. A short life cycle as compared with that of its hosts.

Notes on *Rhyncogonus extraneus* (Col.).

BY O. H. SWEZEY

(Presented at the meeting of October 7, 1926.)

This weevil was described by Perkins in *The Fauna Hawaiiensis*, III, Part VI, p. 651, 1910. The date of capture was not given. The habitat given is, "Oahu; lower slopes of the mountains, below the forest." In correspondence with Dr. Perkins concerning this and other species of *Rhyncogonus*, the following remarks on *extraneus* were made in a letter dated March 20, 1923:

"The original specimens came from the lower slopes of the mountains (below forest) Kalihi-way, and I think were found on one of the common Verbenaceous weeds. Either this or something very similar occurred years ago in Kau, near Kapapala (Monsarrat's ranch), also I believe on the same plants. I seem to have none of these Hawaii specimens myself at this time, but there ought to have been some at the Board of Agriculture lab. or at the H. S. P. A. Experiment Station. Possibly they were never mounted, as we were in the thick of the lantana campaign at the time. It is, however, possible that the Kau species was the same as