

Insect Fauna of *Panicum Torridum*, a Native Grass in Hawaii

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This grass is occasionally found growing in patches in the dry regions of Kaimuki, Koko Head and the southeast end of the Koolau Mountains. It is an annual, and in these dry regions comes up only after a rainy spell. Usually it occurs in somewhat shady places, as for example beneath kiawe trees.

On February 22, 1927, while scouting for armyworms and their parasites, I came upon a newly-grown patch of this grass beneath kiawe trees near the summit of Koko Head. Almost at once I noticed that some of the grass heads were dead, and on examination found that this was caused by a borer, a lepidopterous larva which was new to me. Therefore I set to work to secure as many of these borer larvae as possible in order to rear to maturity and determine what it was. In doing this I noted a number of other insects attacking the grass, and I think that it would be worth while listing these and their associates also found present. A second visit was made to the region on March 22. The insects listed include those collected or reared from material obtained at these visits.*

Acrapex exanimis (Meyrick).

The moths which were reared from the stem borers found, turned out to be this species, which was described as *Caradrina exanimis* by Meyrick in Fauna Hawaiiensis, I, p. 153, 1899, from a single specimen collected in Kona, Hawaii, by Dr. Perkins. Nothing had been seen of it since. This single specimen is in the British Museum. Having never seen this species, when moths

* On January 11, 1928, the Koko Head region was again visited and considerable evidence of the borer was found in the new growth of *Panicum torridum*. From material collected half a dozen moths were reared. On February 11, 1928, in *Panicum kaalense* at about 2,500 feet elevation on the base of Mt. Kaala, similar "dead hearts" were found abundant, but no larvae were found in any of them. Possibly these were the work of this same moth, but it remains to be proven by subsequent observations.

issued from my *Panicum torridum* material, they looked so much like *Sesamia* (*Nonagria*) *inferens* (Wlk.) of which I found pictures and descriptions in literature, that I thought that it was it, or a related species. Hence, that here was a new immigrant insect that was likely to become a pest on rice and sugar cane, for *Sesamia inferens* is a pest on rice, sugar cane, corn, and grasses in India. Some scouting was done of rice fields and various grasses, but no evidence was found of the work of any stem borer. Also, some collected larvae were transferred to small cane plants in cages. Some of them ate a little, but none of them grew to maturity.

From larvae and pupae brought in from Koko Head, about a dozen moths were obtained. A few of these were sent to Mr. Edward Meyrick in England, for study and confirmation of identity. However, he recognized it as his species *exanimis*, and this was corroborated by comparison with the type in the British Museum, which had been placed by Hampson in the genus *Acrapex*, a genus closely related to *Caradrina* in which it was first placed. This is very close to *Sesamia*, too, the genus to which I had provisionally referred it. It was a relief to know that it was not a new immigrant pest that we had to deal with. It probably was an immigrant originally, for Hampson synonymizes with it *exsanguis* Lower, which is known in Queensland, but described three years later than *exanimis*.

Two clusters of eggs were found placed behind leafsheaths of the grass. There were 17 and 25 eggs in these clusters respectively. These hatched in about a week. They were used in a cage with sugar cane plants where they lived for a short while but eventually died, so that the life cycle was not determined.

Larvae obtained in the field and about full-grown, were whitish without markings, spiracles black, head uniform yellowish or stramineous, eyes black, thoracic shield concolorous with head, but paler. The larvae apparently migrate from one stem to another, for in many bored stems with "dead hearts" not enough eating had been done to suffice for the growth of a larva.

Pupation takes place in a slight cocoon where the larva finally finished eating. From larvae brought in, it is apparent that there is a period of a week or more after the larva finishes eating before

pupation takes place. About two weeks were occupied in the pupal stage. The pupa is about 11mm. long, rather slender, quite uniformly pale brown; the wing cases extend to the apex of the third abdominal segment; cremaster slightly blackened, blunt, somewhat roughened, without spines or hooks.

Meyrick has redescribed the moth on page 92 of this issue.

***Bedellia oplismeniella* Swezey.**

Quite a good many of the leaves contained mines of this little moth whose larvae so abundantly mine the leaves of the grass *Oplismenus compositus* everywhere in the native forests. Five adults were reared from mined leaves brought in. One parasite, *Secodella metallica* (Ashm.), issued from one of the mines.

***Omiodes demaratalis* (Walker).**

Two larvae of this grass leafroller were found in the usual rolled leaves. The moths were reared.

***Plusia chalcites* Esp.**

An empty pupa was found in a cocoon on a leaf. An egg was also found on underside of a leaf. The leaves showed the eating of *Plusia* caterpillars to some extent. On one leaf was a cocoon of *Hyposoter exiguae* (Vier.) with the *Plusia* skin attached. This parasite had fed on the *Plusia* caterpillar. An adult issued from the cocoon within a few days.

***Pyroderces rileyi* (Walsm.).**

The pink larvae of this scavenger moth were found feeding in the "dead hearts." Several of the moths reared out of material brought in.

***Aphis maidis* Fitch.**

Some of the plants had quite an infestation with this aphid. The following aphid enemies were present:

Coelophora inaequalis (Fab.). A ladybeetle.

Allograpta obliqua (Say). Syrphid fly maggots feeding on the aphids. The adult flies also present.

Micromus vinaceus Gerst. Eggs and larva.

Aphelinus maidis Timb. Five black parasitized aphids were found, from which the parasites issued a few days later.

Chrysopa lanatus Banks. One cocoon found, from which the adult issued ten days later.

Pseudococcus insularis Ehr.

There was considerable infestation by this mealybug, chiefly beneath the leafsheaths. From material brought in the following issued:

Scymnus debilis Lec.

Scymnus ocellatus Sharp. The larvae of these two ladybeetles were feeding on the mealybugs.

Gitonides perspicax Knab. A fly whose larvae were feeding among mealybugs.

Anagyrus swezeyi Timb. Mealybug parasite.

Thysanus dactylopii Timb. Hyperparasite of mealybugs.

Antonina indica Green.

Occurred at the base of the stems and on the roots.

Scolytid beetle.

A few beetles of a very small species were found boring in dead stems.

Thrips.

Two or three species were found in the flowering panicles.

One of these was described by Moulton as *Anaphothrips swezeyi* (page 107 ante).

Acari.

In a few places clusters of gravid female mites were found amongst frass where they had fed on and consumed the larvae of *Acrapex exanimis*.

Conocephalus saltator (Sauss.).

A few clusters of the eggs of this grasshopper were found beneath leafsheaths.