

- Raillardia ciliolata* D. C. (Kupaua?). *I. chambersi* (Kirk.); *I. raillardiae* (Kirk.).
- Raillardia menziesii* Gray (Kupaua?). *I. raillardicola* Muir.
- Raillardia platyphylla* Gray (Kupaua?). *I. raillardicola* Muir.
- Raillardia scabra* D. C. (Kupaua). *I. raillardiae* (Kirk.).
- Rumex* sp. (Pawale or Uhauhako). *I. ipomoeicola* (Kirk.).
- Sadleria* sp. (Amaumau). *I. amamau* Muir.
- Saccharum officinarum* L. (Ko) Sugar Cane. *Perkinsiella saccharicida* Kirk.
- Scaevola chamissoniana* Gaud. (Naupaka). *Leialoha scaevolae* Muir.
- Sesbania tomentosa* Hook & Arn. (Ohai). *Aloha ipomoeae* (Kirk.).
- Sida* sp. (Piima). *Nesodryas laka* (Kirk.).
- Sideroxylon* sp. (Alaa, Aulu or Kaulu). *Nesodryas hula* (Kirk.).
- Smilax sandwicensis* Kth. (Uhi, Ulehihi & Pioi). *I. ulehihi* Muir.
- Stenogyne kamehamehae* Waw. (Puaainaka, Maohiohi or Mohihi). *I. stenogynicola* Muir.
- Strongylodon lucidum* Seem. (Nukuiwi or Kaiwi). *I. blackburni* (Muir); *I. ipomoeicola* (Kirk.).
- Suttonia* sp. (Kolea). *N. hula* (Kirk.) (two specimens only); *N. donoanae* Muir (one specimen only).
- Suttonia sandwicensis* (A. D. C.) Mez. (Kolea laulii). *Leialoha suttoniae* Muir.
- Tetramolopium humile* Hbd. *I. tetramolopii* Muir.
- Touchardia latifolia* Gaud. (Oloná). *I. blackburni* (Muir).
- Urera sandwicensis* Wedd. (Opuhe). *I. blackburni* (Muir).
- Vincentia angustifolia* Gaud. *Kelisia sporobolocola immaculata* Muir.
- Zea mays* L. (Maize or Indian Corn). *Peregrinus maidis* (Ashm.).

### Notes and Observations on *Parandra puncticeps* Sharp (Coleoptera).

BY W. M. GIFFARD.

(Presented at the meeting of October 6, 1921.)

In July, 1921, the writer found in the dense, inside forest above the "twenty-nine mile" region in Olaa, Hawaii, at approximately 3800 feet elevation, a particularly rotted stump of *Suttonia*, which had been attacked by this Cerambycid. Due to its decayed condition and the absence of all bark, adult beetles were not seen, but a large number of the larvae and pupae were taken. The most part of these were preserved in alcohol for future study, but a number of the pupae were kept alive to be reared, and were later placed in a glass jar filled with the dry but rotted tree loam from the stump. By the end of August, eighteen adults (nine males and nine

females) had been reared from these pupae. In order to make a partial test of the longevity of the adult beetle, the last six specimens reared were kept under observation for four weeks, and later killed. This period could have been extended, as the beetles continued to exhibit considerable activity when emerging from the soil after dark. Their tendency during the night was to fight and mutilate each other, however, and it was deemed necessary to either kill them or have them ruined for specimens. During the period of observation, it was noticed that the beetles appeared above the coarse loam in the jar only after dark, and retired from one to two inches below immediately at or before dawn. During their activity at night, efforts were repeatedly made to keep them under closer observation, using for this purpose the ordinary 40-watt electric lamp in ordinary household use. On every occasion, however, within three minutes of their exposure to light, the whole six specimens had "dug in" and would not reappear until after the jar had again been placed in the dark. Because of these nocturnal tendencies it was not possible to observe whether copulation took place during the period of their captivity. Most probably not, due to the unnatural conditions of their close confinement and to the exceptional activity previously referred to.

A series of fifty-three specimens of this indigenous Cerambycid (including the eighteen examples reared above) collected on the Islands of Hawaii, Kauai, and Oahu, at elevations from 1500 to 4000 feet, have been studied and the genital organs dissected out by the writer from three males and one female from Kauai, two males and one female from Hawaii, and one male from Oahu. Although these dissections may, for the present, be considered as a preliminary study, still, so far as can be seen at this time, the variations noticed by comparison of the genitalia of the examples from each of the islands named, present nothing of real specific value. The same may be said more positively of the body characters. Although the mandibles and the lateral margins of the thorax are extremely variable in male examples from each island, there are intermediate forms which connect these extremes. This is quite noticeable both as to structure and sculpture in the eighteen reared specimens from Hawaii previously referred to. The

smaller series taken "in situ" on Oahu and Kauai present the same tendencies. The representative collections of this Cerambycid have heretofore been very sparse in individual specimens, and in consequence many of the variations noticed from time to time have led some to suspect the possibility of more than the one species described. Examination and study of a series like the present one, however, tends to lessen any such suspicion unless some other important but constant character than is yet known can be found by further study of larger series from all the islands in the archipelago.

The males of this beetle are easily separated from the females by the difference in structure of the mandibles and in the shape of the fifth abdominal ventral segment, which in the male is well rounded, while in the female it is flattened. Among fourteen specimens recently collected on Kauai by Mr. O. H. Swezey was found a small but starved example, the mandibles of which indicated the female sex, while the fifth ventral segment of the abdomen was that of a male. Upon dissection of the genitalia it was found to be a male, as suspected. This tends to show that in this variable species the use of the ventral segment, when separating the sexes, is perhaps more reliable than the mandibles.

While collecting the Kauai specimens above referred to, Mr. Swezey informs me that he observed the eggs of *Parandra puncticeps* inserted into the hard outer surface of the wood of a koa trunk, where the bark had loosened from the tree but had not yet fallen away, there being space enough beneath the bark for the female to perform the process of oviposition. He brought samples of these eggs "in situ" to Honolulu. This is believed to be the first record of finding the eggs of this interesting Cerambycid.