

Notes on the habits and ecology of Indonesian forest insects of minor importance I.

by

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In the course of investigations into the major pests of the cultivated forests in Indonesia — mostly teak plantations in Central Java — numerous observations were recorded on various insects which could hardly be called pests in the proper sense of the word, or which appeared to be of no direct economic importance at all. Part of these observations were made accidentally but the greater part were the result of a definite scheme to collect as much material and as many facts and figures on all kinds of forest insects as the field work on the major problems would allow. This was done to make a sort of rough inventory of the species living on cultivated forest tree species and worked timbers. Besides, there was the more purely scientific interest in the whole forest fauna, the many interrelations between the insect species, their peculiar habits and favoured foodplants. At the same time, of course, it was kept in mind that the knowledge gained might contribute at some future date to a better understanding and control of the major pests. Part of the insects found proved to be identical with species occurring in plantations of fruit trees and other woody plants, which added to their interest.

With the above aim in view, large numbers of adult insects — largely Coleoptera and Rhynchota — were collected with notes on their foodplants, larvae were reared to the adult stage, and borer-infested branches and boles were brought to the laboratory to obtain the adults of the boring species. For the latter purpose large zinc boxes were used fitted with a glass jar, of the type introduced by BEESON (1919) for forest entomological work in India. Most of the breeding was done in the field laboratory at Gedangan (between Kedungdjati and Telawa on the Semarang-Surakarta railway line in Mid Java) by the forest ranger WARNODI-HARDJO trained in this kind of work and assisted by his helpers, 'mandurs' and 'mantris', all born and bred in the forest area and fairly well-acquainted with a great many animal and plant species. The work was supervised by the entomological assistant MAS SUDIRO KARTOHADIBROTO, a most industrious and ardent collaborator, from 1932 to 1938. Some of the breeding work was done at the Institute for Plantprotection at Bogor.

A considerable amount of material and data were contributed by my lamented friend, F. A. Th. H. VERBEEK, who worked as a junior forest entomologist on the staff of said Institute from 1925 to 1930. Unfortunately most of his field notes were lost during the war.

In this planned series of notes the insect species will be grouped according to the families, but these families will not be dealt with in any prearranged order. The data will be published according as the field notes at my disposal are being worked out, and several still unnamed species identified.*)

*) The author, who was in charge of forest entomological research in the former Netherlands East Indies from 1920—1938, is much indebted to the present Chief of the Forest Service in Indonesia, Ir. SOESILO H. PRAKOSO, and the head of the Institute for Plant

CERAMBYCIDAE

Prioninae

Megopis costata Lansb., borer in dead trunks of 'pasang' trees according to native wood cutters in the mountain district of W. Java ('pasang' is the common name for *Quercus* spp.).

Lophosternus buqueti Guér. The larvae live in the soil as borers in the rhizoms of bamboo clumps. A medium sized larva brought to the laboratory in a piece of root, developed to a beetle in 5 months. The beetles vary considerably in size; most of them are 23—33 mm, the smallest specimens 17 mm only, the largest up to 37 mm. They are attracted by lamplight. The species is fairly common in the plains of Java, including the teak area. BEESON (1939) published interesting details on *L. hugeli* Redt. from the Indian mountains, the larvae of which are also soil-dwelling feeding on living and dead roots and stumps of various trees (amongst others *Quercus* spp.) and a pest in orchards.

Cerambycinae

Derolus volvulus F., recorded in India from 14 timber species belonging to different families (see BEESON 1941 : 160, who gives further details), was bred in Java only once from still another timber species: *Cassia siamea*. The beetles were caught by lamplight in the teak forests, and are 17—23 mm in size (in India 12—17 mm according to BEESON).

Dialeges undulatus Gah., one of the common longicorn borers in trunks and limbs of *Actinophora fragans* killed by the zigzag borer, *Agrilus kalshoveni*, in Java. The development from egg to beetle in purposely infested logs, which were kept moist, required 12—15 months. After the pupal cell lined with a calcareous layer had been formed the larva entered upon a long prepupal period. From a branch 110 cm long, and 2.5 cm thick, 38 beetles emerged (i.l. VERBEEK).

Hesperophanus javanus Schw., another borer regularly bred from *Agrilus*-killed *Actinophora*, in trunks and branches of various dimensions. Most of the beetles emerged between January and August. They varied in size from 6—18 mm. The smallest specimens were starved ones, probably.

Pachyteria bicolor Parry, an attractively coloured beetle of a metallic blue, with the basical half of the elytra, basical $\frac{2}{3}$ of the antennae and hind tibiae orange; 30—32 mm. It moves jerkingly on its proportionally long legs, and is somewhat wasplike in behaviour. Like *Xystrocera* beetles, it emits an aromatic odour and takes to honey in captivity. The larva is a borer in living trunks of a tree called 'tjontgijoran' in South Banyumas, Java. The species is only known from Java but several closely allied species were described from Sumatra and Malaya, probably belonging to a 'Formenkreis'. *P. virescens* Pasc. has been found to be injurious as a borer in green living *Palaquium* trees (getah pertjah) in Malaya.

Chloridolum cyanipes Th., a secondary borer in *Buchanania florida* in the teak area of Central Java. The beetles are green with a metallic sheen, longlegged, rather slender, 16—25 mm. SHELFORD (1916) recorded that *Chloridolum* beetles

Protection, Mr. SUKORJO, for permitting him, when retiring in 1951, to take a considerable amount of material and files to the Netherlands for further elaboration. An extensive type-script dealing with the major forest pests of Indonesia was submitted to the former authority some time ago already and is awaiting publication.

in Borneo "emit a strong, but to human nostrils by no means unpleasant odour proceeding from glands in the thorax, which open to the exterior by two pores."

Chlorophorus sumatrensis Cast. & Gor., one of the many small borer species in *Dalbergia latifolia* killed by root fungus in East Java.

Demonax lineolatus Redt., small borer in *Quercus* spp. (teste DRESCHER) and *Castanea* sp. ('saninten') in the mountain forests of West Java. A very slender and graceful beetle, 8 mm long.

Ceresium flavipes Fabr., recorded from *Casuarina* in India and *Citrus* in Formosa, was found in dead *Cassia fistula* and *Streblus asper* in the teak forest of Central Java, all hosts belonging to very distant families.

C. rariplum Newm., reared from *Homalium tomentosum*, *Erioglossum rubiginosum*, 'lundo' (? *Salacia*, ? *Ventilago*), *Phyllanthus emblica* and *Barringtonia* sp. in the Javanese teak forest, and from *Cinnamomum burmanni* in the Experimental Garden at Bogor.

C. rufum Lan., boring in dead branch wood of *Canarium* road trees at Bogor, West Java.

C. zeylanicum Wh., borer in dead branch wood of *Bauhinia malabarica* and *Antidesma tetrancrum* ('ande-ande') in the teak forests.

Epania paula Pasc., a curious little Cerambycid with stunted scalelike elytra. It was observed swarming around and copulating on a fresh trunk of *Platymitra macrocarpa* in mixed lowland forest, south of Malang, East Java.

Pachylocerus pilosus Guér., borer in the woody parts of living specimens of the semi-parasitic *Loranthaceae* in tree crowns. The larval tunnels penetrate deeply into the tortuously grained wood. The beetles differ in appearance from other Cerambycinae and look like Anthribids in some respects. KONINGSBERGER commented on this feature when he mentioned the species as an inhabitant of the mountain forests (2500—5000 m) in Java. The antennae, however, are short, the basal joints bead-like, the apical ones flattened. It is not known whether the presence of the borer affects the health of the plants.

Eurypbagus lundi F. was observed once as a borer in a log of 'bangkiran' (*Hopea* sp.) from Borneo (it has been reared also from *Dipterocarpaceae* in India) and another time in *Sonneratia* in the mangrove belt near Djakarta, West Java. The beetles are of a strikingly orange-red colour, often with a black spot on the pronotum, but these markings vary. The males have strongly developed mandibles.

Literature

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Blaricum (Netherlands), Rotondeweg 2.