OUTBREAKS OF THE EUCALYPT LEAF SKELETONIZER

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SUMMARY

Periodic infestations by the eucalypt leaf skeletonizer, *Roeselia lugens* Walk., in Queensland are confined mainly to eucalypts on grazing properties in the Brisbane, Lockyer and Fassifern Valleys. Trees over large areas may be defoliated, and although these eventually recover, they are for a time rendered useless for beekeeping.

Habits, life histories, parasites and pest status are discussed.

I. INTRODUCTION

Infestations by the eucalypt leaf skeletonizer, *Roeselia lugens* Walk., were first recorded in Victoria (French 1911). In Queensland, records of the insect date from 1921 and indicate a periodic occurrence of about 10 years with a distribution confined to the south-eastern part of the State. Isolated records in 1929 and 1930 extended westward to Stanthorpe, and in 1931 there was the first mention of serious tree damage. Occurrences during the period 1939 to 1941 extended the records northward to Aramara, near Maryborough.

A localized outbreak occurred in the lower Lockyer Valley in 1949. Many trees were completely or partially defoliated, but the infestation waned over the following two years.

A light infestation in the lower Lockyer Valley in 1960 was followed by a large outbreak in 1961, covering about 1000 square miles and extending through much of the Brisbane, Lockyer and Fassifern Valleys. Damage commenced in August, intensified in September, and continued into October. During this time light infestations were noted in some other parts of south-eastern Queensland.

II. NATURE AND APPEARANCE OF THE DAMAGE

Damage has been greatest in timbered areas of grazing properties. Forest reserves and other large, thickly timbered areas are not affected economically. Beekeepers, however, have been concerned because the damaged areas, normally with a dense stocking of apiaries, are rendered useless for honey production.

The leaf skeletonizer larvae feed on the leaves and consume most of the parenchymatous tissue. The network of veins which remains gives the typical skeletonized appearance (Figure 1). The leaves become dry and discoloured and whole areas of forest appear as if scorched by fire or as if dying from ringbarking (Figure 2). Leaf fall follows and the trees themselves become skeletonized (Figure 3).

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Fig. 1.—Blue gum leaves damaged by larvae of eucalypt leaf skeletonizer.

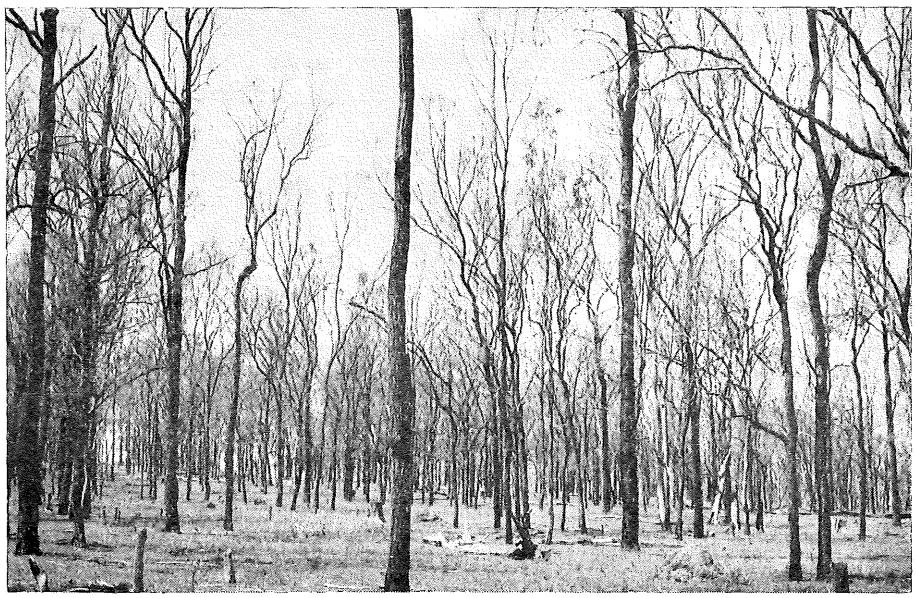

Fig 2.—Narrow-leaved ironbark trees defoliated by larvae of eucalypt leaf skeletonizer.

III. TREE SPECIES ATTACKED

Attacks are confined to eucalypts and related species. In the recent outbreak those most severely damaged were narrow-leaved ironbark (*Eucalyptus crebra* F. Muell.), silver-leaved ironbark (*E. melanophloia* F. Muell.) and blue gum (*E. tereticornis* Sm.). Less damage occurred on grey ironbark (*E. drepanophylla* F. Muell. ex Benth.), carbeen (*E. tessellaris* F. Muell.) and spotted gum (*E. maculata* Hook.). Some damage was noted on swamp box (*Tristania suaveolens* (Gaertn.) Sm.) and red bloodwood (*E. intermedia* R. T. Baker), and only slight feeding on gum-topped box (*E. hemiphloia* F. Muell. ex Benth.), rough-barked apple (*Angophora subvelutina* F. Muell.) and smooth-barked apple (*A. costata* (Gaertn.) Domin).

Other hosts of the insect recorded in Queensland are blackbutt (*E. pilularis* Sm.), yellow stringybark (*E. acmenioides* Schau.) and red ironbark (*E. siderophloia* Benth.).

IV. RECOVERY OF AFFECTED AREAS

Following change of the insects in the recent outbreak into non-feeding stages, the commencement of good rains, and possibly with some benefit from natural enemies, the damaged trees put on new growth in November and by the end of January showed little effect of the attack (Figures 4 and 9). Some trees of narrow-leaved ironbark, however, produced smaller leaves in coppice shoots bunched along the main branches.

Fig. 3.—Narrow-leaved ironbark trees defoliated by larvae of the eucalypt leaf skeletonizer.

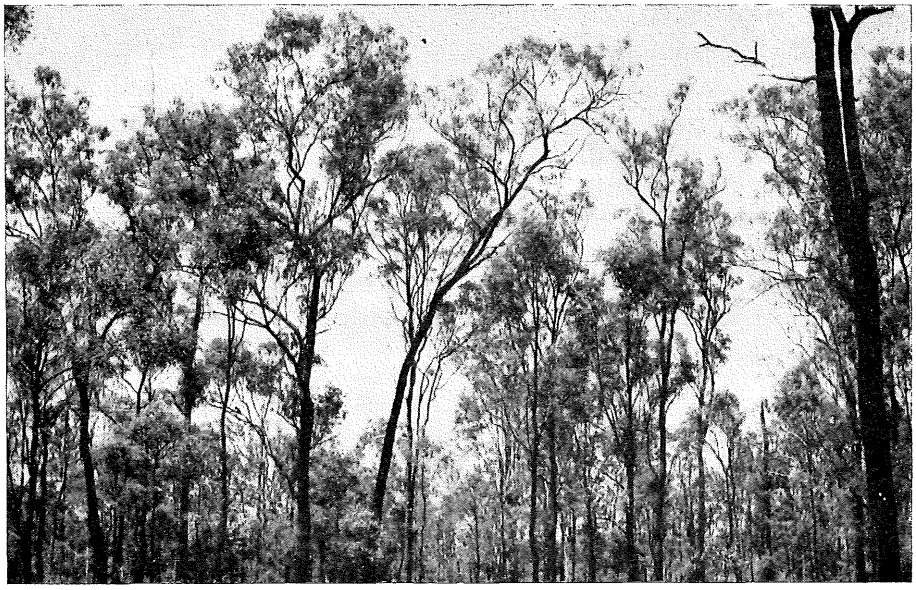

Fig. 4.—Same trees as in Fig. 3, showing recovery.

V. APPEARANCE OF THE INSECT

The fully grown larva of the eucalypt leaf skeletonizer (Figure 5) measures up to three-quarters of an inch in length.

Thoracic and abdominal body segments each bear a dorsal pair and two lateral pairs of protuberances in a transverse ring. Each of these is surmounted by a tuft of hairs. The dorsal tufts on the pro- and mesothorax each has an array of vertically directed, very long hairs. Similar hairs project outwards

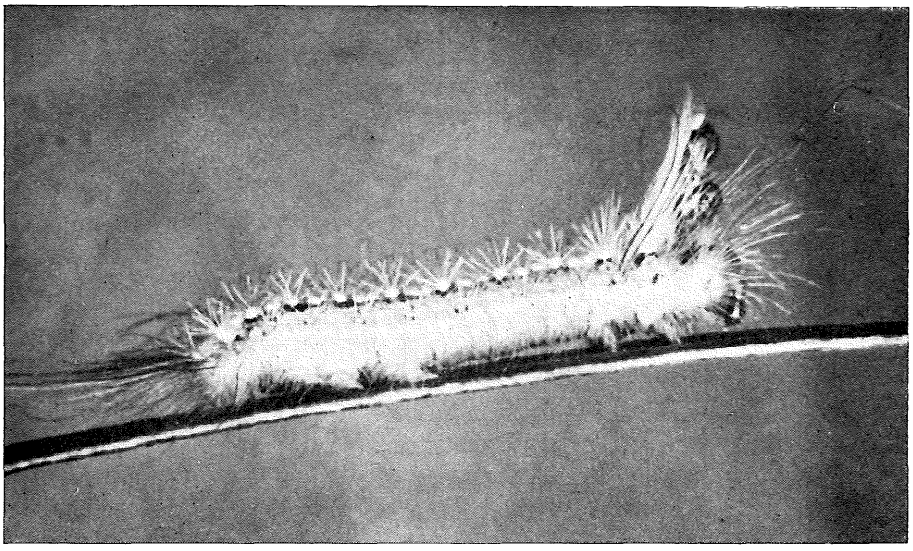

Fig. 5.—Larva of the eucalpyt leaf skeletonizer.

from each of the lateral thoracic tufts and from the series of lower lateral abdominal tufts. The dorsal and upper lateral abdominal tufts each has an array of short, stout hairs, while those in similar positions on the metathorax are of intermediate length. The tufts of long hairs, especially those on abdominal segments, also have some hairs of various lengths down to the size of the short dorsal hairs. The lateral thoracic tufts of long hairs are directed forwards and those on posterior abdominal segments are directed backwards, so the whole body outline has a distinct brush-like appearance.

The head capsule is dark brown. Dorsal body surface medianly between the protuberances is greenish grey. The dorsal protuberances are pale yellow margined externally with black. Between these are yellowish spots bordered externally with black. Body colour laterally is greenish grey with a broken longitudinal black line between the series of dorsal and upper lateral protuberances. The lower series of lateral protuberances are included in a continuous pale yellow longitudinal band. The hairs are pale grey, the shorter series being tipped with black, and a few long black hairs may be present in the upper lateral thoracic tufts.

The female moth (Figure 7) has a body length averaging three-eighths of an inch and a wing spread of slightly more than an inch. The males are smaller. Wing colour is mostly silvery grey with darker transverse wavy bands and the outer portion mottled. The hindwings are greyish brown.

VI. HABITS AND LIFE HISTORY

The larvae feed on leaves of all ages in all parts of the crown. Trees of all sizes are affected although the larger ones seem to be attacked first. The feeding on parenchymatous tissue leaving a network of veins is characteristic of this species. Larvae feed singly although more than one may occur on a leaf. Another peculiar feature is the incomplete shedding of larval skins at moulting. The cast head capsule with the shrivelled body skin adorns the prothoracic dorsal tufts of long hairs and the later instars may thus be adorned with a vertical succession of previous instar head capsules (Figure 5).

The fully grown stage is reached in two to three months. Pupation may occur on leaf fragments and twigs in the outer parts of the crown, but most of the larvae crawl to the branches and trunk to make cocoons on darker surfaces or in bark fissures. The cocoon is elongate oval, flattened at the ends to make it fit closely and neatly against the bark, and well camouflaged with interwoven pieces of bark and body hairs. The head capsules of the previous instars are also woven onto the cocoon (Figure 6). The pupal period may be 12-15 days. Field observations indicate that three generations may occur each year, with greatest damage being caused by the spring generation.

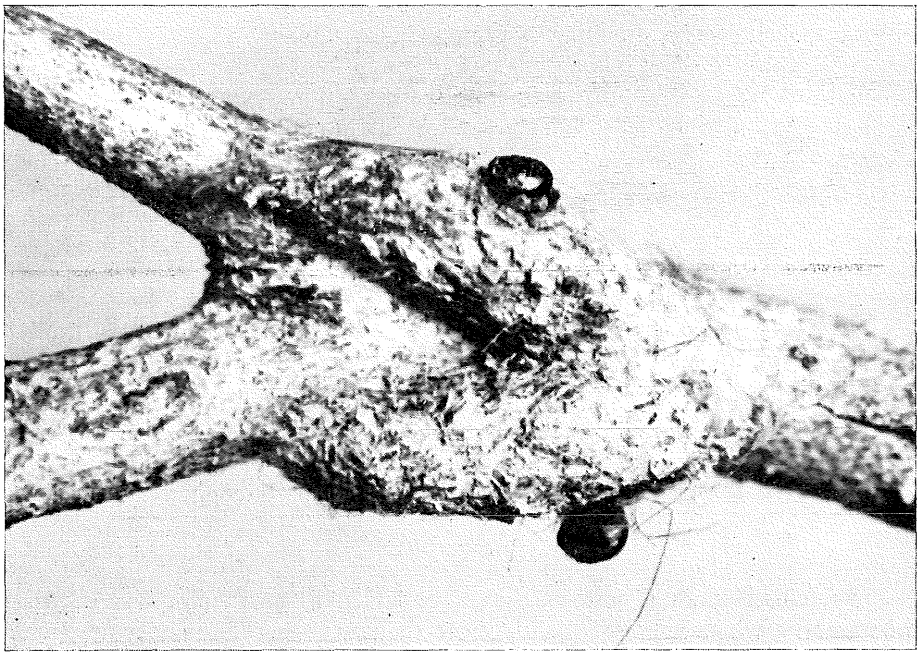

Fig. 6.—Cocoons of the eucalpyt leaf skeletonizer.

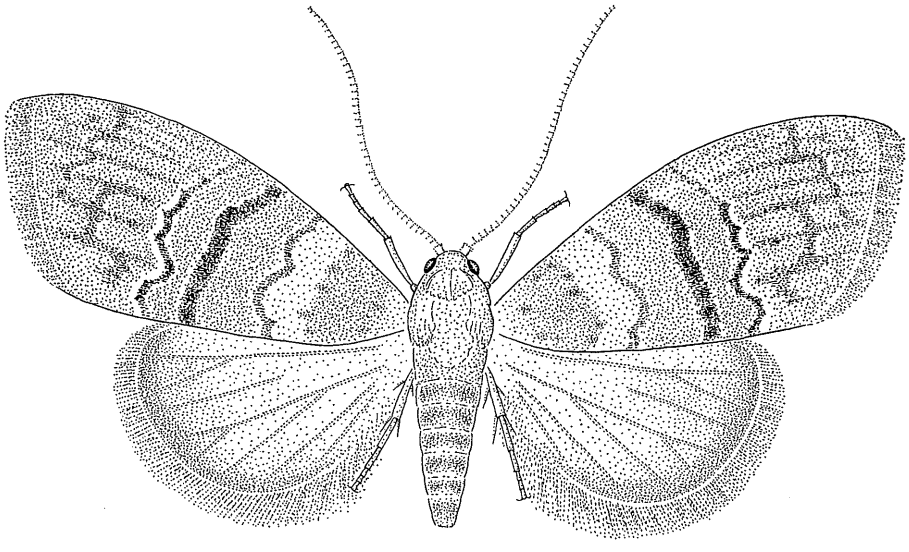

Fig. 7.—Adult of the eucalypt leaf skeletonizer.

VII. NATURAL ENEMIES

The occurrence of only periodic outbreaks of the eucalypt leaf skeletonizer would indicate some strongly effective natural controlling agencies. During the recent outbreak the most noticeable natural enemy has been a crab spider, *Philodromus* sp., the nests of which were conspicuous on the defoliated trees (Figure 8). Parasites bred in numbers from collected insects were *Brachymeria froggatti* Cam. (Chalcididae), *Irabatha* sp. and *Campyloneura* sp. (Braconidae), *Xanthopimpla rhopaloceros* Krieg. (Ichneumonidae), and *Winthemia* sp. (Tachinidae).

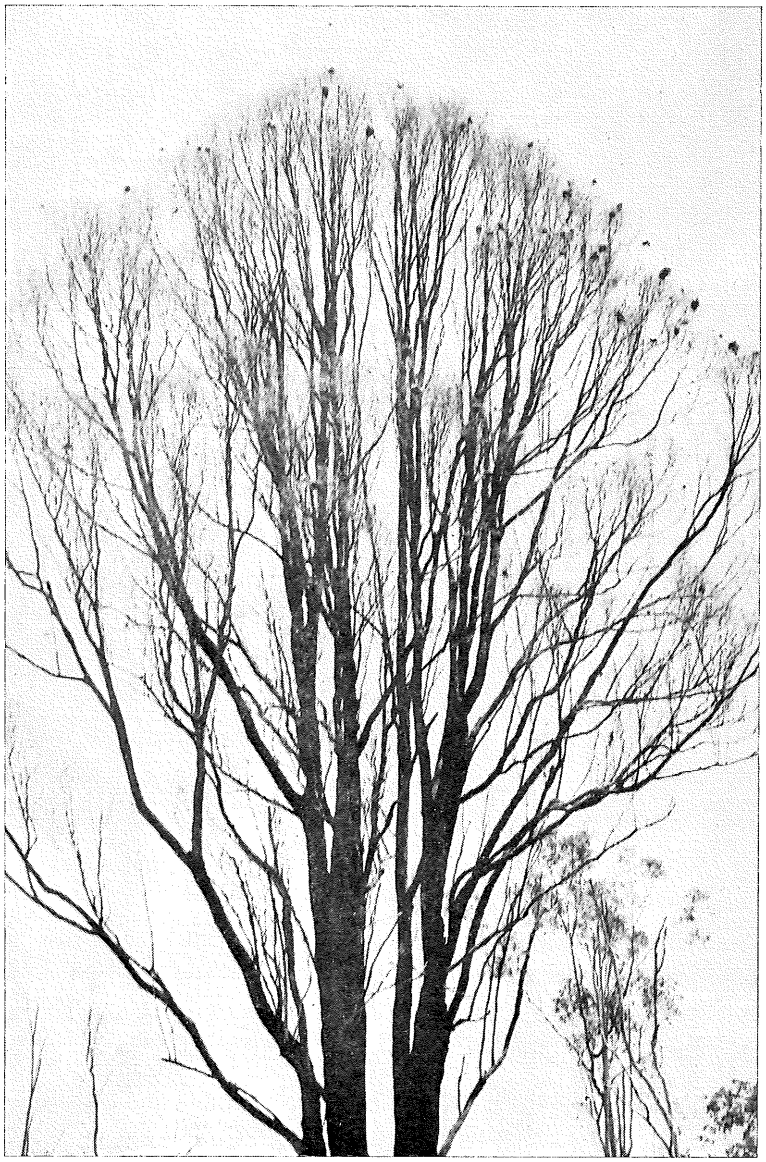

Fig. 8.—Narrow-leaved ironbark tree showing defoliation and nests of the spider *Philodromus* sp.

Fig. 9.—Same trees as in Fig. 8, showing recovery.

VIII. COMMENTS

Outbreaks by the eucalypt leaf skeletonizer have not been of any appreciable direct importance to affected trees on grazing properties. The data on occurrences might indicate that pest numbers and areas of high populations are increasing but this impression possibly could be due rather to more complete records during the more recent outbreaks. The pest potential of the species, however, cannot be disregarded and therefore observation sites have been selected for both long-term and short-term studies.

The long-term studies will be in relation to possible greater encroachment into the more thickly timbered stands of quality trees of highly commercial species on State forests and timber reserves. This aspect could have a bearing on any consideration of the need for insecticidal control, which in turn would involve consideration of beekeeping interests.

The short-term studies will be in relation to the ability of the trees to return to flowering and the subsequent effect of the defoliation on flowering and nectar production.

IX. ACKNOWLEDGEMENT

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REFERENCE

FRENCH, C. (1911).—"A Handbook of the Destructive Insects of Victoria, Part 5." (Government Printer: Melbourne).

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