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Review of the host plants of the Australian longicorn beetle *Chlorophorus curtisi* (LAPORTE & GORY) (Coleoptera: Cerambycidae)

T. J. HAWKESWOOD & D. DAUBER

Abstract

The adult and larval host plants of the Australian longicorn beetle *Chlorophorus curtisi* (LAPORTE & GORY) (Coleoptera: Cerambycidae: Cerambycinae) are reviewed from the published literature and from recent personal observations. Larvae feed in the dead wood of several species of the genus *Acacia* (Mimosaceae) and as such, appear to be monophagic at the genus level. The recorded larval host plants are *Acacia bidwillii* BENTH., *A. concurrens* PEDLEY, *A. leiocalyx* (DOMIN) PEDLEY and *A. sophorae* (LABILL.) R. BR., while the record of *A. muellerana* MAIDEN et R. T. BAKER needs further confirmation. Adults are known to feed on the nectar and/or pollen of several native flowering trees and shrubs in eastern Australia during the summer months. A total of 7 plant species are here recorded as adult food plants from the genera *Angophora* and *Eucalyptus* (Myrtaceae), *Aphananthe* (Ulmaceae) and *Acacia* (Mimosaceae), indicating that the adults are polyphagic.

The distinctive black and yellow-banded cerambycid beetle *Chlorophorus curtisi* (LAPORTE & GORY) (Fig. 1) is one of the most widespread and common longicorns in heathlands, woodlands and dry sclerophyll forests in eastern Queensland and northern New South Wales (McKEOWN 1947, HAWKESWOOD 1987). Little has been recorded on its biology and behaviour and the data available were scattered throughout a number of papers. Both McKEOWN (1947) and DUFFY (1963) in their extensive taxonomic and biological accounts of the Australian fauna fail to provide any biological data and host plants for the species. New observations are provided here as well as a review of previously published information.

Larval host plants

The first larval host plant for this species was recorded by HAWKESWOOD (1985a). On 24 June 1984, one dead adult (Fig. 1) was collected from a dead branch (22 mm Ø) of *Acacia leiocalyx* (DOMIN) PEDLEY subsp. *leiocalyx* (Mimosaceae) in *Eucalyptus* woodland on the Griffith University campus, Brisbane, Queensland (ca. 27°30' S 153°05' E). The beetle was situated 4 mm below the bark at the intersection of sapwood and heartwood in a chamber measuring 38 mm long, 2.5 mm high and 3 mm wide. One end of the chamber was densely packed with the chewed wood for a distance of 19 mm. The chamber led outwards at the other end to a hole blocked with loose wood fragments below the bark (1 - 2 mm thick).

The second larval host record was recorded by HAWKESWOOD (1985b). On 8 October 1980, one live adult was extracted from dead branch (32 mm Ø) of *Acacia bidwillii* BENTH.

(Mimosaceae) in a *Eucalyptus* woodland, on the James Cook University grounds, Townsville, North Queensland (19°15' S, 146°45' E). The beetle was situated 5 - 6 mm below the thick, corky bark, near the intersection of sapwood and heartwood in a chamber measuring 35 mm long, 3 mm high and 3.5 mm wide. One end of the chamber led outwards to a hole blocked with loose wood fragments.

WEBB, WILLIAMS & DE KEYZER (1988) recorded *Acacia concurrens* PEDLEY as host from Mt. Crosby, Queensland (27°32' S, 152°°48' E) where adults emerged during early December 1984. HOCKEY & DE BAAR (1988) also recorded *A. concurrens* as a host, but from Beerburrum, Queensland (26°58' S, 152°58' E) (adult emerged 30 November 1985). They also recorded an unidentified *Acacia* sp. as host from Passchendale, Queensland (28°33' S, 151°50' E) (adult emerged 29 November 1985). Both WEBB et al. (1988) and HOCKEY & DE BAAR (1988) provided no other details on the biology of *Chlorophorus curtisi* nor attempted to compare their data with those of previous authors.

The following observations by the senior author were made since the publication of the earlier papers by HAWKESWOOD (1985a, b) on Australian Cerambycidae. - Four live adults were extracted during October 1987, from stems of dead, dry *Acacia bidwillii* (courtesy of Dr. FORSTER, University of Queensland, Brisbane) collected from 11 km W of Degilbo, Queensland (25°28' S, 151°53' E) on 15 October 1987. The adults were, at the same time of collection, either in the process of emerging from their pupal cells through the bark, or resting in the pupal cells. All specimens were active once disturbed and the process of sclerotization was complete in all cases.

C. curtisi were restricted to the larger stems 6 - 8 cm and two beetles were extracted from a section of moist, semi-rotten wood covered with thick bark (2.5 - 3.3 mm thick). Exit holes were mostly broadly elliptical in shape, 2.5 - 3.0 mm wide and 2.0 - 2.6 mm high (N = 3). Pupal cells measured 25.0 - 27.0 mm long, 2.0 - 2.8 mm high and 2.5 - 3.5 mm wide (N = 2).

During November and December 1987 and 1988, several live adults were obtained from dead, dry branches (18 - 35 mm Ø) of *Acacia sophorae* (LABILL.) R. BR. in a sand dune heathland habitat, at Hastings Point, northern New South Wales (28°20' S, 153°34' E). The beetles were active and appeared ready to emerge.

Recent examination of the Queensland Departement of Primary Industries Collection (QDPI) by the senior author has revealed one specimen with ecological data attached - during January 1973, it was collected "ex *Acacia mulrana*" from Indooroopilly (a suburb of Brisbane, Queensland). There is no such species as *Acacia mulrana*, so we assume that the label means *Acacia muellerana* MAIDEN et R. T. BAKER, an uncommon species apparently restricted to a few localities in southern Queensland (PEDLEY 1979). The record needs further confirmation.

Adult host plants

The first published adult host plants for *Chlorophorus curtisi* were recorded by BROOKS (1948) from Cairns, Kuranda and Mareeba districts of north-eastern Queensland. He recorded *Eucalyptus gummifera* (GAERTNER) HOCHR. and *E. racemosa* CAV. (Myrtaceae) and noted that beetles visited the flowers during January. BROOKS (1965) made further records of

Eucalyptus ochrophloia F. MÜLLER (Myrtaceae) and *Aphananthe philipppinensis* PLANCHON (Ulmaceae) from the Mt. Spec area, north of Townsville, Queensland. BROOKS (1969) finally provided a fifth record of *Eucalyptus polycarpa* F. MÜLLER (incorrectly cited a *E. polycarpha*) from the Bowen-Ayr region, south of Townsville. HAWKESWOOD (1981) recorded *C. curtisi* as feeding on the nectar and pollen of *Angophora woodsiana* F. M. BAIL. (Myrtaceae) in the Brisbane area, Queensland. Since then, the beetle has been present in small numbers each season in the Brisbane area, where it has only been recorded on the open flowers of *A. woodsiana* during the hot summer months of December and January. During November 1981 several adults were found by the senior author feeding on pollen from flowering bushes of *Acacia bidwillii* (Mimosaceae) at the James Cook University campus, Townsville, Queensland. The beetles were in the same general area where the larval host record of *Acacia bidwillii* was made (HAWKESWOOD 1985b).

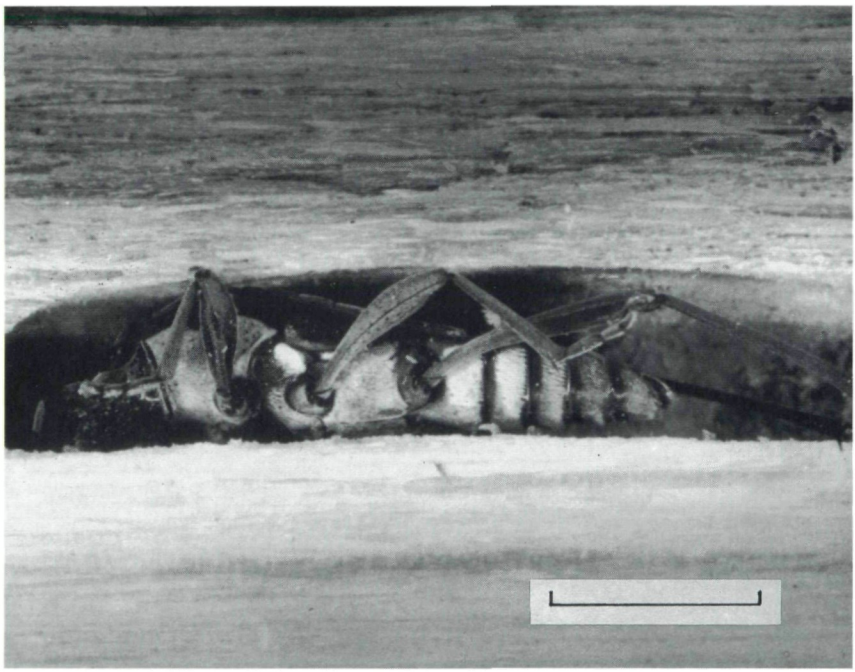

Fig. 1: *Chlorophorus curtisi* (LAPORTE & GORY) - dead adult in a tunnel in the dead wood of *Acacia leiocalyx* (DOMIN) PEDLEY, Brisbane, Queensland, Australia. Scale line = 3 mm (Photograph: T. J. HAWKESWOOD).

Comments

Chlorophorus curtisi, in the larval stage, appears to be monophagic (at the generic level) on *Acacia* species (Mimosaceae), particularly those species which possess phyllodes (these are leaf bases which have become enlarged without a leaf blade). Although data on larval host are limited, no other hosts from any other plant genera are known. However, the adults are more

polyphagous on pollen and nectar from at least 4 genera from 3 unrelated plant families. Adults may be very active on flowers during the hot months of November to January where they feed and mate on the inflorescences of the food plants. No doubt further observations on the biology of this beetle will reveal new larval and adult hosts.

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Zusammenfassung

Es wird eine Übersicht über die Fraßpflanzen der Larven und Imagines des australischen Bockkäfers *Chlorophorus curtisi* (LAPORTE & GORY) (Coleoptera: Cerambycidae: Cerambycinae) aus veröffentlichter Literatur und neueren persönlichen Beobachtungen vorgestellt. Die Larven fressen in totem Holz verschiedener Arten der Gattung *Acacia* (Mimosaceae) und scheinen in bezug auf diese Gattung monophag zu sein. Die larvalen Fraßpflanzen sind: *Acacia bidwillii* BENTH., *A. concurrens* PEDLEY, *A. leiocalyx* (DOMIN) PEDLEY und *A. sophorae* (LABILL.) R. BR., wohingegen das Vorkommen in *A. muellerana* MAIDEN et R. T. BAKER weiterer Bestätigung bedarf. Während der Sommermonate im östlichen Australien fressen die Imagines den Nektar und/oder die Pollen verschiedener, natürlich vorkommender blühender Bäume und Sträucher. Insgesamt wird über 7 Arten aus den Gattungen *Angopohra*, Eucalyptus (Myrtaceae), *Aphananthe* (Ulmaceae) und *Acacia* (Mimosaceae) berichtet. Die Imagines sind somit polyphag.

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Adresses of the authors:

T. J. HAWKESWOOD, 49 Venner Road, Annerley, 4103 Brisbane, Queensland, Australia

Dr. D. DAUBER, Neubauzeile 78, A-4030 Linz, Austria