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**Observations on *Ceresium pachymerum* (Pascoe)  
(Coleoptera: Cerambycidae)  
from Papua New Guinea**

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**Abstract**

*The pupa of the tropical longicorn beetle Ceresium pachymerum* (PASCOE) (Cerambycidae: Cerambycinae: Callidiopini) is described for the first time. In addition, some information is provided on adult behaviour and larval host plants of this beetle in northern Papua New Guinea. *Mangifera minor* BL. (Anacardiaceae) and *Hevea brasiliensis* (WILLD. ex. A. JUSS.) M. A. (Euphorbiaceae) are recorded here for the first time as larval host plants. The beetles are nocturnally active and fly on warm nights just after dusk.

**Introduction**

*Ceresium pachymerum* (PASCOE) (Cerambycidae: Cerambycinae: Callidiopini) (Fig. 1) is a small to medium-sized testaceous longicorn beetle measuring about 20-25 mm long, widely distributed in the tropical Oriental regions of the world.

The species was originally described (as a *Diatomocephala* species) by PASCOE (1869: 542). Although *C. pachymerum* has a very widespread distribution through south-east Asia (e.g. Moluccas, New Guinea, New Britain, East Papuan Islands, etc., GRESSITT, 1959: 111-112), nothing previously appears to have been published on its biology and behaviour, while the early life stages have not been described. Recent field work by the senior author in northern Papua New Guinea has resulted in the acquisition of further pupal and adult material. Some of the data obtained are presented below.

**Observations**

a) Ecology and behaviour

On 22 March, 25 March and 3 April 1989, 3 adults were collected at fluorescent lights under buildings at the Passam National High School, Passam (3°48'S,

143°35'E), East Sepik Province, Papua New Guinea. Adults were very active and attempted to bite when handled and to dig the head and antennae into the flesh as a defense mechanism.

On 6 April 1989, three adults were cut from the dead, dry, fallen branches of *Mangifera minor* BL. (Anacardiaceae) at Passam, East Sepik Province. The dead mango branches were lying amongst grass and debris on the bank of a creek and measured 5.5-7.5 cm in diameter. The pupal cells of *C. pachymerum* varied in size from 26-32 mm long, 5-7 mm high and 7-9 mm wide and were situated 3-5 mm below the outer surface of the bark. The head end of each beetle was facing in an upward direction (in relation to the standing tree) and all were more or less parallel to the longitudinal axis of the branches. Close examination of the infested wood indicated the following:

A) upon emerging from the eggs (presumably laid under the thin bark) the larvae feed upon the vascular cambium layer, chewing into the underlying sapwood of the branches to form irregular galleries about 1-2 mm deep, usually tightly and completely packed with dry, fine powdery frass behind the larvae

B) upon completion of feeding, the larvae apparently remain in the sapwood close to the bark and form more or less straight pupal chambers approximately parallel with the grain of the wood

C) during completion of the pupal chamber, the entrance and exit tunnels are tightly plugged by powdery frass to various lengths ranging from 3-8 mm

D) small, rounded faecal pellets are also deposited by the larvae in the pupal cells

E) the pupae are oriented with the head directed towards the exit hole, and

F) the emergence of adults is accomplished by gnawing through the frass plug and the thin layer of the bark (ca 1 mm thick). One adult was very active upon exposure to the outside environment, although it was still in the teneral stage and had not reached full adult coloration and sclerotization; the beetle attempted to fly and bite into the flesh when handled.

On 10 April 1989, one pupa was collected from a moist, rotten fallen log of *Hevea brasiliensis* (WILLD. ex A. JUSS.) M. A. (Euphorbiaceae) in a small plantation adjacent to tropical hill forest (sensu ROBBINS, 1968). The log was about 17 cm in diameter and had been on the ground for at least 9 months. The rotten wood was somewhat soft in many places. The pupa was situated about 5 mm below the surface of the wood in a chamber 28 mm long, 6.5 mm high and 8.0-8.5 mm wide. The pupa was measured as follows: body length 18.2 mm, width of pronotum 3.2 mm, maximum width of abdomen 4.5 mm.

On 13 May 1989, two further pupae were collected from fallen *H. brasiliensis* logs near the site where the pupa was collected on 10 April. The first pupa measured as follows: body length 18.6 mm, width of pronotum 3.2 mm, maximum width of abdomen 5.0 mm. It occupied a pupal cell 32 mm long, 5-6 mm high and 8.9 mm wide. The pupal chamber was situated 14 mm below the inner surface of the bark in a log 12-16 cm in diameter. The second pupa measured as follows: body length 18.5 mm, width of pronotum 3.2 mm, maximum width of abdomen 4.8 mm.



Fig. 1. Adult of *Ceresium pachymerum* (Pascoe) from dead wood of *Hevea brasiliensis* (Passam, East Sepik Province, Papua New Guinea, 15 July 1989, leg. T. J. Hawkeswood) (Photo: D. Dauber). Scale line : 10 mm.



Fig. 2. Pupa of *Ceresium pachymerum* (Pascoe) from *Hevea brasiliensis* (Passam, East Sepik Province, Papua New Guinea, 13 May 1989, leg. T. J. Hawkeswood) (Photo: D. Dauber). Scale line : 10 mm.

It occupied a pupal cell 33 mm long, 4 mm high and 5-7mm wide. The pupal chamber was situated 10 mm below the inner surface of the bark. One pupa was injured during extraction from the wood but the other was reared to the adult successfully. The adult emerged on 21 May 1989, so that pupal duration for this species is at least 8 days. The adult reached full colour in 4 days.

On the basis of the above material, the pupa is described in detail below (the measurements given below in the description are the means of the measurements of the three above-mentioned pupae). One pupa and adult is deposited in the insect collection of the Biology Department, University of Papua New Guinea, and the remaining material resides in the private collections of the authors.

b) Pupa (Fig. 2)

Length of pupal body 18.4 mm, width of pronotum 3.2 mm, maximum width of abdomen 4.8 mm. Head with vertex visible from above, glabrous; front glabrous; antennae extending to between the 2nd and 3rd legs, between abdominal segments 1 and 2, where they are recurved, ventrally to terminate near the mouthparts. Eyes strongly convex, glabrous. Labrum sub-triangular, anterior margin broadly rounded, glabrous. Pronotum subquadrate, with anterior margin most-

ly straight and rounded at the external edges; sides of pronotum feebly rounded, the lateral tubercles scarcely protuberant; disc feebly transversely striate medially; several fine setae (each arising from a minute papilla) present on the lateral margins of the pronotum, with many shorter, more spinose-like setae mostly present in the median area of the pronotum. Mesonotum and metanotum smooth and glabrous or almost so: scutellar groove smooth and moderately deep. Abdomen with tergites 1-6, each with several short, dark brown spines arranged vaguely in three transverse rows and singly or in groups of 2; spines more densely arranged on the posterior margin of the tergites; one or two long setae are situated on each of the lateral margins of tergites 1-6. Tergite with sides converging posteriorly, the hind margin stouter than those on preceding segments, and also a row of 4-6 much stouter, upwardly curved spines (each arising from a basal tubercle formed by the cuticle near posterior margin). Tergite 8 bearing about 8 spines, similar but of smaller size, to those on tergite 7. Abdominal segment 9 retracted into segment 8. Last segments also bearing several fine, pale setae sublaterally but are more numerous than on tergites 1-6. Pleura moderately protuberant. Legs with hind femora extending to the abdominal segment 5, and lying parallel to the longitudinal axis of the body. Functional spiracles present on abdominal segments 1-6, but vestigial pairs present on segments 7 and 8; peritreme somewhat narrowly oval, thick, and with posterior half appreciably raised above general level of cuticle.

#### Discussion

##### a) Ecology and behaviour

Since little has been published on the biology of *Ceresium*, it is difficult to compare aspects of *C. pachymerum* biology with that of other *Ceresium* species. DUFFY (1963) and WEBB, WILLIAMS & DE KEYSER (1988) provide the only data on Australian species while DUFFY (1963) summarizes the data on two other species from the Oriental region. The following larval host records are presently known for 4 species of *Ceresium*, viz.

*C. australe* CARTER (Australia): *Pultenaea stipularis* SM. (Fabaceae) (DUFFY, 1963) and *Lantana camara* L. (Verbenaceae) (WEBB, WILLIAMS & DE KEYSER, 1988);

*C. illidgei* BLACKBURN (Australia): *Callitris glaucophylla* THOMSON & JOHNSON (= *C. glauca*, an invalid name used by DUFFY, 1963);

*C. flavipes* FABRICIUS (Australia, New Zealand, south-east Asia, Mexico, Madagascar, etc.): for a more full distribution see DUFFY (1963), *Artocarpus* sp. (Moraceae) (FAIRMAIRE, 1850), *Casuarina equisetifolia* FORST. (Casuarinaceae) (BEESON & BHATIA, 1939), *Citrus* sp. (Rutaceae) (DUFFY, 1963);

*C. unicolor* FABRICIUS (Pacific Islands, New Guinea): *Artocarpus* sp. (Moraceae), *Casuarina* sp. (Casuarinaceae), *Cordia* sp. (Boraginaceae), *Sapindus* sp. (Sapindaceae) (GRESSITT, 1956), *Acacia* sp. (Mimosaceae), *Pipturus* sp. (Urticaceae) (DUFFY, 1953), *Hibiscus tiliaceus* L. (Malvaceae) (FAIRMAIRE, 1850) and *Heritiera littoralis* AITON (Sterculiaceae) (DUFFY, 1957).

The data above indicate that the two most widespread species, *C. flavipes* and *C. unicolor* are polyphagous in the larval stages, breeding in a broad suite of flowering plants from botanically unrelated families. Some of these plants are

introduced to the regions where the beetles occur and are under cultivation e.g. *Citrus* sp. in the case of *C. flavipes* and *Hevea brasiliensis* in the case of *C. pachymerum*. In addition some host plants of *Ceresium* also have sweet, milky latex in the stem, e.g. *Artocarpus* (Moraceae) and *Hevea* (Euphorbiaceae) which may be attractive to certain wood borers. Most of the other host plants of *Ceresium* are hardwoods, e.g. *Acacia* (Mimosaceae) and *Citrus* (Rutaceae), while some are softwood shrubs, e.g. *Lantana* (Verbenaceae) and *Casuarina* (Casuarinaceae). This indicates that some *Ceresium* species are able to adapt well for feeding on wood/sap of foreign species as well as native plants. Only two larval hosts are known for *C. pachymerum* (one of which, *Hevea brasiliensis*, is an introduced tree to Papua New Guinea) and it is likely that a wider host range exists for this widespread beetle.

The habits of adult *Ceresium* are totally unknown, but in the case of *C. pachymerum*, adults emerge at any time of the year (specimens have been collected every month of the year in various parts of Papua New Guinea, see dates and collection localities in GRESSITT, 1959). In addition, adults appear to be mainly nocturnal, and are often attracted to bright lights around human habitation and usually fly early on warm nights after rain. Adults of *C. pachymerum* do not emit any offensive odour or secretion as do other Cerambycinae, but usually stridulate softly and attempt to bite and arch backwards their antennae repeatedly as a defence mechanism.

##### b) Pupa

The only pupa previously described for a *Ceresium* species appears to be that of the Australian *C. illidgei* BLACKBURN, as described by DUFFY (1963: 90-91). Although the pupa of *C. pachymerum* is very similar to that of *C. illidgei*, it differs in a number of morphological characteristics:

A) *C. pachymerum* possesses a more narrower body;

B) the antennae are recurved ventrally to terminate at the level of the mouthparts;

C) the anterior margin of the pronotum is mostly straight;

D) the setae of the pronotum is arranged differently and there are additional spinose setae in the median region of the pronotum; the spines on the abdominal tergites 1-6 are arranged differently;

E) the legs with femora extending to abdominal segment 5.

On the basis of pupal morphology, *C. pachymerum* is closely related to the Australian *C. illidgei* which suggests a close link between these species occurring on different but neighbouring landmasses.

The pupal chambers of *C. pachymerum* appear always to be situated close to the bark layer in the sapwood of the host plants irrespective of the diameter of the timber. Thus *C. pachymerum* does not appear to be a deep boring cerambycid.

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Platyceraphron mediosulcatus sp. n.,  
 espèce nouvelle de Belgique  
 (Hym. Ceraphronoidea Megaspilidae)

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Résumé

*Description de Platyceraphron mediosulcatus sp. n. (Hym. Ceraphronoidea Megaspilidae), d'après une femelle capturée à Antheit, Corphalie (Belgique) dans une pelouse à buis (Buxus sempervirens); elle se distingue des autres espèces du genre par la présence d'un sillon longitudinal médian, unique et complet, sur le mésoscutum. Les doutes concernant la valeur du genre sont rappelés.*

Summary

*Description of Platyceraphron mediosulcatus sp. n. (Hym. Ceraphronoidea Megaspilidae), after a female collected in Antheit, Corphalie (Belgium) in a grassland with box (Buxus sempervirens); it differs from the other species of the genus by the presence of a longitudinal median furrow, unique and percurrent, on mesoscutum. Doubts about the value of the genus are remembered.*

Platyceraphron mediosulcatus

Le genre *Platyceraphron* KIEFFER, 1906, est peut-être artificiel, ne contenant que des espèces plus ou moins fortement aplaties par ailleurs rattachables au genre *Dendrocerus*; dans notre dernier tableau des genres de Ceraphronoidea (DESSART & CANCEMI, 1986), nous avons adopté une attitude conservatrice, dans l'attente prudente d'arguments plus nombreux pour soutenir la thèse de la validité ou de la synonymie.

Nous décrivons ci-dessous une femelle à mésosoma notablement déprimé (hauteur/largeur = 0,74; hauteur/longueur = 0,44) et à triangle ocellaire isocèle à base large (POL/LOL: 120/80), ce qui correspond à l'habitus des 3 espèces actuellement rattachées à *Platyceraphron*; l'espèce-type n'a que les ébauches antérieu-