

## Bibliographie du genre

On trouvera des mentions du genre et éventuellement des espèces dans les publications suivantes.

- 1878 - FÖRSTER A. Verhandl. Nat. Ver. Preuss. Rheinl., 35: 57; description originale; 1 espèce: *S. pulla*.
- 1886 - HOWARD, Trans. amer. ent. Soc., 13: 171 (Tableau dichotomique des genres).
- 1887 - ASHMEAD, Ent. americ., 3: 97.
- 1887 - CRESSON, Trans. amer. ent. Proc., Suppl. 1: 83 (tableau dichotomique des genres)
- 1893 - ASHMEAD, Bull. U. S. nat. Mus., 45: 132, 133; = *Aphanogmus* THOMSON, 1858.
- 1898 - DALLA TORRE, Hym. Cat., 5: 523; "*Aphanogmus pullus* (FÖRSTER) DALLA TORRE".
- 1906 - KIEFFER, Ann. Soc. sci. Brux., Mém., 30: 161; = *Aphanogmus*.
- 1907 - KIEFFER in ANDRÉ, Species Hym. Eur., 7: 194-196; rétabli comme genre valide; une 2ème espèce: *S. planifrons*.
- 1910 - KIEFFER, Gen. Ins., 94: 21; catalogue des espèces.
- 1914 - KIEFFER, Das Tierreich, 42: 67, 69, 124, 125, 254.
- 1935 - SZELÉNYI, Allatt. Közlem., 32: 140, 142. Comparé à *Microceraphron* SZELÉNYI, 1935.
- 1936 - SZELÉNYI, Ann. Mus. nat. hung., 30: 50-56; revision, 4 espèces supplémentaires: *S. biroi*, *S. xanthothorax*, *S. brachyptera*, *S. britannica*; tableau dichotomique des espèces.
- 1939 - GREGOR, Sbornik ent. odd. Nár. Mus. Praze, 17: 132, 133, 1 espèce supplémentaire "*Sinaris*" [sic; aussi "*Sinarsis*", sic] *roubali*.
- 1966 - HELLÉN, Fauna fennica, 20: 5, 43; tableau dichotomique des genres, une espèce en Finlande.
- 1973 - SZABÓ, Acta zool. Acad. Sci. hung., 19: 179; comparé à *Archisynarsis* SZABÓ, 1973 [un *Megaspilidae* Lagynodinae!].
- 1975 - DESSART, Rev. suisse Zool., 82: 120; comparé à *Ceraphron depressus* DESSART, 1975.
- 1975 - DESSART, Bull. Anns Soc. r. belge Ent., 111: 259; relations des genres de la famille.
- 1977 - DESSART, Bull. Anns Soc. r. belge Ent., 113: 309; comparé à *Archisynarsis* SZABÓ, 1973.
- 1978 - ALEKSEEV & KOZLOV in MEDVEDEV, Opred. nasek. Evrop. tchasti SSSR, 3/2: 681, 691; tableau dichotomique; 3 espèces.
- 1979 - DESSART, Bull. Anns Soc. r. belge Ent., "1978", 114: 315.
- 1985 - ALEKSEEV, Verhandl. int. Symp. Entomofauna Mitteleur., 10: 270; *S. pulla*: espèce ouest-paléarctique.
- 1986 - DESSART & CANCEMI, Frustula entomologica, N.S., "1984-1985", 7,8 (20,21): 311, 317, 324, 338, 347.

Review of the biology and host plants of  
the Australian longicorn beetle  
*Prosoplus iratus* (Pascoe) (Coleoptera: Cerambycidae)

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## Abstract

The general biology and larval host plants of the Australian longicorn beetle, *Prosoplus iratus* (PASCOE) (Coleoptera: Cerambycidae: Lamiinae: Nipponini) are reviewed from the published literature and from recent observations of the senior author. Larvae are polyphagous and are known to feed on the dead wood of the following plants: *Annona* sp. (Custard Apple) (Annonaceae), *Avicennia marina* (FORSK.) VIERH. (Grey Mangrove) (Avicenniaceae), *Acacia sophorae* (LABILL.) R.BR. (Mimosaceae), *Morus alba* L. (White Mulberry) (Moraceae), *Citrus aurantiifolia* (CHRISM.) SWINGLE (Lime), *Citrus limonia* (L.) BURM. F. (Lemon) and *Citrus sinense* (L.) OSBECK (Orange) (Rutaceae), *Notothixos cornifolius* OLIVER (Viscaceae) and probably in the dead stems of *Xanthium chinense* MILLER (Noogoora Burr) (Asteraceae), although this last record requires verification. The adult food plants have not been recorded.

## Introduction

*Prosoplus iratus* (PASCOE) (Cerambycidae: Lamiinae: Nipponini) is a medium-sized, dull brownish, cryptic longicorn beetle, with dark cream markings at the edge of the pronotum and on the lateral postmedian areas of the elytra (Fig. 1). Adults measure 12-15 mm in length, with the females usually larger than the males. Little has been recorded on the biology and distribution of the species. PASCOE (1862: 464) first described the beetle (as *Niphonia iratus* PASCOE) from Lizard Island, north-eastern Queensland, while MCKEOWN (1947: 145) recorded it from Queensland only. (Collections cited in the present paper extend the known distribution of *P. iratus* into north-eastern New South Wales). DUFFY (1963) in his extensive biological review of the Australian Cerambycidae fauna did not provide any information on *P. iratus*.

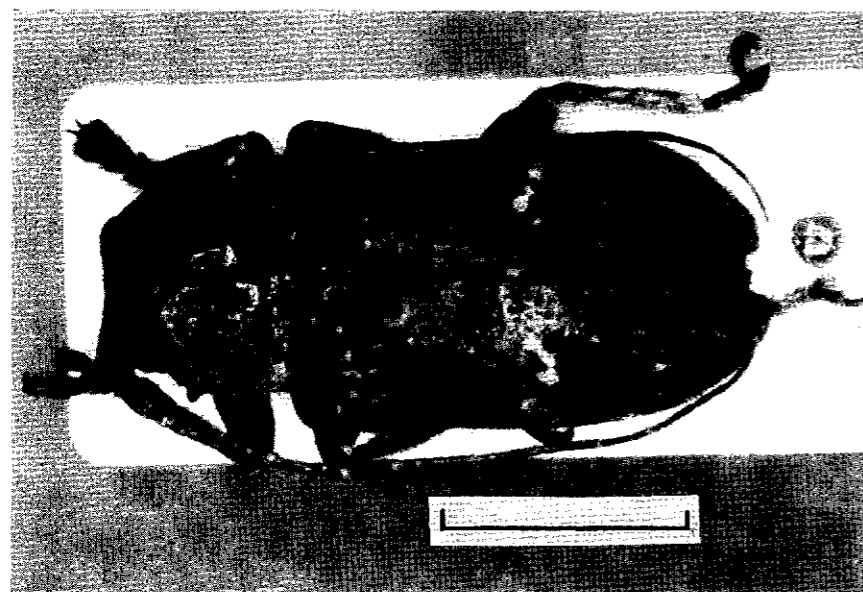


Fig. 1. Adult of *Prosopius iratus* (PASCOE) from the dead wood of *Acacia sophorae* (LABILL.) R. BR. (Mimosaceae) at Hastings Point, New South Wales, Australia, 2 Dec. 1990. Photograph: D. DAUBER. Scale Line = 5.0 mm.

#### Larval host plants

##### (a) Previously published data

The first published larval host record appears to be that of WEBB (1987: 13) who recorded specimens in the Australian National Insect Collection (ANIC) in Canberra, ACT, as being collected during 1964 and 1965 from Rockhampton, Queensland (23°32'S, 150°32'E) from "Noogoora Burr". This is a common vernacular name for *Xanthium chinense* MILL. (Asteraceae), an introduced, troublesome weed in Australia. Unfortunately, WEBB (1987) provided no other details for this record but it is possible that the specimens of *P. iratus* emerged from dead stems of this plant. Further observations on *Xanthium*/Cerambycidae relationships would be of much scientific interest.

The next published data was that of HOCKEY & DE BAAR (1988 a: 158) who recorded the following information: (a) Redland Bay (south of Brisbane), Queensland (27°37'S, 153°18'E), collected as larvae on 5 August 1984, in dead, fallen *Avicennia marina* (FORSK.) VIERH. (Avicenniaceae) - 6 adults emerged between 3-11 November 1984; (b) Port Alma, Queensland, (23°35'S, 150°52'E), collected as larvae on 13 November 1985, in dead branches of *Avicennia marina* - two adults emerged on 25 November 1985 and 1 January 1986, respectively. HOCKEY & DE BAAR (1988 b: 65) further recorded *P. iratus* from Amamoor, Queensland

(26°21'S, 152°41'E) from the dead stem of *Notothixos cornifolius* OLIVER (Viscaceae) - beetles emerged on 25 September and 14 October 1985.

##### (b) New records

The following four records are from previously unpublished data attached to specimens (examined by the senior author) housed in the collection of the Entomology Branch, Department of Primary Industries, Brisbane, Queensland - (a) Coolool, Queensland (26°33'S, 153°05'E), 31 January 1940, R.G. MacLennan, "borer in orange" [*Citrus sinense* (L.) OSBECK, Rutaceae]; (b) Brisbane, Queensland, December 1960, A.R. Brimblecombe, "ex lime tree" [*Citrus aurantiifolia* (CHRISTM.) SWINGLE, Rutaceae]; (c) Mons (?) (handwriting on label unclear), Queensland, 20 February 1968, D.S. (?) (collector only given by initials), "ex citrus sp. trunk"; (d) Brisbane, Queensland, ex glasshouse, January 1988, D.S. (?) (collector only given by initials), "ex custard apple" [*Annona* sp., Annonaceae].

The following observations were made recently by the senior author - (a) On 18 January 1989, one live adult was extracted from a dead branch of *Morus alba* L. (Moraceae) which was growing along the banks of the Brisbane river in the suburb of Sherwood, Brisbane, Queensland. The beetle was resting in a pupal chamber packed with chewed wood fragments at the lower end for a distance of about 12 mm. The pupal chamber measured 21.5 mm long, 6.5 mm wide and 3.2 mm high and led out for a distance of about 9 mm to an exit hole covered by bark, below the base of a minor branch of the plant. Another dead and shrivelled adult (teneral) was situated in another chamber, about 6.6 cm away from the other adult described above. This chamber led outwards to an exit hole plugged with wood fragments below the lateral branch. (b) On 26 January 1990, one live adult was collected during the day (c. 1530 hrs, Eastern Australian Standard Time) on a dead branch of *Avicennia marina* (FORSK.) VIERH. (Avicenniaceae) in a mangrove swamp/tidal flat near Hastings Point, New South Wales (28°20'S, 153°25'E). The beetle measured 10.4 mm in body length and 4.2 mm width at the base of the elytra. (c) During August 1990, a dead, partially dry branch measuring 30-35 mm diameter was collected from a living tree of *Avicennia marina* (FORSK.) VIERH. (Avicenniaceae) growing in a tidal flat near the entrance of a creek at Kingscliff, New South Wales (28°16'S, 153°34'E). One adult emerged on 28 January 1991 through an exit hole measuring about 6.5 mm in diameter. The beetle measured about 12.5 mm long and 5.5 mm wide at the base of the elytra. The pupal chamber measured 18.5 mm long and 6-7 mm in diameter and was situated almost in the centre of the wood. (d) On 21 November 1990 and 2 December 1990, two adults emerged from dead wood billets of *Acacia sophorae* (Labill.) R. BR. (Mimosaceae) collected several months earlier from Hastings Point, New South Wales (28°20'S, 153°35'E). The wood was collected from dying *Acacia* bushes 1-1.5 m high in sand dunes near the inlet where *Avicennia marina* was growing in abundance. The diameter of the *Acacia* billets (cut from branches) ranged from 20-25 mm in diameter and the pupal cells of the beetles measured 20-28 mm in length and 4-7 mm in diameter. The beetles measured 9.5 mm x 3.8 mm and 9.4 mm x 3.6 mm respectively. From a close examination of the infested wood, it was evident that (i) upon hatching from the egg (presumably laid under or in the thin bark which in *A. sophorae* measures 0.5-1.0 mm thick), the larvae feed upon the vascular cambium layer, chewing into

the underlying sapwood of the branches to form irregular galleries about 0.5-1.5 mm deep, usually tightly and completely packed with dry, fine, powdery frass or larger wood fragments behind the larvae, (ii) upon completion of feeding, the larvae bore down into the sapwood relatively close to the bark and burrow more or less straight channels parallel to the grain of the wood for distances up to 10 cm, before forming a pupal chamber at one end, (iii) during completion of the pupal chamber, the exit tunnels and ventilation holes (if present) are tightly plugged by frass or slender wood fragments, (iv) small, rounded faecal pellets are also deposited by the larvae in the pupal chambers, (v) the beetles are oriented with the head directed towards the exit hole, and (vi) the emergence of adults is accomplished by gnawing through the frass plugs and wood fragments as well as the thin layer of bark. The beetles were very active once exposed; they stridulated vigorously and attempted to bite into the flesh when handled. They did not attempt to fly.

#### Discussion

The data on larval host plants, although somewhat limited, indicates that *P. iratus* (PASCOE) is polyphagous on a diverse range of plants from botanically unrelated families. Some of the records may be doubtful since they may not represent true relationships, e.g. the record of *Xanthium chinense* MILL. (Asteraceae) (WEBB, 1987) needs further verification since this plant is a herbaceous annual (rarely growing to more than one metre in height) and as such, does not possess true, woody stems. Instead, the stems are semi-succulent with a large percentage by volume of parenchymatous pith tissues in the centre and this niche, for a wood-boring beetle, is markedly different from that provided by the other woody hosts known for this beetle. It is possible that beetles on *Xanthium chinense* may have been only foraging on the stems or the foliage when collected.

In coastal Queensland and north-eastern New South Wales, the primary larval host plant appears to be *Avicennia marina* (FORSK.) VIERH. (Avicenniaceae) (HOCKEY & DE BAAR, 1988 a; HAWKESWOOD & DAUBER, this paper) but other plants in the same mangrove communities may also be utilized as secondary hosts, e.g. *Acacia sophorae* (LABILL.) R. BR. (Mimosaceae) at Hastings Point, New South Wales and *Morus alba* L. (Moraceae) at Brisbane, Queensland. The last record is of much interest since no other Australian Cerambycidae have as yet been recorded in the literature as utilizing this plant in the larval stage (HAWKESWOOD, unpublished data). (*Morus alba* L. is an introduced plant from China). The ability of *P. iratus* to utilize other foreign plant taxa is apparent in the records of *Citrus* spp. (Rutaceae) and *Annona* (Annonaceae) as larval host plants. Presumably these plants are attractive to *P. iratus* because of the presence of abundant resin and nutritive sap in the wood (and foliage). [It should be noted here that the vernacular name of Custard Apple is often applied to *Annona cherimola* MILLER (Annonaceae), but also to cultivated and naturalized plants which include *A. squamosa* L., *A. muricata* L. and several other species and their hybrids, (P.D. BOSTOCK, 1990, personal communication), and so that a specific name cannot be given with any certainty for the record from "Custard Apple" at Brisbane, Queensland.]

HOCKEY & DE BAAR's (1988b) host record of *Nothofagus cornifolius* OLIVER (Viscaceae) is of considerable interest since this plant is a mistletoe and there are

very few records of Australian Coleoptera from mistletoes.

*Prosopius iratus* appears to be mainly a branch borer and apparently avoids the main trunk tissues of the host plants. Development mainly occurs in dead branches of dead or dying trees. The colour pattern provides the beetle with ample camouflage on the bark of their hosts, especially so on the dead branches of its primary host, *Avicennia marina*. No doubt further field research will reveal additional host plants, especially in coastal mangrove areas.

#### Acknowledgements

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#### References

- DUFFY, E. A. J., 1963. - *A monograph of the immature stages of Australasian timber beetles (Cerambycidae)*. London, British Museum of Natural History, 235 pp.
- HOCKEY, M. & DE BAAR, M., 1988a. - Insects of the Queensland mangroves. Part 2. Coleoptera. *Coleopterists Bulletin* 42: 157-160.
- HOCKEY, M. & DE BAAR, M., 1988b. - New larval food plants and notes for some Australian Cerambycidae (Coleoptera). *Australian Entomological Magazine* 15: 59-66.
- MCKEOWN, K. C., 1947. - *Catalogue of the Cerambycidae (Coleoptera) of Australia*. Memoir X. Australian Museum, Sydney, 190 pp.
- PASCOE, F. P., 1862. - On some new Coleoptera from Lizard Island, north-eastern Australia. *Annals and Magazine of Natural History* 9: 461-467.
- WEBB, G. A., 1987. - Larval host plants of Cerambycidae (Coleoptera) held in some Australian insect collections. *Forestry Commission of New South Wales, Technical Paper No 38*: 19 pp.