

Description of the pupa of *Ryssonotus nebulosus* (Kirby, 1818) (Coleoptera: Lucanidae) with a review of the biology of adults and notes on larval host plants

by Dr Trevor J. Hawkeswood*

*PO Box 842, Richmond, New South Wales, 2753, Australia.

Hawkeswood, T.J. (2006). Description of the pupa of *Ryssonotus nebulosus* (Kirby, 1818)(Coleoptera: Lucanidae) with a review of the biology of adults and notes on larval host plants. *Calodema*, 6: 1-2.

Abstract: The pupa of the Australian stag beetle, *Ryssonotus nebulosus* (Kirby, 1818) is described from material collected near Mt. Nebo, west of Brisbane, south-eastern Queensland during 1982. The host plant there, *Archontophoenix cunninghamii* Wendl. et Drude (Arecaceae) is recorded as new. Other host plants from the literature are reviewed.

Introduction

Ryssonotus nebulosus (Kirby)(Coleoptera: Lucanidae) is one of the most common stag beetles in south-eastern Queensland, mostly confined to rainforests (Hawkeswood, 1987). [Froggatt (1907) earlier noted the species has a wide range over New South Wales and southern Queensland and McKeown (1942) noted that it was “not uncommon”]. Hawkeswood (1987) briefly noted that the larvae breed in rainforest logs and the larvae appear not to travel more than a metre from the oviposition site and avoid excessively moist or dry areas within their host logs. Pupation occurs in an oval cell at the end of a chamber and the pupal stage lasts for about 5-10 days (Hawkeswood, 1987). The ecology and behaviour of the adults have never been recorded (Hawkeswood, 1987) although Froggatt (1907) noted that he bred the beetle from the “fleshy white grub of the usual lamellicorn beetle type taken from under rotten logs”. Hawkeswood (1987) also illustrated the adult and head of the last instar larva. The pupa is first described here from material collected in 1982 from subtropical rainforest at Mt. Nebo, west of Brisbane, south-eastern Queensland.

Pupal description

Body length 22.0-33.0 mm, pronotal length 6.8-8.0 mm, pronotal width 10.5-12.0 mm, abdominal length 13.0-18.0 mm and abdominal width 11.0-12.5 mm (4 specimens). Body dark cream to pale yellowish-orange in colour (when alive), darkening to a dull light-brown colour after death in alcohol. Head dorsally, slightly visible from above the level of the anterior margin of the pronotum, glabrous, with fronto-clypeal carina between the eyes and a prominent longitudinal ridge along the vertex parallel with the anterior margin of the eyes; vertex also with a longitudinal groove in line with the clypeal carina; clypeus with prominent striations. Pronotum broader than long, the anterior margin strongly sinuate; the lateral margins strongly sinuate and broadly rounded, two small indentations are present below the

anterior margin near the head and the lateral margins are strongly rugose-striolate; the central portion of the pronotum is elevated with a prominent rugose-striolate central protuberance which is situated about 2/3 the distance along the middle towards the posterior margin; below this protuberance is a smooth area bounded by a triangular-shaped groove. Meso- and meta-thorax smooth, glabrous. Wings mostly smooth, glabrous, extending to the ventral surface of the abdomen and curved between the 2nd and 3rd legs but not meeting at the midline. Upper abdominal surface covered in posteriorly-directed microspines. Ventral surface of abdomen mostly smooth and glabrous. Mandibles varying in size (length) with the individual but in all specimens they are projected forwards \pm perpendicular to the head and bear one small apical-dorsal protuberance and another on the lateral margin of the mandible towards the clypeus of the head; apex of mandibles prominently rugose-striolate.

Material: 4 pupae and several larvae, near Mt. Nebo, west of Brisbane, Queensland, Australia, 12 Dec. 1982, T.J. Hawkeswood, from a dead, fallen log (main trunk) of *Archontophoenix cunninghamii* Wendl. et Drude (Arecaceae) in a rainforest gully adjacent to wet sclerophyll forest (specimens reside in the collection of the author).

Discussion

The pupae of Australian Lucanidae are poorly known and I have been unable to obtain any descriptions of those of any other species for comparison. However, there are some morphological characters of the pupa of *R. nebulosus* which could be useful in taxonomic/phylogenetic considerations such as striations on the clypeus and the form of the microspines on the upper abdominal surface. The pupa as well as a larva and adults of *R. nebulosus* were illustrated in black/white by Anon. (1934) but no host data were provided.

The species has been reported from New Zealand (Gourlay, 1954; Thorpe, 2000). Gourlay (1954) noted that the species bred in *Eucalyptus* timber (Myrtaceae). In New Zealand Thorpe (2000) recorded *R. nebulosus* from the Mount Eden area of Auckland, where live adults were found in the rotten stumps of the Large-leaved Privet, *Ligustrum lucidum* Lour. (Oleaceae) and noted that museum labels indicated that *Acacia* (Mimosaceae) was a host in New Zealand as well. Although little data are presently available for this species, it appears that a wide range of plant families are utilized by this lucanid in the larval stages.

References

- Anon. (1934). *Our Insects*. Compiled by Syllabus Notes Committee of the South Coast Inspectoral District, Brisbane: 1-212.
- Froggatt, W.W. (1907). *Australian Insects*. William Brooks & Co., Sydney: 1-449.
- Gourlay, E.S. (1954). Records of introduced Coleoptera and notes on the 1953-54 collecting season. *New Zealand Entomologist*, 1(4): 6-10.
- Hawkeswood, T.J. (1987). *Beetles of Australia*. Angus & Robertson Publishers, Sydney: 1-248.
- McKeown, K.C. (1942). *Australian Insects*. Royal Zoological Society of New South Wales, Sydney: 1-303.
- Thorpe, S. (2000). Notes on the establishment in Auckland of the Australian stag beetle *Ryssonotus nebulosus* (Kirby), a new host plant record for it, and a practical identification key to the genera of New Zealand stag beetles (Coleoptera: Lucanidae). *Weta*, 23: 22-24.