Gastropod-like caterpillar cases on Turkey Bush

Graham R. Brown

[1] Research Associate, Museum and Art Gallery of the Northern Territory, GPO Box 4646, Darwin NT 0801, Australia

[2] Visiting Scientist, CSIRO Land and Water, Private Mail Bag 44, Winnellie NT 0822, Australia

[3] University Fellow, Research Institute for Environment and Livelihoods, Charles Darwin University, Darwin NT 0909, Australia

Email: thynnini@outlook.com

Abstract

Illustrations of three stages (larva, pupa, adult) of the life cycle of the xyloryctid moth *Plectophila* sp. are provided. The larva constructs a helical case solely on Turkey Bush (*Calytrix exstipulata*) in the Top End of the Northern Territory. The full life cycle and other aspects of the biology of this species are unknown.

There is a species of moth in the Top End of the Northern Territory whose larva (Figure 1) constructs a spirally coiled case (Figure 2) solely on Turkey Bush (*Calytrix exstipulata*) (photograph of flowers on front cover of this issue of *Northern Territory Naturalist*). The case is made from silk and decorated with leaves and other small pieces of material from the food plant. The case, which resembles a small gastropod shell, consists of up to three loose spiral coils with adjacent coils not quite touching each other. The direction of coiling is usually, but not always, sinistral (left-coiled). Figure 2 illustrates a dextral (right-coiled) case. The opening of the case has a long flap (Figure 3) on the outer part of the entrance that the larva can hold closed with a few strands of silk especially when it is inactive. The larva itself is white with reddish marks and the head and pronotal shield are also mottled, but darker (Figure 1).

The life cycle and ecology are otherwise unknown. The eggs are probably laid in the tips of younger *Calytrix exstipulata* foliage, although the larvae can be quite mobile (based on observations of captive specimens). The cases are mostly found on the outer branches where fresher leaves are present but not on the lower branches which are often dead. A larva remains in the same case, expanding it by adding to the opening as it grows. A living pupa has not been observed as yet, but it is presumed to also occur in the larval case which remains attached to the plant even after the moth has emerged (Figure 4).

There are 10 described species of *Plectophila* in Australia. The genus is hitherto unrecorded from the Northern Territory (Edwards, 2008). The Top End species (Figures 5–6) is apparently undescribed, but is closely related to *Plectophila thrasycosma* and *P. electella* based on the almost identical colour patterns on the wings. The former species ranges from the drier parts of the Atherton Tableland, south to the Lockyer Valley of Queensland,

whereas the latter ranges from Moreton Bay in Queensland, to South Australia (Edwards, 2008). *Plectophila thrasycosma* was originally described from reared larvae living in individual coiled, gastropod-like cases. These larvae were feeding on the leaves of Narrow-leaved Ironbark (*Eucalyptus crebra*) near Townsville and the cases were covered

Figure 1. Freshly dead larva of *Plectophila* sp. partially removed from its case. The larva had added fresh leaves of *Calytrix exstipulata* to the opening of the case immediately prior to being collected. Scale 1 mm (Graham Brown)

Figure 2. Detail of larval case *in situ* from above. Note that this is a dextral (right-coiled) case. Scale 1 mm (Graham Brown)

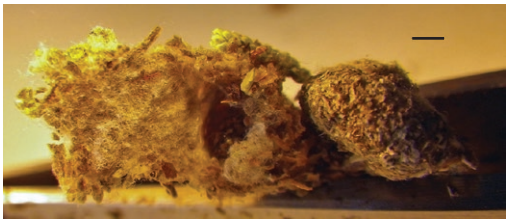

Figure 3. Detail of exposed case flap (on left), opening of case with larval head just visible (centre), and case itself (on right). Scale 1 mm (Graham Brown)

Figure 4. Pupa dissected out of its case. Scale 0.5 mm (Graham Brown)

Figure 5. Live adult *Plectophila* sp. Scale 1 mm (Graham Brown)

Figure 6. Pinned preserved adult *Plectophila* sp. Scale 1 mm (Graham Brown)

in faecal pellets. Differences in host plant preference, leaf size and the material used to decorate the larval cases also suggest this Top End taxon is a new, closely related species. Or this could be the result of the size of the leaves of the regionally chosen host plants; the leaves are 2 mm in length in *C. exstipulata* and loosely attached to the case compared to 50–180 mm long in *E. crebra* and would thus need to be cut into small pieces.

The known distribution of this Top End *Plectophila* sp. is from the Darwin region to the vicinity of Mary River National Park but it is patchy both temporally and geographically, and the larval cases can be hard to find because they blend in with the colour of the stems and detritus. It is usually rare in Darwin although Richard Willan found a small population on 2–3 plants on the northern boundary of the Casuarina Campus of Charles Darwin University, Darwin, where it persisted for about four years. There is also a long series of reared moths from Casuarina Coastal Reserve, Darwin (including the pupal photograph reproduced here), in the Entomology Collection in the Museum and Art Gallery of the Northern Territory.

The biology of the described Australian species of *Plectophila* is unknown.

References

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