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NOTE

Field observations on the interaction between the Pugnacious Ant, *Anoplolepis custodiens* (Hymenoptera: Formicidae) and a larva of the Silver-spotted Grey, *Crudaria leroma* (Lepidoptera: Lycaenidae)

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OBSERVATIONS

In late February, 2017 the first author spent a weekend at Grootgeluk Bush Camp near Mookgopong (-24.486, 28.800). While sitting outside his chalet at about midday on the Saturday, he noticed a lepidopteran larva crawling over the ground in an open sandy area. The larva was surrounded by ants, which appeared to be attacking it. However, on closer inspection it was clear that this was not the case as the ants were not, in fact, biting the larva. It was then realized that what was being witnessed was an instance of interaction between ants and a lycaenid larva, known as myrmecophily.

The larva crawled over the ground for several metres, with the ants in close and constant attendance (Fig. 1). Towards the posterior end of the larva two whitish, 1 mm long, cylindrical tentacle organs (TO's), with setose ends, were regularly flicked up from their casings (Fig. 2). Ants were regularly seen to place their mouth parts on the honey-gland (dorsal nectary organ = DNO), situated mid-dorsally between the TO's (Fig. 2). When the DNO was touched by an ant, this appeared to result in activation of the TO's. Ants were also seen to crawl over the body of the larva, and appeared to feed from the 'dishes' (Clark, 1951; Clark & Dickson, 1971) situated mid-dorsally on segments 5 to 8 of the larva.

To see an animation of the TO's operation go to: http://eebweb.arizona.edu/animal_behavior/lycaenids/lycaen9.htm.
To see the TO's functioning, and the interactions between the ants and the larva observed by the first author, go to:
https://www.youtube.com/watch?v=urQA_DXI3Dk
and:
https://www.youtube.com/watch?v=1nyCHp2HS8Q.

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Figure 1 – Larva of *Crudaria leroma*, closely attended by workers of *Anoplolepis custodiens* ants.

Figure 2 – Posterior end of larva, showing extended tentacle organs (**a**) and ant feeding from the dorsal nectary organ (**b**).

Eventually, after the larva had crawled for several metres, the ants started removing grains of sand from underneath a pebble (Fig. 3). After some time the larva disappeared into the excavated cavity (Fig. 4). Finally, there was a hole in the ground, surrounded by freshly excavated sand (Fig. 5). The excavation process can be viewed at:
https://www.youtube.com/watch?v=c8mcKchEv-g.

DISCUSSION

The attending ants were identified as workers of the Pugnacious Ant, *Anoplolepis custodiens*, and the larva as that of the Silver-spotted Grey butterfly,

Figure 3 – Ants excavating sand from beneath a pebble.

Figure 4 – Larva almost buried beneath the pebble.

Figure 5 – Larva within cavity excavated by the ants.

Crudaria leroma, by the second author. The life history of *Crudaria leroma* was reported in detail by Clark (1951) and again by Clark & Dickson in 1971 but an associated ant was not noted. The associated ant was identified as *Anoplolepis custodiens* by E.L. Pringle (Pringle *et al*., 1994) in the Eastern Cape Province. R.F. Terblanche (2017) studied the ecology of a putatively undescribed species of *Crudaria* in the Kalahari of the Northern Cape Province, noting that its larvae were associated with the Small Pugnacious ant, *Anoplolepis steingroeveri*. None of these authors mention excavating behaviour by the ants in order to provide the larva with a subterranean shelter, although Pringle (1994) found ant-associated larvae under rocks and Terblanche (2017) found ant-associated larvae among root stocks at the base of the host plants.

Although it has always been customary to describe the larvae as 'ant-loving' (myrmecophilous) this is not, strictly speaking, correct. Rather it is the ants that should be considered to be 'larva-loving', i.e. larvaphilous.

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