

Biodiversity Record: Potential ant-associated trophobiosis in a plataspid bug

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Subjects: Stinkbug, undetermined genus and species (Insecta: Hemiptera: Plataspidae);
Ant, *Dolichoderus thoracicus* complex (Insecta: Hymenoptera: Formicidae).

Subjects identified by: Yap Ee Hean.

Location, date and time: Singapore Island, Singapore Botanic Gardens; 20 November 2020; evening.

Habitat: Edge of a small patch of mature forest within urban parkland.

Observers: Yap Ee Hean and Zestin W. W. Soh.

Observations: Many examples of both adult and nymph stages were observed on the stems of a climbing fig (*Ficus punctata*) together with ants (of the *Dolichoderus thoracicus* complex). The ants were not antagonistic to the bugs, but the nymphs appear to be particularly attractive to them. The ants were using their antennae to interact with the nymphs (Fig. 2), apparently to goad them into secreting honeydew. The eggs of the bugs are red, and laid singly on the surface of a leaf (Figs. 4 & 5)



Fig. 1. An adult plataspid stink bug on *Ficus punctata*. Fig. 2. A nymph being tended by an ant of the *Dolichoderus thoracicus* complex (Photographs by: Zestin Soh).

Remarks: The Plataspidae comprises 600 described species in about 66 genera (Rider et al., 2018). They are widespread; found from Africa through Europe and Asia to Australia. 3 species have even been introduced to the Americas. These plant-feeding bugs are characterised by their enlarged scutellum and two-segmented tarsi, the former feature contributing to them often being mistaken as beetles to untrained eyes.

Ant-hemipteran trophobiosis is common in the Sternorrhyncha (e.g., in the Coccoidea and Psylloidea) and Auchenorrhyncha (e.g., Membracidae and Tettigometridae), but much rarer in the Heteroptera. In the Oriental region, ant-Heteroptera trophobiosis has been recorded only in the Coreidae and Plataspidae (Silva & Fernandes, 2016). Ant association with the plataspid in this paper has not been documented, to the knowledge of the authors. The nymphs appear to be particularly attractive to the *Dolichoderus thoracicus* complex ants, with the ants using their antennae to apparently goad the bugs into secreting honeydew. The eggs are red and laid singly (Figs. 4 & 5), unlike in some other plataspids like *Coptosoma xanthogramma* (Fig. 6) and *Coptosoma* cf. *gravidum* (Fig. 7).



Fig. 3. Dorsal (A) and ventral (B) views of a female specimen of the plataspid (ZRC_BDP0372523) collected from *Ficus punctata* (Photographs by: Yap Ee Hean).



Fig. 4. The singularly-laid eggs of the female of a collected mating pair. Fig. 5. Close-up of an egg (Photographs by: Yap Ee Hean).



Eggs of other plataspids for comparison. Fig. 6. Eggs laid by the female of a collected mating pair of *Coptosoma xanthogramma*. Fig. 7. Eggs laid by the female of a collected mating pair of *Coptosoma* cf. *gravidum* (Photographs by: Yap Ee Hean).



Fig. 8. The host plant *Ficus punctata*. Fig. 9. Abaxial leaf surfaces of *Ficus punctata* (Photographs by: Yap Ee Hean).

The observed host plant of the stink bug is the native climbing fig *Ficus punctata*. Interestingly, while the ant species complex and host plant are locally common and widespread, the stink bugs have only been spotted within a small stretch in the Singapore Botanic Gardens. As of May 2024, the bug appears to no longer be found at that area (the corresponding author has noted its absence since June 2022).

The stink bug herein featured appears to be a rare and potentially undescribed species that likely belongs or is allied to the large and unwieldy genus *Coptosoma*. Some characters can be used to eliminate its inclusion in several allied genera: the almost completely black abdominal venter would exclude it from the genus *Megacopta* (Hsiao & Ren, 1977), the lack of sexual dimorphism in the head would exclude it from *Tiarocoris* (Distant, 1902). Its wide head relative to the pronotum is an unusual feature within the *Coptosoma*, but not unheard of: *Coptosoma gravidum*, along with several allied species are known to have relatively wider heads and more transverse eyes than other species of *Coptosoma* (see Montandon, 1893).

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