

**OVIPOSITION BY THE BLACK AND SCARLET CICADA,
HUECHYS SANGUINEA (DE GEER, 1773) IN SINGAPORE
(HOMOPTERA: CICADIDAE: CICADETTINAE)**

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INTRODUCTION

An earlier review of the local records for the black and scarlet cicada, *Huechys sanguinea* (De Geer, 1773) revealed that this species was sparsely distributed in localised populations on mainland Singapore, as well as on the island of Pulau [= island] Ubin (Ali & Leong, 2009). Detailed natural history observations for another native species, the black and golden cicada, *Huechys fusca* Distant, 1892, were recently published (Leong et al., 2011). Here, we report on the oviposition activity by a female *Huechys sanguinea* at Pulau Ubin.



Fig. 1. Lateral view of a female *Huechys sanguinea* (body length: 20 mm) attempting to insert its terebra into a stem of the shrub, *Flemingia strobilifera* (Fabaceae). Posterior to this, regularly spaced scars (arrowed) indicate earlier oviposition efforts. It was photographed on 29 Apr.2011 at 1115 hours in Pulau Ubin.

OVIPOSITION

On the late morning of 29 Apr.2011, while monitoring the diversity and population of cicadas on Pulau Ubin, a small number of *Huechys sanguinea* individuals were heard (buzzing sounds) and seen as they were either perched on vegetation or slowly flying around. Upon careful examination of a shrub, *Flemingia strobilifera* (family Fabaceae), a single female cicada was sighted at eye-level (1115 hours). Its straight, black terebra had been unsheathed from its ovipositor, and was in the process of insertion into the soft stem of this shrub (Fig. 1). Close behind the female was a series of regularly spaced scars—clear indications of its oviposition efforts at least an hour before. By 1118 hours, full insertion of the terebra was achieved. When viewed from below, the abdomen demonstrated rhythmical contractions which signaled the progressive transfer of eggs into the heart of the stem (Fig. 2).

At 1121 hours, the cicada extricated its terebra from within the stem, but instead of advancing upwards, it reversed towards the base. This may be due to the possibility that the upper sections of the stem were deemed to be too narrow in diameter, with insufficient space for its eggs to be deposited. By 1123 hours, it had paused at ca. 1 cm before the junction to the main stem, then began to probe the stem with the tip of its terebra once more (Fig. 3). After considerable effort, it managed to insert the entire terebra by 1131 hours, and soon resumed its characteristic abdominal pulsations (Fig. 4). The female remained in this position for the next 10 minutes, as we continued to explore the immediate vicinity for other ovipositing cicadas.

Nearby, there were at least two to three other cicadas perched on the stems or under leaves, close to their vacated exuviae, which had recently emerged earlier in the morning, as their wings had already straightened, darkened, and were folded roof-wise over their bodies (Fig. 5). A total of 10 exuviae (three males, seven females, body lengths: 18–19 mm) were collected as voucher specimens and deposited at the Zoological Reference Collection (ZRC) of the Raffles Museum of Biodiversity Research (RMBR), National University of Singapore, and catalogued as ZRC.6.22164. Also at this site, an immobilised cicada was found to have become ensnared in the web of a red tent spider, *Cyrtophora unicolor* (family Araneidae), entirely wrapped in sheet silk and suspended for subsequent consumption (Fig. 6).

Apart from *Flemingia strobilifera*, it would be useful for future research efforts to determine which other plant species are employed for oviposition by *Huechys sanguinea* in Singapore.



Fig. 2. Ventral view of a female (as in Fig. 1), with its terebra fully inserted into the stem at 1118 hours. Upon complete terebral insertion, pulsations of its abdomen accompanied the delivery of eggs into the stem.



Fig. 3. At 1123 hours, the female reversed towards the thicker base of the stem and attempted to insert its terebra once again.



Fig. 4. Ventral view of female (as in Fig. 3), with full insertion of its terebra into the stem occurring at 1131 hours. Abdominal pulsations followed shortly after.



Fig. 5. A newly emerged adult cicada (body length: 19 mm) perched at knee-level beside its exuvia, beneath a leaf of *Flemingia strobilifera*. Note its red eyes, which will later become black.



Fig. 6. A cicada (body length: 20 mm) had fallen prey to the red tent spider, *Cyrtophora unicolor* (Araneidae).

LITERATURE CITED

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