

A NEW RECORD OF *HELIAESCHNA UNINERVULATA* MARTIN (ODONATA: GYNACANTHINI: AESHNIDAE: AESHNINAE) IN SINGAPORE

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INTRODUCTION

Heliaeschna species are dragonflies in the tribe Gynacanthini (family Aeshnidae, subfamily Aeshninae). Its members have at least one cross vein in the median space at the base of the wings, are dark green, or brown-black marked with green, possess an abdomen where the third segment is constricted in most species, where the females are slightly larger, with the abdomen only slightly constricted if at all, and the hindwing well rounded, possess long anal appendages but these are often broken off, and are crepuscular. Their life history is not well known, although it is apparent that they breed in standing water (Orr, 2003).

Worldwide, there are 15 *Heliaeschna* species, occurring in Africa and Southeast Asia (Tsuda, 2000; Silsby, 2001). Only *Heliaeschna idae* was previously recorded in Singapore (Cheong, 2008).

DETAILS OF SIGHTING

At 1635 hours on 12 April 2008, an unidentified female aeshnid was observed landing on a broken twig about 1 m above the surface of a small stagnant pond near Venus Trail just outside of the boundaries of the Central Catchment Nature Reserve. It was a sunny afternoon with about 70% cloud cover.

Owing to the proximity of mature secondary forest, including a forest stream, this area and its surroundings are rich in odonate diversity. Prior to the discovery of *Heliaeschna uninervulata*, 34 other species were recorded here (representing 30% of Singapore's odonate diversity), including the rare *Archibasis melanocyana*, *Pericnemis stictica* and one aeshnid which cannot as yet be positively identified.

The study site (Fig. 1), which is a small stagnant pond, is only about 4 × 2 m in size. The water is about 0.3 to 0.4 m deep and not very murky. There is a lot of leaf litter both floating on the surface and at the bottom of the pond.



Fig. 1. The small stagnant pond where the female *Heliaeschna uninervulata* was sighted.

After landing on the twig above the pond, the female individual began ovipositing by piercing the freshly exposed woody part of the broken twig (Fig. 2). This process lasted about five minutes. The dragonfly then flew straight up and disappeared into the canopy. Photographs taken were used to positively identify the dragonfly as *Heliaeschna uninervulata*.

SPECIMEN DETAILS

This description is based on the sixteen photographs taken of the female dragonfly while it was ovipositing. The head is globular and eyes are greenish-yellow. The top of the frons are slightly pointed and darkened. The frontal area before the medium ocellus is flat and broad, the ocellar tubercle is black (Fig. 3). The thorax is olive-green and the legs are darkened distally. The median space ($r + m$) is crossed by one vein in all wings (Fig. 4). The anal loop of the hindwing has nine cells (Fig. 5). The abdomen is cylindrical and dark brown. The base of the abdomen is marked with green stripes crossing each other at right angles (Fig. 6). Each of abdominal segments 5, 6 and 7 is lightly marked with a thin lateral green stripe (Fig. 7). Leaf-like cerci are broad and long (Fig. 8). This individual probably had recently matured, as her cerci were intact. The specific name *uninervulata* means one vein, which refers to the single crossvein in the median space on each wing.



Fig. 2. Female *Heliaeschna uninervulata* ovipositing.



Fig. 3. Head of *Heliaeschna uninervulata*.

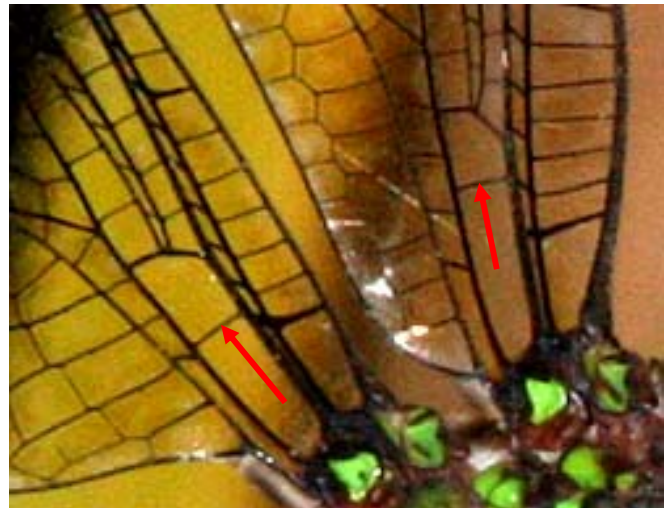


Fig. 4. Single cross veins in median spaces (arrowed).

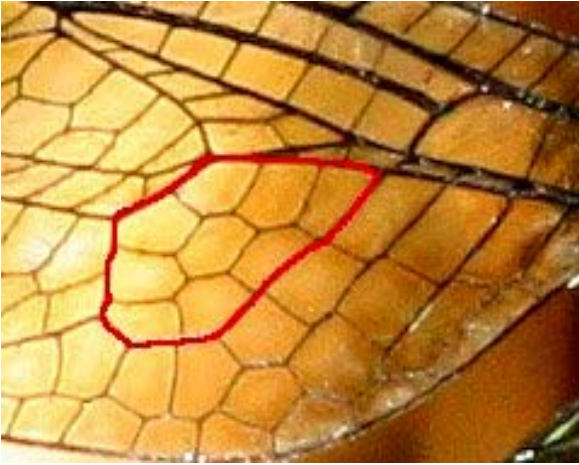


Fig. 5. Nine cells in the anal loop of the hindwing.



Fig. 6. Markings on the abdomen base.



Fig. 7. Abdominal segments 5, 6 and 7.



Fig. 8. Broad and long cerci.

While *Heliaeschna uninervulata* has not previously been recorded in West Malaysia or Singapore, it has been recorded in Sumatra, Java, Borneo (type locality), South Myanmar, Cambodia, Thailand and the Philippines (Lieftinck, 1954; Asahina, 1986; Hamalainen & Muller, 1997; Steinmann, 1997). With this recent discovery of *Heliaeschna uninervulata* in Singapore, it is highly probable that the species also occurs in West Malaysia. This would mean that the range of the species extends from Thailand in the north, to Java in the south.

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