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TWO DAMSELFLIES NEW TO SINGAPORE: *AMPHICNEMIS BEBAR* DOW, CHOONG & NG AND *TEINOBASIS CRYPTICA* DOW (ODONATA: ZYGOPTERA: COENAGRIONIDAE)

Rory A. Dow[1] and **Robin Wen Jiang Ngiam** [2]*
[1]*NCB Naturalis, P.O. Box 9517, 2300 RA Leiden, The Netherlands*
[2]*National Biodiversity Centre, National Parks Board*
1 Cluny Road, Singapore 259569
*(*Corresponding author: ngiam_wen_jiang@nparks.gov.sg; yanrobin@hotmail.com)*

INTRODUCTION

There are currently 125 Odonata species recorded from Singapore (Ngoi et al., 2011), of which 45 are damselflies (suborder Zygoptera). From the family Coenagrionidae, the genera *Amphicnemis* and *Teinobasis* are locally represented by *Amphicnemis gracilis* Krüger, and *Teinobasis ruficollis* (Selys). This paper reports the recent discovery of two damselfly species new to Singapore. One belongs to the genus *Amphicnemis*, and the other to *Teinobasis*. These discoveries have increased the known local Odonata diversity to 127 species.

SPECIMEN DETAILS

Teinobasis cryptica Dow, 2010

On 28 Aug.2011, RAD collected a female *Teinobasis cryptica* Dow from a tiny swamp pool by a small side stream at the Nee Soon Swamp Forest (NSSF). The damselfly was apparently foraging, flying backwards and forwards across the completely shaded pool at about 30 cm above the water surface. This specimen will be deposited at the Zoological Reference Collection (ZRC) of the Raffles Museum of Biodiversity Research (RMBR), National University of Singapore.

The colour markings on the specimen (Fig. 1) are as follows: It is generally of a faint greenish colour. The eyes are emerald green. In dorsal view the labrum is pale while the postclypeus and frons are mostly dark. The rest of the head is metallic green with a pale small narrow stripe at the rear. In lateral view, the prothorax is pale green. The pronotum is dark. The synthorax is greenish brown lateral-dorsally, the green colour becoming more vivid towards the middle before fading away ventrally. The legs are pale cream and the spines are dark. The abdomen is very slender and predominately of a faint brownish colour. This colour becomes darker towards the rear especially from abdominal segment S5 onwards. S8 is almost all black. S9 and S10 are black. The total length of the specimen is 35mm, hindwing length is 20mm.

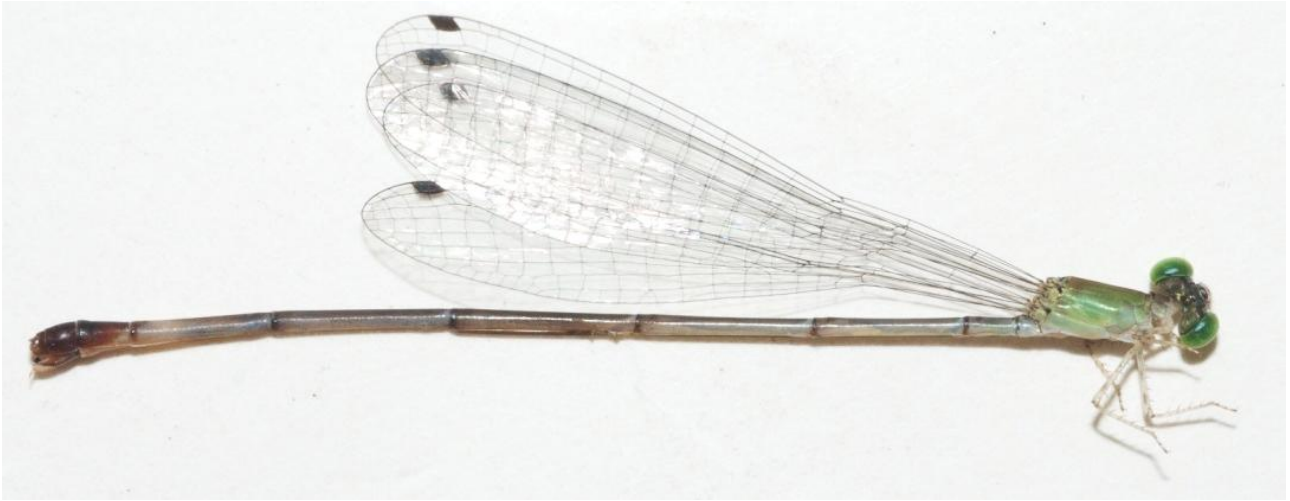

Fig. 1. Female *Teinobasis cryptica* collected by Rory A. Dow at the Nee Soon Swamp Forest on 28 Aug.2011. Total length 35 mm, hindwing length 20 mm.

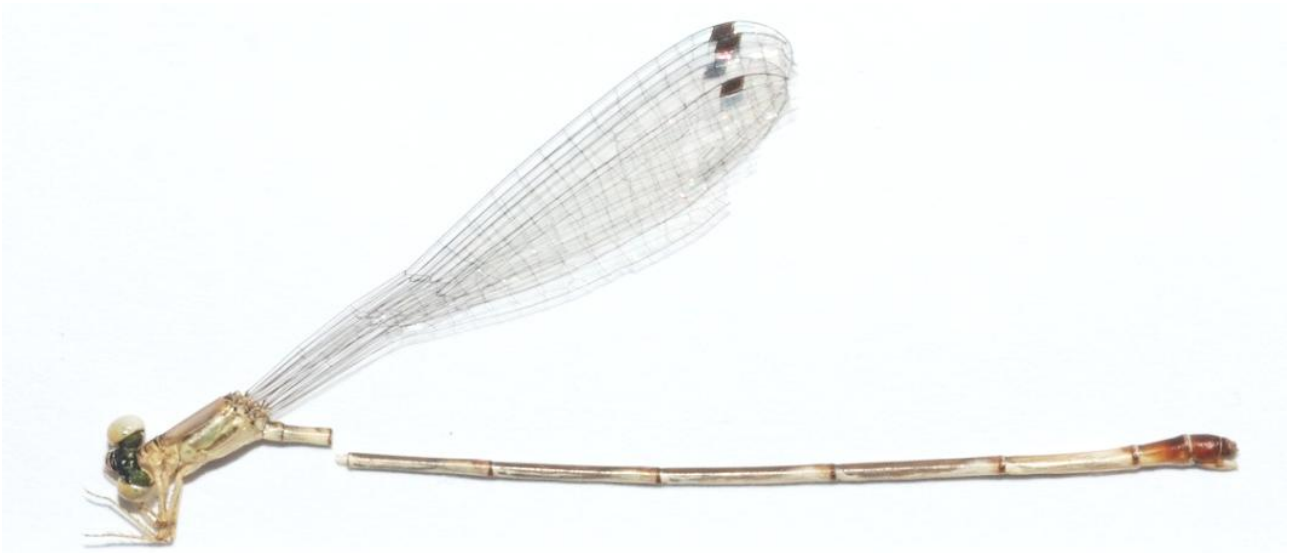

Fig. 2. Teneral female *Teinobasis cryptica* collected by Cheong Loong Fah at the Nee Soon Swamp Forest on 16 Jan.2010. Total length 35 mm, hindwing length 21 mm.

There is, in addition, a teneral female specimen (Fig. 2) obtained earlier on 16 Jan.2010 by Cheong Loong Fah, also from the NSSF. It was misidentified as a species of *Amphicnemis*. This specimen is acknowledged as the first record of *Teinobasis cryptica* in Singapore. Although the colours of this teneral specimen have faded, it is identified as *Teinobasis cryptica* based on the pronotal lobe markings (Dow, 2010).

Amphicnemis bebar Dow, Choong & Ng, 2010

While examining Odonata specimens at the ZRC in Aug.2011, RAD encountered a series of *Amphicnemis* specimens collected by D. H. Murphy from the NSSF in 1994. Although labelled as *Amphicnemis gracilis*, two males and three females are presently identified as *Amphicnemis bebar* Dow, Choong & Ng (2010), a species recently described from Peninsular Malaysia.

In life, *Amphicnemis bebar* males are dark metallic green and bronze-black above while females have an immature red form and a bluish green mature form (Dow et al., 2010). These colours are no longer evident in the old ZRC specimens (Fig. 3). *Amphicnemis* species are very similar to each other in appearance and thus cannot be identified with certainty based solely on colour markings. Rather, the morphology of the anal appendages and posterior pronotal lobe are used to distinguish the four named *Amphicnemis* species in Peninsular Malaysia and Singapore (Dow et al., 2010). In lateral view, the superior anal appendage of *Amphicnemis bebar* is long with a broad tip that is greatly curved downwards (Fig. 4). This character is distinctively different to that of *Amphicnemis gracilis* (Fig. 5).

DISCUSSION

Amphicnemis bebar and *Teinobasis cryptica* are very elusive damselflies. *Teinobasis cryptica* is known to prefer hanging onto the underside of leaves just above the surface of swampy pools, its colouration providing perfect camouflage (Dow, 2010). The superficial similarity of *Amphicnemis bebar* to *Amphicnemis gracilis* has resulted in the former species being previously overlooked.

Odonata research has seen good advancement in Singapore within the span of four to five years, culminating in the publication of a guide book (Tang et al., 2010). Even so, the three new additions (including the dragonfly *Zyxomma obtusum* reported by Ngoi et al. [2011]) to the Singapore odonate fauna this year clearly shows that there can be more species awaiting discovery. *Amphicnemis bebar* was last collected in 1994, and has not been seen locally since. Efforts must be made to verify the continual existence of this species in Singapore.

The NSSF is the remaining example of its kind in Singapore. This precious habitat is well documented to harbour many of Singapore's rare flora and fauna. RWJN has recorded 46 odonate species from there, several of which are very rare. The immense value of the NSSF to our natural heritage is without doubt, and the area continues to be of great conservation significance.

Fig. 3. One of the male *Amphicnemis bebar* collected by D. H. Murphy in 1994 (ZRC.ODO.1218). Total length ca. 38 mm, hindwing length ca. 18 mm.

Fig. 4. Male anal appendages of *Amphicnemis bebar* collected by D. H. Murphy in 1994. Note the downward curve of the superior appendage. Scale bar = 1 mm.

Fig. 5. Anal appendages of male *Amphicnemis gracilis*. Scale bar = 1 mm.

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