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Biodiversity Record: New Singapore record of the damselfly, *Mortonagrion aborense*

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Subjects: Blue midget, *Mortonagrion aborense* (Odonata: Zygoptera: Coenagrionidae).

Subjects identified by: Rory A. Dow.

Location, date and time: Singapore Island, Mount Faber; 22 October 2021 in the evening, and over November and December 2021, during the day.

Habitat: Secondary forest on hilly terrain.

Observers: Shawn B. H. Ang on 22 October 2021. Marcus F. C. Ng and Robin W. J. Ngiam in November and December 2021.

Observation: On 22 October 2021, a male example of about 25 mm total length was photographed by Shawn B. H. Ang near the ground by an open culvert near the foot of the hill (Fig. 1).

Fig 1: Male *Mortonagrion aborense* photographed on 22 October 2021. (Photograph by: Shawn B. H. Ang)

Subsequent visits to the site were made by Marcus F. C. Ng and Robin W. J. Ngiam in November and December 2021. They found a small population of this damselfly which consisted of mature adults, as well as immature and teneral adults (Figs. 2, 3, 6, 7 & 8). Adults of both sexes were found in low vegetation, usually in deep shade and typically less than 40 cm from the ground. They foraged actively by circling and hovering before foliage and gleaning tiny prey with their legs. Females were observed to oviposit on floating debris without the male in attendance (Fig. 9).

Based on terminology from Watson & O'Farrell (1991), the adult damselflies have the following characteristics – Eyes black and green, with yellow post-ocular spots. Male: thorax black, with thin greenish yellow antehumeral stripe and two thicker lateral stripes; abdomen dark with yellow lateral streaks on segments 1-5 and faint banding thereafter; segment 9 light blue, segment 10 with small blue marking; upper appendages robust and club-like (Figs. 1–5). Female: thorax dark, may lack dorsal stripe; abdomen with yellow lateral streaks on segments 1-5 and thin blue banding at the distal ends of segment 7-9 (Fig. 6). Younger individuals of both sexes with blue post-ocular spots, paler eye and thoracic colours, and reddish abdomens (Figs. 7 & 8).

Fig 2. A male *Mortonagrion aborense* from Singapore with greenish yellow thoracic stripes. Fig 3. A male *Mortonagrion aborense*, probably a younger individual, lacking antehumeral stripes. (Photographs by: Marcus F. C. Ng)

Fig 4. Lateral view of the anal appendages of a male *Mortonagrion aborense*. Fig 5. A male *Mortonagrion aborense* from Malaysia, with blue lateral stripes on the synthorax. (Photographs by: Marcus F. C. Ng)

Fig 6. A typical female *Mortonagrion aborense* from Singapore. Fig 7. An immature male *Mortonagrion aborense* from Singapore. (Photographs by: Marcus F. C. Ng)

Fig 8. An immature female *Mortonagrion aborense* from Singapore. (Photograph by: Marcus F. C. Ng) Fig 9. A female *Mortonagrion aborense* from Singapore ovipositing in floating debris. (Photograph by: Fiora Li)

Remarks: *Mortonagrion aborense* (Laidlaw, 1914) represents a new record for Singapore and raises the country's known odonate fauna to 136 species. Its presence was not recorded in earlier publications or checklists, although the species occurs in the Malay Peninsula, where it is locally common. In Peninsular Malaysia, near Gopeng, Perak, Marcus Ng found the species in a similar habitat, namely a small, shaded pond at the foot of a well-forested hill. In Ramnagar Village (West Bengal, India), it was recorded from the edges of a small well-shaded pond surrounded by aquatic vegetation and trees, with adults flying close to the ground (Payra & Tiple, 2016). The species is distributed from eastern India (West Bengal) to mainland Southeast Asia, Sumatra and Borneo (Orr, 2005).

Mature males from the Malay Peninsula and India have blue or greenish yellow antehumeral stripes and azure blue lateral stripes on the synthorax, whereas all observed males from Singapore lack blue on the synthorax, which instead bears green-yellow antehumeral and lateral stripes. These differences, which may be merely a regional variation, point towards the need for a review of this taxon. *Mortonagrion aborense* is currently applied to two species of damselflies in Southeast Asia, which have similar anal appendages but differences in their genital ligula (Rory Dow, personal communication in 2022; Dow, 2016). The ones from Singapore are treated as *Mortonagrion aborense* pending a further review of the genus and species complex (Rory Dow, personal communication in 2022).

It should be noted that the illustrations of the anal appendages in the original description of *Mortonagrion aborense* in Laidlaw (1914) may be inaccurate (Hämäläinen, 1989). Laidlaw (1914) depicted the upper appendages as being about half the length of abdominal segment 10 and strongly hooked downwards. Unfortunately, the type specimen appears to be lost (Hämäläinen, 1989). Fraser's (1933) illustrations of the species show more swollen upper appendages that are longer than segment 10, with a slightly downwards curve; these appear to match those of the Singapore specimens (see Fig. 4).

Thus far, Mount Faber is the only known site for *Mortonagrion aborense* in Singapore. Given the susceptibility of the site to human disturbance which may impact the population adversely, we refrain from disclosing the exact location.

Taking reference from iNaturalist (2022), we apply the vernacular name 'blue midget' for *Mortonagrion aborense* in Singapore. Based on the criteria set out by Ngiam & Cheong (2016) for Singapore, we confer *Mortonagrion aborense* with a national conservation status of Critically Endangered (found in only one location), Restricted (found only at Mount Faber) and Rare.

Note: The authors thank Rory A. Dow and Albert G. Orr for identification and taxonomic discussions.

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