

Biodiversity Record: New record of the praying mantis, *Hierodula coarctata*, in Singapore

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Subjects: *Hierodula coarctata* (Insecta: Mantodea: Mantidae).

Subjects identified by: Chih-Ting Hsu (of Facebook group ‘Mantis Keepers’) and Yeap Bin Hui Benedict.

Location, date and time: Singapore, Sentosa Island, Palawan Beach; 3 July 2019; 1640 hrs.

Habitat: Restroom of a low concrete building at a beach adjacent to coastal forest.

Observers: Yeap Bin Hui Benedict and Jeevanandham Suhas.

Observations: A female example of about 5 cm in head and body length (Fig. 1) was found inside a restroom on 3 July 2019 at Palawan Beach. She was kept in a terrarium for observation. On 16 July 2019, she laid an ootheca (Fig. 2). Two weeks later, around 80 to 100 nymphs hatched from it, and some of them were successfully reared to adulthood. The nymphs were fed with *Drosophila melanogaster* flies (Fig. 4) and Psychodidae flies, and progressed to a diet of larger insects as they grew. The nymphs are yellowish green (Fig. 3) compared to the bluish-green adult. They underwent eight stages of instar, with an interval of about two weeks between each moult. Once adulthood is reached, the females are obviously larger than the males. Two individuals from the same brood were observed mating (Fig. 7).

Remarks: The original mantis was initially misidentified as *Hierodula patellifera*, until a detailed examination of the female morphology revealed it to be *Hierodula coarctata*. In *Hierodula patellifera*, a key morphological feature is the three to four prominent yellowish coxal spines (Fig. 5) found proximally on the inner side of the fore coxa (Battiston et al., 2020). These coxal spines are distinctly smaller in *Hierodula coarctata* (Mukherjee & Ghate, 2010). The whitish stigma on the tegmina of *Hierodula patellifera* is small with thin or faint reddish-brown borders, while *Hierodula coarctata* has a larger whitish stigma with thicker borders of reddish brown proximally and distally on the tegmina (Figs. 2, 6; Mukherjee & Ghate, 2010).



Fig. 1. The original female *Hierodula coarctata* from Palawan Beach on Sentosa. (Photograph by: Benedict B. H. Yeap).

The featured individuals seem to constitute the first record of *Hierodula coarctata* in Singapore (Foo M., unpublished data). As this species is usually distributed in South Asia (Patel & Singh, 2016), it may not be native to Singapore. We speculate that *Hierodula coarctata* was introduced, possibly as escaped pets, similar to the record of *Phyllothelys* mantis at Windsor Nature Park (Foo et al., 2020).

Literature cited:

Battiston R, Amerini R, Di Pietro W, Guariento LA, Bolognin L & Moretto E (2020) A new alien mantis in Italy: Is the Indochina mantis *Hierodula patellifera* chasing the train for Europe? Biodiversity Data Journal, 8: e50779.

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- Mukherjee TK & Ghate HV (2010) Redescription of *Hierodula coarctata* Saussure (Mantodea: Mantidae) from Maharashtra, India. Journal of Threatened Taxa, 2: 1167–1171.
- Patel S & Singh R (2016) Updated checklist and distribution of Mantidae (Mantodea: Insecta) of the world. International Journal of Research Studies in Zoology (IJRSZ), 2: 17–54.



Fig. 2. The female *Hierodula coarctata* laid an ootheca (bottom left) on 16 July 2019. Note the whitish stigma on the tegmina. (Photograph by: Benedict B. H. Yeap).

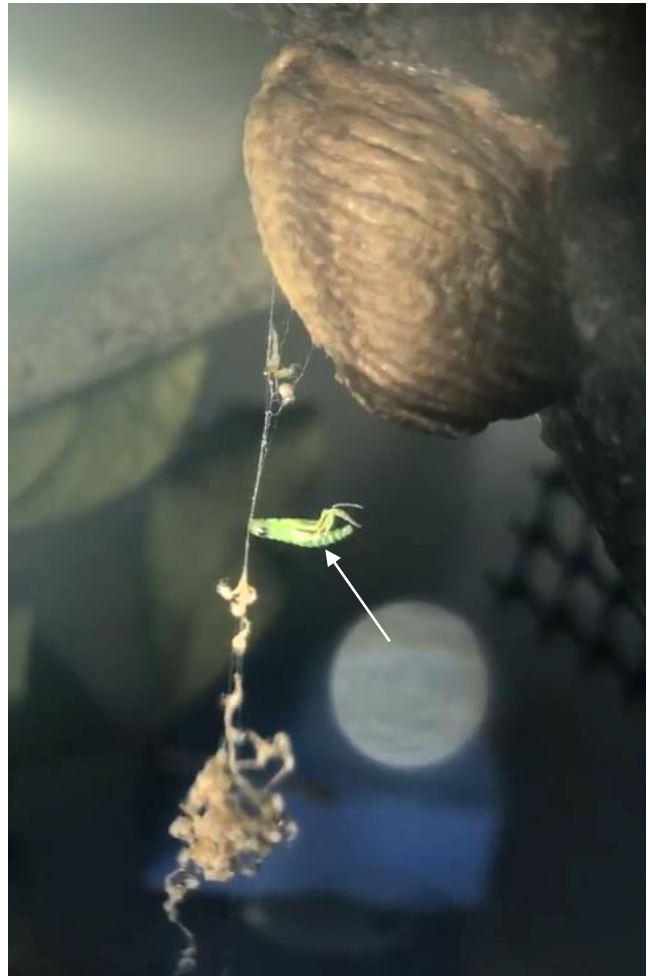


Fig. 3. A *Hierodula coarctata* nymph (indicated by arrow) beginning to shed its first moult after hatching. (Photograph by: Benedict B. H. Yeap).



Fig. 4. One of the *Hierodula coarctata* nymphs feeding on a *Drosophila* fly. (Photograph by: Benedict B. H. Yeap).

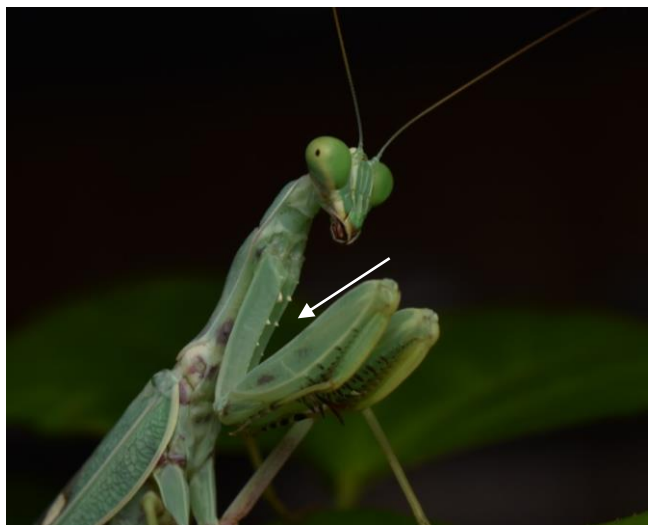


Fig. 5. Latero-ventral view of an adult *Hierodula coarctata* male, showing the small spines (indicated by arrow) on the fore coxa. (Photograph by: Benedict B. H. Yeap).



Fig. 6. Dorso-lateral view of an adult *Hierodula coarctata* male. Note the large whitish stigma with thick reddish-brown borders on the tegmina. (Photograph by: Benedict B. H. Yeap).



Fig. 7. A mating pair of *Hierodula coarctata* suspended from a branch. Note the difference in size between the female (top) and male (bottom). (Photograph by: Benedict B. H. Yeap).