

## Greenhouse frogs at Clementi Woods

**Subjects:** Greenhouse frog, *Eleutherodactylus planirostris* (Amphibia: Anura: Eleutherodactylidae).

**Subjects identified by:** Kelvin K. P. Lim & Law Ing Sind.

**Location, date and time:** Singapore Island, Clementi Woods Park; 28 July 2017; around 2030 hrs.

**Habitat:** Urban parkland with small patches of secondary growth.

**Observers:** Contributors and others.

**Observation:** More than ten individuals, each around 2 cm snout-vent length (Fig. 1), and over 20 juveniles of about 5 mm snout-vent length (Fig. 2), were noted. The juveniles and some adults were inside a dry, flat-bottomed concrete drain (Fig. 3) which has a smaller drain channel in the middle with running freshwater. The section of the drain was under the canopy of a patch of secondary vegetation consisting largely of *Dillenia suffruticosa* and *Melastoma malabathricum*. Some of the adult frogs were also found spread out in the grass lawn at the edge of the drain (Fig. 4). Ten field frogs (*Fejervarya limnocharis*) and 69 Asian toads (*Duttaphrynus melanostictus*) were also encountered in the same area.



Fig. 1. Dorso-lateral view of an adult greenhouse frog of about 2 cm. Photograph by Andrew Tay

**Remarks:** The greenhouse frog was first recorded in Singapore based on a single example found in a suburban housing estate at Sembawang in December 2015, but there was no evidence of an established population in that area (Groenewoud & Law, 2016). The present observation of many individuals including juveniles at a single site strongly suggests an established population in the area, and that this species should be inventoried as a component of Singapore's amphibian fauna.

The present records are part of a two-year survey Amphibian Diversity in Urban Parks by Friends of A Rocha in Singapore. An earlier observation made by Melissa Ong and Prarthini Selveindran at Clementi Woods Park on 30 July 2016 recorded 41 Asian toads (*Duttaphrynus melanostictus*), one four-lined tree frog (*Polypedates leucomystax*) and two field frogs (*Fejervarya limnocharis*). No greenhouse frog was noted then.

*Eleutherodactylus planirostris* is native to Cuba and several islands in the Caribbean (Frost, 2017). Its small size and cryptic colour pattern enable the greenhouse frog to be transported undetected with plants and landscape material, and the live plant trade is believed to be responsible for the establishment of feral populations in the south-eastern United States, Hawai'i, Guam, the Philippines and Hong Kong (Beard et al., 2011; Lee et al., 2016; Frost, 2017).



Fig. 2. Juvenile greenhouse frog of around 5 mm next to a person's index finger.



Fig. 3. Dorsal view of a frog on the wall of the drain. Fig. 4. Dorsal view of an adult frog on grass lawn.

Photographs by Andrew Tay

#### References:

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- Frost, D. R., 2017. *Eleutherodactylus planirostris* (Cope, 1862). *Amphibian Species of the World: an Online Reference*. Version 6.0. <http://research.amnh.org/vz/herpetology/amphibia/Amphibia/Anura/Brachycephaloidea/Eleutherodactylidae/Eleutherodactylinae/Eleutherodactylus/Eleutherodactylus-planirostris>. Accessed on 10 August 2017.
- Groenewoud, D. & I. S. Law, 2016. First record of greenhouse frog in Singapore. *Singapore Biodiversity Records*. 2016: 59.
- Lee W. H., M. W.-N. Lau, A. Lau, D.-Q. Rao & Y.-H. Sung, 2016. Introduction of *Eleutherodactylus planirostris* (Amphibia, Anura, Eleutherodactylidae) to Hong Kong. *Acta Herpetologica*. 11 (1): 85-89.

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