

## Mayflies found in high-rise apartment building at Yishun

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**Subjects:** Mayfly, *Cloeon bengalense* (Insecta: Ephemeroptera: Baetidae).

**Subjects identified by:** Jean-Luc Gattolliat & Marcus F. C. Ng.

**Location and date:** Singapore Island, Yishun public housing estate close to Lower Seletar Reservoir, apartment building along Yishun Street 51; January 2017 to August 2018.

**Habitat:** Urban. Concrete high-rise apartment building facing a small patch of secondary forest adjacent to a freshwater reservoir.

**Observer:** Marcus F. C. Ng.

**Observations:** Adults of these small (around 6 mm) insects were observed clinging to walls and other vertical surfaces on the ground level (void deck) as well as the 11<sup>th</sup> floor of the observer's apartment unit. On most days, at least half a dozen mayflies were seen at the void deck. Following a spell of heavy rain across 2 to 3 days, much higher numbers of mayflies were observed on walls (8-10 individuals per square metre). Many mayflies were also seen on the rooftop garden at the building's 7<sup>th</sup> floor, clinging to the foliage of plants such as pandan and lemongrass. Elsewhere in the neighbourhood, mayflies were spotted at the fringes of the secondary forest across the road from the building, where they were typically found on broad-leafed plants such as *Alocasia*. Females (Fig. 1 & 2) are larger and darker coloured than males. Males (Fig. 3 & 4) have an additional pair of turbinate eyes above their compound eyes that are used to detect females during nuptial flights.

**Remarks:** Dr. Jean-Luc Gattolliat of the University of Lausanne (personal communication) has identified these mayflies as either *Cloeon bengalense* or *Cloeon marginale*. However, he is unable to confirm their exact identity as the genus *Cloeon* in Asia is in a confused state and in need of a taxonomic revision. Both sexes of the featured mayfly species appear to match the original description of *Cloeon bengalense* by Kimmins (1947: 95), but the identification remains tentative. Members of the family Baetidae are known as 'small minnow mayflies' (see Ho et al., 2016: 88).

Although larvae of mayflies are often associated with fast flowing waters, those of the genus *Cloeon* are noted to 'inhabit clean well-oxygenated standing waters or slower flowing areas of rivers amongst vegetation trailing along streams' (Khoo, 2004: 406). The forest near the Yishun flats probably contain suitable breeding sites such as small pools, seeps and streams for the mayflies. However, it is likely that breeding also occurs in the smaller network of ditches built around the flats, as exuviae are often seen on the walls of buildings close to the adults.

Adult mayflies were frequently encountered indoors or at windows of apartment buildings in the Yishun-Lower Seletar area. Although they are harmless to people, their presence and persistence has led to complaints by residents to their representatives, and even queries in Parliament. See the following posts on Facebook:

<https://www.facebook.com/leebeewahpage/posts/1812645278749948>

<https://www.facebook.com/groups/saracabreeze/permalink/650624521812023/>

### References:

- Khoo S. G., 2004. Insecta: Ephemeroptera. In: Yule, C. M. & H. S. Yong (eds.). *Freshwater Invertebrates of the Malaysian Region*. Akademy of Sciences Malaysia. pp. 394-408.
- Kimmins, D. E., 1947. New species of Indian Ephemeroptera. *The Proceedings of the Royal Entomological Society of London*. Series B. Taxonomy. 16 (7-8): 92-100.
- Ho, J. K. I., S. J. Ramchunder, A. Memory, M. Theng, T. Li, E. Clews, Y. Cai, H. H. Tan & D. C. J. Yeo, 2016. *A Guide to the Freshwater Fauna of Nee Soon Swamp Forest*. Tropical Marine Science Institute & Lee Kong Chian Natural History Museum, National University of Singapore. vi + 139 pp.



Fig. 1. Lateral view of adult female *Chloeon* mayfly (body length about 6 mm) on 24 January 2017 at 1612 hrs.



Fig. 2. Lateral view of another adult female mayfly (body length about 6 mm) on 30 January 2017 at 2212 hrs.



Fig. 3. Fronto-lateral view of an adult male *Chloeon* mayfly (body length about 5 mm) photographed on 20 August 2018 at 2115 hrs.



Fig. 4. Dorso-lateral view of same adult male mayfly. Note the additional pair of brown turbinate eyes above the compound eyes.

Photographs by Marcus F. C. Ng