

Swallowtail moths puddling beside forest streams

Subjects: Swallowtail moth, *Lyssa zampa* (Insecta: Lepidoptera: Uraniidae).

Subjects identified by: Contributor.

Locations, dates and time: Singapore Island, Central Nature Reserves, Bukit Timah Nature Reserve and Nee Soon swamp-forest; 5 March & 6 October 2012; 2100 & 2150 hrs.

Habitat: Primary (Bukit Timah) and mature secondary (Nee Soon) lowland rainforest, along the banks of pristine forest streams.

Observer: Contributor.

Observations: Puddling *Lyssa zampa* have been observed on separate occasions at two locations.

1) At the Bukit Timah Nature Reserve on 5 March 2012 at 2100 hrs, a swallowtail moth was perched on the sandy bank of a stream (Fig. 1). It was drinking by dipping the tip of its proboscis into shallow water. Periodically, the moth would squirt out jets of waste fluid from the tip of its abdomen. A video clip of this activity may be viewed at <http://www.youtube.com/watch?v=aa09gN7orgk>.

2) At the Nee Soon swamp-forest on 6 October 2012 at 2150 hrs, a swallowtail moth was encountered drinking and expelling waste fluid beside a forest stream (Fig. 2). A video clip of this may be viewed at <http://www.youtube.com/watch?v=9cWnzuq290Y>. The jet of expelled fluid can reach a distance of about 20 cm. Please view <http://www.youtube.com/watch?v=EfNnAZ3Luh4> to appreciate the squirting action in slow motion. From detailed analyses of the video recordings, the interval between squirts is fairly consistent, and is between 8 and 9 seconds duration.

Remarks: Moths and butterflies may occasionally be witnessed drinking from the edges of pools, puddles and streams in their quest for salts and minerals (Smedley & Eisner, 1996). This activity is known as puddling (see Khew, 2010: xiii). Moths puddle mostly at night, which would be the reverse of butterflies which puddle during the day. A puddling *Lyssa zampa* keeps its wings folded upwards, most likely to prevent them from getting wet.

Lyssa zampa is seen in large numbers outside the forest at certain times of the year, but it has only been observed to puddle along the banks of forest streams (personal observations). The continued protection and preservation of forests and the streams therein will thus help to sustain the lives of these moths and other native Lepidoptera in Singapore.

References:

- Khew S. K., 2010. *A Field Guide to the Butterflies of Singapore*. Ink on Paper Communications Pte Ltd, Singapore. xxv + 344 pp.
- Smedley, S. R. & T. Eisner, 1996. Sodium: a male moth's gift to its offspring. *Proceedings of the National Academy of Sciences*. 93: 809–813.

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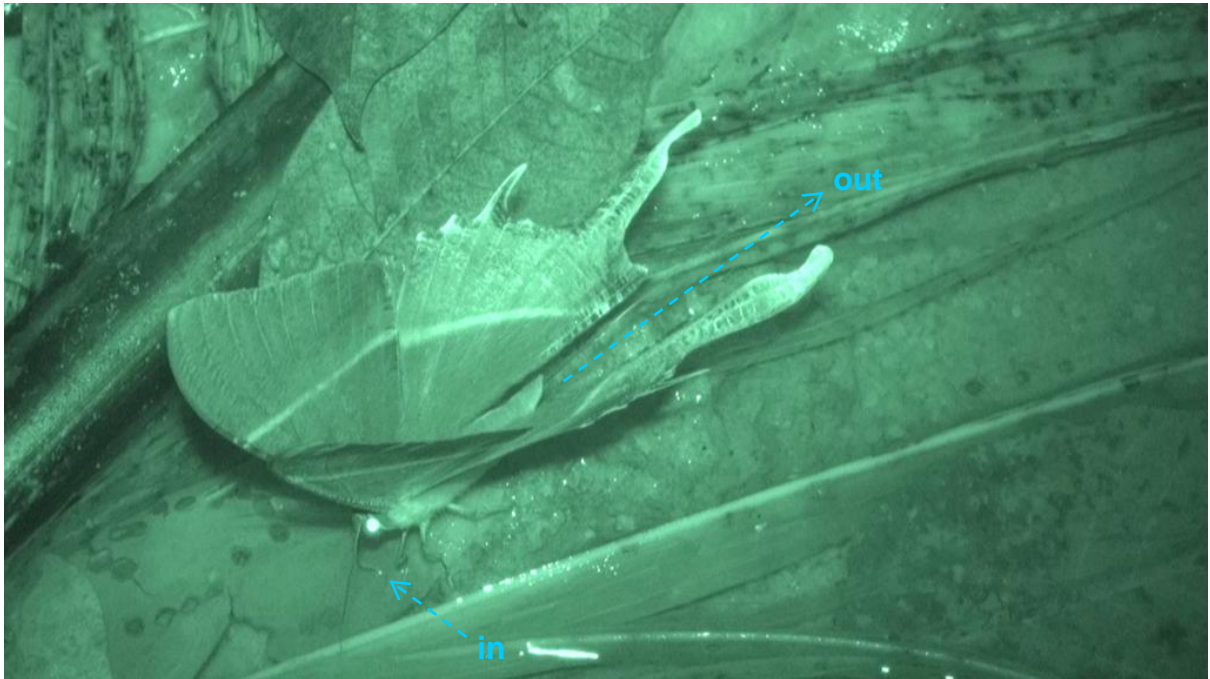


Fig. 1. Swallowtail moth (*Lyssa zampa*) drinking along the shallow bank of a stream at Bukit Timah Nature Reserve on the night of 5 March 2012 at 2100 hrs. Water is consumed through its proboscis (arrow: in) and passed out from its abdomen (arrow: out) at regular intervals.



Fig. 2. Swallowtail moth (*Lyssa zampa*) drinking and expelling waste fluids along the shallow bank of a stream at Nee Soon swamp-forest on the night of 6 October 2012 at 2150 hrs. The jet of expelled fluid can reach a distance of about 20 cm.

Photographs by Leong Tzi Ming