

Smith's rotund-resin bee, *Anthidiellum smithii*, nesting in a bee hotel

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Subject: Smith's rotund-resin bee, *Anthidiellum smithii* (Insecta: Hymenoptera: Megachilidae: Anthidiini).

Subject identified by: Zestin W. W. Soh.

Location, date and time: Singapore Island, Alexandra area, compound of HortPark, along the Bee Trail (see NParks, 2020); 8 August 2019; 1350 hrs.

Habitat: Semi-urban parkland near secondary forest.

Observer: Zestin W. W. Soh.

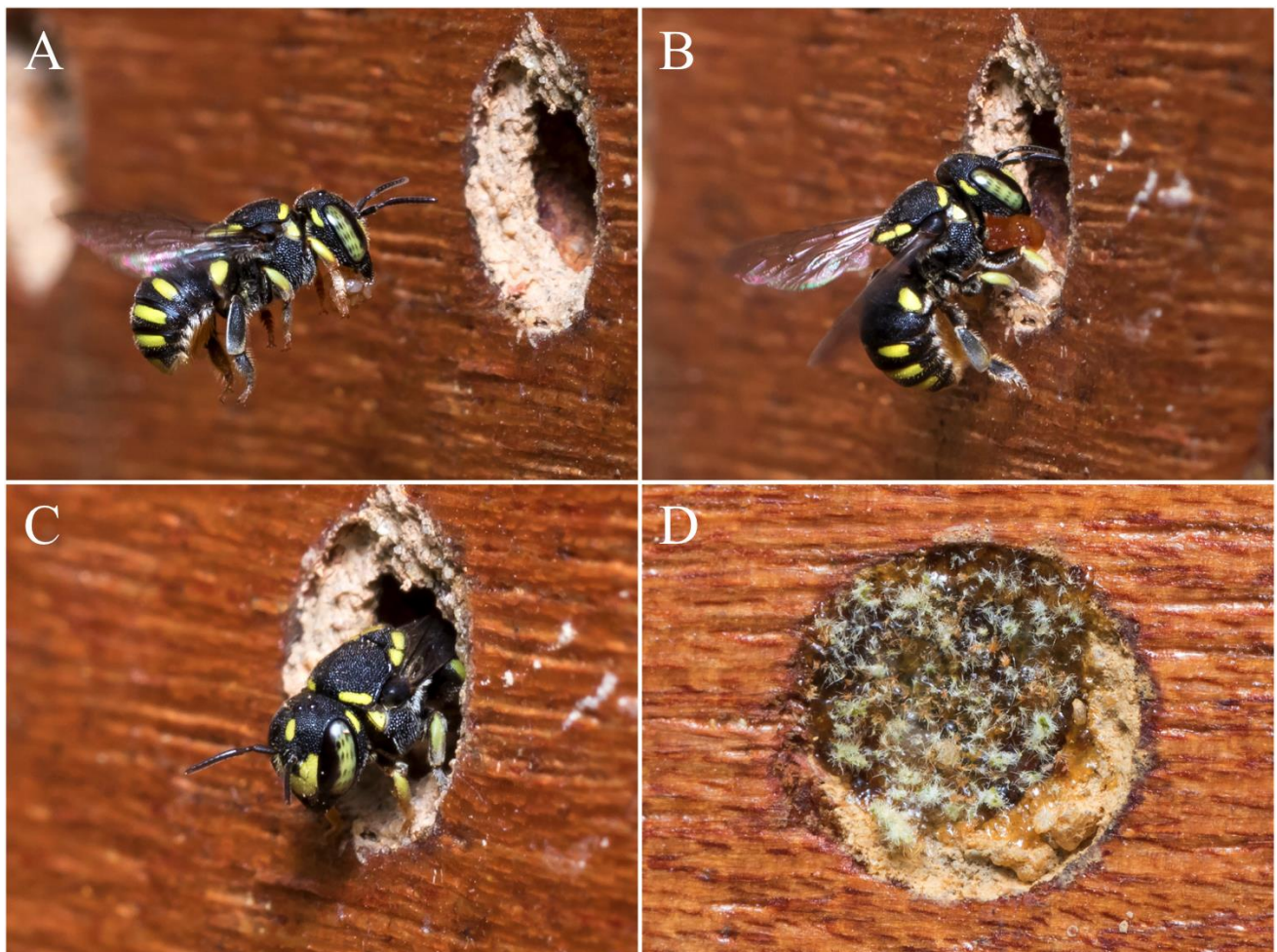


Fig. A-D. *Anthidiellum smithii* nesting at a bee hotel in HortPark. A & B: Female carrying yellowish, translucent resin into a cavity that appeared to be lined with dried mud. C: Female leaving the nest to forage. D: Another completed nest at the same bee hotel plugged with what appears to be plant fibres and resin. Photographs by Zestin W. W. Soh

Observation: One female (~3 mm body length) was seen constructing her nest in a cavity provided by a bee hotel situated along the Bee Trail (Fig. 1A–C). She was observed making multiple trips, using yellow translucent resin as nest-building material. One completed nest at the same bee hotel (Fig. 1D) appears to be plugged by resin and plant

fibres. The nest cavity used by the featured bee was lined with dried mud (Fig. A-C), which suggests that it was previously occupied by a potter wasp (subfamily Eumeninae).

Remarks: *Anthidiellum smithii* is a small, cavity-nesting, solitary bee, and the only pollen-collecting member of the bee tribe Anthidiini in Singapore (Soh et al., 2016). First discovered in Singapore in 2014 at Dairy Farm Nature Park (Soh et al., 2016). This native species is considered locally rare (Soh & Ascher, 2020), and was not detected by Soh & Ngiam (2013) in their surveys of bees and wasps across seven parks in Singapore, or in historical records.

The featured record represents the first time in Singapore that *Anthidiellum smithii* is documented from far beyond the vicinity of the Bukit Timah Nature Reserve (Soh et al., 2016; Ascher et al., 2019). It is also mentioned in Soh & Ascher (2020).

In Singapore, *Anthidiellum smithii* has been recorded to collect pollen from the naturalised plants *Muntingia calabura* and *Bidens pilosa*, but its native pollen hosts are unknown (Soh et al., 2016). The sources of its nesting materials (including resin and plant material such as fibres) are also not yet known. Further detailed study on elucidating the identities of nesting materials (such as resin and plant material) would be required. In addition, supersedure of nest sites suggests that these sites are a limiting resource (Soh et al., 2016).

Bee hotels, in this context, are wooden blocks with holes of multiple sizes to encourage solitary bees to nest. If designed correctly, they have the potential to provide nesting sites for native solitary bees and reveal important insights into their natural history and ecology (Zurbuchen et al., 2010; MacIvor et al., 2014; MacIvor & Packer, 2015).

References:

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