

Nesting of two species of resin bees (genus *Megachile*) in a wooden bench

Subjects: *Megachile* (*Callomegachile*) *disjuncta* (Insecta: Hymenoptera: Apoidea: Megachilidae);
Megachile (*Callomegachile*) *fulvipennis* (Insecta: Hymenoptera: Apoidea: Megachilidae).

Subjects identified by: Contributor & J. S. Ascher.

Location, date and time: Singapore Island, National University of Singapore's Kent Ridge campus, building S14 along Lower Kent Ridge Road; 18 April 2014 between 0700 & 1820 hrs, 23 August 2014 at 1600 hrs, and 21 September 2014 in the morning.

Habitat: Urban. Wooden bench on the third floor of a concrete building, near a patch of secondary forest.

Observer: Contributor.

Observations: On 18 April 2014, an example of *Megachile disjuncta* (Fabricius) of 1.1 cm (Fig. 1B) was seen entering a cavity (horizontal width: 7 mm, vertical length: 9 mm) in a wooden bench (Fig. 1A) located in a sheltered area of a building on the third floor. It entered the hole six times with pollen on its ventral scopa between 0700 and 1820 hrs. Foraging activity stopped at 1530 hrs when dark clouds formed in the sky, and it rained soon after.

On 23 August 2014 at 1600 hrs, a female *Megachile fulvipennis* Smith (Fig. 2) of 1.4 cm was seen entering the same cavity in the same wooden bench. By 21 September 2014, the nest was completed and the entrance of the cavity plugged with a complex of resin and pieces of wood (Fig. 1C).

Remarks: *Megachile fulvipennis* (Fig. 3) and *M. disjuncta* are resin bees in the subgenus *Callomegachile* (Ascher & Pickering, 2014). Megachilid bees are known to use cavities for nesting (Goforth, 2011) and the individuals featured here are using one such cavity in a wooden bench for this purpose. It was particularly interesting to note that the same cavity was used at two different time periods for different species of *Megachile*. Bees source for pollen in their immediate vicinity to provision their nest (Gathmann & Tscharrntke, 2002). The individuals featured here were likely to be visiting the flowers of a *Peltophorum pterocarpum* (Fabaceae) that was planted outside the building and *Memecylon* (Melastomataceae) flowering at a garden nearby.

The female *Megachile fulvipennis* has an entirely black tagmata (head, mesosoma and metasoma) and orange-tinted wings (Fig. 2 & 3). The female *M. disjuncta* has a black-and-white tagmata formed by white hairs on parts of the mesosoma [propodeum] and first tergite of the metasoma, and black-tinted wings (Fig. 1B).

References:

- Ascher, J. S. & J. Pickering, 2014. *Discover Life Bee Species Guide and World Checklist (Hymenoptera: Apoidea: Anthophila)*. Draft 40, 26 July 2014. URL: <http://www.discoverlife.org/mp/20q?search=Megachile+disjuncta> and <http://www.discoverlife.org/mp/20q?search=Megachile+fulvipennis>. Accessed on 10 October 2014.
- Goforth, C. L., 2011. *Friday 5: 5 steps to a native bee cavity nest*. URL: <http://thedragonflywoman.com/2011/05/27/native-bee-cavity-nests/>. Accessed 10 October 2014.
- Gathmann, A. & T. Tscharrntke, 2002. Foraging ranges of solitary bees. *Journal of Animal Ecology*. 71: 757-764.

Contributor: Eunice J. Y. Soh

Contact address: eunice.sjy@gmail.com

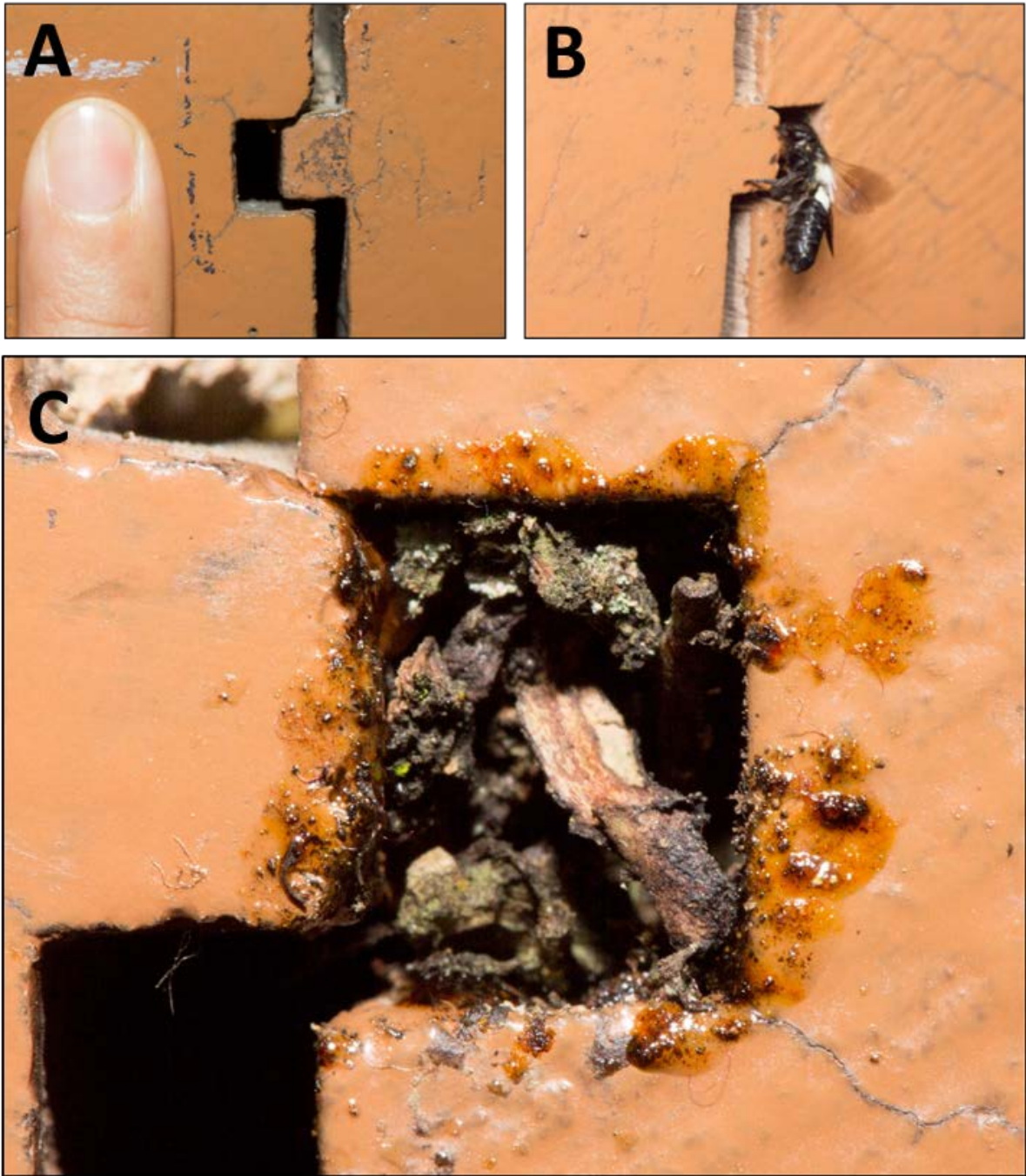


Fig. 1. A gauge of the size of the nest hole in a wooden bench with the contributor's finger for scale (A). The nest was occupied by *Megachile disjuncta* in April 2014 [note its black-and-white tagmata] (B). The plugged nest of *Megachile fulvipennis* made of a resin-wood complex on 21 September 2014 (C). Photographs by Eunice J. Y. Soh



Fig. 2. The *Megachile fulvipennis* that entered the nest and was caught while it exited from the hole. The specimen was released after confirmation of identification. Photograph by Eunice J. Y. Soh

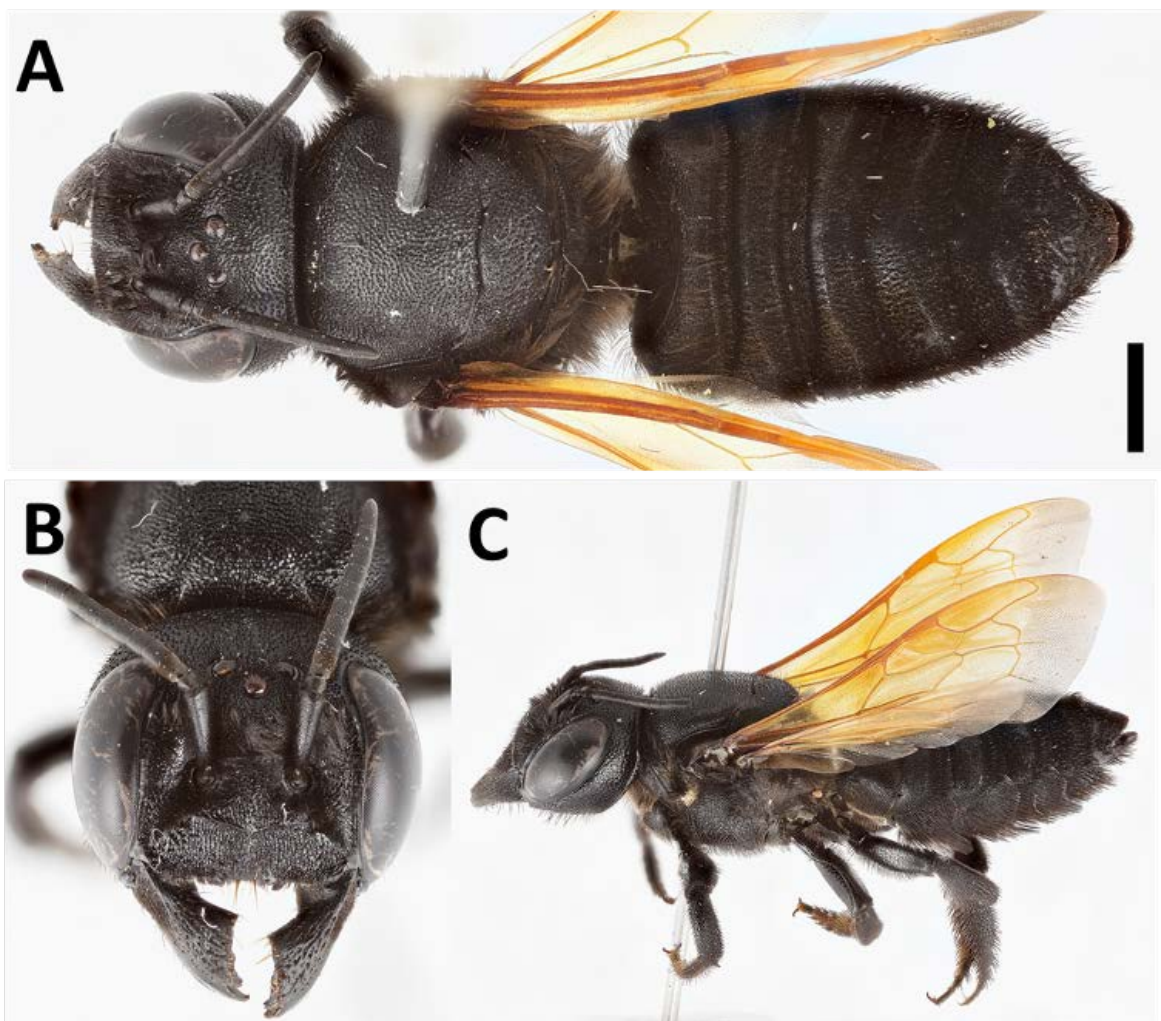


Fig. 3. General habitus images of a pinned specimen of *Megachile (Callomegachile) fulvipennis* Smith for diagnostic purposes - dorsal (A), head (B) and plan (C) views. It has a black head, mesosoma and metasoma. Its mandibles lack a cutting edge, unlike some congeners which cut leaves. This is not the individual that was nesting in the cavity. Scale bar = 2 mm (for figure A only). Photographs by Eunice J. Y. Soh