

## Atlas mammoth wasp, *Megascolia procer procer*, at Sungei Buloh

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**Subjects:** Atlas mammoth wasp, *Megascolia procer* (Insecta: Hymenoptera: Scoliididae).

**Subjects identified by:** Zestin Soh, Robin Ngiam and John Lee.

**Location, date and time:** Singapore Island, Sungei Buloh Wetland Reserve; 6 September 2019 at 1521 hrs and 8 January 2020 at 1130 hrs.

**Habitat:** Bank of isolated freshwater pond bordered by young secondary forest. And along trail between freshwater ponds and back-mangroves/coastal forest.

**Observer:** Spencer Yau Jia Ming.

**Observation:** Two separate records are featured –

- 1) Visitor Centre, on 6 September 2019 at 1521 hrs. A dead example, most likely female, was observed carried by red weaver ants (*Oecophylla smaragdina*) at the base of a tree (*Calophyllum inophyllum*) adjacent to Junior Wetland pond. The relatively intact specimen of around 5 cm (Fig. 1-3), was collected and preserved as a voucher specimen (Fig. 3). At the same time, at least two live atlas mammoth wasps were seen nectaring on a flowering *Premna serratifolia* adjacent to the Bakau Lab (Fig. 4). The observer did not manage to photograph these live individuals.
- 2) Freshwater Ponds, on 8 January 2020 at 1130 hrs. Three live examples were observed following/trailing each other, taking turns to land on a leaf, one at a time, and walk in a single direction while fluttering their wings, for about 30 seconds. These wasps flew off before photos could be taken.

**Remarks:** With a body length of 5 cm and a wingspan of 11.6 cm (Sarrazin et al., 2008), *Megascolia procer* is one of the largest wasps in the world. This solitary ground-nesting species occurs only in Southeast Asia, and has been recorded from Malaysia, Singapore, the Philippines and Indonesia (Betrem & Bradley, 1964). It has been recorded previously at the Sungei Buloh Wetland Reserve (Ho, 2013). This wasp is a known parasitoid of larval *Chalcosoma atlas*, the atlas beetle (Piek, 1986), which also occurs in Singapore (see The Biodiversity of Singapore). The highly iridescent wings of the atlas mammoth wasp are composed of chitin and melanin, the latter producing the dark coloration (Sarrazin et al., 2008).

The examples observed at Sungei Buloh are likely to be the nominate subspecies, which was originally described from Sumatra (Betrem & Bradley, 1964). The females of this subspecies are distinguished by the colour markings on the head, in particular the isolated black ocellar triangle surrounded by a yellow patch that extensively covers the frons and vertex (see Fig 2, image on far left). It is noteworthy that most images online of this species (often in insect display cases for sale) seem to depict the subspecies *Megascolia procer javanensis*, which is described from Java and possesses two additional black lines extending from the ocellar triangle to the vertex (Betrem & Bradley, 1964).

In Singapore, the atlas mammoth wasp is poorly studied and is considered to be rare and restricted to mangroves (Lee, not dated). Due to its large size, peculiar behavior and striking coloration, it has potential to be a charismatic species. The observation of these insects nectaring from the flowers of the coastal native shrub *Premna serratifolia* implies the potential importance of this plant in supporting the conservation of this wasp.



Fig. 1. Lateral views of the dead atlas mammoth wasp found at the Visitor Centre.



Fig. 2. Dorsal views of the dead atlas mammoth wasp. Note the distinct yellow markings.



Fig. 3. Dorsal aspect of the specimen five months later, pinned and preserved, placed against a ruler for scale.

Photographs by Spencer J. M. Yau



Fig. 4. The *Premna serratifolia* bush adjacent to the Bakau Lab (as of 30 June 2020) where atlas mammoth wasps were observed foraging. Image on the left depicts the flowers. Photographs by Low Si Hui

**References:**

- Betrem JG & Bradley JC (1964) Annotations on the genera *Triscolia*, *Megascolia* and *Scolia* (Hymenoptera, Scoliidae). *Zoologische Mededelingen*, 39 (43): 433–444.
- Ho F (2013) A Quiet Morning at Sungei Buloh Wetland Reserve (SBWR). <http://peacockroyal.blogspot.com/2013/09/a-quiet-morning-at-sungei-buloh-wetland.html>. Accessed on 29 June 2020.
- Lee JXQ (not dated) Scoliid wasps. <http://www.vespa-bicolor.net/main/mainframe2016n.htm>. Accessed on 29 June 2020.
- Piek T (1986) *Venoms of the Hymenoptera: Biochemical, Pharmacological and Behavioural Aspects*. First Edition. Elsevier, 173 pp.
- Sarrazin M, Vigneron JP, Welch V & Rassart M (2008) Nanomorphology of the blue iridescent wings of a giant tropical wasp *Megascolia procer javanensis* (Hymenoptera). *Physical Review E*, 78(5): 1–5.
- The Biodiversity of Singapore. *Chalcosoma atlas* (Linnaeus, 1758). <https://singapore.biodiversity.online/species/A-Arth-Hexa-Coleoptera-000595>. Accessed on 29 June 2020.