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Biodiversity Record: Heterospecific pairing of scarlet skimmer and sultan dragonflies

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Subjects: Scarlet skimmer, *Orthetrum testaceum* (Insecta: Odonata: Anisoptera: Libellulidae);
Sultan, *Camacinia gigantea* (Insecta: Odonata: Anisoptera: Libellulidae).

Subjects identified by: Thio Hui Bing and Robin W. J. Ngiam.

Location, date and time: Singapore Island, Upper Seletar Reservoir Park; 16 December 2022; around 1136 hrs.

Habitat: Edge of freshwater swamp forest, in an open area among *Leea indica* shrubs, on a sunny day.

Observer: Thio Hui Bing.

Observation: An odd pair of dragonflies were observed perching on a branch among the patch of *Leea indica* shrubs. It consisted of a male scarlet skimmer and a female sultan. The male was holding onto the female's head with his claspers (Figs. 1 & 2). They were engaged in this position, occasionally flying in tandem, for around one to two minutes. No copulation was observed before they broke contact with each other.

Fig. 1. Dorsal view of heterospecific pair of male scarlet skimmer (above) and female sultan (below). Fig. 2. Lateral view of the same pair. (Photographs by: Thio Hui Bing).

Remarks: Heterospecific pairing in odonates is not uncommon. Corbet (1999) reported 175 pairings, while Bick & Bick (1981) in their worldwide review reported 93 pairs of which 21 were between different genera. Kunz (2010) documented two rare cases of heterospecific mating in two different genera of Libellulidae from pair formation to subsequent ovipositing behaviour. He opined that interspecific matings are the results of an error by the male, caused by factors such as low temperature, late time of day and a poor availability of females. Under such conditions, some males may benefit by grasping nearly any female within reach that broadly resembles a conspecific female instead of making a more detailed confirmation (Corbet, 1999). While heterospecific pairing is well documented, actual copulation, oviposition and successful hybridization is less well known. The scarcity of real F1 hybrids in odonates suggests majority of heterospecific tandems do not result in hybridization (Kunz, 2010).

According to Bick & Bick (1981), heterospecific pairings seemed to occur more often in the Nearctic region than in Neotropical, Ethiopian or Australian regions. This opinion is likely due to odonates being less studied in those regions. As the body of knowledge improves from other parts of the world including tropical Asia, more observations of this phenomenon are to be expected. Apart from the featured example, Robin W. J. Ngiam had in 2009 photographed a heterospecific tandem pairing of a male common parasol (*Neurothemis fluctuans*) and a female crimson dropwing (*Trithemis aurora*) at the Singapore Botanic Gardens (Fig. 3).

Fig. 3. Dorsal view of mating pair of male common parasol (*Neurothemis fluctuans*) and female crimson dropwing (*Trithemis aurora*) at Singapore Botanic Gardens on 9 September 2009. (Photograph by: Robin W. J. Ngiam).

The featured observation is interesting not just because of the heterospecific pairing, but also because of the size disparity between the species involved. The scarlet skimmer is a smaller species with a hindwing length of 34–38 mm and a total body length of 43–48 mm, while the Sultan measures 44–48 mm in hindwing length and 53–56 mm in total body length (Ngiam & Ng, 2022).

Literature cited:

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