

## THE BIOLOGY AND DISTRIBUTION IN SINGAPORE OF *LESTES PRAEMORSUS DECIPIENS* KIRBY, 1893

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### INTRODUCTION

This paper documents the biology and distribution in Singapore of *Lestes praemorsus decipiens* Kirby, 1893, a dragonfly subspecies that was recently recorded here. *Lestes praemorsus decipiens* belongs to order Odonata, suborder Zygoptera and family Lestidae. The family Lestidae contains 160 described species distributed worldwide in both temperate and tropical regions (Orr, 2003). *Lestes praemorsus decipiens* (Fig. 1) was first recorded in Singapore in 1997 and was noted to only occur at MacRitchie Reservoir (Tang, 2008). This subspecies differs from *Lestes praemorsus praemorsus* Hagen, 1892, in having a hockey stick-shaped rather than straight abdomen. *Lestes praemorsus decipiens* is a widespread subspecies ranging from tropical Asia to New Guinea (Orr, 2005).



Fig 1. Male *Lestes praemorsus decipiens* perched on a dried twig at MacRitchie Reservoir. Note the slight curve at the abdomen tip, making it hockey-stick like.

### DETAILS OF SIGHTINGS

*Lestes praemorsus decipiens*, which was first recorded in 1997 in MacRitchie Reservoir (Fig. 2) (Tang, 2008), has since been found in several other localities of Singapore, namely, the Murai, Poyan and Sarimbun Reservoirs in the west of Singapore in Apr.2007, PulauTekong Reservoir in Sep.2007 and the Upper Seletar Reservoir in the Central Catchment Nature Reserve in Feb.2008.

This subspecies is most frequently observed along the shoreline of these reservoirs among the dense *Eleocharis* beds and grassy edges. The only area where *Lestes praemorsus decipiens* was recorded with the absence of *Eleocharis* beds was in Upper Seletar Reservoir where it was frequently observed in the grassy shoreline or thick stands of simpoh air (*Dillenia suffruticosa*) near stream outlets or areas and with a very shallow littoral zone.

Lestids such as *Lestes praemorsus decipiens* generally prefer shallow marshy habitats ranging from pristine alluvial forest and verges of peat swamp forest to open drains and permanent ponds (Orr, 2003) and perch with their wings half open (Orr, 2005). It is therefore not surprising that in Singapore this subspecies was only observed in reservoirs where shallow *Eleocharis* beds occur or in reservoir arms where there is a shallow littoral zone with grassy banks. Unfortunately, most of Singapore's reservoirs have a fairly deep littoral zone, usually dropping to a 1.5 m depth within 1 m from shoreline. The widespread but patchy distribution of this subspecies is probably because of the few suitable habitats available in the reservoirs.

This subspecies has been recorded throughout Peninsular Malaysia (Orr, 2005), and may have spread south when suitable habitats were created with the development of the reservoirs. Its presence may have been unnoticed until recently, because the localities it has been sighted in are inaccessible to members of the public (including most dragonfly enthusiasts!), e.g., various inlets of the reservoirs only accessible by boat, and/or areas controlled by the Ministry of Defence (MINDEF).

That all the habitats are so far apart also suggests that this species could have been a more common subspecies in the past, but because of habitat fragmentation, populations have become isolated from one another but the more likely explanation is that this species is a strong flier and is able to easily extend its range in Singapore to locate the large *Eleocharis* beds with which it is usually associated.

Both males and females were observed at these localities, with more mating pairs (Fig. 3) observed in May and June. After mating, pairs were observed to remain in tandem while the female oviposits. This is probably an example of 'contact guarding', where the male ensures that the female does not mate with another male before laying. The sexual dimorphism is not highly conspicuous with the male's thorax and abdomen a light powder blue-grey whereas the female's thorax and abdomen is a duller light grey, without the bluish tinge and poses a slightly thicker abdomen.



Fig. 2. *Lestes praemorsus decipiens* habitat at MacRitchie Reservoir showing lush *Eleocharis* beds (arrowed).



Fig. 3. A mating pair of *Lestes praemorsus decipiens* perched on a branch at MacRitchie Reservoir.

### SPECIMEN DETAILS

The description here is based on three male individuals and of two mating pairs collected on three separate collecting trips. *Lestes praemorsus decipiens* is a small- to medium-sized zygopteran that rests with its wings open. This subspecies has an overall length of 37–46 mm. Its wings are 20–30 mm long, abdominal appendages are 28–34 mm long and thorax is 7–9 mm long. The males and females are similar in size and are bluish grey with dark grey or blackish mottling on the head, prothorax and synthorax. The abdomen segments 1–8 are generally blackish on the dorsal surface and blue-grey on the ventral, with the blue-grey area extending towards the dorsal surface at the segment joints. Segments 9 and 10 are generally a much lighter whitish-grey. The subspecies *Lestes praemorsus decipiens* differs from the typical subspecies (*Lestes praemorsus praemorsus*) in possessing a hockey stick-shaped abdomen versus a straight one. The male appendages show long superiors and short squat inferiors. The wing venation is such that IR<sub>3</sub> and R<sub>4+5</sub> originate closer to the arculus than to the subnodus (Fig. 4). The fore-wing quadrilateral is almost triangular (Fig. 4), with very short costal sides.

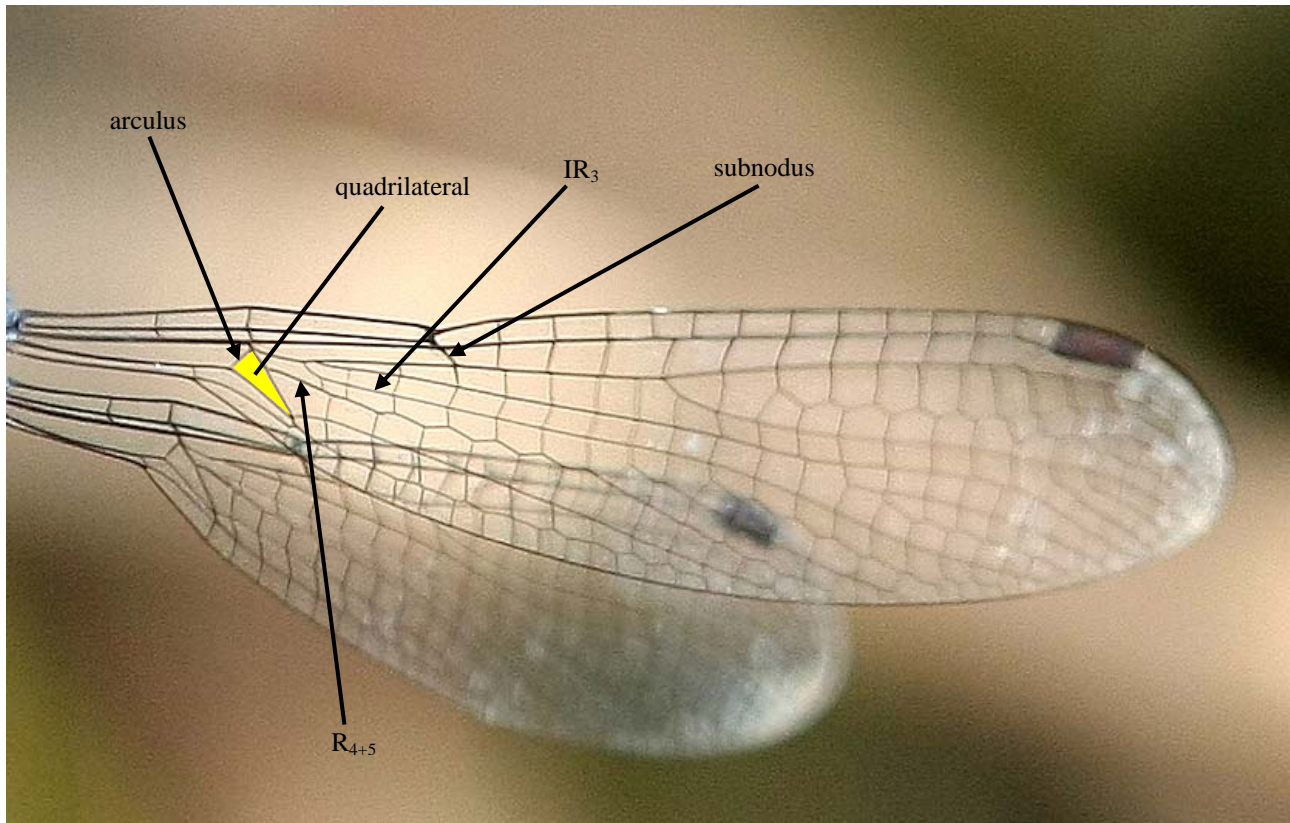


Fig. 4. Forewing of *Lestes praemorsus decipiens* showing its venation, especially the position of IR<sub>3</sub> and R<sub>4+5</sub>.

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