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Southern Riffle Darner *Notoaeschna sagittata* (Odonata) in the Bend of Islands, Victoria

Frank Pierce

PO Box 121, Kangaroo Ground, Victoria 3097. Email: jmandfp@bigpond.com

Abstract
The Southern Riffle Darner *Notoaeschna sagittata* (Odonata) has been recorded in the Yarra Catchment, 30 km north-east of Melbourne, a significant extension of the documented range. Teneral adults of both sexes were recorded at least 1.8 km from the riparian habitat of the Yarra. (*The Victorian Naturalist* **131** (5) 2014, 177-179)

Keywords: *Notoaeschna sagittata,* range extension, distance from stream

Introduction

The Southern Riffle Darner *Notoaeschna sagittata* has been recorded in the Bend of Islands, 30 km north-east of Melbourne. Nine adults and 40 exuviae were found between 25 November 2013 and 23 January 2014. These records, in the Yarra Catchment, are a significant extension to this dragonfly's documented range.

Methods

Sightings were opportunistic, as part of the general Odonata and Lepidoptera observations recorded by the author in the area. When a dragonfly was seen it was photographed if possible. The images were then used to identify the species from Theischinger and Hawking (2006) and various websites. No attempts were made to catch any dragonflies by netting or any other means.

Photos were taken with a hand held Canon Powershot SX20is compact digital camera generally set at x39 (x20 optical and x~2 digital; equivalent 35 mm focal length of 1120 mm), at a distance of 1000 mm minimum. Some exuviae that were an inaccessible distance into the river were photographed through a spotting telescope. Super-macro setting was used to photograph exuviae at close range.

Observations

Adults were seen and photographed by the author nine times in the Bend of Islands. Six adults (three male and three female) were near the banks of the Yarra River. Three adults (two male and one female) with some teneral characteristics, were well away from the Yarra with the minimum distance from the river being up to 1.8 km. The Yarra is the closest viable stream for this species (Table 1 and Figs. 1, 4, front and back cover).

Forty exuviae were also found at seven locations along the Yarra. These were typically on the limbs of dead trees which were partly submerged in the river (Table 1, Figs. 2-4).

An additional sighting has come to the attention of the author. Nick Monaghan photographed an adult 50 m from the banks of the Yarra in North Warrandyte, adjacent to the Pound Bend section of Warrandyte State Park, on 26 December 2012 at 37.731°S, 145.207°E. (Nick Monaghan pers. comm. January 2014) This is approximately 7 kms west of the Bend of Islands (20 kms downstream by river) (Life

Fig. 1. Teneral male *Notoaeschna sagittata* at least 1.4 km from the Yarra River.

Table 1. Sighting Details of Southern Riffle Darner *Notoaeschna sagittata* in The Bend of Islands. [1]- Found by Gavin Masters [2]-Dead, partly submerged, tree.

Site	Date	Form	Location	Distance from Yarra Bank	Latitude	Longitude
1a	25/11/2013	Adult m	Small Wetland	Minimum 1.8km to North	37.6861	145.2936
2a	27/11/2013	Exuvia x1	Tree[2] in Yarra	0 m from bank; 1m above water	37.7177	145.285
2b	29/11/2013	Exuvia x1	Tree[2] in Yarra	5 m into river; 1 m above water	37.7177	145.285
3	7/12/2013	Adult m	House Garden	Minimum 1.4 km to West	37.6893	145.3012
4a	8/12/2013	Adult f	Bank of Yarra	0 m from bank	37.7163	145.2863
5a	12/12/2013	Adult m	Bank of Yarra	0 m from bank	37.7145	145.285
4b	12/12/2013	Adult m	Bank of Yarra	0 m from bank	37.7162	145.2864
6a	21/12/2013	Exuvia x1[1]	Tree[2] in Yarra	0 m from bank; 1.5 m above water	37.7104	145.2835
7	29/12/2013	Adult f	Bank of Yarra	8 m landside of bank	37.70366	145.2923
1b	31/12/2013	Adult f	Small Wetland	Minimum 1.8 km to North	37.6859	145.2939
8	5/01/2014	Adult m	Bank of Yarra	3 m landside of bank	37.71394	145.28474
5b	19/01/2014	Exuviae x14	Tree[2] in Yarra	6 m into river; 1 m above water	37.7145	145.285
5c	19/01/2014	Exuviae x9	Tree[2] in Yarra	4 m into river; 1.1 m above water	37.7145	145.285
9	22/01/2014	Exuvia x1	Tree[2] in Yarra	6 m into river; 2 m above water	37.71647	145.28615
10	22/01/2014	Exuvia x1	Tree[2] in Yarra	0 m from bank; 1.8m above water	37.71484	145.2859
11a	23/01/2014	Exuviae x5	Tree[2] in Yarra	3 m into river; 1.2 m above water	37.71181	145.28477
11b	23/01/2014	Exuviae x2	Tree[2] in Yarra	1 m into river; 1.1m above water	37.71181	145.28477
11c	23/01/2014	Exuviae x5	Tree[2] in Yarra	1.5 m into river; 1.0 m above water	37.71181	145.28477
12	23/01/2014	Adult f	Bank of Yarra	40 m landside of bank	37.71266	145.28476
6b	23/01/2014	Exuvia x1	Tree[2] in Rapid	10 m into river; 0.7 m above water	37.7104	145.2835

Unseen website at http://lifeunseen.com/index2_item_7308.php).

Discussion

Notoaeschna sagittata is a riverine species and the female is known to oviposit while totally submerged at rapids (Theischinger and Hawking 2006). There are several sections of rapids along the length of river where the observations were made. Despite many hours of watching various rapids on the Yarra, this ovipositing was not observed.

All observed adults were sexed and the sex ratio (five male, four female) was close to parity, recognising the small sample size and odd number.

It is of interest that both male and female adults, with some teneral characteristics, were recorded at least 1.8 km from the Yarra. Theischinger and Hawking (2006: 4), as part of the Life Cycle outline, comment that 'riverine species appear to move only a short distance, up to 500 m from the stream'.

Teneral characteristics were noted on the three adults observed away from the river, but not on the six adults observed near the river. This is consistent with the post emergence strategy of leaving the riparian habitat until maturity. Perhaps this is to avoid the rigours of courtship competition before gaining full strength and ability to deal with the opposition.

There was no obvious correlation between the number of exuviae found at a location and its distance from any of the rapids on the river. Site 5, at which 23 exuviae were found, was about 50 m downstream of a rapid but other trees in similar locations had none. Some locations with exuviae were much further downstream from any rapids, while others were adjacent to rapids.

It is fortunate that *N.sagittata* exuviae are easily identified, having the epiproct and paraprocts armed with long spines, a spine on the

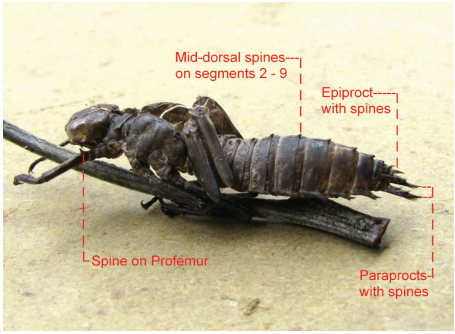

Fig. 2. Exuvia of *Notoaeschna sagittata* found on the banks of the Yarra River.

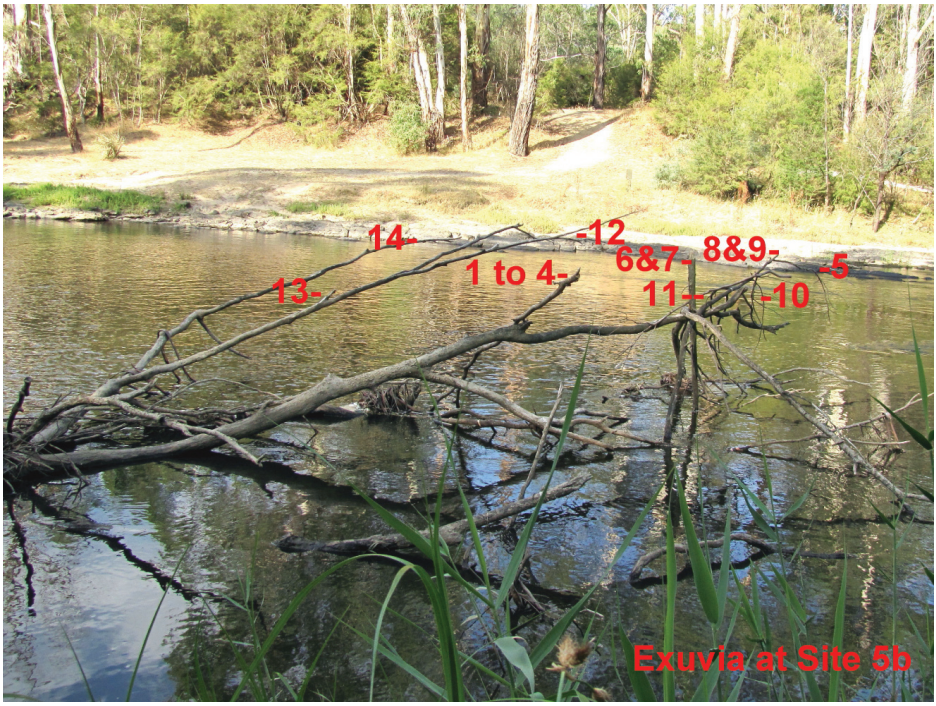

Fig. 3. Site of Exuvia of *Notoaeschna sagittata* found on the banks of the Yarra River.

profemur and mid-dorsal spines on abdominal segments 2 to 9 (Fig. 2).

The known range of *Notoaeschna sagittata* is documented in Theischinger and Endersby (2009). Most Victorian records are in the far east of the state and none in the catchment area of the Yarra River. A number of records since 2009 have been published for eastern Victoria, but none for the Yarra Catchment (Endersby 2014).

Given the proximity to Melbourne, and the number of sightings over a short period, it is surprising that *Notoaeschna sagittata* has not been recorded previously in the area. 2013/14 may have been a particularly good season. However, the large number of exuviae found indicates that reasonable numbers must have been present in the previous season. The species was not detected, despite regular visits to the area by the author and other known dragonfly enthusiasts over the past few years.

Conservation Status of the Area

In the area of the sightings, the Yarra is flanked by the Bend of Islands on one side and the Mt. Lofty section of Warrandyte State Park on the other. The high quality of the habitat being conserved adjacent to the river will be a contributing factor to the high species diversity in the area. Thirty-two species of Odonata have been recorded in the Bend of Islands by the author since January 2012.

The Bend of Islands is a unique residential conservation area, established in 1976, adjacent to the Yarra River. It is a 634 ha area of high conservation-value bushland, zoned Special Use Zone 2 – Environmental Living (ELZ), in the Shire of Nillumbik. This zoning prohibits the keeping of dogs, cats or other domestic or farm animals, restricts the planting of non-indigenous plants and prohibits the removal of native vegetation without a permit. For more information on the ELZ, refer to the Bend of

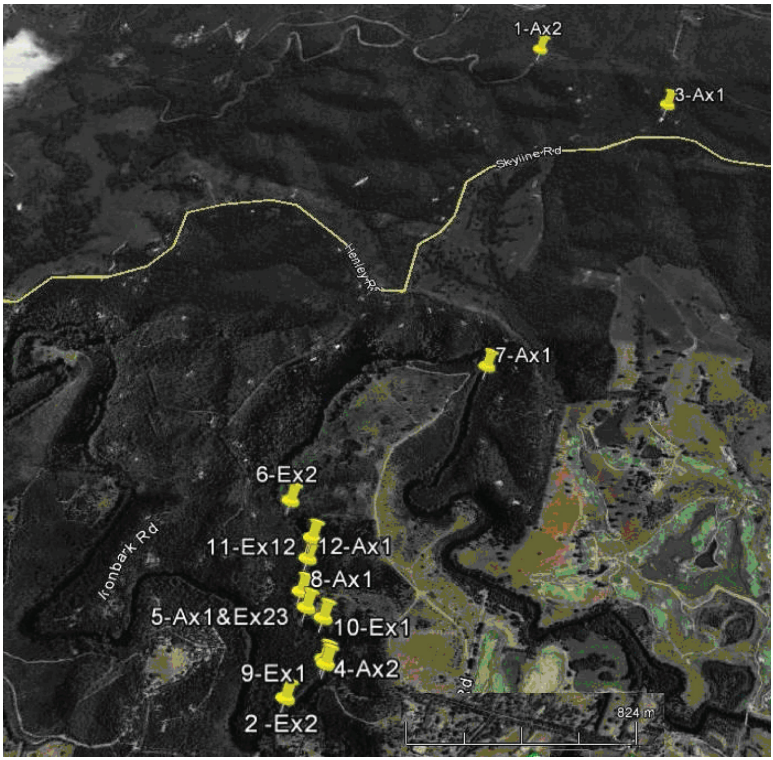

Fig. 4. Area map showing Site Number – Adult (A) or Exuvia (E) x number recorded.

Islands Conservation Association website at www.bendofislands.wordpress.com . A dragonfly list for the area is included on this website, along with many lists of other flora and fauna.

The three observations that occurred away from the Yarra were on, or immediately adjacent to, the Round the Bend Conservation Co-operative. This is a 128 ha property within the ELZ, owned by 32 shareholders, each with a 0.15 ha house site strategically located to minimise impact on the local bushland, which is of State significance, and includes Box-Ironbark Forest (Refer to www.roundthebend.org.au).

Conclusion

Observation of *Notoaeschna sagittata* in the Bend of Islands is a significant extension of its documented range to include the Yarra catchment. This demonstrates the positive effect of conservation of remnant bushland close to a capital city.

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