

Little Desert Bush Blitz

Odonata

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Nomenclature and taxonomy used in this report is consistent with:

The Australian Faunal Directory (AFD)

<http://www.environment.gov.au/biodiversity/abrs/online-resources/fauna/afd/home>



Diplacodes bipunctata, Wandering Percher, Wimmera River

Photographer: Heath Warwick | Source: Museums Victoria

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List of contributors

List of contributors to this report.			
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Abstract

Five species of dragonflies and two species of damselflies were recorded along the lower Wimmera River where it forms a boundary of the Little Desert National Park. All species were common and widespread in Victoria.

1. Introduction

Odonata are better known as dragonflies and damselflies. These insects have life cycles that are partly aquatic and partly aerial. The aquatic larvae (the immature stages) are confined to freshwater and usually live and hunt small invertebrate prey in shallow water. Larvae take one to two years to grow and mature. At maturity they emerge from the water and metamorphose into flying adults, which live for 1-2 months. Adults are active predators, defend territories and mate and lay eggs in the water. The eggs hatch into small larvae to complete the life cycle.

The eastern boundary of the Little Desert National Park is a 10km reach of the lower Wimmera River. This is the only part of the park with permanent water and thus is the only location where Odonata (both adults and larvae) are likely to be found. Some previous work on aquatic invertebrates, including odonatan larvae, has been carried out by the Victorian EPA at several sites on the Wimmera River upstream of the park, but to my knowledge Odonata have not previously been sampled in the Little Desert National Park.

Little permanent freshwater, other than the Wimmera River, exists in the park itself. Thus I did not expect a high diversity of Odonata. However, Odonata are generally good flyers and able to disperse well. Consequently, I expected only widely distributed species to be recorded.

2. Methods

2.1 Site selection

Four sites were chosen.

Two sites were chosen on the Wimmera River within the park. These sites were chosen because they gave easy access to the river itself and contained stands of emergent aquatic plants such as *Phragmites* reeds. These plants provide shelter for odonatan larvae and also provide perching spots for adults. Access to the water was needed to allow sweep sampling for the aquatic larvae. Both sites also gave good views over the river channel to enable observation and photography of adult Odonata. One of these sites was about 500m to the east of one of the standard survey sites, which was not on the Wimmera River.

The second standard survey site (Broughtons Waterhole) was also surveyed by sweep sampling and by observation of adults. The final site was also on the Wimmera River but downstream and thus outside the park. It was close to the town of Jeparit and was chosen to determine whether Odonata recorded further upstream, i.e. within the park, were distributed downstream.

2.2 Survey techniques

Aquatic odonatan larvae were sampled using a triangular aquatic hand net: 30cm sides, 50cm in length, 180µm mesh. The net was swept through submerged aquatic vegetation and along the muddy and sandy bottom for about 1min. Only shallow areas were sampled where the majority of specimens were likely to be found. Little habitat variability (silt only) occurred in the deep, main, channel of the Wimmera River, which was not sampled. The net contents were poured into a white tray and specimens extracted by pipette from the debris for about 15 minutes.

Adult Odonata were observed and photographed using a high-resolution camera (50 megapixels). Photos were enlarged immediately on the camera screen, enabling species to be identified from images in the two books noted below. Colour patterns on the abdomen and marks on the thorax provided the most useful diagnostic characters. Attempts were made to

catch adults using a butterfly net but these were only very occasionally successful. Photography, however, provided a very efficient means to identify species. Once I became familiar with the range of species present at a site it became easier to identify specimens. Binoculars also helped identify adults.



Richard Marchant surveying Broughtons Waterhole, Little Desert NP
Photographer: Benjamin Healley | Source: Museums Victoria

2.2.1 Methods used at standard survey sites

Photography and the aquatic hand net were used at the standard survey sites. Conditions were always suitable for observing odonatans.

2.3 Identifying the collections

Photographs of species observed were identified using two books:

Theischinger, G. & Hawking, J. 2006. *The complete guide to dragonflies of Australia*. CSIRO Publishing, Melbourne.

Richter, R. & Endersby, I. 2019. *Dragonflies and Damselflies of Victoria and Tasmania*. Entomological Society of Victoria.

Larval specimens were identified using keys in Theischinger and Hawking (2006).

3. Results and Discussion

Appendix 1 lists all Odonata recorded during the Bush Blitz. Larval specimens of two damselflies were collected. Although no adult specimens were collected, photographs of each species were obtained. This survey will result in the addition of three specimen lots and images of adult damselfly and dragonfly species to public collections and to publicly accessible databases.

Odonata were recorded at the three sites on the Wimmera River (see point data). Larval specimens were also found at these sites but only for the two damselfly species: *Austrolestes annulosus* and *Xanthagrion erythroneurum*. Larvae of the dragonflies must also have been present but presumably at too low a density to be caught. Larval Odonata are generally not abundant at a given site, probably because they are predators (as larvae) on smaller aquatic invertebrates. Thus they will generally be less abundant than their prey. Potential prey at

these sites were: midge larvae (Chironomidae, two species); freshwater shrimps (Atyidae, *Paratya* sp.); Amphipoda (Chiltoniidae, *Austrochiltonia subtenuis*); mayfly larvae (Caenidae, *Tasmanocoenis tillyardi*); water boatmen (Corixidae, *Micronecta* sp.); backswimmers (Notonectidae); caddis larvae (Leptoceridae; *Oecetis* sp.); Ostacoda, Cladocera and Calanoida. These are all typical taxa for lowland slow flowing rivers in western Victoria. Freshwater invertebrate diversity in this region is not high and those taxa recorded are probably well adapted to the low flow, high water temperatures (in summer) and high salinities (compared with rivers in eastern Victoria) of the lower Wimmera River. Obvious degradation of water quality, e.g. high nutrient levels or presence of toxic material, has not been reported by Vic EPA from their sites on the Wimmera River further upstream.

No Odonata were seen at Broughtons Waterhole (SS2). The water in the dam was quite fresh but very turbid. Sweep samples showed the pond contained: tadpoles, zooplankton, one species of aquatic beetle (*Antiporus gilberti*, family Dytiscidae), backswimmers (family Notonectidae) and water boatmen (Corixidae)



Fig. 1 *Anax papuensis*, Australian Emperor, Wimmera River
Photographer: Benjamin Healley | Source: Museums Victoria



Fig. 2 *Austrolestes annulosus*, Blue Ringtail, Wimmera River
Photographer: Benjamin Healley | Source: Museums Victoria



Fig. 3 *Xanthagrion erythroneurum*, Red and Blue Damselfly, Wimmera River
Photographer: Heath Warwick | Source: Museums Victoria



Fig. 4 *Orthetrum caledonicum*, Blue Skimmer, Wimmera River
Photographer: Heath Warwick | Source: Museums Victoria

3.1 Un-named or not formalised taxa

None recorded

3.2 Putative new species (new to science)

None recorded

3.3 Exotic and pest species

None recorded

3.4 Threatened species

None recorded

3.5 Range extensions

All species recorded are widely distributed in southern Australia.

3.6 Genetic information

As far as I am aware, no genetic information is available for any of the species recorded.

4. Information on species lists

All the odonatan species recorded are widespread in Victoria and throughout southern and arid Australia. Thus their larvae must be well adapted to the varied conditions in inland water bodies, whether these be permanent or temporary.

Once suitable photographs had been obtained it was usually fairly easy to identify adult specimens. Richter and Endersby's book (2019) was a great help because of its excellent photographs of Victorian species.

5. Information for land managers

As all species of Odonata were common it is unlikely that their presence offers much to a land manager, other than to signify that freshwater habitats are nearby. All species are clearly tolerant of a wide range of conditions.

6. Conclusions

Five species of dragonflies and two species of damselflies were recorded along the lower Wimmera River. All species were common and are widespread in Victoria.

Acknowledgements

The teachers who accompanied us in the field provided us with excellent help and in fact were the only ones to catch dragonflies with a butterfly net.

References

- Theischinger, G. & Hawking, J. 2006. *The complete guide to dragonflies of Australia*. CSIRO Publishing, Melbourne.
- Richter, R. & Endersby, I. 2019. *Dragonflies and Damselflies of Victoria and Tasmania*. Entomological Society of Victoria.

Appendix 1. List of Odonata recorded during the Little Desert Bush Blitz

Family	Species	Common name	Putative new species	Threatened (EPBC Act)	Threatened (State/Territory Act)	Exotic/pest
Aeshnidae	<i>Anax papuensis</i>	Australian Emperor	No	No	No	No
Coenagrionidae	<i>Xanthagrion erythroneurum</i>	Red and Blue Damselfly	No	No	No	No
Corduliidae	<i>Hemicordulia tau</i>	Tau Emerald	No	No	No	No
Lestidae	<i>Austrolestes annulosus</i>	Blue Ringtail	No	No	No	No
Libellulidae	<i>Diplacodes bipunctata</i>	Wandering Percher	No	No	No	No
Libellulidae	<i>Diplacodes haematodes</i>	Scarlet Percher	No	No	No	No
Libellulidae	<i>Orthetrum caledonicum</i>	Blue Skimmer	No	No	No	No