Dragonflies and Damselflies of the KhoiSan Karoo Conservancy

Ryan Tippett and Les Underhill

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Odonata

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Ryan Tippett[1] and Les G Underhill[1,2]

[1] Biodiversity and Development Institute, 25 Old Farm Road, Rondebosch 7700, South Africa
[2] Department of Biological Sciences, University of Cape Town, Rondebosch 7701, South Africa
tippettm.ryan@gmail.com, les@thebdi.org

Abstract

This guide to the dragonflies and damselflies of the KhoiSan Karoo Conservancy provides a provisional list of the first 19 species to be recorded here. It is designed to be used as a guide for visitors. To help with the identification of species, it provides links to the species texts in the online atlas of the Dragonflies and Damselflies of South Africa, Lesotho and Eswatini, where there is comprehensive information based on annotated photographs.

Introduction

The KhoiSan Karoo Conservancy lies 25 km north of the town of Hanover in the Northern Cape, South Africa. The area is 8,000 ha. The main accommodation in the conservancy is at the New Holme Nature Lodge, 8 km from the N1. The Seekoei River flows through the conservancy, and a wall was built across the river in 1947 to create a reservoir with an area of c. 110 ha when full. From the perspective of dragonflies and damselflies, the river and reservoir (known as the New Holme Dam) provide attractive wetland habitat. Dragonflies and damselflies (collectively known as the Odonata) have inhabited the planet's wetlands for approximately 300 million years and are one of the most ancient forms of animal life to persist into the 21st century (Tarboton & Tarboton 2019). By contrast, moths and butterflies (Lepidoptera) have been present for about 100 million years. The Odonata have outlived the dinosaurs, which emerged around 250 million years ago and went extinct about 66 million years ago.

There are approximately 6,000 species of dragonflies and damselflies globally (far fewer than the number of moths and butterflies, which total 170,000 species). The number of dragonfly and damselfly species in Africa south of the Sahara Desert is around 850, and 164 of these have been recorded in South Africa, Lesotho and Eswatini (Tarboton & Tarboton 2019).

The presence (or absence) of species of Odonata in wetlands is frequently used as an indicator of environmental health and water quality (Bush et al. 2013). All species breed in fresh water and are dependent on water for the development of their nymphal (pre-adult) stages. In addition, the adults of most species are dependent on freshwater wetlands, where they lay their eggs and play a key role in the food web.

Here, we present a species list of dragonflies and damselflies recorded in the KhoiSan Karoo Conservancy and surrounding areas, mainly in the vicinity of the lodges at New Holme and Mieliefontein. This is a provisional list and there are some obvious omissions. For example, there are species which have been recorded in similar habitats within the district, but not yet in the conservancy.

Current records of Odonata species

By May 2022, 19 species had been recorded within the KhoiSan Karoo Conservancy and surrounding area (Table 1, Figure 1). The following checklist is based on observations of dragonflies and damselflies submitted to the OdonataMAP section of the Virtual Museum (Navarro & Underhill in press). There is more information about the Virtual Museum below. It is primarily intended as a resource for visitors to the New Holme and Mieliefontein Lodges, helping to make

Figure 1: These are four of the 19 species recorded in the KhoiSan Karoo Conservancy. Top left: Yellow-faced Sprite, OdonataMAP Record 60008 by Rick Nuttall. Top right: Red-veined Darter, OdonataMAP Record 60020, by Rick Nuttall. Bottom left: Black Percher, OdonataMAP Record 126843, by Ryan Tippett. Bottom right: Vagrant Emperor, OdonataMAP Record 59999, by Rick Nuttall.

Table 1. Odonata (dragonflies and damselflies) of the KhoiSan Karoo Conservancy and surrounding area (quarter degree grid cell 3024DC). The column headed "n" shows the number of records for the species in OdonataMAP recorded by May 2022. The common names provide links to the species in the Atlas of the Dragonflies and Damselflies of South Africa, Lesotho and Eswatini (Tippett et al. in prep.). OdonataMAP is the Virtual Museum database for photographic records of dragonflies and damselflies.

	Scientific name	Common name	Afrikaans name	n	Preferred habitats and locations to date
1	*Anax ephippiger*	Vagrant Emperor	Blourugkeiser	1	Marshes with open water, dams
2	*Anax imperator*	Blue Emperor	Bloukeiser	2	Most wetlands
3	*Zosteraeschna minuscula*	Friendly Hawker	Vrolike Venter	1	Mieliefontein; Seekoei Rivier
4	*Platycypha caligata*	Dancing Jewel	Dansende Juweeltjie	1	Mieliefontein
5	*Africallagma glaucum*	Swamp Bluet	Vleibloutjie	10	Most wetlands
6	*Ceriagrion glabrum*	Common Citril	Gewone Aljander	1	Mieliefontein
7	*Ischnura senegalensis*	Tropical Bluetail	Hemelstertjie	23	Most wetlands
8	*Pseudagrion citricola*	Yellow-faced Sprite	Jaloerse Gesie	15	Seekoei Rivier
9	*Ceratogomphus pictus*	Common Thorntail	Gewone Doringstert	2	Shoreline of larger dams; Seekoei River
10	*Lestes pallidus*	Pallid Spreadwing	Bleekspanvlerkie	3	Shallow marshes with long grass
11	*Crocothemis erythraea*	Broad Scarlet	Breë Blosie	4	Most wetlands
12	*Diplacodes lefebvrii*	Black Percher	Swartsittertjie	1	Larger marshes
13	*Diplacodes luminans*	Barbet Percher	Baardmannetjie	1	Larger marshes
14	*Orthetrum julia capicola*	Cape Skimmer	Kaapse Skepper	2	Mieliefontein
15	*Orthetrum caffrum*	Two-striped Skimmer	Strepieskepper	6	Most wetlands. Often away from water
16	*Pantala flavescens*	Wandering Glider	Narbroekie	3	Shallow rain-filled wetlands
17	*Sympetrum fonscolombii*	Red-veined Darter/Nomad	Swerwertjie	23	Most wetlands. Often away from water
18	*Trithemis arteriosa*	Red-veined Dropwing	Rooinerfie	3	Most wetlands
19	*Trithemis dorsalis*	Highland Dropwing	Hooglandvalvlerkie	1	Mieliefontein

them aware of the dragonflies and damselflies which can be observed here.

In lieu of a description and photograph for each recorded species, Table 1 provides a link to the species text in the online Atlas of the Dragonflies and Damselflies in South Africa, Lesotho and Eswatini (Tippett et al. in press). These texts contain photographs of each species with arrows pointing to the key identification features (Figure 2) and are updated periodically. The links in Table 1 will remain unchanged, but the content is continually improved as additional information becomes available.

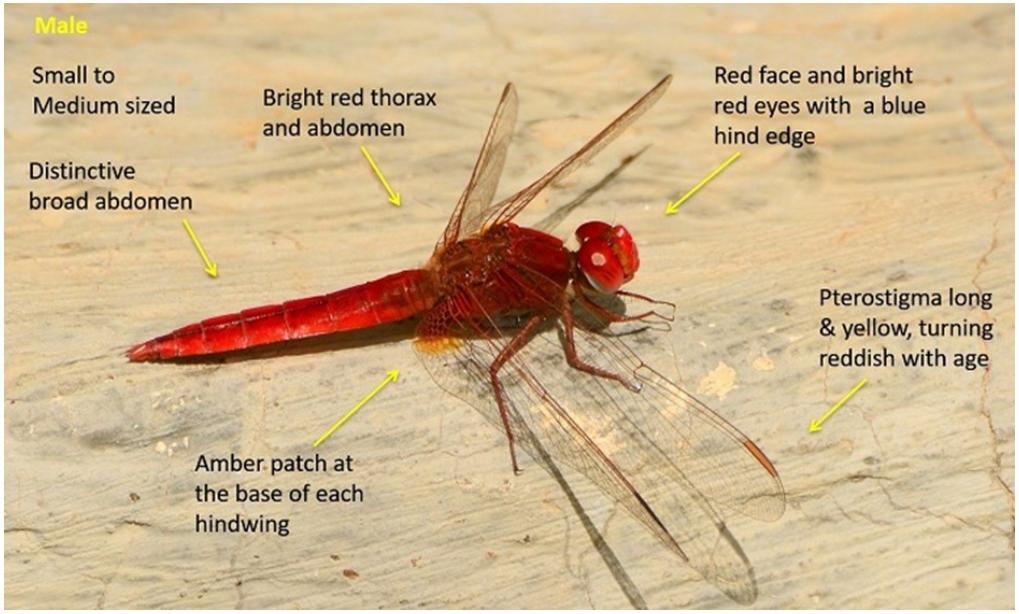

Figure 2: Sample of an identification photo from the atlas (Ryan et al. in prep.). This is a male Broad Scarlet *Crocothemis erythraea*. The atlas is designed so that lines point to the key identification features for the species. Identification can be done without learning the details of dragonfly taxonomy. For example, the pterostigma is the brightly coloured rectangle near the end of each wing, but you do not need to learn this, because there is a line that points to this feature. The link to the species text is https://thebdi.org/2020/05/11/broad-scarlet-crocothemis-erythraea/

All wetland habitat in the KhoiSan Karoo Conservancy is likely to support dragonflies and damselflies (Figure 3). However, during the rainy season in summer, these wetlands are in a continuous state of flux. Furthermore, the amount of rainfall varies from year to year, and it is therefore not feasible to provide specific locations of where to find each species.

Figure 3: Freshwater habitats during summer change continuously. This photo was taken in the area below the wall of the New Holme Dam in March 2022, shortly after a series of big thunderstorms. This kind of shallow habitat with standing water hosts many species of Odonata. A different community is often present in places where there are riffles of flowing water.

It is most rewarding to search for Odonata during the warmer and wetter summer months, typically early October until late April; dragonflies and damselflies are most abundant between November and March. They start becoming active on a daily basis once the temperature reaches about 18°C. Small numbers of the hardiest species persist into the first weeks of winter, depending on the warmth of the day.

Ongoing data collection

Of one thing we are certain: the list in Table 1 is incomplete. The most likely areas to add new species are in the sections of the Seekoei River where the least landscape modification has taken place (Figure 4). These areas are located upstream of the New Holme Dam and downstream of the enclosure for hippopotamus and buffalo. However, for nature enthusiasts wanting to view and identify dragonflies and damselflies, the wetlands (within walking distance of the two lodges) will provide a sufficient number of species to retain interest.
Species records are important in the summer months when the Odonata are most abundant, but there is also a need for photos to be uploaded to OdonataMAP throughout the year. These records provide us with improved information on the change of abundance of each species over the calendar year. This is termed the seasonality of occurrence.

This checklist was based on 119 OdonataMAP records for the quarter degree grid cell 3024DC in the Virtual Museum (Navarro & Underhill in press). To find the updated species list for this grid cell (and a map showing its boundaries), go to:
https://vmus.adu.org.za/vm_locus_map.php?vm=OdonataMAP&locus=3024DC

The OdonataMAP database will serve as the future source of records for updating this provisional species list. We encourage all visitors to the KhoiSan Karoo Conservancy to take photographs of the dragonflies and damselflies they observe and to upload them into the Virtual Museum, where they are recorded in the database for posterity.

From when it started in 2010 up to 2016, the total number of photographic records in the OdonataMAP database was 22,809 (Underhill et al. 2016). Since then, up to May 2022, the database has grown to 126,855 records (Virtual Museum data). The project gathers records of distribution, based on photographic evidence, from the whole of Africa (Underhill et al. 2016).

Figure 4: Exploration along the more or less natural parts of the Seekoeirivier, both above and below the New Holme Dam, is likely to turn up new species of dragonflies and damselflies for the region.

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References

Bush A, Theischinger G, Nipperess D, Turak E, Hughes L 2013. Dragonflies: climate canaries for river management. Diversity and Distributions 19: 86–97.

Navarro RA, Underhill LG in prep. The Virtual Museum: an African biodiversity database holding two million records. Biodiversity Observations 12

Tarboton W, Tarboton M 2019. A Guide to the Dragonflies and Damselflies of South Africa. Second ed. Struik Nature, Cape Town.

Tippett R, Loftie-Eaton M, Navarro RA, Underhill LG in prep. Atlas of the Dragonflies and Damselflies of South Africa, Lesotho and Eswatini: provisional version. Biodiversity Observations 12

Underhill LG, Navarro R, Manson AD, Labuschagne JP, Tarboton WR 2016. OdonataMAP: progress report on the atlas of the dragonflies and damselflies of Africa, 2010–2016. Biodiversity Observations 7.47: 1–10.

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