

Fowlers Bay Bush Blitz

Reptiles

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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>

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List of contributors

List of contributors to this report.			
Name	Institution/affiliation	Qualifications/area of expertise	Level/form of contribution
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Abstract

The Fowlers Bay Bush Blitz increased the number of records and locations for several poorly known reptile species within South Australia. It also provided some valuable information on two Rare (SA) species, in that confirmation of the micro habitat preferences for the Bight Slider (*Lerista arenicola*) was obtained, as was the low temperature activity for the Great Bight Cool-skink (*Pseudemoia baudini*). Knowledge of the distribution, habitat preferences and relative abundance of several other reptile species within the Bush Blitz survey area was also significantly improved.

1. Introduction

Three previous biological surveys undertaken by the South Australian Department for Environment and Water (DEW) within the far west coast region of the state had survey sites, including standardised trapping, within the Fowlers Bay Bush Blitz area. These were;

- Biological Survey of the Nullarbor Region in South and Western Australia (1984): sites at the extreme east of the area within the scope of that survey, along the Lake Ifould track and within the Yalata IPA
- Sites in the Ceduna and Bookabie Environmental Associations at the extreme west of the area covered by the Biological Survey of the Eyre Peninsula (2010) during the early 2000s.
- All 32 vertebrate sample sites of the Biological Survey of the Yalata IPA (2007-2008) were within the Bush Blitz survey area. These were in four clusters of eight, based around camps at Head of the Bight, Nanwoora Well, Coomra Track and Colona Station.

Despite this significant effort in vertebrate survey, much of the narrow coastal and near coastal environment within the Bush Blitz survey area, from Fowlers Bay to the Head of the Bight remained poorly investigated, and information on a number of reptile species believed to occupy these habitats was scarce .

2. Methods

2.1 Site selection

The two standard survey or trap sites, open grassland and mallee, were selected as representatives of two of the significant vegetation associations occurring within the survey area which had received the least sampling effort during previous survey efforts for the region. Other locations for reptile records obtained were selected as worthy of searching based on the type of micro habitat present, such as deep leaf litter, rocky areas where large rocks could be moved and replaced, fallen timber with hollows, or were simply observations of active reptiles seen whilst travelling by vehicle or on foot within the greater survey area.

2.2 Survey techniques

Methods used particularly for reptile surveys, which were performed during the Fowlers Bay Bush Blitz were;

- **Pitfall trapping:** usually undertaken in conjunction with a length of “drift fence” erected to guide small ground active vertebrates in to “pits” of plastic sheeting rolled into cylinders, or buckets which have smooth sides to prevent escape. This is considered the most effective trapping type for a wide variety of reptiles and small mammals.

- **Direct observation:** for detecting reptiles whilst walking or driving through suitably intact habitat. Animals are detected either by actively moving about or attempting to rapidly reach cover to escape, or experienced observers may catch sight of some species basking on elevated objects such as fallen timber or on top of rocks.
- **Microhabitat searching:** applies to both artificial and natural shelter sites. Man-made or artificial sites include rubbish dumps, discarded roadside rubbish and ruins of buildings, particularly old farm houses and sheds where sheets of corrugated iron are often common. Natural shelter sites worthwhile searching for particular species are in and under leaf litter, under bark and in hollows on trees and fence posts, under large rocks and in rock crevices and digging up active burrows.
- **Spotlighting:** on foot using a hand held spotlight or head torch, searching for nocturnal active species, particularly geckoes, which can be detected by reflective eye shine. Also using vehicle headlights whilst travelling slowly along tracks and roads which provide clear open areas where reptiles can be seen clearly.
- **Collection of road-kill:** applies generally to larger reptile species and is particularly useful in reducing the need to handle large venomous snakes.

2.2.1 Methods used at standard survey sites

Pitfall Trapping: two pitfall trap lines, one at each of the BushBlitz designated sample sites, in a mallee and a grassland habitat. Each consisting of six plastic sheet lined pits (15 cm diameter x 40 cm deep) with aluminium wire bottoms to prevent escape of small burrowing species, at 10 metre intervals along 60 metres of a 30 cm high aluminium wire drift fence, intended to guide small animal species into the pits.

Physical searching of micro habitat types, such as under rocks and logs, tree hollows and leaf litter, and inspection for tracks and traces of vertebrate species was also undertaken within a 1 hectare area of the designated habitat type surrounding each trap site.

Unseasonably cool and wet weather for the location and time of year compromised the survey result, with only two days of the almost two week survey period being favourable for high levels of reptile activity. However, physical searching and some opportunistic observations by several survey participants while focused on other tasks, made significant contributions to the overall reptile species count.

2.3 Identifying the collections

Although in recent times changes in Australian reptile taxonomy have been frequent and ongoing, most of the species encountered during the survey are well known and their classifications are expected to remain stable. Only one new reptile species (*Pseudemoia baudini*) for the area was found, and all were easily identified using readily available field guides.

Steve Wilson & Jerry Swan, "A Complete Guide to Reptiles of Australia, 6th Ed", Reed New Holland Publishers, Sydney (2021)

3. Results and Discussion

Appendix 1 lists all 30 reptile species recorded during the Bush Blitz. Collections made during this Bush Blitz will result in 22 specimens being added to public collections and 95 reptile records added to publicly accessible databases.

3.1 Un-named or not formalised taxa

NONE

Table 1. Putatively un-named or not formalised taxa	
Taxon	Comment

3.2 Putative new species (new to science)

In this report, 'putative new species' means an unnamed species that, as far as can be ascertained, was identified as a new species as a direct result of this Bush Blitz.

NONE

Table 2. Putative new species (new to science)	
Species	Comment

3.3 Exotic and pest species

NONE

Table 3. Exotic and pest species recorded			
Exotic/pest species	Location sighted/observed	Indication of abundance	Comments

3.4 Threatened species

Three reptile species rated Rare in South Australia were recorded during the Fowlers Bay Bush Blitz. These were the Bight Slider (*Lerista arenicola*) for which there are only 12 records within South Australia (Atlas of Living Australia), Great Bight Cool-skink (*Pseudemoia baudini*) 19 records, mostly on offshore islands; and Carpet Python (*Morelia spilota*) with only 10 mainland records west of Ceduna to the Western Australian border.

Species	Listing status and level (EBPC, State/Territory)	Location sighted/observed	Indication of abundance
Bight Slider (<i>Lerista arenicola</i>)	SA: Rare	2 locations just above highest tide level in Wahgunyah Cons.Pk, Several locations within 500m of Fowlers Bay township	Relatively easily located under debris on low sand ridges through Samphire shrubland at Fowlers Bay
Great Bight Cool-skink (<i>Pseudemoia baudini</i>)	SA: Rare	Wahgunyah Cons. Pk, coastal shrubland on sand	Generally poorly known, but should prove more common with targeted trapping in appropriate habitat at cooler times of year
Carpet Python (<i>Morelia spilota</i>)	SA: Rare	Wahgunyah Cons. Pk, coastal shrubland on sand	Probably more common than records indicate, but as a largely nocturnal, slow moving and well camouflaged species, is infrequently seen

3.5 Range extensions

Only one new reptile species observed during the survey can be considered a significant range extension, or rather it contributes to joining the south-east and south-west known areas of occupancy of the Great Bight Cool-skink (*Pseudemoia baudini*), along the narrow coastal corridor to the south of the Nullarbor Plain. Further investigation in suitable coastal habitat when this species is active during cooler times should confirm this connection. Searching or trapping for this species is unlikely to produce results during the more preferable activity period for most other reptile species, of spring and early summer, as it is inactive. Most other observations of it within South Australia have been made during winter months, when it has been seen basking on rocks close to the high tide mark during late afternoon, or found in litter beneath Cushion Bush (*Leucophyta brownii*) at the base of coastal dunes and cliffs (personal observations). It is possible that this difference in seasonal activity has resulted in the Great Bight Cool-skink being overlooked in past surveys.

Species	Location sighted/observed	Distance from nearest known record (km)	Comments
Great Bight Cool-skink (<i>Pseudemoia baudini</i>)	Wahgunyah Cons. Pk. coastal shrubland on sand	135 kms ESE, on St Peter Island	2 seen active a few metres apart during cool weather (overcast <20 C)

3.6 Genetic information

All 22 reptile specimens collected had corresponding liver sections taken as DNA samples, which were subsequently lodged with the South Australian Museum (SAM) along with the whole specimens.

An additional 10 tail tip samples were collected as DNA material. Most were obtained from small species which have the ability to lose and regenerate tail tip sections repeatedly, as a distraction to predators whilst they escape (1 x *Delma australis*, 2 x *Lerista arenicola*, 3 x *Lerista dorsalis* and 1 x *Menetia greyi*). Samples were also collected from three roadkilled animals which were too damaged or decomposed to be useful as whole specimens (1 x *Ctenophorus pictus* and 2 x *Pseudonaja affinis*).

4. Information on species lists

The taxonomy of most reptile species recorded during the Fowlers Bay Bush Blitz (Appendix 1) is generally clear. The one exception is the Carpet Python (*Morelia spilota*). Records of this species in South Australia are isolated into four separate areas. These are, the Flinders Ranges, along the River Murray, the north-east channel country and west of the Flinders Ranges across into southern Western Australia. Those from this last region, which includes the survey area, are classified as the south-western sub-species *Morelia spilota imbricata*. In South Australia all Carpet Python populations are categorised as Rare, whereas in Western Australia this sub-species is rated as Near Threatened. In fact, in some publications (Wilson & Swan 6th Ed, 2021) recent taxonomical reviews regard *Morelia s. imbricata* as a separate full species, the Western Carpet Python (*Morelia imbricata*). As yet this classification has not been adopted in South Australia.

5. Information for land managers

Although the Fowlers Bay Bush Blitz survey area has had a significant level of systematic biological survey over recent decades, there are still several reptile species present in the area, for which the relative abundance and distribution are poorly known. These are two small skinks, coastal habitat specialists, the Beach Slider (*Lerista arenicola*) and the Great Bight Cool-skink (*Pseudemoia baudini*), and two larger snake species, Carpet Python (*Morelia spilota*) and Common Death Adder (*Acanthopis antarcticus*).

Another reptile top predator, the Heath Monitor (*Varanus rosenbergi*) which was not seen during the Bush Blitz has been recorded twice within the survey area, in Wahgunyah CP in 1999 and in the Yalata IPA in 2012 (records of the Biodiversity Data Base of South Australia). This species is rated as Vulnerable in South Australia, particularly on the mainland. Although similar in size and structure to the more common and widespread Gould's or Sand Goanna (*Varanus gouldii*), and the distributions of the two species overlap in the Bush Blitz survey area, they differ significantly in colour pattern and habitat preference. The rarer Heath Monitor is much darker in colour and lacks the pale yellow tail tip of the Sand Goanna. Its wider habitat is within the cooler parts of the continent, in the south-west and south-east. As these areas are more fertile and have more reliable rainfall, they have been subject to extensive land clearing for agriculture, thus restricting the potential occurrence of the Heath Monitor. Within the survey area this results in the Heath Monitor being restricted to the narrow cooler coastal corridor, south of the Nullarbor, connecting the western and eastern Australian occurrences of the species.

It is likely that far west coast residents have and will see particularly the larger species, and that the paucity of records is due to the survey area being very sparsely populated and that

the few residents have not been encouraged to report sightings. This was quite evident when discussing these species with local residents during the Bush Blitz. With the exception of the occurrence of the Heath Monitor on Kangaroo Island, observations and records of these species are also infrequent throughout the rest of their range within South Australia. It is likely that with more effort in cultivating local knowledge, the far west coast may be shown to be a significant stronghold for them.

6. Other significant findings

NONE

7. Conclusions

In spite of poor weather for reptile activity the results obtained in collecting several records of poorly known reptile species were encouraging. Confirming preferred habitat types and activity temperatures for some species will make subsequent efforts at locating these much more productive. Future investigations of the near coastal habitats along the far west coast of South Australia in search of these species are recommended.

Acknowledgements

The combined efforts of all members of the Fowlers Bay Bush Blitz in recording observations of and photographing reptiles encountered whilst travelling throughout the survey area should be acknowledged in contributing to achieving a respectable total of 30 reptile species despite largely unfavourable conditions for reptile activity.

References

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Wilson, S. and Swan, J. A Complete Guide to Reptiles of Australia, 6th Ed", Reed New Holland Publishers, Sydney (2021)

Appendix 1. List of reptile species recorded during the Fowlers Bay Bush Blitz						
Family	Species	Common name	Putative new species	Threatened (EPBC Act)	Threatened (State/Territory Act)	Exotic/pest
ELAPIDAE	<i>Acanthophis antarcticus</i>	Common Death Adder	No	No	No	No
TYPHLOPIDAE	<i>Anilius bituberculatus</i>	Prong-snouted Blind Snake	No	No	No	No
PYGOPODIDAE	<i>Aprasia inaurita</i>	Mallee Worm-lizard, Red-tailed Worm-lizard	No	No	No	No
GEKKONIDAE	<i>Christinus marmoratus</i>	Marbled Gecko	No	No	No	No
SCINCIDAE	<i>Cryptoblepharus pulcher</i>	Elegant Snake-eyed Skink	No	No	No	No
AGAMIDAE	<i>Ctenophorus chapmani</i>	Southern Heath Dragon	No	No	No	No
AGAMIDAE	<i>Ctenophorus cristatus</i>	Bicycle Lizard, Crested Dragon	No	No	No	No
AGAMIDAE	<i>Ctenophorus pictus</i>	Painted Dragon	No	No	No	No
SCINCIDAE	<i>Ctenotus euclae</i>	Bight Coast Ctenotus (SA common name)	No	No	No	No
PYGOPODIDAE	<i>Delma australis</i>	Marble-faced Delma	No	No	No	No
DIPLODACTYLIDAE	<i>Diplodactylus calcicolus</i>	South Coast Gecko	No	No	No	No
SCINCIDAE	<i>Egernia richardi</i>	Bright Crevice-skink	No	No	No	No
SCINCIDAE	<i>Hemiergis peronii</i>	Lowlands Earless Skink	No	No	No	No
SCINCIDAE	<i>Hemiergis initialis</i>	Southwestern Earless Skink	No	No	No	No
GEKKONIDAE	<i>Heteronotia binoei</i>	Bynoe's Gecko	No	No	No	No
SCINCIDAE	<i>Lerista arenicola</i>	Bight Slider	No	No	SA Rare	No
SCINCIDAE	<i>Lerista dorsalis</i>	Southern Slider	No	No	No	No
SCINCIDAE	<i>Lerista terdigitata</i>	Robust Mulch Slider	No	No	No	No
SCINCIDAE	<i>Menetia greyii</i>	Common Dwarf Skink, Grey's Menetia	No	No	No	No
PYTHONIDAE	<i>Morelia spilota</i>	Carpet Python, Diamond Python	No	No	SA Rare	No
SCINCIDAE	<i>Morethia adelaidensis</i>	Saltbush Morethia Skink	No	No	No	No
SCINCIDAE	<i>Morethia obscura</i>	Shrubland Morethia Skink	No	No	No	No
CARPHODACTYLIDAE	<i>Nephrurus stellatus</i>	Starred Knob-tailed Gecko, Stellate Knob-tail	No	No	No	No
AGAMIDAE	<i>Pogona minor</i>	Dwarf Bearded Dragon	No	No	No	No
SCINCIDAE	<i>Pseudemoia baudini</i>	Great Bight Cool-skink	No	No	SA Rare	No
ELAPIDAE	<i>Pseudonaja affinis</i>	Dugite	No	No	No	No
PYGOPODIDAE	<i>Pygopus lepidopodus</i>	Common Scaly-foot	No	No	No	No

Family	Species	Common name	Putative new species	Threatened (EPBC Act)	Threatened (State/ Territory Act)	Exotic/ pest
SCINCIDAE	<i>Tiliqua rugosa</i>	Bobtail, Boggi, Pinecone Lizard, Shingle-back, Sleepy Lizard, Stumpy-tail	No	No	No	No
CARPHODACTYLIDAE	<i>Underwoodisaurus milii</i>	Barking Gecko, Thick-tailed Gecko	No	No	No	No
VARANIDAE	<i>Varanus gouldii</i>	Gould's Goanna	No	No	No	No