Wudjari Country (Kepa Kurl, Esperance) Bush Blitz

Frogs, Reptiles & Mammals

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View across the heath and lake near Mandooboornup (Frenchman's Peak). Photo – P. Doughty.

Nomenclature and taxonomy used in this report is consistent with:

The Australian Faunal Directory (AFD)

Contents

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

A two-week survey was carried out in Wudjari country in late summer-early autumn in 2023. Base Camp was Doc Reynolds's place outside of Esperance. All the survey sites were reached almost exclusively by car (no helicopters or boats). We used a combination of pit-trapping and funnel traps, hand capture – day and night (head-torching) and raking for burrowing species.

The team captured a wide range of common frogs, reptiles as well as several small mammals. Representative frogs, skinks, geckos, dragons and snakes were captured (or sighted) during the study. Several honey possums were captured (some vouchered) and a dunnart and *Mus* were observed. Temperatures were low as is typical at this time of year, and so overall capture rate were also low. Nevertheless, a reasonable number of specimens were collected during the survey (total = 84).

1. Introduction

The southern coast around the town of Esperance (Kepa Kurl) was chosen as part of this Bush Blitz survey, with the other part being a marine survey from a research vessel. We anticipated cool temperatures but thought there would be opportunity to capture various frog species that would be active owning to early rains (autumn is the beginning of south-western frog breeding season).

The Esperance area has been collected previously, but as with any destination far from Perth and along the southern coast, not terribly well collected owing to the perceived lack of diversity and numbers of individuals that are active. A previous brief herpetological survey was conducted in 2015 with Doughty and Ellis and others, with a focus on recording frogs and collecting the gecko *Christinus marmoratus*.

2. Methods

2.1 Site selection

The Esperance area has several different habitat types, including extensive heath of various types, some woodlands and rocky outcrops and various water ponds (lakes, ponds, seeps).

For the trapping sites, Stephen Butler of DBCA kindly offered for us to use pre-established sites in use. These were the "Smith's Block" grid in Cape Le Grande National Park and the "Lucky Bay" grid ~2 km north of the ocean. In addition, the team installed a very long single line at "Skid Hill" near Frenchman's Peak. This was with low heath, sandy substrate and Banksias the furthest from the road.

The standard survey sites (SSS) were at "Wave Rock" at Mount Ridley (#1) and at Little Hellfire Bay (#2). The vertebrate team had more success at the former owing to the ease of getting around and the extended time spent there searching, whereas the latter was quite steep with caprock near the ocean.

Bush Blitz team member, Helen Cross, standing in front of stunted tree among heath at Lucky Bay trapping grid. Photo – P. Doughty.

2.2 Survey techniques

Grids consisted of sturdy steel mesh fences that were connected to 20L pit-trap buckets and small mesh funnel traps. Traps were arranged in long runs of fencing that connected many buckets and funnels along their length. Depending on the vegetation, fences were either arranged in regular rows or were more broken owing to trees. The Smith's Block grid was especially dense with heath and small trees near the road, but then the back half had been relatively recently burned, providing a contrast of habitats within the grid. The Lucky Bay grid had low heath and three major runs of fence/traps. The Skid Hill site had only the single line but was chosen to capture loose sand and low heath that transitions to a small stand of Banksia trees. Funnel traps were covered with shade (burlap bags, vegetation etc.) and buckets had small pieces of egg cartons and a layer of sand on the bottom for burrowing taxa. Traps were checked in the mornings and afternoons in accordance with the WA Museum's animal ethics conditions.

In addition, head torching in the evenings was done most nights and especially early in the evening when temperatures were still reasonably warm. We tended to target rocky areas where geckos and snakes are active at night. Once temperatures dropped below 15C, then reptiles tend to not be active although frogs were. We also targeted water bodies for frogs such as seeps off outcrops and ponds, although it was early in the season with some rain, but not the significant downpours typical of later autumn and winter. We also did some raking with 3-pronged cultivators to target burrowing species in the day.

Paul Doughty checking a pit trap on the Skid Hill trap line in the foreground, and Mandooboornup (Frenchman Peak) in the distance. Photo - K.M. Thorn.

2.2.1 Methods used at standard survey sites

The team actively foraged at both SSS locations in the day. The Mt Ridley site was a day trip only, so we turned cover near the outcrops and spent extensive time raking sand and leaf litter. We surveyed Little Hellfire Bay in the afternoon near the end of the trip. We largely turned cover with some limited raking, and only spent 3 person hours at this site.

2.3 Identifying the collections

Most specimens could be identified on appearance as the three zoologists have experience working with these animals. For double-checking of difficult or simply interesting specimens, we consulted the standard field guides such as the WA Museum field guide series led by Storr and Tyler and the two main general reptile guides – Cogger (2014) and Wilson & Swan (2017). For recently revised taxa, the original scientific publications were consulted. The last check took place in the laboratories of the WA Museum in Perth, where the reference collection of specimens could be checked against the specimen vouchered on the survey.

3. Results and Discussion

Appendix 1 lists all frogs, reptiles and mammals recorded during the Bush Blitz. Collections made during this Bush Blitz will result in 84 specimens being added to public collections and 89 records being added to publicly accessible databases.

3.1 Un-named or not formalised taxa

Table 1. Putatively un-named or not formalised taxa	
Taxon	**Comment**
None.	

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.

Table 2. Putative new species (new to science)	
Species	**Comment**
None.	

3.3 Exotic and pest species

Table 3. Exotic and pest species recorded			
Exotic/pest species	**Location sighted/observed**	**Indication of abundance**	**Comments**
Mus musculus	Lucky Bay Trap Grid	2 specimens (released)	Not an unexpected record of this species

3.4 Threatened species

Table 4. Threatened species			
Species	**Listing status and level (EBPC, State/Territory)**	**Location sighted/observed**	**Indication of abundance**
None.			

3.5 Range extensions

Table 5. Range extensions or significant infill in distribution records for species			
Species	**Location sighted/observed**	**Distance from nearest known record (km)**	**Comments**
None known.			

3.6 Genetic information

Tissues from all specimens vouchered were taken and will be stored in perpetuity at the WA Museum for use in research. Of note are the following: i) Subsamples of *Anilios* blindsnake the *Echiopsis* (see images) were taken and will be sequenced; 2) a *Ctenotus catenifer* tissue (WAM R180472) has already been sequenced as part of an analysis on the validity of *C. delli* (results indicate they are the same taxon, with the future name for the three specimens collected).

Interesting *Anilios australis* blindsnake from Mt Ridley; tissue sent for sequencing. Photo – R.J. Ellis.

4. Information on species lists

Order Anura – frogs

Reasonable numbers of common frogs were collected during the survey. The burrowing frog *Heleioporus eyrei*, the small-bodied *Crinia georgiana*, *C. pseudinsignifera* and *Litoria adelaidensis* and the larger *L. cyclorhyncha* (see photograph) were often encountered in traps and observed on the ground or vegetation. Moaning frogs had begun calling at the time of the survey.

Not encountered were *C. subinsignifera*, *Pseudophryne* or *Myobatrachus* which occur in the study area.

Spotted thighed frog (*Litoria cyclorhyncha*). Photo – R.J. Ellis.

Family Limnodynastidae
Heleioporus eyrei
Limnodynastes dorsalis
Family Myobatrachidae
Crinia georgiana
Crinia pseudinsignifera
Family Pelodryadidae
Litoria adelaidensis
Litoria cyclorhyncha

Family Agamidae – dragon lizards

Owing to the cool temperatures in general and also at this time of year, few dragons were encountered. One individual of the ornate crevice dragon (*Ctenophorus ornatus*) was captured at SSS#2 under flat rocks on granite domes, its typical habitat. The diminutive *C. chapmani* was encountered in two locations: Dunn Rocks Road (juvenile vouchered) and Mt Ridley (released unwittingly). Two bearded dragons were vouchered from the Smith's Block site and are expected to be reasonably common in the area.

Ctenophorus chapmani
Ctenophorus ornatus
Pogona minor minor

Ornate crevice dragon (*Ctenophorus ornatus*) from standard survey site #2, Little Hellfire Bay. Photo – K.M. Thorn.

Order Gekkota – geckos and pygopods

Gecko diversity is comparatively low along the south coast, but we sampled several of the more common species. The barking gecko, *Underwoodisaurus milii*, was found at Mount Ridley SSS#1. Two specimens of the diplodactylid gecko *Strophurus spinigerus*, a spiny-tailed gecko, were captured by hand at Mandooboornup (Frenchmans Peak).

The most common species was the gekkonid, *Christinus marmoratus*. We only vouchered 5 specimens, owing to the previous survey that targeted this species in 2015 by WAM herpetologists. It is especially common on rocky outcrops where it can heat up under thin rocks.

The marbled gecko, *Christinus marmoratus* – commonly found on outcrops and under bark. Photo – R.J. Ellis.

Two pygopods ("legless geckos") were captured, including a Delma fraseri at Mount Ridley, SSS#1. In addition, the small burrowing pygopod *Aprasia repens* was hand captured from loose sand while packing up the Skid Hill trapline, the animal possibly drawn to the site after the local substrate disturbance.

Family Carphodactylidae
Underwoodisaurus milii
Family Diplodactylidae
Strophurus spinigerus
Family Gekkonidae
Christinus marmoratus
Family Pygopodidae – legless geckos
Aprasia repens
Delma fraseri

Family Scincidae - skinks

Ctenotus skinks recorded from this trip, although numerous, seem to have preferred habitats with little overlap. *Ctenotus labillardieri* was captured only on granite outcrops, primarily from head torching at night on Mandooboornup (Frenchman Peak). *Ctenotus catenifer* were captured in traps at both the open and sandy Skid Hill line and from the Lucky Bay trap grid. *Ctenotus gemmula* is a less common species, and the specimen trapped on Skid Hill represents only the second record of this animal in Cape Le Grand NP (ALA, April 2024); the first was captured in 1972. The Swan Coastal Plain population of *C. gemmula* is currently a Priority 3 conservation concern in Western Australia.

Acritoscincus, *Morethia* and *Hemiergis peronii peronii* were reasonably abundant in the open vegetation trap lines (Skid Hill and Lucky Bay), with the team often finding more than one

individual in single funnel traps. The *Lerista distinguenda* and some of the *H. peronii peronii* were hand captured after raking through abandoned stick ant nests and leaf litter within the vicinity of the trap grids. *Hemiergis initialis initialis* was only recorded further inland at the Mount Ridley SSS#1, as its preferred habitat is open woodland rather than coastal scrub. The single *Cryptoblepharus buchannani* was spotted sunning itself on a nearby tree and then hand captured after a team effort nearby a public lunch table at Mount Ridley. The single small *Menetia greyii* was hand captured while lifting small rocks at Mount Ridley SSS#1.

All records of *Egernia napoleonis* on this trip were hand captured from granite outcrops. *Egernia* are social skinks, living in family groups sharing areas of single outcrops so only one individual was vouchered from any one site/family. WAM R180470 from Little Hellfire Bay SSS#2 has been prepared as a skeleton specimen, the first *E. napoleonis* full skeleton for the WA Museum.

Acritoscincus trilineatus. Photo – R.J. Ellis.

Acritoscincus trilineatus
Cryptoblepharus buchannani
Ctenotus catenifer
Ctenotus gemmula
Ctenotus labillardieri
Egernia napoleonis
Hemiergis initialis initialis
Hemiergis peronii peronii
Lerista distinguenda
Menetia greyii
Morethia obscura

Snakes – Pythonidae, Colubridae, Elapidae

Several species of snakes were encountered during the survey. A highly venomous Tiger Snake (*Notechis scutatus*) was spotted from a vehicle by the herpetology team enroute back to base camp. No pythons were observed on this trip. The first Crown Snake (*Elapognathus coronatus*) was hand captured between grid lines at Smiths Block, and one was observed in a dry garden water feature at Base Camp. The Bardick (*Echiopsis curta*) was retrieved from a pit trap with a deceased honey possum (snake bite victim) at Lucky Bar trap grid.


Tiger snake spotted on road. Photo – P. Doughty.

Three individuals of *Anilios australis* (blind snakes) were captured on this survey, one from each of the DBCA trap grids in Cape Le Grand NP and one from the Mount Ridley standard survey site (SSS#1 – see photo above).


A bardick snake, *Echiopsis curta*. Photo – R.J. Ellis.

Family Elapidae
Echiopsis curta
Elapognathus coronatus
Notechis scutatus
Family Typhlopidae
Anilios australis

Mammals – Dasyuridae, Tarsipedidae, and Muridae

The most abundant mammal observed and captured on this expedition was the nectivorous Honey Possum (Nyooarl Piangaar/Noolbenger, *Tarsipes rostratus*). Any site with Banksia plants, most of which were in flower at the time of the survey, resulted in Honey Possum captures in pit traps. Many were released immediately onto Banksia flowers.

One Dunnart (*Sminthopsis* sp. indet.) was captured in a pit trap at Smiths Block grid, but escaped during handling and so cannot be identified to species. Two specimens of the invasive house mouse (*Mus musculus*) were removed from traps at Lucky Bay trap grid.

Honey Possums/Noolbengers (*Tarsipes rostratus*) removed from a trap, and after release on a flowering Banksia cone. Photos – K.M. Thorn.

5. Information for land managers

The two existing DBCA trap grids at Cape Le Grand National Park (Smiths Block and Lucky Bay) successfully sampled many of the taxa collated in our report, but missed the saxicolous species (*Egernia napoleonis*, *Ctenotus labillardeiri*) and *Ctenotus gemmula* (possibly due to sampling effort of the uncommon species). We would recommend incorporating a sand dune site like Skid Hill for future park survey efforts, as well as active searching on the granite outcrops.

Mount Ridley is an outstanding rocky outcrop with quality native bush surrounding it. Bushrock on the outcrop was in reasonably good condition, although some large slabs were obviously flipped over and/or broken by enthusiasts. Signage in the car parks near the picnic areas that spoke to the natural values of the area and the importance of “leaving only footprints” may help with long-term conservation. Access to the woodlands and the outcrop itself would help curtail excessive 4WD use and trampling.

6. Other significant findings

The collections helped to flesh out sampling gaps from the region, including several interesting specimens from Mount Ridley (SSS#1) which had very little survey work done to date. The record of a *Ctenotus gemmula*, the blindsnakes and the Bardick snake were also valuable records.

7. Conclusions

Collections of frogs, reptiles and mammals during the survey resulted in close to 100 specimens registered at the WA Museum and with tissue samples available for genetic analyses. Capture rates were predictably low in this area and at this time of year, but a reasonable amount of diversity was encountered.

One tissue sample of *Ctenotus catenifer* has already been sequenced and will contribute to a future revision of this species (with a likely name change to *C. delli*). The snake tissue samples have been sent for genetic analyses.

Engagement with the community during the Open Day was a huge success and we established meaningful collaboration with Doc Reynolds and his extended family.

Acknowledgements

We thank the following groups of people:

- Wudjari community and especially Doc Reynolds and his family for hosting our survey on their lands and providing remarkable hospitality and amazing food during our survey. Our heartfelt thanks!
- From DBCA we thank Stephen Butler and Sarah Comer for advice before and during the survey. We especially thank them for use of the pre-existing traplines they had established which were vital to our collections.
- From the Bush Blitz team: Jo, Kate, Helen, Paula and the many, many people behind the scenes in Canberra.
- From our fellow biologists on the survey, who brought us random things in bags with poor data: we thank you.
- All the teachers and BHP visitors who accompanied us on the survey runs; Paul apologizes to all the teachers he led into a boggy lake in the darkness from which they nearly did not return.
- The facilitators, families and other participants of the Open Day. A smashing success!
- All the cafes, shops and the Lucky Bay Brewing Company that kept us supplied for the survey.

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Appendix 1. List of Mammals, Amphibians, and Reptiles recorded during the Kepa Kurl (Esperance) Bush Blitz								
Family	**Species**	**Common name**	**Putative new species**	**Threatened (EPBC Act)**	**Threatened (State Act)**	**Exotic/ pest**	**Observation only**	
Dasyuridae	*Sminthopsis* sp.	Dunnart	No	No	No	No	X	Mammals
Tarsipedidae	*Tarsipes rostratus*	Honey Possum	No	No	No	No		
Muridae	*Mus musculus*	House mouse	No	No	No	Yes	X	
Limnodynastidae	*Heleioporus eyrei*	Moaning frog	No	No	No	No		Frogs
Limnodynastidae	*Limnodynastes dorsalis*	Western banjo frog	No	No	No	No		
Myobatrachidae	*Crinia georgiana*	Quacking frog	No	No	No	No		
Myobatrachidae	*Crinia pseudinsignifera*	False western froglet	No	No	No	No		
Pelodryadidae	*Litoria adelaidensis*	Slender tree frog	No	No	No	No		
Pelodryadidae	*Litoria cyclorhyncha*	Spotted thigh tree frog	No	No	No	No		
Agamidae	*Ctenophorus chapmani*	Southern heath dragon	No	No	No	No		Dragons
Agamidae	*Ctenophorus ornatus*	Ornate crevice dragon	No	No	No	No		
Agamidae	*Pogona minor minor*	Dwarf bearded dragon	No	No	No	No		
Carphodactylidae	*Underwoodisaurus milii*	Barking gecko	No	No	No	No		Geckos
Diplodactylidae	*Strophurus spinigerus*	Southwestern spiny-tailed gecko	No	No	No	No		
Gekkonidae	*Christinus marmoratus*	Marbled gecko	No	No	No	No		
Pygopodidae	*Aprasia repens*	Sand plain worm-lizard	No	No	No	No		
Pygopodidae	*Delma fraseri*	Fraser's Delma	No	No	No	No		
Scincidae	*Acritoscincus trilineatus*	Western three-lined skink	No	No	No	No		Skinks
Scincidae	*Cryptoblepharus buchannani*	Buchanan's snake-eyed skink	No	No	No	No		
Scincidae	*Ctenotus catenifer*	Chain-striped southwest Ctenotus	No	No	No	No		
Scincidae	*Ctenotus gemmula*	Jewelled Sandplain Ctenotus	No	No	No	No		
Scincidae	*Ctenotus labillardieri*	Common southwest Ctenotus	No	No	No	No		
Scincidae	*Egernia napoleonis*	Southwestern crevice skink	No	No	No	No		
Scincidae	*Hemiergis initialis initialis*	Southwestern earless skink	No	No	No	No		
Scincidae	*Hemiergis peronii peronii*	Four-toed earless skink	No	No	No	No		
Scincidae	*Lerista distinguenda*	Southwestern orange-tailed slider	No	No	No	No		
Scincidae	*Menetia greyii*	Common dwarf skink	No	No	No	No		
Scincidae	*Morethia obscura*	Shrubland Morethia skink	No	No	No	No		
Elapidae	*Echiopsis curta*	Bardick snake	No	No	No	No		Snakes
Elapidae	*Elapognathus coronatus*	Crown snake	No	No	No	No		
Elapidae	*Notechis scutatus*	Tiger snake	No	No	No	No	X	
Typhlopidae	*Anilios australis*	Southern blind snake	No	No	No	No		