



# SEGments

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# Scientific Expedition Group Inc.

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**Cover Photo:** Weetootla Spring, Vulkathunha  
Gammon Ranges. Photo Helen Johnson.

**Rear Cover Photo:** Geegeela Nature Reserve  
at sunset. Photo Alun Thomas

The Scientific Expedition Group is a not-for profit organisation which began in 1984. SEG undertakes several expeditions each year to record scientific information on wildlife and the environment in many parts of South Australia.

A major expedition to conduct a biodiversity survey occurs each year over two weeks. Scientific experts lead volunteers in surveying mammals, reptiles, invertebrates, vegetation, birds and physical geography. The data collected on each survey are archived with the relevant State scientific institutions to ensure they are available to anyone interested in our State's environment.

In addition to the major expedition, a number of trips for the Vulkathunha-Gammon Ranges Scientific Project are organised annually. A long term study of rainfall on the ranges and of water flow in arid-zone creeks is undertaken. All data are supplied to the Department for Environment and Water and to the Bureau of Meteorology and are available for analysis.

SEG conducts four-day biodiversity surveys at eight different sites each autumn and spring in the Heritage Area of scrub on "Minnawarra" farm near Myponga. Data collected are entered into the Biological Data Base of SA. SEG also conducts annual mallee-fowl monitoring over a weekend in the Murraylands.

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# SEGments

## Volume 37 Number 1 June 2021



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### EDITORIAL

I often wonder as I walk along my local beach how resilient our coastal waters are.

Green Adelaide is one of the new Landscape Boards in South Australia. Professor Chris Daniels is the Presiding Member/Chair. Green Adelaide's region stretches from the Gawler River in the north to Sellicks Beach in the south and encompasses about a third of the waters off St. Vincent Gulf. One of Green Adelaide's 7 priorities is coastal management.

Because SEGments has included articles on remediation projects for Adelaide's coastline and the Port River Estuary, I was interested to learn more about some of the projects for coastal management that may come under Green Adelaide's auspices.

I know that for some years regulations have existed to reduce pollutants entering creeks and watercourses via gutters, and that trash racks have been installed in creeks and rivers to reduce waste materials entering the gulf. Pollutants and storm water run-off have over the last 50 years been the cause of 6000 ha of seagrasses being lost along the Adelaide metropolitan coastline (over one third of the seagrass meadows).

Seagrasses provide habitat for many species that a healthy coastal environment depends on. They act as forests in coastal water. The loss of seagrasses increases

water turbidity, reducing fish and crab stocks as well as many other important species, and the loss also increases beach erosion (as seagrasses in the water column dissipates the energy of breaking waves). When seagrasses come ashore in winter, as seagrass wracks, they hold coastal dunes in place and prevent beach erosion from storm surges, besides providing habitat and food for small coastal animals. Seagrasses also provide an important service in sequestering carbon, known as blue carbon.

In SEGments Vol 34, No. 1 June 2018 we reported on trials of seagrass rehabilitation off the Adelaide coast. The author Jason Tanner has recently reported that the largest seagrass restoration project in Australia (the project has received \$1m) "will use a technique developed in South Australia, which places [sand-filled] hessian sacks on the sea floor near seagrass meadows, for young seagrass to attach to and grow. The project aims to re-establish around 10 hectares of seagrass off the Adelaide metropolitan coastline. Hessian bags will be placed at up to 15 sites off the Adelaide metropolitan coast later this year. The existing seagrass meadows will release young seagrass, which move through the water and attach to the hessian bags." <sup>1</sup>

Another very important coastal remediation initiative is restoring South Australia's oyster reefs. There is no longer a native oyster reef in SA, but in 1889 oyster reefs covered 1500 km of the SA coastline. Reefs provide a breeding habitat for multiple fish species and a nursery area for young fish to shelter and thrive.

Oysters are the kidneys of the oceans, each oyster filtering more than 100 litres of water daily, removing toxins and improving water quality, which also assists in seagrass growth. As oyster shells form they sequester carbon - blue carbon.

Adelaide has built the biggest artificial reef in the southern hemisphere off Ardrossan, Yorke Peninsula. Known by a Narungga word, Windara Reef covers 20 hectares. A smaller reef of 2 ha (the size of the Adelaide oval) is being built off Glenelg.

In a talk to the Adelaide Field Geology Club in June 2020, Dr Dominic McAfee, University of Adelaide researcher for the Reef project said that "Windara Reef was an incredibly ambitious project as it is hard to restore reefs, but SA has done it".

About 160 purpose-built concrete structures of limestone and oyster-shells were placed just off the coast at Ardrossan (later rocks were added) and the structure was then seeded with over 7 million live juvenile native Australian Flat Oysters (*Ostrea angasi*) grown in SA hatcheries. The baby oysters start producing spat (offspring) when they are three years old, which helps to create a self-sustaining reef. Findings are that the habitat around the Windara Reef has improved very rapidly.

After some reading, I now think that Adelaide's coastline will become more resilient as projects like seagrass restoration and oyster reef constructions scale up. The research is first class.

Ref 1: "Australia's biggest seagrass restoration to begin in SA", Environment SA News 9<sup>th</sup> May 2019

Helen Johnson

# GEEGEELA EXPEDITION

## Alun Thomas and Bryan Haywood

The Scientific Expedition Group (SEG) recently assisted Nature Foundation SA (NFSA) and Nature Glenelg Trust (NGT) to do a biodiversity survey in a new small nature reserve in the south east of the state. Geegeela Nature Reserve was donated to NFSA. This 100 acre site is under a Heritage Agreement and is situated in the Hundred of Geegeela, adjoining the Geegeela Conservation Park on its SW corner.

The SEG party consisted of scientists, Bob Sharrad, Graham Medlin, Annette Vincent and Dave Armstrong joined by Alun Thomas, Jill Tugwell, Brian and Jess Swann, Andrew Barr and Trent Porter. The NGT party consisted of Bryan Haywood, Sheryl Holliday, Jonathan Tuck, Rose Thompson and Lily Alvarez.

We camped at Eaglehawk Waterhole, a property owned by NGT. This is a beautiful property about 6 km north of the small town of Frances. The reserve is 1700 acres in size, has been under the care and control of Nature Glenelg Trust since 2013, was a grazing property since the 1960s and directly joins onto the SW corner of the Little Desert National Park.

The Biodiversity survey was a combination survey of vegetation, birds, bat trapping, insects, spotlighting and tile grids by NGT and pitfall traplines, Elliott traps, micro-pitfalls, cage traps and funnel traps and opportune searching by SEG.

Traplines were installed in three different vegetation types within Geegeela Nature Reserve. The vegetation types were stringybark and hill gum woodland, blue gum woodland and buloke woodland. See Table 1 for site descriptions.

In the adjacent Geegeela Conservation Park there was a region which was burned by bushfire on 10 February 2018. There had been considerable regeneration of groundcover and two further traplines were installed and bird surveys were undertaken in these burned zones to see what species may have returned.

The biodiversity survey was carried out in the period May Monday 3rd to Friday 7th. Unfortunately after a warm weekend the weather was quite cool during the week. On the Wednesday morning the temperature dropped to 1.5 °C and on Thursday Morning it was 0.5 °C. These low temperatures

appeared to restrict small mammal and reptile activity. The only small mammals we caught in Elliott traps and pitfalls were house mice *Mus musculus* and these were mostly on the slightly warmer mornings. The cage traps and funnel traps did not catch anything.

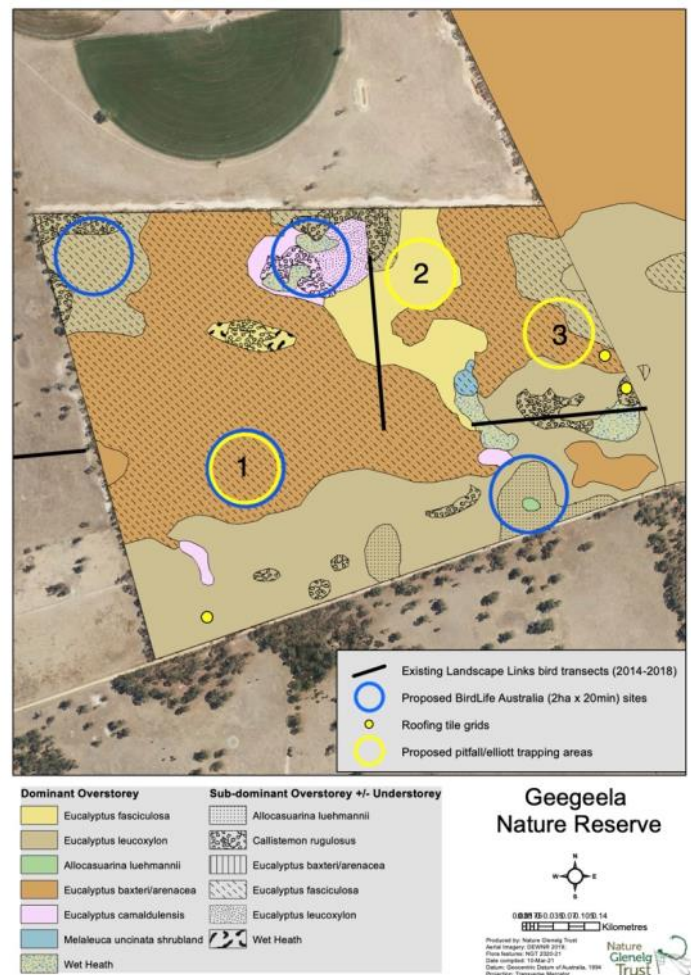
Birds were plentiful in both the Geegeela Nature Reserve and Geegeela Conservation Park with notable species including Hooded

Robin, Chestnut-rumped Heathwren, Variegated Fairywren, Brown Treecreeper and Red-tailed Black Cockatoo. A full list is shown on the accompanying Table 2. The Area Search was a search of the whole property and records were noted during visits each day outside the 2 ha 20 minute site listings.

Larger mammals opportunely sighted were three macropod species (western grey kangaroo, swamp wallaby and red-necked wallaby), echidna, brush tail possum, sugar



Eaglehawk Waterhole campground. Photo A Barr



Map of Geegeela Nature Reserve showing seven vegetation zones and three pitfall sites



Brown falcon sighted near Geegeela. Photo A Thomas





SEG members setting up a pitfall trapline



Bob Sharrad checking a roof tile in a tile grid



*Banksia ornata* in flower growing in a burnt area



*Eucalyptus fasciculosa* in flower

gliders. The sugar gliders and brush tail possums were noted with opportune spotlighting. Also noted were red fox, red deer and rabbit.

Harp trapping was carried out on two quite cold evenings and only one bat, a lesser long eared bat, *Nyctophilus geoffroyi*, was trapped. The intrepid harp trappers, Rose and Lily, stayed out checking the harp traps every half hour until midnight in very cold conditions to ensure that any bats trapped were not distressed by the cold conditions and could be quickly released after identification.

Insects and invertebrates were collected using micro-pitfall traps, roofing tiles, ultra-violet light trapping and looking under bark, leaf litter and fallen logs. Micro-pitfalls and direct searching produced few species. This situation was noted in both the Geegeela Nature Reserve and the burnt areas of Geegeela Conservation Park. However, ultra-violet light trapping and roofing tiles produced encouraging results with a great variety of ants and cockroaches found beneath tiles and a host of moths, lacewings, beetles, mantids, lantern flies, flies, being attracted to the UV light.

Some reptiles opportunely noted were long-necked tortoise, sleepy lizard, marbled gecko and whip snake, (*Morethia* sp).

It was interesting to see the change in the fauna under the tile grids between a cool day and a warmer day. On Wednesday, a cool day, the three grids of 50 roof tiles each,



Lesser long eared bat, *Nyctophilus geoffroyi* Photo Rose Thompson



were checked and only a few ants and small cockroaches were seen. These tiles had been laid down for about 5 months. On the Friday, a warmer day, the tile grids were checked again and the whip snake and a marbled gecko were seen.

The vegetation surveys at each trapping site were done by Jono and Sheryl. Dominant vegetation types included Desert stringybark (*Eucalyptus arenacea*), +/- Hill gum (*E. fasciculosa*) and SA Blue gum (*Eucalyptus leucoxylon*). Interestingly, very little was flowering in the understorey, however *Correa reflexa* was prominent in the Nature Reserve, and *Banksia ornata* was beginning to flower three years post fire in the Conservation Park. Hill gum was the only overstorey flowering. Table 3 shows the vegetation types noted at each site.

During the week we had a visit from a local DEW Ranger, Chelsea Pedersen and Kelly and Lucy from NFSA. Unfortunately, local Frances school students were unable to attend the survey week, however, plans are underway for NGT to visit the reserve with the school students to check the roofing tile grids again and to discuss the results with them in the near future.

Clearly the cool weather had a influence on small mammal numbers. It would be very interesting for a survey to be carried out in Spring to give a better idea of small mammals in the area.



Blue gum woodland in Geegeela Nature Reserve Photo B Haywood



Lantern Fly Photo B Haywood



Banksia Moth Photo B Haywood

This project was funded by the Limestone Coast Landscape Board through the Grassroots Grants Program.

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Table 1. Site descriptions in Geegeela Nature Reserve and Geegeela Conservation Park

Site	Location	Burnt/Unburnt	Dominant vegetation
1	Geegeela NR - SW	Unburnt	Mixed <i>Eucalyptus fasciculosa</i> + <i>Eucalyptus arenacea/baxteri</i> low open woodland over heath.
2	Geegeela NR - NE	Unburnt	<i>Eucalyptus fasciculosa</i> open woodland over sparse mixed understorey.
3	Geegeela NR - E	Unburnt	<i>Eucalyptus fasciculosa</i> + <i>Eucalyptus arenacea/baxteri</i> low open woodland over heath.
4	Geegeela CP - S	Burnt Feb 2018	<i>Eucalyptus arenacea/baxteri</i> + <i>Eucalyptus viminalis</i> ssp. <i>cygnetensis</i> open woodland over sparse heath.
5	Geegeela CP - E	Burnt Feb 2018	<i>Eucalyptus arenacea/baxteri</i> open woodland over heath dominated by <i>Leptospermum myrsinoides</i> .

Table 2. 53 species of birds seen in Geegeela Nature Reserve and burnt portion of Geegeela Conservation Park.

Species of conservation concern are highlighted in green

Common Name	Geegeela Nature Reserve (2 ha for 20 Minutes at each site)	Geegeela Nature Reserve (Area Search)	Burnt portion of Geegeela Conservation Park (2 ha for 20 Minutes)
Australian Magpie	X	X	
Australian Owllet-nightjar		X	
Australian Raven	X	X	
Australian Ringneck		X	
Australian Shelduck		X	
Black-chinned Honeyeater		X	
Brown Thornbill	X	X	
Brown Treecreeper		X	
Brown-headed Honeyeater	X	X	
Buff-rumped Thornbill		X	X
Chestnut-rumped Heathwren			X
Common Starling	X		
Crimson Rosella	X	X	X
Crow & Raven spp	X		
Dusky Woodswallow		X	
Galah	X	X	X
Golden Whistler	X	X	
Grey Fantail Grey	X	X	
Shrike-thrush	X	X	
Hooded Robin	X		
Laughing Kookaburra	X	X	
Little Raven		X	
Mistletoebird			X
Musk Lorikeet	X		X
Nankeen Kestrel	X		
New Holland Honeyeater	X		
Noisy Miner		X	
Painted Button-quail		X	
Purple-crowned Lorikeet	X		X
Rainbow Lorikeet	X		
Red Wattlebird	X		X
Red-tailed Black-Cockatoo		X	
Silvereye	X	X	X
Southern Boobook		X	
Southern Scrub-robin		X	
Spiny-cheeked Honeyeater		X	
Spotted Pardalote	X	X	X
Striated Pardalote	X	X	X
Striated Thornbill			X
Sulphur-crested Cockatoo	X	X	X
Superb Fairy-wren	X	X	X
Tawny-crowned Honeyeater		X	
Variegated Fairy-wren	X	X	
Weebill	X	X	X
White-browed Babbler		X	
White-browed Scrubwren	X		
White-eared Honeyeater	X	X	X
White-naped Honeyeater	X		X
White-plumed Honeyeater	X		
White-throated Treecreeper	X	X	
Willie Wagtail	X	X	
Yellow-faced Honeyeater	X		X
Yellow-rumped Thornbill	X		X

Table 3. Vegetation at each trapping site

Trapping site	GEE1	GEE2	GEE3	GEE4	GEE5
<b>Site description</b>	Unburnt site. Bottom of sandy slope with WNW aspect. Overstorey to 10m. High regeneration of <i>E. fasciculosa</i> at 1-2m tall, and scattered <i>E. arenacea/baxteri</i> regeneration. Shrub layer mid-dense, to dense in <i>Allocasuarina</i> thicket.	Unburnt site. Sandy soil over clay gently sloping down to north. <i>E. fasciculosa</i> overstorey to 15m, hollows present in oldest trees (~5%). Most <i>E. fasciculosa</i> is regrowth 5-12m, with some 1-3m. Shrub layer mostly absent. <i>Kunzea pomifera</i> covers >50% of ground.	Unburnt site. Mid-bottom of low sandy slope with ESE aspect. Overstorey is regrowth <i>E. fasciculosa</i> and <i>E. arenacea/baxteri</i> to 10m. Shrubs mid-dense.	Site burnt Feb 2018. Ridge of sandy rise. Overstorey to 10m, with scattered <i>E. viminalis</i> ~10% of overstorey and ~90% <i>E. arenacea/baxteri</i> . Open mid-storey with <i>X. caespitosa</i> and <i>L. myrsinoides</i> .	Site burnt Feb 2018. On broad, flattish ridge of sandhill. <i>E. arenacea/baxteri</i> overstorey 6-8m, with some seedlings to 1m. Shrubs mid-dense and dominated by <i>Leptospermum myrsinoides</i> .
<b>Vegetation community</b>	Mixed <i>Eucalyptus fasciculosa</i> + <i>Eucalyptus arenacea/baxteri</i> low open woodland over heath.	<i>Eucalyptus fasciculosa</i> open woodland over sparse mixed understorey.	<i>Eucalyptus arenacea/baxteri</i> +/- <i>Eucalyptus fasciculosa</i> low open woodland over heath.	<i>Eucalyptus arenacea/baxteri</i> + <i>Eucalyptus viminalis</i> ssp. <i>cygnetensis</i> open woodland over sparse heath.	<i>Eucalyptus arenacea/baxteri</i> open woodland over mid-dense heath dominated by <i>Leptospermum myrsinoides</i> .
<b>Brief species list</b>	<i>Acacia spinescens</i>	<i>Acacia leiophylla</i>	<i>Banksia marginata</i>	<i>Austrostipa mollis</i>	<i>Acacia spinescens</i>
	<i>Allocasuarina muelleriana</i> ssp. <i>muelleriana</i>	<i>Acrotriche serrulata</i>	<i>Banksia ornata</i>	<i>Austrostipa</i> sp.	<i>Acrotriche serrulata</i>
	<i>Austrostipa mollis</i>	<i>Astroloma humifusum</i>	<i>Billardiera cymosa</i>	<i>Billardiera cymosa</i>	<i>Austrostipa mollis</i>
	<i>Billardiera cymosa</i>	<i>Austrostipa mollis</i>	<i>Brachyloma daphnoides</i>	<i>Brachyloma daphnoides</i>	<i>Banksia marginata</i>
	<i>Brachyloma daphnoides</i>	<i>Banksia marginata</i>	<i>Callitris gracilis</i>	<i>Burchardia umbellata</i>	<i>Banksia ornata</i>
	<i>Calytrix tetragona</i>	<i>Brachyloma daphnoides</i>	<i>Calytrix tetragona</i>	<i>Cassytha</i> sp.	<i>Brachyloma daphnoides</i>
	<i>Cassytha</i> sp.	<i>Burchardia umbellata</i>	<i>Cassytha</i> sp.	<i>Eucalyptus arenacea/baxteri</i>	<i>Cassytha</i> sp.
	<i>Correa reflexa</i> var. <i>reflexa</i>	<i>Callitris gracilis</i>	<i>Correa reflexa</i> var. <i>reflexa</i>	<i>Eucalyptus viminalis</i> ssp. <i>cygnetensis</i>	<i>Eucalyptus arenacea/baxteri</i>
	<i>Daucus glochidiatus</i>	<i>Cassytha</i> sp.	<i>Eucalyptus arenacea/baxteri</i>	<i>Hibbertia riparia</i>	<i>Hypolaena fastigiata</i>
	<i>Epacris impressa</i>	<i>Correa reflexa</i> var. <i>reflexa</i>	<i>Eucalyptus fasciculosa</i>	<i>Isopogon ceratophyllus</i>	<i>Isopogon ceratophyllus</i>
	<i>Eucalyptus arenacea/baxteri</i>	<i>Correa reflexa</i> var. <i>scabridula</i>	<i>Hibbertia riparia</i>	<i>Kunzea pomifera</i>	<i>Kunzea pomifera</i>
	<i>Eucalyptus fasciculosa</i>	<i>Dianella revoluta</i> var. <i>revoluta</i>	<i>Hibbertia virgata</i>	<i>Lepidobolus drapetocoleus</i>	<i>Lepidobolus drapetocoleus</i>
	<i>Grevillea ilicifolia</i>	<i>Ehretia calycina</i>	<i>Hypolaena fastigiata</i>	<i>Leptospermum myrsinoides</i>	<i>Lepidosperma viscidum</i>
	<i>Hibbertia virgata</i>	<i>Epacris impressa</i>	<i>Kunzea pomifera</i>	<i>Persoonia juniperina</i>	<i>Leptospermum myrsinoides</i>
	<i>Hypochaeris radicata</i>	<i>Eucalyptus fasciculosa</i>	<i>Leptospermum myrsinoides</i>	<i>Pultanaea prostrata</i>	<i>Lomandra nana</i>
	<i>Hypolaena fastigiata</i>	<i>Grevillea ilicifolia</i>	<i>Leucopogon clelandii</i>	<i>Pyrorchis nigricans</i>	<i>Persoonia juniperina</i>
	<i>Isopogon ceratophyllus</i>	<i>Hibbertia virgata</i>	<i>Lomandra juncea</i>	<i>Rytidosperma caespitosum</i>	<i>Pultanaea prostrata</i>
	<i>Kunzea pomifera</i>	<i>Hypolaena fastigiata</i>	<i>Lomandra nana</i>	<i>Rytidosperma geniculatum</i>	<i>Pyrorchis nigricans</i>
	<i>Lepidosperma carphoides</i>	<i>Isopogon ceratophyllus</i>	<i>Persoonia juniperina</i>	<i>Senecio</i> sp.	<i>Rytidosperma caespitosum</i>
	<i>Lepidosperma viscidum</i>	<i>Kunzea pomifera</i>	<i>Pyrorchis nigricans</i>	<i>Styphelia conostephioides</i>	<i>Styphelia conostephioides</i>
	<i>Leporella fimbriata</i>	<i>Lepidosperma viscidum</i>	<i>Styphelia conostephioides</i>	<i>Tetratheca ciliata</i>	<i>Tetratheca ciliata</i>
	<i>Leptospermum myrsinoides</i>	<i>Leptospermum myrsinoides</i>		<i>Xanthorrhoea caespitosa</i>	<i>Thomasia petalocalyx</i>
	<i>Leucopogon virgata</i> ssp. <i>virgata</i>	<i>Lomandra juncea</i>			<i>Xanthorrhoea caespitosa</i>
	<i>Lomandra juncea</i>	<i>Lomandra nana</i>			
	<i>Lomandra nana</i>	<i>Pyrorchis nigricans</i>			
	<i>Persoonia juniperina</i>	<i>Rytidosperma caespitosum</i>			
	<i>Pyrorchis nigricans</i>	<i>Rytidosperma geniculatum</i>			
	<i>Styphelia conostephioides</i>	<i>Styphelia conostephioides</i>			
	<i>Tetratheca ciliata</i>	<i>Thomasia petalocalyx</i>			
	<i>Rytidosperma caespitosum</i>				



# FINDING NEMO – A NEW SPECIES OF PEACOCK SPIDER

Sheryl Holliday



*Maratus nemo* - the Nemo peacock spider. Photo Joseph Schubert

On a sunny day in November last year, I was sampling native fish in various wetlands at Mt Burr Swamp when something caught my eye. In the net I had captured something tiny that I had seen before, recognising it by the beautiful orange and white stripes on its head. I was quite sure that this was the same small spider that I had originally seen two years ago at a swamp near Nangwarry.

On that occasion I was out searching and photographing swamp loving orchids when a tiny little jumping thing caught my eye. After snapping a few photos of the little spider, I zoomed in on the creature, and was amazed at the colouring on his head. Unsure of the species, as I had a fairly good idea of the peacock spiders that are found in my area, as well as around Australia, I uploaded a photo to a peacock spider social media group. Joseph Schubert an entomologist from Museums Victoria commented immediately that it was an undescribed species.

Imagine my excitement at finding them at a second location, and it was on a property owned by my employer, Nature Glenelg Trust!

In order to officially describe and name new species, specimens are required. So I collected a few spiders and sent them off to Joseph whom I had been in touch with since the first sighting near Nangwarry.



Typical Nemo habitat. Photo Sheryl Holliday

In late March, Joseph's scientific paper was published in the journal *Evolutionary Systematics*, and I am very pleased to introduce you to the newly named *Maratus nemo* - the Nemo peacock spider.

Joseph Schubert, at just 23 years of age has now described and named thirteen species of peacock spiders, as well as five *Jotus* species (Brushed jumping spiders).

This tiny little peacock spider is just 4 mm long. It lives in ephemeral wetlands and can be found on the vegetation above the water. It's funny that Joseph named the species Nemo after Pixar's clown fish, as I had found them whilst doing fish sampling. It is also the first peacock spider to be found in wetlands.

Wetlands are an important part of our ecosystems, they filter run-off water, are a place for water storage and also recharge the ground water. Biodiversity is high around them, as wetlands are fantastic habitats for waterbirds, amphibians, fish, insects, waterbugs, plants, and of course spiders. These are just some of the reasons why it is really important to look after our wetlands.

Prior to 2011, only fifteen peacock spiders were known to occur in Australia. The popularity of this genus has exploded thanks to social media, with more people now aware of them and actively searching for them – including me!

Incredibly, including Nemo, we now have ninety two species Australia-wide. For some searchers, the allure is capturing the moment the males dance for the females. Like peacocks, mature male peacock spider display their brilliantly vibrant colours in elegant courtship displays to impress the females. Whilst dancing the spiders raise their third pair of legs. Some also have flaps or fans on their abdomen that unfurl showing off their amazingly vibrant colours. It is certainly a fascinating sight to see!

[Peacock spiders, dance for your life! - BBC - YouTube](#)

Since the release of the scientific paper I have been amazed by the publicity my discovery has received, not just here locally, but all around the world. Most recently I was interviewed by



*Maratus nemo* - the Nemo peacock spider. Photo Sheryl Holliday

the National Geographic Magazine. I am deeply humbled by the attention that a tiny little spider found in my region has received. Not to mention the fact that I am the only person in the entire world that has seen *Maratus nemo* in the wild!

Since Nemo has been found, I will keep searching my little patch of South Australia and western Victoria, as I am sure there are more out there to be discovered.

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**SEG is very grateful to our corporate sponsor Microchips Australia for its invaluable support to the Minnawarra Project.**





# AFTER THE FIRES: CONSERVATION ACTIONS TO SUPPORT PYGMY-POSSUMS AND BATS ON KANGAROO ISLAND

Joseph Sullivan

In response to the devastating fires of the summer of 2019/20 the University of South Australia's Vice Chancellor Professor David Lloyd agreed to support wildlife recovery on Kangaroo Island.

The VC Fund was used to sponsor four local part-time positions to engage in a range of projects to help the recovery of wildlife, including the construction and deployment of nesting boxes specifically designed for bats and pygmy-possums and the development of methods to distribute artificial nectar to nectarivores after bushfires.

There are 7 species of bats and 2 species of pygmy-possums found on Kangaroo Island.

KI Bats: white-striped free-tailed bat (*Austronomus australis*), Gould's wattled bat (*Chalinolobus gouldii*), chocolate wattled bat (*Chalinolobus morio*), lesser long-eared bat (*Nyctophilus geoffroyi*), southern free-tailed bat (*Ozimops planiceps*), large forest bat (*Vespadelus darlingtonia*) and southern forest bat (*Vespadelus regulus*).

KI pygmy-possums: little pygmy-possum (*Cercartetus lepidus*) and western pygmy possum (*Cercartetus concinnus*)

UniSA's Associate Professor Topa Petit developed and led this project and was able to successfully partner with the KI Wildlife Network, KI Land for Wildlife, KI Friends of Parks Western District, KI Research Station, and KI Conservation Landowners Association. Dr Petit believes that the solidarity of these remarkable Kangaroo Island organisations is what allowed UniSA to make prompt progress in this research and recovery project. Dr Petit also received additional funding from the Foundation for National Parks and Wildlife and the Nature Foundation SA as well as WIRES-Landcare and Friends of Private Bushland.

A series of specialised training workshops for volunteers and more general workshops about Kangaroo Island also took place, resulting in great positive feedback.

From the start of the project, volunteer and charity organisations on KI and mainland Australia sprang into action and started constructing the required nesting boxes. Under



Nesting box deployment team at work. Photo T Petit

the supervision of KI residents John and Jeff Bancan, over 900 nesting boxes were made or processed at the Kangaroo Island Dance School.

A dedicated team of local KI volunteers then started to gather during most weeks to assist Peter Hammond and myself with the deployment of the boxes. Over 750 boxes for pygmy-possums and insectivorous bats have now been deployed on 13 fire affected private properties.

Dr Petit was not however satisfied to merely construct and deploy nesting boxes. She recognised that the project could also make important contributions to science and future wildlife recovery efforts. To understand the box preferences of Kangaroo Island's bats and pygmy-possums, the materials and dimensions used to construct the boxes were recorded. During deployment, data were recorded including box height on tree; GPS coordinates for location of boxes; box orientation and species of tree to which the boxes were attached; along with details of the associated vegetation community. Photographs of the canopy and groundcover were captured as each box was deployed and continue to be captured during subsequent monitoring. A number of paired sites (burnt and un-burnt) in similar vegetation associations were also established.

The emergence of COVID-19 in early 2020 also meant additional bio-security measures needed to be introduced to minimise the potential of introducing COVID-19 into the wild bat population of Kangaroo Island. Hands were regularly sanitised, bat boxes were sprayed with methylated spirits



Hill of Grace nesting box. Photo T Petit



Forest bat *Vespadelus* sp in a nesting box.

Photo P Hammond

immediately before deployment and masks were worn as bat boxes were attached to trees. All these boxes are now being monitored and target species are starting to appear.

In March 2021, which was coincidentally the very last day of work under the University of South Australia Vice Chancellor's Fund for Kangaroo Island, a bat was observed inside a box on a south coast property. This dark brown bat is likely to be a large forest bat (~ 7 g) or a southern forest bat (~ 5 g), a *Vespadelus* species but it is difficult to tell without disturbing the animal. Animals get extremely stressed when observed in "their" boxes and we are legally required to have a very strict data reporting system under our permits from the Department for Environment and Water and UniSA's Animal Ethics Committee.

At the same property, the team also found a marbled gecko and probable bat scats in another box. The boxes were installed at this property in June 2020 and had most recently been monitored in October 2020.

In late April 2021, two western pygmy-possums were discovered in nesting boxes installed in an unburnt section of



Western pygmy-possum found in an unburnt area.

Photo A Jessup

another property on the north coast of the island. These boxes were installed in November 2020 and had not been monitored until the discovery of these precious inhabitants. In May, a group of volunteers from the Barossa Enterprises in the Barossa Valley, who had assisted with the construction of the boxes, visited the same property and another western pygmy-possum was found in a box in the un-burnt vegetation. Pygmy-possums do not like burnt ground and research indicates they are most prevalent in long-unburnt vegetation. These rare patches of remaining unburnt vegetation within the fireground are therefore absolutely crucial for the conservation of not only pygmy-possums, but also many of other unique species on KI.

Preliminary leaf nests are also beginning to appear in nest boxes at other burnt properties. The leaves may have been brought in by pygmy-possums, but as they do not look like 'normal' pygmy-possum nests, we can't be sure. Future monitoring is likely to shed light on this.

Under the guidance of Dr Petit and Bernie Stonor, Peter Hammond and I established artificial nectar feeding stations on our properties using a simple but effective set-up designed by Bernie and Dr Petit. A corrugated iron skirt is then placed around the host tree's trunk to prevent the feeders being accessed by brush-tailed possums, which are unwanted visitors that will quickly consume the contents of the feeder. The artificial nectar has been developed by Specialty Feeds in WA.

Whilst prospective diners have been slow to visit the feeders, crescent honeyeaters and eastern spinebills have now started to arrive and feed and a western pygmy-possum was recently photographed by the motion sensor camera at my property.

The nesting boxes and artificial nectar feeders will now continue to be monitored by volunteers for the foreseeable future. It is hoped that, in time, data collected will start to shed light on the designs of boxes that are preferred by specific species, and also reveal any negative or unintended consequences that may result from the deployment of artificial nesting boxes and nectar feeders, such as unintentionally benefitting particular native or introduced species to the detriment of other native species.

Dr Petit believes that the solidarity of so many remarkable Kangaroo Island and South Australian organisations is what allowed UniSA to make prompt progress in this research and recovery project.

**Joseph Sullivan** lives on Kangaroo Island and is an environmental scientist with over 15 years experience in the development and delivery of natural resource management projects, programs and policy across South Australia. Jo is currently working on 3 Bushfire Recovery projects on Kangaroo Island and also works with Aboriginal communities in South Australia and Western Australia on community led environmental, sustainable pastoral development and carbon farming projects and programs.

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# VOLUNTEERING WITH THE FRIENDS OF VULKATHUNHA GAMMON RANGES NATIONAL PARK

Helen Johnson

In 2020 under Covid 19 restrictions it was not possible for SEG to plan the annual 2 week biodiversity survey. However, earlier than expected, restrictions on visiting parks were lifted on 8<sup>th</sup> June. How fortunate that the two working groups of the Friends of Vulkathunha-Gammon Ranges National Park (FOG) were ready to go to the northern Flinders Ranges to work on their projects. One group was to work on the old outstation, Oocaboolina Hut near Nepabunna just off the Copley to Balcanoona Road, and the other group would do fish and water monitoring in the springs within the National Park and continue a re-vegetation project at the National Park Headquarters at Balcanoona. 'Friends' newsletters can be found at <http://www.rayh.id.au/vulkathunha/secondary/newsletters.html>

## Balcanoona 9<sup>th</sup>– 15<sup>th</sup> June 2020

Annette Vincent and I set off early on Tuesday 9<sup>th</sup> June to join the team at Balcanoona. After 6 days with the Friends project, we drove to Arkaroola for three days: art for Annette, exploration for me, and a wonderful Bush Tucker walk for us both.

At Balcanoona half of the twenty volunteers were first-time participants to the Friends' projects. The shearers' quarters and very large kitchen and dining/lounge areas are luxurious by other standards that Annette and I have experienced. The members were from diverse and interesting backgrounds and night-time conversations were stimulating. The early morning June air was bracing.

Harald Ehmann was the guest speaker at the FOG AGM in mid-March 2020, and in his talk on the ecological impact of climate change on the northern Flinders Ranges, Harald spoke about a nationally threatened fish, the Flinders Ranges gudgeon (*Mogurnda clivicola*) **Wirti Udla Varri** in Adnymathanha language, which is found in the permanent springs in the eastern Gammons. We hoped to catch the gudgeon as we dipped our nets into the waters at the Yuwanhinya Spring Head in Weetootla Gorge along Balcanoona Creek, at the Weetootla Springs in Wortupa Creek, and at the Nepouie Springs in Nepouie Creek which is approached off the road from Balcanoona to Woollana Station.

Harald explained that the spring in Nepouie Creek had never been known to dry out. At the Nepouie Spring head the water is 25° C, but the fish are found in the cooler waters of the springs further downstream. The fish once caught are measured, photographed and released. Water quality at the spring head and in the downstream springs is measured: pH, conductivity, dissolved oxygen, turbidity and hardness are recorded. Robb Gabb is the water expert. Martin Caon and his partner Janet are the experienced fish monitoring experts. In

one of the four sampling sites at Nepouie we found a yabby. Harald thinks that yabbies found in Nepouie Springs could have been brought in.

The reason that the Friends Group measures the water quality in the springs is to establish the parameters of the *Mogurnda* habitat so that a potential insurance population can be established at refuge sites in other suitable bodies of water. Monitoring the fish also provides data on the status and health of the current fish population <sup>1</sup>.

In March 2021 at the FOG AGM, guest speaker Rob Brandle described the plans for translocation of Flinders Ranges gudgeon to Ikara (Flinders Ranges) and several other possible sites further north (which are being studied for their suitability). Rob is Senior Conservation Ecologist with National Parks and Wildlife Service and also SA Arid Lands Landscape. The translocation will begin in the middle of 2021. Genetic studies also show that the Nepouie fish were translocated from the Weetootla population and so the populations will be mixed before translocation. The translocation is part of the Bounceback and Beyond Project.

Rob Brandle praised the water monitoring projects (led by Ray Hickman and Martin Caon since 2016, when the Friends of Gammons was revived) which have provided valuable



Janet Caon with net for catching Flinders Ranges Purple Spotted Gudgeon at Nepouie Springs. Photo Annette Vincent



information on the Yuwanhinya, Weetootla and Nepouie Springs towards reducing the risk of extinction of a nationally threatened gudgeon. Besides monitoring fish numbers, sizes and water quality, the project involves weed assessment and containment, assessing the impact of browsing by goats and other animals and recorded sightings and signs of yellow-footed rock wallabies (**Andu** in Adnyamathanha language) and other animals.

In a recent Guest Editorial (SEGments December 2020) one of our younger SEG Committee members, Leah Feuerherdt, posed the question “So how do we start engaging with First Nations? Learning and supporting Indigenous languages is an important place to start”. Annette and I learned a lot of Adnyamathanha words on this trip to Vulkathunha and Arkaroola and I have put them in bold type in this article.

The walk along the Balcanoona Creek through the Weetootla Gorge to Yuwahinya Springs is a geological paradise. I lagged behind the real workers listening to Henry Pecanek (an authority on the geology of **Vulkathunha** – old lady in language) being astonished by the Bolla Bollana tillites which extend for 10’s of meters along walking track. The tillite is a sedimentary rock derived from the consolidated mud, sand and pebbles transported by glaciers. They are older than the sedimentary rocks of the central and southern Flinders Ranges <sup>2</sup>. We walked through the white ti tree (*Melaleuca glomerata*) and the greener- foliated ti tree (*Melaleuca*



Flinders Ranges Purple spotted gudgeon. Photo A Vincent



Scenery walking from Grindell’s Hut to Weetootla Gorge.  
Photo Annette Vincent

*dissitiflora*). *Melaleuca* species is **Aluda**, in language. Crossing the creek near the Wortupa Creek branch we walked across large boulders of magnesite. We also passed a heap of the crystalline magnesite from tailings of the BHP Monarch Mine operations (no longer operational).

Besides visiting the Yuwanhinya Spring, on other days Annette and I visited the beautiful Weetootla and Nepouie Springs, helping with the fish monitoring activities and putting out and retrieving a stealth camera at the Weetootla Spring head. At the spring head some of the group climbed the hill overlooking the gorge and flushed out at least five **Andu** (yellow-footed rock wallabies). Annette fished for 3 days becoming very adept at catching the gudgeon, and she usually caught the biggest fish for the day. I have noticed that Annette, being an artist, is very skilled at observing things in nature.

The other Balcanoona-based project is the revegetation around the NP Headquarters led by Roger Mathers. A lot of work was done over five days, laying irrigation lines, planting indigenous species, mounding up around new plants, placing rocks on the mounds to hold the soil and checking and replacing old irrigation lines around previous plantings. Stakes and wire netting provide protection for the plants, and the plants will be irrigated until established. Rangers Sian Johnson and Joeulla Coulthard based at NP Headquarters support the vegetation activities at Balcanoona and were available to provide advice and help with the planting work. Sian and



Jouella collect the local seeds, which the re-veg team successfully propagate. Some plants are also sourced from the Australian Arid Lands Botanic Garden in Pt. Augusta. There has been quite an effort to propagate the native orange **Iga**, and at last Martin Caon has been successful after many attempts and now has two healthy seedlings.

Annette and I spent several days happily working on the revegetation project. The beautiful curly mallee, *Eucalyptus gillii* (**Mundawarra**), grows near the Ranger's office and we planted many more plus *Eucalyptus socialis* (red mallee), *Templetonia retusa* (cocky's tongue), *Prostanthera striatiflora* (mint bushes), *Ptilotus obovatus* (**Mulla mulla**), *Eremophila alternifolia*, *Santalum spicatum*, *Melaleuca lanceolata* and *Pittosporum angustifolium*. Over 5 days more than 100 seedlings propagated by the re-veg team were planted.

There was ample time to wander around the shearing shed and yards and to visit the original Balcanoona Station Homestead, learning the history. A bush tucker garden will be established in a year or so around the Homestead. Annette took the opportunity to sketch in some wonderful places while we were at Balcanoona.

On Saturday, the team from Oocaboolina led by Graeme Oats (also SEG's Treasurer) joined us at Balcanoona for a BBQ. Certificates of Appreciation with appropriate descriptions prepared by the imaginative re-veg team were given to each volunteer, accompanied by much hilarity and a lamington. Annette and I were presented with a certificate for the 'Scientific and Artistic Expeditioners'.

Before departing for Arkaroola, Annette and I climbed the hill overlooking the Park HQ and watched the shadows move across the Old Lady's Head as the sun rose.

#### Follow-up visits

Annette returned to Balcanoona in September 2020, and again in April 2021, so taken was she with catching fish in Weetootla and Nepouie Springs. On one of these trips Annette and Martin saw a 65 long processionary caterpillar train (*Ochrogaster lunifer*) moving across the ground at Balcanoona near the shearing yards. <https://www.bushheritage.org.au/blog/processionary-caterpillars>

Annette and I returned to Balcanoona in May this year as volunteers of the Friends of Vulkathunha-Gammons Ranges National Park to assist Rob Brandle and his team with the translocation of Flinders Ranges purple spotted gudgeon from the northern Flinders Ranges to sites further south in the Ikara/Flinders Ranges. Annette and I worked at Nepouie Springs with other volunteers catching fish in baited traps. What an exciting project to be involved in. As Rob had described in his talk to the FOG AGM, the fish were transported in aerated fish carriers carried in a cradle slung from a helicopter to their new home in permanent waterholes more than 120km further south. That was a sight to see! [https://www.landscape.sa.gov.au/saal/news-resources/media-releases/Flying\\_fish\\_in\\_the\\_Flinders\\_Ranges](https://www.landscape.sa.gov.au/saal/news-resources/media-releases/Flying_fish_in_the_Flinders_Ranges).



Old Lady's Head at sunrise. Photo A. Vincent

The helicopter flight was actually delayed by a day because of strong winds and so the Friends' volunteers had free time to explore. I went with others on a long hike up Italowie Creek and we discovered beautiful rock waterholes on a side branch of the creek.

On another free day Garry Trethewey and I drove out to Lake Frome. Unlike Lake Torrens which is a sea of white salt, Lake Frome has areas of low muddy ridges encrusted with salt. There are some interesting sand dunes as you get near to the Lake. On the drive we passed through the dog fence and set off a siren. Looking around we found a strychnine sausage OUTSIDE the fence. Seems very cruel, and I think stupid to bait dingos, since the top dog always eats first and then you are left with a pack of rogue, uncontrolled, sometimes untrained, dingos roaming around. How sensible is that!

#### References:

1. FRIENDS of VULKATHUNHA-GAMMON RANGES NATIONAL PARK Inc. Newsletter No. 15, 2021
2. Brochure on 'Flinders Ranges Walks. Weetootla Network'

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Lake Frome. Photo H Johnson

# CHERRY GARDENS AND SCOTT CREEK CONSERVATION PARK FIRES 2021

## Bobbie Rice

During January & February 2021, South Australia experienced periods of extreme heat followed by rains & some flooding and some coolness. The period from 21-25 January 2021 was the extreme heat period with three total fire bans issued in the Adelaide Region as well as across South Australia. Most unusual, total fire bans were declared on Friday, 22 Jan for the entire weekend – with temperatures in the high 30-low 40's C and a coolish change not due until late Monday, 25 Jan.

Most of Region 1 Country Fire Service brigades were put on “standby at station” on the afternoon of 24 Jan (Sunday). We were put on standby at 1pm. All the trucks (appliances/tankers/ command vehicles) were checked and crews identified (who stays behind and who goes). The afternoon was unusually quiet on the fire front and the expected afternoon sea breeze change hadn't occurred at 3pm (the colour of the sky was the eerie, dusty yellow hue with hot NE winds coming from the interior).

Around 4:15pm the “scanner” chatter increased: grass fire Cherry Gardens (Cherry Gardens is a hills “rural” area with CFS brigade attached to it). We listened with interest to what was happening to our “brigade neighbours in the hills to the south”. The Comms Centre kindly started printing maps of the area (Incident Management Team (IMT) was creating them up at Region 1 as the fire started). The quickness of this map generation was one of the outcomes of the Independent Investigations last year during the 2019-2020 Bushfire season, and YES it made a difference for me as Navigator.

At 4:45pm we were in the Bulk Water Carrier (BWC10) ready for deployment. We had a new tablet for response information which we had to grapple with (real time vehicle tracking had finally started – another outcome of last year's fires). We were gone at 4:50pm and got to our assigned location in 20 minutes. The fire was definitely a going fire! We heard/saw the thunder of the heli-tanker overhead, dropping its 10,000 litres of water on the fire edge in the paddock whilst the water bombers were hitting the trees. Lots of smoke and flames. It didn't take very long for water to be delivered to empty appliances from our BWC10 (10,000 litres usually fills 3 appliances). Thank goodness for P2 masks and safety glasses – I needed them both. Whilst filling the other appliances, I was doing the “Mexican foot dance” to put out embers in the tall grass on both sides of the road. On one of our returns to the fire ground from re-filling, we had to change tack and actually do active fire fighting on the road verge until another appliance came along to take over.

During the transit to the fire there was some chit chat that didn't make sense – where the fire had started and

where it was jumping the road (at least 1km away). Something was strange.

We found out during a quick chat whilst filling a fire appliance that there were a few ignition points in our area AND also another one further to the east. Basically, whilst the initial fire was “brought under control”, a series of other fires to the east in Scott Creek Conservation Park were taking off. The wind was also starting to swing – the afternoon sea breeze was late and when it came, the fire took off in Scott Creek CP. We watched the evolution of the “pyro-cumulus” cloud during refilling the BWC10 at Cherry Gardens Fire Station. What an educational experience to watch the evolution – the height, the colour changes with the vegetation changes, the atmospheric variability (causing the cloud to spread at different levels).

My heart sank in many different ways when I saw from the distance, Scott Creek CP burning. My business did a lot of brush-cutting for pest plant control in seven different drainage systems of the CP in the late 1990s-early 2000s for SA National Parks and the Friends of Scott Creek. We hiked in and out each day with brush-cutters, fuel & lunch to do weed control – brush-cutting down 6-8' high blackberry infestations to expose some rare and endangered ferns and other plants. The Friends Group followed up with treating the regrowth. In one of the drainages we “unearthed” some stone walls (we had to be so careful because we were getting sparks from our metal tri-blades and couldn't figure out why – until I stepped off one of the walls and saw the wall from “ground level”). We found out later, the beautifully constructed stone walls were built by returned soldiers who were given plots of land after WWI & WWII. They built irrigation walls to collect and release water for their gardens etc. We also met up with heaps of furry animals (koalas, kangaroos, wallabies & opossums) and bird life, that watched our every move!



Evolution of pyro-cumulus cloud from the Scott Creek fire.

Photo Bobbie Rice





Author taking a breather during the fire fighting

The fire burnt out Scott Creek CP through the evening of 24 Jan and morning of 25 Jan and impacted Mount Bold Reservoir (one of Adelaide Region's water supplies). In the initial 5hr period, Emergency Warnings were put out to several townships via the CFS website and mobile phone network. SA Water acted swiftly to minimize water release due to degradation of water quality from ash and associated anthropogenic by-products. SA Power Network frantically worked to keep the electrical transmission system open whilst the Telecommunication Network was battling to keep the information "hotlines" open. CFS responded with several out of region strike teams whilst Metropolitan Fire Service (MFS) strategically moved some of their appliances into critical housing areas. Air Support worked into the evening hours to keep the water bombers in the air for as long as possible.

Several different wildlife welfare groups responded with minimal notice to assist with animals/birds/etc. in distress.

When we left at 9:30pm for crew change, the ridgetops of Scott Creek CP were glowing orange. A photo will not record what is imprinted in the mind.

The predicted weather change finally came through on the afternoon of Monday, 25 Jan. The rains came and some flooding resulted. Crews were withdrawn from the active fire ground to the road due to slick, slippery conditions combined with trees and branches falling. We went back to the eastern side on 26 Jan (Australia Day – public holiday). We patrolled the area in Scott Creek CP & Mount Bold Reservoir including refilling other appliances, chainsaw work and with great happiness, a koala rescue.

I took photos for my personal library on fire imprints. The "fires" will smoke for several months - the burnt stumps feeding the root stock which eventually comes to the surface, in probably unburnt ground (and re-ignite); the branches and trees will continual to fall. If the rains continue on and off the greenery will start to appear and the drainages will be flushed and re-charged. However, when will the persistent sound of wildlife including insects and bird chirps be re-established??? Humans can rebuild – hopefully Nature can too.

As the days rolled on, the causes of the fires, yes fires, were revealed. Arson.

Whilst there was no loss of human life, the loss to the environment in terms of wildlife and bird life besides the ecology comes at a cost that cannot be defined.



## DR RICHARD WILLING, SEG PRESIDENT, AWARDED AN ORDER OF AUSTRALIA

Dr Richard Willing, President of the Scientific Expedition Group has been awarded an Order of Australia Medal in the recent Queen's Birthday awards for his contribution to nature conservation and biodiversity .

Richard was instrumental in establishing the Scientific Expedition Group, Inc. He was founding Chair from 1984 to 2003, then President from 2003 to the present.

Besides his SEG work Richard has had a career as a leading gastroenterologist for over 50 years. He taught a generation of medical students for over 20 years and Richard also worked as a general practitioner. He began Scouting while in school, rising through the ranks, to be appointed Assistant Commissioner at the age of 25.

In 1994 Richard established the Scientific Expedition Fund (SEF) which supports Honours - level research in a biodiversity area through the RL and GK Willing Grant. These grants are administered by the Nature Foundation of South Australia. Richard remains a trustee of SEF.



# MINNAWARRA BIODIVERSITY PROJECT - AUTUMN SURVEY 2021

Janet Furler

## Background

The Minnowarra Biodiversity Project has been running since 2001 each autumn and spring on the Willing property "Minnowarra" near Myponga in Heritage Scrub. Richard Willing, President of SEG, wanted to protect the scrub on his farming property at Myponga. Around the same time SEG was thinking it would be good to have activities close to Adelaide to provide different opportunities for educating people about nature and surveys. As the scrub was being fenced in 2000 the Biodiversity Project was being set up.

Sheep and cattle were fenced out in areas where 8 permanent trapline sites were to be set up. The eight sites were chosen in different vegetation habitats, and a (then) standard biological survey was established at each site. This requires 6 pitfall traps evenly spread along a 60m drift fence, 15 Elliott traps laid out each side of the pit line and two cage traps, one at each end of the pit line. The Elliott traps are metal boxes about 30cm long and 15 cm square. They are baited with a mix of peanut paste and oats which entices small animals inside, and then traps them safely until the survey team lets them out on the twice-daily checks. The cage traps are larger wire traps working the same way with the bait.

Traps are open for four nights and checked each morning and afternoon. Captured animals are micro-chipped, which means less handling if they are recaptured. Animals are weighed, micro-chipped if new, and released after data on each animal has been recorded.

## Survey - 14 to 18 April 2021

The weather was warm with some drizzle on two days. Nightly temperatures were 8 to 12°C, daily maxima were 12 to 16°C. We were quietly pleased when it got cold and wet the next week. It's nice to beat Murphy sometimes.

We had a core of 10 volunteers who were mostly present, covering survey rounds and farm work, including the Shearer on Saturday. 10 day-visitors and a group of 6 Scouts filled the remaining spots. This is more than we had last year, which is nice, but we were a bit cautious about widespread advertising. We are hoping that by the spring survey we will be back to normal publicity. We will, of course, have to be extra polite to Minnowarra Biodiversity Project instigator Richard Willing, who has been rewarded with an OAM for Services to Conservation and the Environment. Congratulations Richard!

The total catch was 175 individuals, caught 276 times, since many individuals re-visit the baited Elliott traps for a free feed, and a few individuals are found more than once in pitfalls. There were 50 *Antechinus flavipes*, 55 *Rattus fuscipes* (Bush rat), 34 *Rattus lutreolus* (Swamp rat), 1 feral *Rattus rattus*, 11 *Mus musculus* (House mice), 16 reptiles, all

*Lampropholis guichenoti* (Garden skink) and 8 frogs, all *Crinia signifera* (Common froglet) captured. Of the 139 native mammals that we identified 28 individuals were previously captured on earlier surveys.

Site 1 is continuing its Swamp rat dominance, with 16 of the 20 mammals caught being Swamp rats. This site used to yield maybe 1/4 Swamp rats, 1/3 Bush rats and 1/3 *Antechinus*. On this survey we caught a sole *Antechinus* and three Bush rats. Following a comment from a swamp expert that the site is senescent and could do with letting the cattle in for a bit, I am wondering about the appropriateness of major disturbance of the survey site. While it would be interesting to see if the other species recover their numbers, it would have a major effect on the data. There is also the problem that the cows then have access to the whole creek line and I might never see them again! I would love some comments about this idea of site disturbance.

There were four sites with a majority of catches being *Antechinus*, and at least one *Antechinus* was caught at every site, so we aren't losing that species overall. The other three sites had a majority of Bush rats, so they are putting in a good showing as well.

I would like to make brief mention of Kadey Pulsford, who has been volunteering since school days with my sons, and helped cook barbeques at the annual gathering. He sadly and unexpectedly lost his life on 5<sup>th</sup> June, and his enthusiasm and cheeriness will be greatly missed.

thefurlers@gmail.com



**The next Minnowarra Survey will be Thursday 30th September to Monday 4th October. We hope to see you there.**



Richard Willing with Bush rat finding a cosy place under his jacket. Photo Janet Furler



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Concession cards/ student ----- \$15.00  
Family or Corporate membership ---- \$40.00

**HARD COPY SEGments:-** If you like to receive a hard copy through Australia Post of our quarterly journal – SEGments, please include in your payment an additional \$30.00 for a SEGments subscription. All members will receive an electronic copy by email.

Name .....

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.....

Telephone (H) ..... (W) .....

E-mail .....

Details of scientific, cultural, and adventuring or other relevant skill or interests you may be prepared to share with the group:

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**ELECTRONIC PAYMENT**

If you have access to the internet, payment can be made using SEG's bank account at Bank of South Australia, details as follows:

Acc Name: Scientific Expedition Group Inc.  
BSB: 105-086 Acc No.: 330629440

Please use your last name if possible to identify your payment **AND** also advise us by email that you have made a payment to our bank account via email to – [gdoats@bigpond.net.au](mailto:gdoats@bigpond.net.au)

Or send a cheque payable to Scientific Expedition Group Inc. with a photocopy of this page to:

The Secretary  
Scientific Expedition Group Inc.  
P.O. Box 501  
Unley S.A. 5061

**PLEASE NOTIFY ANY CHANGE OF POSTAL OR ELECTRONIC ADDRESS**



