

SEGments



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**Journal of the Scientific Expedition Group Inc.
Volume 32 No. 2 September 2016**

Scientific Expedition Group Inc.

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Cover Photo: A planigale eating a trapdoor spider. Planigales have voracious appetites. This one ate a large grasshopper followed by a huge cockroach followed by the trapdoor spider shown. Photo: Nick Birks

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 of Environment Water and Natural Resources 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.

ISSN 0816 6463

SEGments is the authorised journal publication of the Scientific Expedition Group Inc., PO. Box 501, Unley SA 5061. It is published four times a year to promote articles about biodiversity, scientific exploration and ecological research.

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GUEST EDITORIAL

Some of you will know that I have a soft spot for reptiles and find them, in the main, attractive, interesting and worthy of study. But of course not everyone shares my views on these beasties as I found out some years ago when addressing a group of University students on local wildlife. I began my talk by showing one of my best slides which showed the head of a particularly attractive gecko showing its extraordinarily patterned eye.

I was astonished when several people said, “yuk” and one left the room, claiming loudly that she felt sick. Another, on observing that I also had some suspicious looking cages, warned me that she might also have to leave if a nasty beast was revealed. It turned out that for some of them, creatures that were acceptable make up a tiny proportion of the animal kingdom. I was unprepared for this violent reaction: mostly I had spoken to young children or older adults (over 60’s) who almost invariably loved my “show and tell”. This active dislike for so much of the diversity of nature is actually fairly common I fear, though rarely expressed so forcefully. Of course it’s quite normal to loath some creatures. Who can admire a disease causing parasite, for example? But why would a harmless, colourful gecko evoke such dislike?

This antipathy may also extend to native plants. Any discussion of street trees in Adelaide will lead to a few astonishingly hate-filled diatribes about gumtrees and other apparently murderous, vindictive, destructive, ugly Australian natives. Interestingly a few of the people that dislike our own trees may be quite fond of foreign plants and may even be keen gardeners. I hasten to add here though that those who express such views about our biota are probably in a minority. More I hope have positive attitudes to the diversity of nature.

It’s not really that surprising I suppose. Most Australians come from other lands or at least their parents do, most live in cities and few spend much time in natural areas or on farms. We rarely get exposed directly to nature for prolonged periods. The books we read and the TV programs we watch often come from overseas and the plants, animals and landscapes depicted are very different from those in the Australian countryside. It’s no wonder that many of us still act like aliens, ignorant of and often fearful of the strange antipodean biota.

The fact that many Australians are not in touch with nature presents a great challenge to conservationists. People will not want to preserve habitats and wildlife unless they know something about them and value them. This is why organisations like SEG are so important. We work to take people (particularly the young) into the field to experience nature at first hand, and many of you will have seen the quickening of interest in natural history in such individuals. We also provide readable and attractively illustrated information about local natural history in our Newsletters. Keep up the good work expeditioners!

Bob Sharrad

Chairman Scientific Expedition Group Inc

FRAHNS FARM: AN OPPORTUNITY TO RECONSTRUCT HABITAT FOR DECLINING WOODLAND BIRDS

Fiona Paton



Bio^R, which aims to reconstruct habitat for biodiversity, has steadily been gaining momentum since Director David Paton wrote the June 2013 SEGments article *Securing the Woodland Birds of the Mt Lofty Region: A matter of scale and commitment*. Of particular significance has been the signing of a Memorandum of Understanding earlier this year to work collaboratively with Natural Resources SAMDB to undertake restoration works on Frahns Farm, a 550ha property on Crown land in the eastern Mount Lofty Ranges. The farm is a mix of remnant mallee, revegetation from 40 years ago and ex-farming land, and has considerable value for grassy woodland restoration and as habitat for declining woodland birds. Bio^R has pledged \$10,000 per annum for restoration of Frahns Farm over the next 5 years and will develop a shared vision for the property, a long-term restoration plan, an investment plan, and determine and implement annual working plans, including the organisation of planting festivals for community engagement.

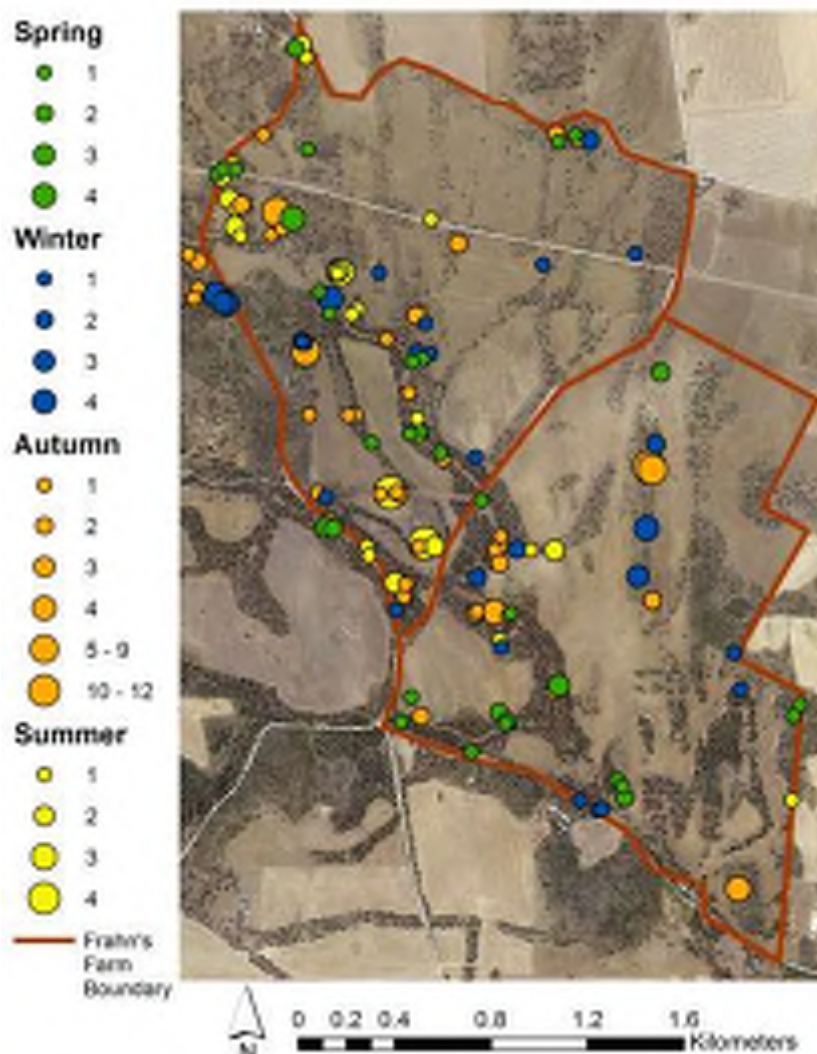
Prior to reconstructing habitat on Frahns Farm, monthly bird surveys were conducted to understand the distribution of birds over the entire property and to provide a baseline from which to compare and measure net benefits over the coming years as the property is restored. Declining woodland bird species observed during these surveys included Restless Flycatcher, Rufous Whistler, Jacky Winter, Dusky Woodswallow, Hooded Robin, Diamond Firetail, Brown Treecreeper, Southern Whiteface, Red-rumped Parrot, Varied Sittella and Purple-crowned Lorikeet.

The map featured here illustrates the variation in the distribution of Diamond Firetails, as well as a breakdown of the number of birds observed. The largest groups of birds were observed in autumn, while, during all seasons, the Diamond Firetails were often found in and around vegetated areas. With restoration of the property and over time, it will be interesting to see whether Frahns Farm can support more Diamond Firetails and whether they are more evenly distributed over the whole property and in all seasons.

In addition to bird surveys, Bio^R is partnering with researchers from The University of Adelaide in a long-term Monarto area bird study that uses capture-and-release techniques to tag birds and



understand their movements, breeding activity and longevity, providing important information for their management and conservation. Bird banding on Frahns Farm began just over a year ago, with highlights to date including a young male and a young female Restless Flycatcher, as well as a male Red-capped Robin, which has been recaptured recently on Frahns Farm but which was originally banded eight years ago and



several kilometres away. This is the oldest known longevity for this species.

In June this year, Bio^R hosted its first planting festival at Frahns Farm, welcoming 70 volunteers to help plant hundreds of seedlings; sheoaks, wattles and the rare silver daisy-bush, and install guards to protect them from kangaroo grazing. We also erected nest boxes, as the 40-year old planted trees are not old enough to have developed natural hollows, which are



Erecting nest boxes at Frahns Farm.

important habitat features for a number of woodland birds, such as Red-rumped Parrots and Owlet Nightjars. It has been extremely promising to observe that, within two months, a Southern Whiteface was using one of the nest boxes!

Later this year, Bio^R is looking forward to again partnering with researchers from The University of Adelaide to conduct mammal and reptile surveys, building on a baseline study conducted last spring. Over the coming years, we will continue to revegetate and manage Frahns Farm, deepen our research on woodland birds' use of the property and maintain our community engagement. This final aspect is so important in reconnecting people to nature, in raising awareness for the decline of our woodland birds and in passing on our passion for their conservation to future generations.

If you would like more information about Frahns Farm or any of Bio^R's projects and activities, then please head to our webpage www.bior.org.au.

Cygnets Park Sanctuary Update

Cygnets Park Sanctuary is a 300-ha property on Kangaroo Island that Bio^R has been involved in transforming from predominantly open paddocks grazed by sheep to a completely revegetated state in ten years, with plantings including about 200 native species and about 500,000 plants. Even so, there are pockets in the older revegetation areas that lack diversity so, in winter this year, Bio^R volunteers improved the range of species in the mallee plantings and along the river. We planted native understorey plants, like lasiopetalums, davesias and thomasias, as well as some riverine species, such as wattles, dodonaeas, melaleucas,



June 2016 Planting Festival at Frahns Farm

boobiallas and bottlebrush. Bottlebrush is particularly important for New Holland Honeyeaters, which set up territories in the spring around their bright red flowers. Another important plant for birds on the property is the Drooping Sheoak, the only food source for the iconic Glossy Black-Cockatoo. Consequently, when revegetating the property, a focus was to re-establish large numbers of Drooping Sheoaks close to the big hollow trees where the birds breed, so that they could easily access food when



Male Red-capped Robin

feeding their young. The sheoaks have done so well that the cockies have been feeding happily in small trees that are only 5-6 years old and, this winter, at least ten cockies were observed foraging. Bird surveys have been conducted over the whole property over the past 10 years and we hope to report on findings from these surveys by early next year.

Diamond Firetails in the Mount Lofty Ranges

Grace Hodder, a PhD candidate from the University of Adelaide and volunteer for Bio^R, is studying the ecology of the Diamond Firetail. Grace's research focuses on the regional decline of Diamond Firetails in the Mount Lofty Ranges and whether or not this is due to scarce food resources. This is believed to be caused by invasive annual grasses outcompeting native perennials, with annual grasses experiencing mass-germination events at the first soaking rains, resulting in scattered seed being unavailable to foraging birds throughout winter. Grace is investigating this theory in her PhD, as she conducts seed abundance and phenology measurements to assess how different grasses germinate and how much seed is available to Diamond Firetails. A part of this research involves supplementing food resources at some sites, with monthly feeder surveys conducted from dawn to dusk at the feeders to determine how many Diamond Firetails use the feeders and how much food they take. Her initial results indicate that, in winter, the Diamond Firetails are taking 100% of their daily caloric requirements in supplementary seed while, in spring and summer, this drops to 50%. This implies that natural food resources in the area are scarce during winter.



Dusky Woodswallow

Wondering how you can get involved or support Bio^R?

To keep up to date and to get involved in our projects, including our upcoming events, please check out our website, particularly our blog (<http://bior.org.au/blog/>), or follow us on Facebook (<https://www.facebook.com/bioraustralia>). You can also donate to Bio^R, with all donations over \$2 fully tax-deductible. Alternatively, offset your ecological footprint for \$1/day (<http://bior.org.au/get-involved/offset-your-footprint/>) to ensure Bio^R can continue to pledge money for habitat reconstruction that will start making a difference in terms of conserving our precious biodiversity, including our declining woodland birds.

Contact: fiona.paton@adelaide.edu.au

Photos by Tom Hunt



Male Hooded Robin





WATER FOR NATURE

Natalie Stalenberg

As you read this article, a selection of wetlands and floodplains along South Australia's River Murray are breathing a collective sigh of relief. There is water on the way, and a lot of it.

Nature Foundation SA switched on its pumps in September for the start of the environmental watering year (2016-17). The Foundation's Water for Nature (WFN) Program has gone through a scientifically informed selection process and chosen over 50 wetland and floodplain sites. The program aims to deliver over six gigalitres of environmental water in 2016-17, as part of a five year agreement with the Commonwealth Environmental Water Holder. It is an ambitious target and one that we couldn't do without the help of our many South Australian River Murray volunteers and partners.

According to flood data over the last century, flows of the likes of those seen in 2011 (around 90,000 GL/day flowing over the South Australian border) only occur on average once every 15 years. However in a natural system, additional smaller floods would have inundated wetlands and floodplains every two to three years, supporting growth of young trees and triggering significant ecological events such as bird breeding.

As the river system has become more regulated, these medium level flows have stopped reaching many wetlands and floodplains. Alteration to the natural wetting and drying regime has had a significant effect on vegetation health, breeding events, and diversity of flora and fauna.

Environmental watering aims to fill this gap by delivering water that recharges these environments and helps to restore ecosystem functions by maintaining natural cycles of breeding and germination.

Wetlands and floodplains that fall outside the management of the government agencies are a focus for Water for Nature as it is recognised that these are crucial for the overall connectivity of the River Murray, facilitating dispersal and migration of flora and fauna.

Nature Foundation SA was the first non-government organisation to develop an agreement with the

Commonwealth Environmental Water Holder to deliver environmental water. It scopes potential projects in consultation with Local Action Planning Groups and other community groups, the Department of Environment, Water and Natural Resources, and the Commonwealth Environmental Water Holder.

In 2016-17 each site has been ranked against a series of criteria to make it on to the Water for Nature list. The criteria that each site is ranked against is grouped into six themes: environmental, economic, social, cultural, political and delivery. The environmental theme includes ratings for:

- Potential for recovery, regeneration and breeding
- Complexity of hydrology and water regimes
- Complexity of habitat
- Rare or threatened species and communities
- Biodiversity values

The case studies below illustrate some of the results we have been getting so far.

Clark's Floodplain

Clark's Floodplain is on the east bank of the River Murray, downstream of Weir and Lock No 4 at Bookpurnong, approximately 11 km north of Loxton and 6.5 km south of Berri. This 271 ha floodplain complex is opposite the Murray River National Park (Katarapko Island). Steve Clark and his family own Clark's floodplain and are keen enthusiasts of environmental watering having watched the dramatic changes taking place on their property over the last three years.

This community of red gum forest, black box woodland and lignum shrub-land has suffered serious decline due to lack of flooding, drought and saline groundwater intrusion.

Clark's Floodplain is now protected by a government Salt Interception Scheme which lowers saline groundwater. Water for Nature has been providing environmental water to different parts of the site since 2013 with the help of SA Water and the Loxton Landcare group.



AquaDam partially rolled out . Photo: Peter Forward



AquaDam in use. Photo: Peter Forward

Watering Methodology

In 2013 the Clark's Floodplain project utilised sprinkler irrigation and managed flooding to deliver water. Sandbags and an AquaDam (inflatable water dam) were used to retain water in the target areas. The AquaDam is a large inflatable rubber "sausage" that can be rolled out across a creek or flood-runner and then filled with water to form a barrier to hold water back. It is 70 metres long and weighs 4.5 tonnes.

In 2014 and 2015 water was delivered by the West End Community Fund 'Big Red' Pump, Flexiflume, flood irrigation and sprinkler irrigation. You can see the results in the photos below.

Sugar Shack

The Sugar Shack is part of the Swan Reach wetland complex. It is recognised as having a high conservation value which is significant at the local, basin and national levels (Photo on page 5 by Matt Turner). Many of the wetlands in this complex are being actively managed by Mannum Aboriginal Community Association Incorporated (MACAI) and the Department of Environment Water and Natural Resources (DEWNR). The wetland watered by WFN in partnership with the Eastern Hills Murray Plains Catchment Group and is not connected to the river under normal (regulated) conditions.

The Sugar Shack wetland received water over Summer 2015/16 and is a great example of WFN's enthusiasm for working with community groups and different government agencies to get results. MACAI assisted with technical expertise and refuelling of the diesel pump. Water was delivered using a Selwood pump and 15cm hose about 40m in length.



Unwatered Blackbox trees adjacent Area 4, Clark's Floodplain



Watered Blackbox trees adjacent Area 4, Clark's Floodplain



Sugar Shack Transformation. Photo: Matt Turner

Before watering, the soil was dry and dusty and the lignum bushes were leafless and brittle. However, within a few days of turning on the pump the lignum began to turn green and grow new leaves. This transformation continued for several weeks with a remarkable growth in aquatic plants including nardoo (*Marsilea drummondii*). Soon the frogs and waterbirds appeared and the wetland was a hive of plant and animal activity.

Whether or not WFN reaches its 6 gigalitre target in 2016/17 will largely depend upon the water flow over the South Australian border over the next few months. At the time of writing, almost 30,000 Megalitres a day was flowing into SA. Volumes of this sort, and above, will mean that some of our sites may get watered naturally – which is a good thing! Higher flows in the river also give us an opportunity to reach higher wetlands and floodplains that have previously been out of reach.

You can join us in keeping watch on river flows by using this link from the Murray Darling Basin Authority.

<http://livedata.mdba.gov.au/system-view>

To learn more about the role of the Commonwealth Environmental Water Holder you can visit this site.

<https://www.environment.gov.au/water/cewo>

Get involved

Water for Nature is seeking financial support from corporates, small businesses and individuals to help us deliver more watering sites per year. Our aim is that the

environmental and community engagement outcomes from the WFN program will mean that the watering of wetlands and floodplains becomes part of every landholder's annual land management program. Delivering environmental water to key sites requires significant resources. We also encourage volunteer involvement and have programmes to involve you with our conservation work. Please register your interest to support or volunteer with our office and we will be in contact with you in the very near future.

www.naturefoundation.org.au

Natalie Stalenberg, Water for Nature Program Manager on 8340 2880 or via email on natalie.stalenberg@nfsa.org.au

Contributions for article from Dr Anne Jensen and Matt Turner

References

Recommendations for Environmental Watering 2016-17, Report for Water for Nature May 2016. Dr Anne Jensen Member of the Water for Nature Committee.



SMALL MAMMALS MAKE A COMEBACK IN SOUTH AUSTRALIAN OUTBACK

Dramatic recoveries linked to single-celled rabbit pathogen

Reece Pedler

Recent research suggests that a number of South Australia's threatened desert mammals have been staging a dramatic comeback in response to a single-celled pathogen. The work, recently published in US Journal *Conservation Biology*, documents the dramatic recovery of four small mammals over the last two decades, three of them threatened species. Notably, these recoveries have been linked to the introduction of Rabbit Haemorrhagic Disease Virus (RHDV), which is thought to have resulted in some dramatic and positive changes in arid zone ecosystems.

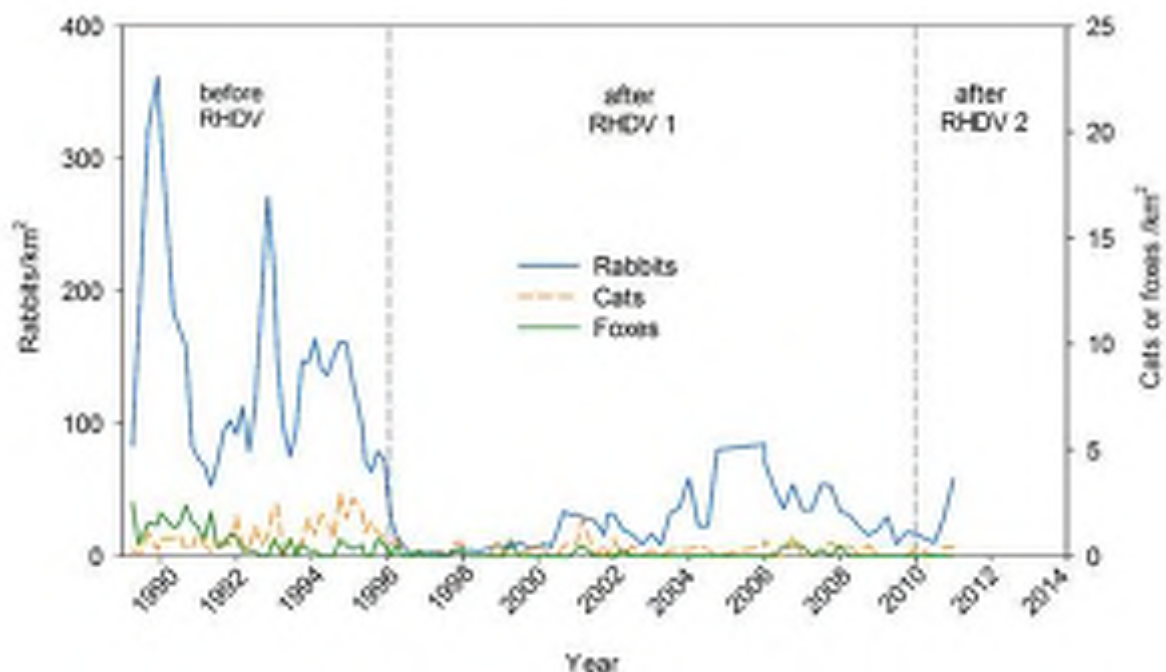
Australia has the infamous distinction of the world's worst modern record of mammalian extinction, with 10% of species now extinct and 43% of all terrestrial species now rated as near threatened or worse. Small-mammal extinctions and declines have been highest in the arid inland and attributed largely to the combination of effects from introduced rabbits and their main predators, red foxes and feral cats, plus European land-use practices such as changed fire regimes and overgrazing by livestock.

Despite this, in the last decade or so, small mammal trapping records, anecdotal accounts from outback residents and arrivals of species at long-term monitoring sites have been suggesting that some changes are afoot.

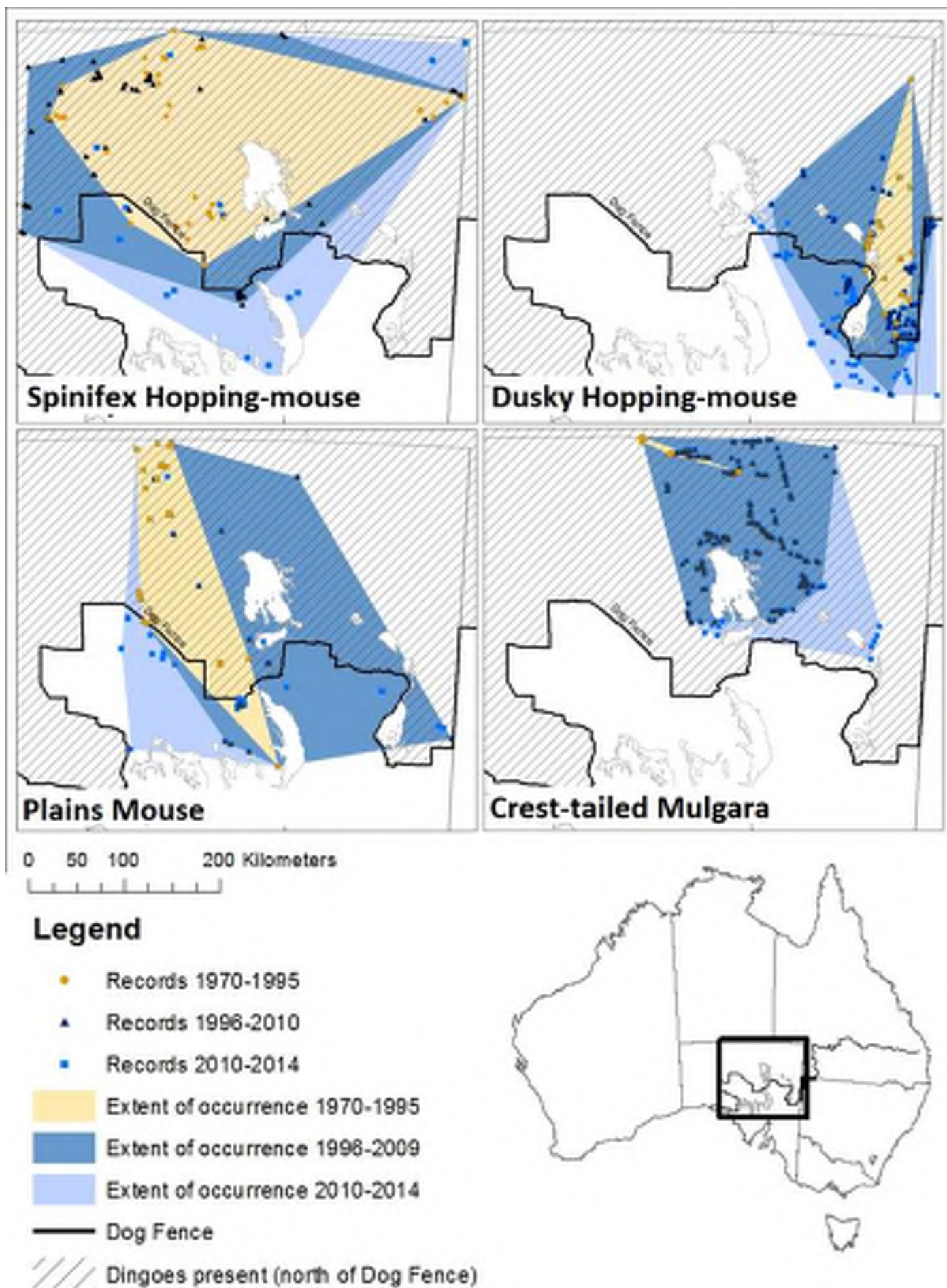
To investigate, a group of SA ecologists (Reece Pedler, Katherine Moseby, Robert Brandle, John Read, Rick Southgate

and Peter Bird) teamed up and undertook an analysis which focussed on small mammals in the outback and possible drivers of the changes in their abundance and distribution, including rainfall and numbers of feral competitors and predators. The work focussed on small mammals for which there was good data coverage, including native rodents: the Plains Mouse (*Pseudomys australis*), Dusky Hopping-mouse (*Notomys fuscus*), Spinifex Hopping-mouse (*Notomys alexis*) and the carnivorous marsupial Crest-tailed Mulgara (*Dasycercus cristicauda*). Of these species only the Spinifex Hopping-mouse was not a threatened species. The analysis incorporated small mammal records since 1970 from the SA Government's Biological Survey Database, the Atlas of Living Australia, and other published and unpublished reports, plus data from long-term monitoring sites. To investigate the possible effects from lower rabbit numbers since the 1995 outbreak of Rabbit Haemorrhagic Disease Virus (RHDV) as well as the dramatic climatic wet/dry cycles, distribution records were compared between the 26-year period before the 1995 outbreak; the first 14 years prior to the 2010-2012 La Nina high rainfall years; and the shorter higher rainfall period since.

The work showed that all four small mammals had dramatically increased their distribution, with much of it occurring in the years immediately following the outbreak of RHDV (1995) and before the onset of the record high rainfall years from 2010-2012. The Plains Mouse and Dusky Hopping-



Rabbit, cat and fox numbers pre and post RHDV. Notably, cat and fox populations (the major predator of rabbits in the arid zone) were also suppressed following the outbreak of RHDV.



Distribution maps showing minimum convex polygons (the standard way to measure a species' area of occupancy, as used by the International Union for Conservation of Nature) of the four small mammal species, before and after RHDV. Lake Eyre is in the middle of distribution maps and Lake Torrens south of it.

mouse increased their distribution by 241% and 365% respectively during the first 14 years following RHDV, with further increases and population booms since. (Editor's Note: Two Plains Mouse were trapped on SEG's 2015 survey of the southern part of Witchelina)

During the early 1990s, the Dusky Hopping-mouse (*Notomys fuscus*) was the subject of intense work as part of the then Department for Environment's Rare Rodents Project. At this time it could only be found at a couple of sites in the Strzelecki Desert. Since RHDV, the Dusky Hopping-mouse has undergone dramatic population booms in this area, spilling over into the North Flinders and North East Pastoral districts and also western New South Wales.



Similarly, Spinifex Hopping-mice (*Notomys alexis*) were previously recorded in sandy habitats in the north-west of the region in the western Lake Eyre Basin and Simpson Desert, but have dramatically increased their distribution to the south. Before RHDV, the most southern records of this species were from near William Creek – now they've been recorded from much further south, including just 75 kilometres north of Port Augusta, near the southern tip of Lake Torrens.

The most dramatic increases were from another threatened species, the Crest-tailed Mulgara (*Dasycercus cristicauda*), with a near 70-fold increase in distribution (7000%) after the RHDV outbreak. This small carnivorous marsupial was only recorded within the core of the Simpson Desert between 1970 and 1995, despite historical records showing that it had a much wider distribution. However, in the 19 years since RHDV, the mulgara has reoccupied much of its former range along the Oodnadatta and Birdsville Tracks; within the last year it has been recorded as far away as Lake Callabonna, to the north-east of the Gammon Ranges. The absence of these mammals prior to 1996 at long-term monitoring sites at Roxby Downs, the Gammon Ranges and Montecollina Bore in the Strzelecki Desert give us certainty that the changes are real and that the mammals were not simply there but undetected prior to RHDV.

With the small mammal recoveries occurring during a period of relatively dry conditions and prior to the 2010-2012 years of record-breaking rainfall, the good conditions brought about by rainfall are unlikely to be the main driver of these dramatic changes. The recovery of these mammals corresponds to the dramatic collapse and sustained suppression of rabbit populations following the original 1995 RHDV outbreak. It is thought that this major change has benefited small mammals in two main ways. The first and most obvious is that less rabbits has resulted in vegetation recovery, which has reduced competition for small mammal species that rely on seeds and

The Crest-tailed Mulgara (*Dasycercus cristicauda*) made the largest increases. This micro-predator most likely benefitted from decreases in predation, with lower numbers of cats and foxes stemming from lower rabbit populations.

vegetation, and perhaps also increased insect and small vertebrate food for the carnivorous Crest-tailed Mulgara. The second, more complex, but perhaps even more important change is that the drop in rabbit populations has led to a reduction in their main predators – the feral cat and fox. By reducing rabbit numbers, RHDV has also lowered cat and fox numbers and potentially reduced predation on small mammal species.

The study highlights the cost effective and wide-ranging benefits that rabbit biocontrol has brought to Australia's environment and agricultural industries. These recoveries are on a scale rarely documented in mammals, and give impetus to programs aimed at targeted use of RHDV in Australia. This situation is set to get even more interesting in the short-term, with the recent outbreak of a second strain of RHDV, (RHDV2), which is currently moving into SA's arid zone. A third RHDV strain, of Korean origin (named K5) is also scheduled for release in SA during early 2017 – so stay tuned for unfolding developments!

For more information, see the full paper in Conservation Biology: <http://onlinelibrary.wiley.com/doi/10.1111/cobi.12684/abstract>

Other commentary on the research can be found in Science Magazine:

<http://www.sciencemag.org/news/2016/02/virus-taming-australia-s-bunny-menace-and-giving-endangered-species-new-life?platform=hootsuite>

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A WITCHELINA MUCH VISITED

Kathy Sharrad

Nature Foundation SA's Property General Manager and councillor Chris Reed has had a busy couple of months organising and hosting an array of different events and visitors at our largest property, Witchelina Nature Reserve, near Lake Torrens. In an exciting first for Nature Foundation, Witchelina hosted a week-long stone restoration course under the supervision of Keith McAlister, Director of Heritage Stone Restoration SA. Twenty people travelled to undertake the five day course, which involved restoring the older shearers kitchen and dining room and the collapsed wall of the original shearers quarters, some of the oldest and most at-risk buildings in the Witchelina precinct.

One and a half tonnes of bagged lime were mixed with five tonnes of sieved creek sand to create a mixture of lime mortar for the repair work. All participants rotated through various tasks including the collecting and sieving of sand from the creek, raking out the joints, mixing the lime mortar, jointing and pointing of the mortar, and lime washing. Keith McAlister equated the value of the week's work (20 people, 8 hours a day for 5 days) at approximately \$60,000, if 15 tradesmen did the same work over a week. This was all made possible thanks to the course's major sponsor ElectraNet.



During the work, the end wall of the kitchen/dining room provided some surprises with the exposure of a very large fireplace and a bread oven once a more recently plastered wall was chipped away. Another great achievement was the stabilising of the building's exterior so it can be put to use as a laboratory as part of a Science Hub for visiting students and researchers.

Everyone was well fed by Gwen, a French chef, who provided three meals and morning and afternoon breaks daily. No one lost any weight despite working eight hour days! Most course participants were Nature Foundation rotational managers who gained vital skills in stone building restoration and lime washing. They are very keen to continue the restoration of the other stone buildings on the property in the future.

Nature Foundation sends a big thank you to Keith McAlister and the Heritage Stone Restoration Group and also to ElectraNet for their very generous support.

Also in April, Witchelina hosted 65 third year students from the Architectural Design Studio at University of South Australia. The students undertook preliminary investigations into developing concept designs for preserving and upgrading the Witchelina precinct. They have generated exciting new design prospects for the future maintenance and construction of new buildings fit-for-purpose for the ongoing research and environmental work conducted on the property. These

concepts will be presented to Nature Foundation later in the year. The partnership between UniSA and Nature Foundation is the culmination of more than a year of planning, and we are very much hoping that this is the first of many such collaborations.



During the same week, members of the Scientific Expedition Group (SEG) visited Witchelina on a 'recon' mission to scope out and plan for their annual biological survey conducted in September. The September survey involves re-sampling survey sites that were established in 2011 as part of an ongoing biological monitoring program which will help describe response to the management regime for the property and seasons.

This year's survey will focus on several important habitat types found at Witchelina including chenopod shrublands and grasslands that are home to a number of threatened species such as the thick-billed grasswren, Giles' planigale and the sandy inland mouse.

Biological surveys enable us to gain an understanding of species living on the reserve and how their numbers fluctuate according to changing climatic conditions, competition and predation. At the September survey, members of SEG will be hoping to again find evidence of the threatened plains mouse (*Pseudomys australis*) and a suite of other native rodents. It will be interesting to see the influence of recent good rainfalls on native mammal populations on the reserve. The April recon mission involved locating the survey sites, and working out logistics to transport, organise and feed approximately 40 or more volunteers in September. Witchelina was also visited recently by postgraduate geology students from Adelaide University, undertaking two exciting Nature Foundation funded geology projects on the property, the first time we have funded postgraduate geology students. One project, which involves two Honours students and supervised by Adelaide University's Professor of Earth Sciences, Allan Collins, will map the geology of Termination Hill and produce geological maps that will show the distribution of



some of the most spectacular rock series in South Australia. These rocks of the area are part of the first so-called ‘Snowball Earth’ and preserve evidence for a global glaciation the likes of which we haven’t seen since. These combined Honours projects will help unravel the meaning of these for the evolution of the Flinders Ranges.

Another project, supervised by Adelaide University lecturer Dr John Tyler, aims to reconstruct the prehistoric water balance at Lake Torrens to gain new insights into Australia’s climate history, as well as context for archaeological finds along the margins of the now dry lake. This project will involve

exploratory remote sensing and geomorphological mapping of the area.

It is tremendous to see such interest in the ecology, geology, heritage and future possibilities for Witchelina Nature Reserve by such a diversity of groups and people – all making a difference.

Contact: kathy.sharrad@gmail.com

Editor’s Note: Reprinted with kind permission from “Nature Matters”, Nature Foundation SA’s Winter Newsletter 2016.



MINNAWARRA BIODIVERSITY SPRING SURVEY 2016

Wednesday 28 September to Sunday 2 October 2016

Come for half a day, one day or several days.

Minnawarra is situated on the southern Fleurieu Peninsula

For further information and registration forms, contact Janet Furler on 0419 842 667

SEG ANNUAL GENERAL MEETING

The Scientific Expedition Group Inc. Annual General Meeting and Talk will be held as follows:

Date: Friday 21st October 2016 Time: 7:30 pm

Place: Fullarton Centre, Corner of Fullarton Road and Fisher Street, Fullarton

After a short business meeting our talk will be:

“Endearing and endangered: why our southern brown bandicoot is still endangered, and what you can do to help ”

The speaker will be Dr Jasmin Packer, University of Adelaide.

Recently the Australian Government announced the current list of endangered species. The southern brown bandicoot was being reviewed and, thanks to research by agencies including the SA Museum and The University of Adelaide, has been re-confirmed as nationally endangered.

Nominations are open for positions on the SEG Committee. Nominations forms can be obtained from the Secretary and should be received by the Secretary at least one month before the AGM.



Visit SEG's website: <http://www.communitywebs.org/ScientificExpeditionGroup>



MALLEEFOWL – A SNAPSHOT OF A SPECIAL BIRD AND THE RECOVERY EFFORT

Sharon Gillam



Master of camouflage: Malleefowl on mound.

Malleefowl - a unique bird

Found only in Australia and possessing a number of distinctive characteristics is the amazing Malleefowl. Rather than sitting on eggs in a nest, as most birds do, this special bird incubates its eggs in carefully constructed and maintained mounds. The Malleefowl belongs to the family known as the megapodes (meaning large feet), also known as mound-builders, and is the only megapode in the world especially adapted to an arid environment – all other mound-building birds are found in tropical and subtropical forests. As the mounds are built with decomposing organic material which generates heat to incubate and hatch the eggs, this makes the work of the Malleefowl especially difficult in the often harsh and dry conditions in which it lives. Building and maintaining the mound is an almost year-long task; relying on rainfall in the early construction phase to begin the decomposing process, followed by heaping up the mound with leaf litter, sand, soil and any other available substrate. Mounds are on average less than a meter high, 3.5m wide and have a mass of around 3.5 cubic meters, although there are many variations to this. In order to maintain a constant temperature in the mound using heat from the decomposing material and the sun, the Malleefowl must constantly measure the temperature inside the mound and make adjustments, expending considerable energy to keep the mound at the ideal temperature of around 34 degrees. To do this, the bird must shift sometimes up to a cubic meter of material each day – add that up over an entire breeding season and it's no wonder that Malleefowl have the

reputation of the hardest working birds around. Another unique quality is the complete absence of any parental care – the Malleefowl has absolutely no involvement in the care of its young, with each chick emerging from the mound ready to run, find food and fly within hours, on its own.

Malleefowl – a threatened species

Malleefowl are listed nationally under the *Environment Protection and Biodiversity Conservation Act (EPBC) 1999* as Vulnerable, and are threatened in each state within their range across southern Australia. Long-term, extensive monitoring indicates populations have declined noticeably over the past few decades. Malleefowl are currently threatened by a range of factors including habitat loss and fragmentation, inappropriate fire regimes, over-grazing, predation by introduced and feral predators and climate change. Continuing declines are predicted due to the small size and isolation of many remaining populations; the continued threat of introduced predators and competitors; and the risk posed by recurring catastrophic events that severely impact on habitat quality and the viability of populations (Benshemesh 2007).

The National Malleefowl Recovery Team and Recovery Plan

To address the recognized threats to Malleefowl, The National Malleefowl Recovery Team was formed in 1989, followed by a National Malleefowl Recovery Plan, which has seen a few updates over the years. The Recovery Team has members from all four states across the species' range (WA, SA, Vic, NSW), plus the Commonwealth (ACT), representing a broad range of interests. Our members are from community groups, government and non-government agencies and universities. The main role of the Recovery Team is to coordinate, prioritize and promote the objectives and actions outlined in the Recovery Plan, with the aim to stop the decline of and support the recovery of Malleefowl, and secure existing populations across the species' range. The recovery team does this by providing advice and general guidance on what actions are needed using the best and most reliable information available. To communicate the national recovery effort to interested parties (including the general public), the Recovery Team maintains a website, publishes a national newsletter twice a year and hosts national forums every 3-4 years.

Malleefowl monitoring and the Adaptive Management Project

As a threatened species, Malleefowl require monitoring to keep track of how the populations are faring. With Malleefowl, the best way to do this is to monitor their

mounds. If the mound is active, the bird is most likely breeding – a good sign. If no mounds are active, there may be cause for concern, and we look for possible explanations. Monitoring is essential, not only to measure the trend of the Malleefowl, but also to measure the success of management actions, and to help understand why populations may be increasing or declining in certain areas.

Enter the **National Malleefowl Monitoring Program!** The seeds of this program were sown back in the late 1980s, improving and growing over the years, to the point where it is now a core business of the Recovery Team. We have a large group of committed volunteers (citizen scientists) across the country undertaking this important activity, and without whom none of this would be possible. The efforts of our volunteers are critical in gathering these essential monitoring data. It is possible that this is the largest citizen science project currently being carried out in Australia.

We have a National Malleefowl Monitoring Manual (recently revised) to guide volunteers; we have annual training sessions that are currently run across all four states to refresh old monitors and train new ones. We have a core group of (around 20) coordinators who organize the monitoring of the sites (or grids) in each state, plus we have all of the equipment for the teams of volunteers. This year (2016) we held a successful two-day training event in Adelaide for our coordinators to ensure the monitoring program maintains a high standard. This was the third such an event.

We have a National Malleefowl Monitoring Database that houses all of the data captured from 130 currently registered sites. This year (2015/16), over 3,500 mounds were monitored, with all the data uploaded and processed in the national database. The data is validated by a small core group, ensuring a high standard of data are kept and maintained. We have recently appointed a database manager to oversee and manage all operations associated with the database. All data up to 2006 have been analysed and reported on; data from 2007 to 2016 are currently being analysed. While all monitoring data are recorded in the national database and managed at a national level, it is accessible to all monitors and available for use by various agencies in reporting on species trends. It now also forms the foundation of the Adaptive Management Project.

The **Adaptive Management (AM) Project** is an exciting, long-term project being undertaken by a team from Melbourne University, in collaboration with the Recovery Team and Parks Victoria, and assisted by land managers across all states. In short, the AM Project will help to identify and understand which of the threats to Malleefowl are most important to address. In order to achieve this, the team has set a very ambitious goal of establishing around twenty experimental

sites of several thousand hectares each, with nearby control sites, across Australia, where a range of trials can be run. In South Australia the experimental sites are at Dangalli, Gluepot, Chowilla, Taylorville and Calperum in the Riverland; Duck Island in the South East; Innes National Park on Yorke Peninsula; and Secret Rocks on Eyre Peninsula. The first of these trials has already begun, focusing on the effect of fox control on Malleefowl populations. The Project will involve recording data for several years for each experiment, and is likely to continue for a number of years to come. It is one of the largest adaptive management experiments ever attempted in Australia.

For further information on the Recovery Team and what we are doing, visit our website: [Home - The National Malleefowl Recovery Team](http://www.nationalmalleefowl.com.au)

For further reading on the latest research, technology and conservation activities on Malleefowl, including the Malleefowl Monitoring Program and the Adaptive Management Project, check the latest **Proceedings from the 5th National Malleefowl Forum**, available here: <http://www.nationalmalleefowl.com.au/forums/national-malleefowl-forum-2014.html>

References

Bannerman, M.G. and Davies, S.J.J.F., editors. Proceeding of the 5th National Malleefowl Forum; 2014 Sept 12-16; Dubbo, New South Wales. Adelaide (SA): Printak Pty Ltd; c2016. 265 p.

Benshemesh J. (2007) National Recovery Plan for Malleefowl. Department for Environment and Heritage, South Australia.



Sharon Gillam, Chairperson, National Malleefowl Recovery Team, DEWNR

Contact: sharon.gillam@sa.gov.au Photos: S Gillam

Editors note: Watch out for a notice in October for SEG's annual malleefowl monitoring survey.



COMING SOON ... A NEW BOOK

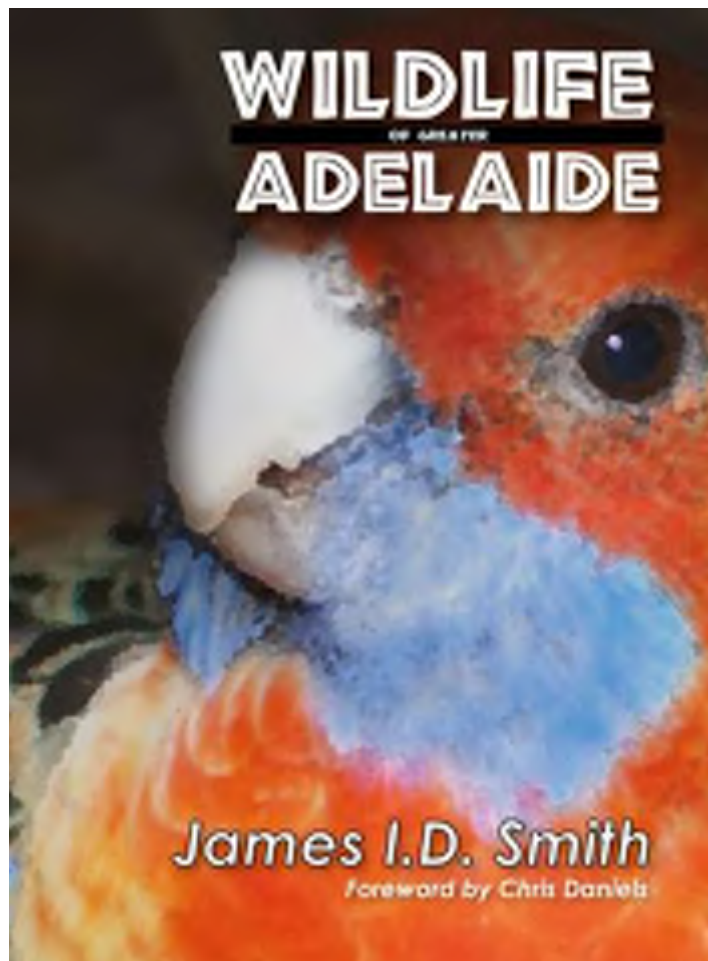
WILDLIFE OF GREATER ADELAIDE

The most comprehensive guidebook to the wildlife of Greater Adelaide.

Whether digging in the garden, walking the dog, or jogging through one of our local parks, we constantly encounter animals. From the minute and bizarre creatures hidden in the leaf litter, to big, colourful, active mammals and birds, we are surrounded by wildlife. Adelaide and the surrounding Mount Lofty Ranges support a spectacular diversity of fauna, some of which are found nowhere else. However, there is limited benefit in simply encountering this wildlife. If we were able to identify the species, understand their biology and explain their habits to our kids and our visitors alike, how much more rewarding would the experience be? This beautifully illustrated full colour book is a catalogue of the amazing animals with which we share the region. As a photographic guide it provides descriptions, natural histories and additional information about both native and introduced species. Most importantly, the book equips the reader with the identification skills to explore, understand and appreciate the wildlife of our region so enabling us all to become backyard David Attenboroughs!

A collaboration between the Barbara Hardy Institute at UniSA, the South Australian Museum and sponsored by organisations including Nature Foundation SA and Scientific Expedition Group, this is a must for anyone interested in identifying and learning more about the fascinating wildlife in and around our city.

Written by James Smith from the SA Museum and with a foreword by Professor Chris Daniels, the *Wildlife of Greater Adelaide* will be launched at the SA Museum on 6th October. SEG members will be able to purchase this wonderful book for a special price at the AGM on 21st October (RRP \$69.95). Further details of how to order your copy will be available at the AGM and in the December edition of SEGments.



SCIENTIFIC EXPEDITION GROUP INC.
APPLICATION FOR MEMBERSHIP AND MEMBERSHIP
RENEWAL for 2015 —16

Membership is open to any persons, family or organisation interested in the following aims:

- * The promotion and running of expeditions of a scientific, cultural and adventurous nature.
- * The furthering of knowledge, understanding and appreciation of the natural environment.
- * Promotion of the values and philosophy of wilderness.
- * Enabling people to learn the skills required for planning and running expeditions, and to develop sound field techniques

SUBSCRIPTION RATES

Adult member - - - - -	\$30.00
Concession cards/ student - - - - -	\$15.00
Family membership - - - - -	\$35.00
Corporate membership - - - - -	\$35.00

Name.

Address

.

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.

Email address – gdoats@bigpond.net.au

PLEASE NOTIFY ANY CHANGE OF POSTAL ADDRESS

Or send a cheque made out 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



Young Female Restless Flycatcher
Photo: Fiona Paton