



**2020-21**

# Arid Recovery Annual Report



For more information on Arid Recovery visit [www.aridrecovery.org.au](http://www.aridrecovery.org.au) or call 08 8671 2402.

The stone artefacts scattered everywhere through the sand dunes of the Arid Recovery Reserve are testament to the deep time over which Aboriginal people have lived on and cared for Country. We recognise their enduring relationship with these extraordinary lands, and have a deep respect for Elders past, present and future. With traditional knowledge and conservation science working together, we hope that struggling wildlife can be re-established to thrive again across Aboriginal land Australia-wide.



This document is the 24th in a series of annual reports and outlines the activities of Arid Recovery for the period from 1st July 2020 to 30th June 2021.

Arid Recovery is an independent, not-for-profit conservation initiative that has been restoring Australia's arid lands since 1997. Our success is attributed to many supporters, including the unwavering support of the local community through volunteers and the long term support of our major sponsors BHP, SA Department for Environment and Water, the University of Adelaide and Bush Heritage Australia.

Copies of this report, supplementary information and previous reports are available on the Arid Recovery website.

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Cover photo: Bettong trapping at Arid Recovery, May 2021

*Photo: Ines Badman*

Inside cover photo: John Read at annual pitfall trapping 2021 measuring a small mammal.

*Photo: Ines Badman*



Nathan Manders and volunteer Terina installing a new soak. Photo: Tessa Manning

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## Contents

- |    |                                                  |    |                                   |
|----|--------------------------------------------------|----|-----------------------------------|
| 3  | Chair report<br>CEO report                       | 11 | Vegetation monitoring             |
| 4  | Arid Recovery Board<br>Scientific Advisory Panel | 12 | Safe haven grant & climate change |
| 5  | Arid Recovery staff<br>Volunteers                | 13 | Research Report                   |
| 6  | State of the Reserve                             | 14 | Working together on Country       |
| 8  | Re-introduced species monitoring                 | 15 | Community                         |
| 9  | Reintroductions & translocations                 | 17 | Financial report                  |
| 10 | In situ fauna                                    | 18 | Sponsors and supporters           |







## Chair Report

ALLAN HOLMES

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Arid Recovery is a remarkable scientific enterprise. We are in our twenty fourth year of operation. At the core of our operation is a 12,300 hectare feral free enclosure, home to a number of threatened native mammals. However, it is the science and collaboration that makes Arid Recovery something special.

Arid Recovery owes its existence to the continuing support of BHP, the major funder and landholder on whose land the reserve is located. Three other partners also provide substantial support to Arid Recovery, the Government of South Australia (through the Department for Environment and Water), Bush Heritage and the University of Adelaide.

The Kokatha are the traditional owners of the reserve and we are slowly building a relationship with them, one that respects their ties to the country and engages them with our work. The local Roxby Downs community are also an essential part of Arid Recovery's soul. They provide much volunteer work and support our team. Katherine Tuft is our General Manager and leads the operation of Arid Recovery. Together with a group of outstanding scientists, Arid Recovery is undertaking ground-breaking research to help threatened species survive and thrive in Australia's wild arid environments.

Behind the scenes, Arid Recovery is governed by a board of eight dedicated directors, four representing the partner organisations and four who are independent. 2020/2021 has been an outstanding year and augurs well for the coming years. I acknowledge our scientific collaborators and generous supporters but save my special thanks for Katherine for her outstanding leadership.



## CEO Report

KATHERINE TUFT

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Emerging from the gruelling drought of 2018-20, it was with a fair amount of excitement that we launched Arid Recovery's new strategic plan 2020-25. The new plan keeps us on an even keel for Arid Recovery's core operations while putting a keen focus on four growth areas: scientific innovation, working together for greater impact, working together on Country and understanding climate change and drought. I am pleased to be making solid progress in all these areas already with my enthusiastic and very capable team.

Our success in securing Commonwealth funding to reintroduce the kowari and develop a drought refuge is tremendously exciting. We have a very busy couple of years ahead making all this happen.

It has been a pleasure working with Allan as he leads the Board in his first term as Chair. The Board committees are providing excellent support, as does our ever rigorous Scientific Advisory Panel.

We are really powering ahead with our research, building an even greater network of collaborators and supporting more young conservation scientists through our intern program and student research support. Arid Recovery's science is being applied for conservation programs across the country. The floppy top fence design developed here is now used in 23 conservation reserves that represent 85% of the safe haven network in Australia. My sincere thanks here to the untiring leadership of our Principal Scientist Dr Katherine Moseby.

Our partners continue to be solid rocks of support, complementing each other in the diverse experience, perspectives and assistance that they bring. Arid Recovery would not be here without you. Thank you.

# Arid Recovery Board

For more information on the people of Arid Recovery visit our website at [www.aridrecovery.org.au](http://www.aridrecovery.org.au)

## Allan Holmes

Chair of Arid Recovery Board, Independent  
Ex-CEO SA Department for Environment and Water

## Martin Smith

Representative for BHP  
Head of Health, Safety & Environment, Olympic Dam

## Sandy Carruthers

Representative for SA Department for Environment and Water  
Group Executive Director, Science and Information

## Laura Parry

Representative for the University of Adelaide  
Interim Executive Dean, Faculty of Sciences

## Heather Campbell

Representative for Bush Heritage Australia  
CEO

## Mark Priadko

Independent  
Financial management, financial and business analysis and business case consultant

## Andrew Corletto

Independent  
Partner, Minter Ellison

## Steve Morton (to December 2020)

Chair of Arid Recovery Board, Independent  
Honorary Fellow, CSIRO Ecosystem Sciences

## Emily Perry (to September 2020)

Representative for BHP  
Head of Corporate Affairs, Olympic Dam

## Megan Lewis (to December 2020)

Representative for the University of Adelaide  
Head of School, School of Biological Sciences

# Scientific Advisory Panel for 2020-21

Professor Megan Lewis retired from her role at the University of Adelaide in early 2021 and was replaced by Professor Laura Parry as Chair of the Scientific Advisory Panel and Board representative for the University of Adelaide. Laura is the Interim Executive Dean in the Faculty of Sciences and the Interim Pro Vice-Chancellor (Research) at the University of Adelaide. She is an expert in reproductive physiology, with her recent research in therapeutic actions of the hormone relaxin in women's health and cardiovascular disease internationally recognised.

The Board and Panel were warm in their thanks to Megan for her contribution during her three year tenure. Megan brought a landscape perspective to Arid Recovery's science and conservation programs and a passion for South Australia's arid rangelands.

The Panel met four times during 2020-21, including a 2-day visit to Arid Recovery in November 2020 to launch the new strategic plan. Throughout the year the Panel contributed to planning to develop new research and monitoring plans for Arid Recovery.



## Panelists

Laura Parry	Arid Recovery Board
Megan Lewis	Arid Recovery Board
Jeremy Austin	University of Adelaide
Peter Copley	SA DEW
Graeme Finlayson	Bush Heritage Australia
Catherine Herbert	University of Sydney
Mike Letnic	University of New South Wales
Reece Pedler	UNSW, Wild Deserts
Stephanie Williams	Ecological consultant
John Read	Ecological Horizons
Allan Holmes	Arid Recovery Board
Dan Rogers	SA DEW



# Arid Recovery Staff

## General Manager / CEO

Katherine Tuft

## Principal Scientist

Katherine Moseby

## Ecologist

Genevieve Hayes

## Administration Officer

Milly Breward

## Conservation Land Management Officer

Nathan Manders

## Community Coordinator

Ines Badman

## Field Ecologist

Saskia Gerhardy

## Trapping support

Vince Barwick

Ned Ryan-Schofield

## Fence Maintenance Officer

Marty Kittel

Hugh McGregor

## Wildlife Hotline

Ines Badman

Hayley Randall

## Science Communication

Nathan Beerkens

## Interns

Alex Marinelli

Morgan Humphrey

## UNSW Research Officer

Leanne van der Weyde



↑ Ecologist Genevieve Hayes processing a bilby.

# Thank you to the volunteers of Arid Recovery for all their support

Anabelle Krugar

Andrea Stiglingh

Andrew Harris

Alex Marinelli

Alex Neilson

Angus Cleary

Anna Pfuelb

Ashley Stevens

Atlas Samuel

Ballie Trenwith

Ben Stepkovitch

Ben Wilson

Bethany Cox

Breanna Woolatt

Brianna Coulter

Cassandra Arkinstall

Cassidy Le Busque

Carla Bruinsma

David Coates

Deon Vosser

Emily Reynolds

Emma Pollard

Eloise Matthias

Erin Thomas

Gerald Anesbury

Graeme Finlayson

Hayden Cradock

Hugh McGregor

Isabel Anderson

Imogen Marshall

Jamie Breward

Jannico Kelk

Kate Matthews

Kaylie Simpender

Kirra Bailey

Leon Anesbury

Lionel Euston

Lisa Jokinen

Max Tibby

Maree Vella

Mark Young

Millie Sutherland

Milly Breward

Morgan Humphrey

Natalie Barren

Ned Ryan-Schofield

Nicholas Nunn

Nicola Kennedy

Oisin Blunt

Peter Wanders

Polly Marks

Rachel Young

Rebecca Schaefer

Robert Dugand

Robin Parkes

Saskia Gerhardy

Saskia Pfuelb

Silvia Euston

Tara Berthold

Tessa Manning

Tori Wilson

Tyson Qualmann

Tom Hunt

Vincent Barwick

Zachary Richardson

# State of the Reserve

Major investments were made into infrastructure to support students, researchers and other visitors at Arid Recovery's research station in 2020-21. Rabbits and cats have boomed following the 2020 rains that broke the worst of the drought. Some rabbit incursions have continued to prove a challenge to remove, while control efforts around the reserve's perimeter have ramped up to reduce the risk of cat incursions.

## RESEARCH STATION UPGRADE

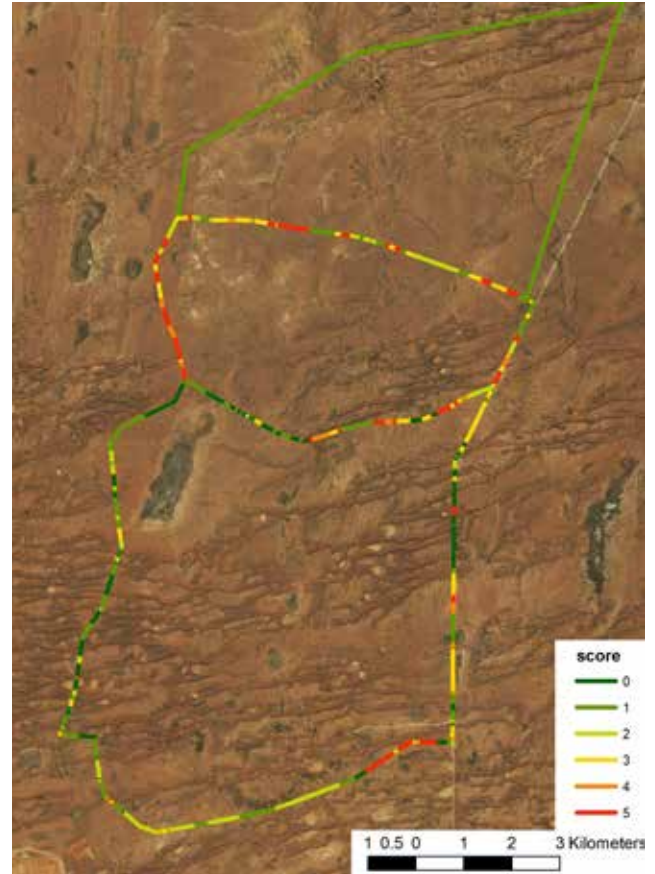
The ageing solar power system failed in late 2020 and was replaced by a new 14 kW system just in time to host volunteers for small vertebrate trapping. An air conditioner was installed for the first time, as well as a larger energy efficient fridge and new blinds on the deck. These additions, combined with the greater power capacity, will make the research station habitable year round and help us to support summer research as it becomes increasingly important with our climate change focus.

## FENCE PLAN

A plan for a strong and resilient fence was released in November 2020. The plan sets out the challenges and needs for fence maintenance and renewal by estimating the life of components and outlining a strategy for Arid Recovery's fence to remain secure for another 25 years. Funding to implement part of the plan was sought in an application to the Commonwealth's Environment Restoration Fund - Safe Haven program.

## FENCING WORKS

Essential maintenance works have been done to replace corroded footnetting along with continued improvements to the shape of the floppy top. Stainless steel is being trialled for small sections of footnetting.



▲ 2020-21 Arid Recovery fence audit showing the extent of rust on external footnetting.

A new energiser was installed to power the Main Enclosure fence.

## FENCE AUDIT MAPPING

The 2020-21 fence audit identified close to 7 km of external footnetting requiring replacement as soon as possible. The rustiest sections are along the boundaries of the Red Lake compartment which is due for significant investment with Safe Haven funding (see page 12).

## QUOLL EXCLUSION

Despite adding a panel of 40 mm netting to 8 km of the Main Enclosure, a young female quoll incurred in February 2021. While the additional netting may exclude some quolls, it is evident that others can navigate the hotwires and floppy top. Consultation with other reserves that contain quolls determined that the only certain way to exclude them would be to reduce the netting aperture to 30-40 mm along the entire fence, at considerable expense. We have settled instead for a strategy of surveillance and removal to limit incursions into the quoll control area. No further quolls have incurred.



▲ The Ahrens crane repositions a shipping container ready for installation of new solar panels.



### INCURSIONS

The feral cat incursion that plagued the reserve over 2019-20 was last detected in August 2020 shortly after the electric fence was installed around the First, Second and Northern compartments and a round of Eradocat™ baits were laid. No further cat sign has been detected since.

Rabbit incursions continue to be a challenge. It is most likely that these rabbits are remnants of those that incurred during the drought when sand drift allowed them to breach through the wider aperture netting at a higher part of the fence. There have been no recent breaches or open gate incidents. Eleven rabbits have been removed from the First, Second and Northern Expansions since January 2021, mostly by shooting. Controlling rabbit incursions is made difficult by the limited tools available to minimise impacts on non-target native species such as quolls. A dedicated rabbit hunter was employed for three months in 2021 and supported by a professional shooter at times. Efforts continue.

### FERAL ANIMAL CONTROL

Feral cat activity around the perimeter of the reserve increased dramatically in autumn 2021 in response to booming rabbit and rodent populations. While only eight cats were removed in between June and December 2020, 84 cats and two foxes were removed from around the reserve by trapping and shooting

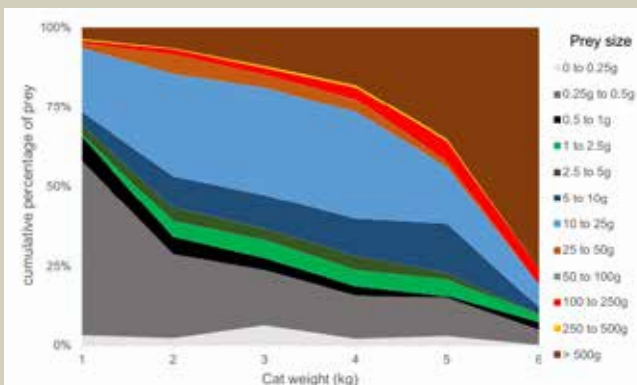


between January and July 2021. Arid Recovery's Felixer has been operational since April 2021 and is regularly firing on passing cats and foxes.

With foxes being detected again occasionally, the area covered during quarterly injected meat bait deployment has expanded out to 7-10 km from the reserve perimeter, in collaboration with neighbours on Roxby Downs and Andamooka stations (Kokatha Pastoral) and with assistance from the Wild Dog Management team at Arid Landscapes Board. Eradocat™ feral cat targeted baits have been purchased and are ready to be deployed when rabbit and rodent activity drops and cats are more likely to take baits.

The ageing Observant trap alert system is due for replacement with a new Celium system ordered from Encounter Solutions. The expanded network of telemetered traps will allow more control to be conducted more efficiently.

The control efforts have kept volunteer Hugh McGregor and helpers very busy dissecting cats to collate data on size, condition and prey consumed. An analysis of this impressive dataset was published recently, identifying large male cats as a disproportionate threat to vulnerable native species such as bilbies (see the box below).



↑ Distribution of prey size found inside cat stomachs, by weight class.

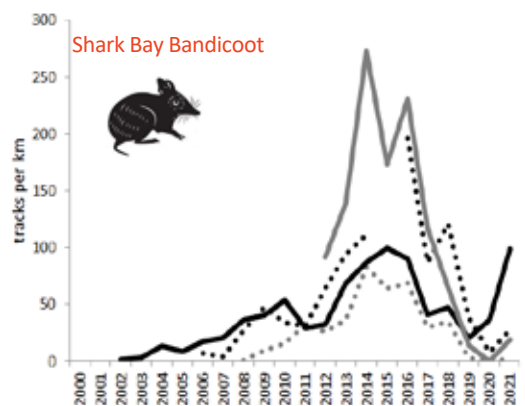
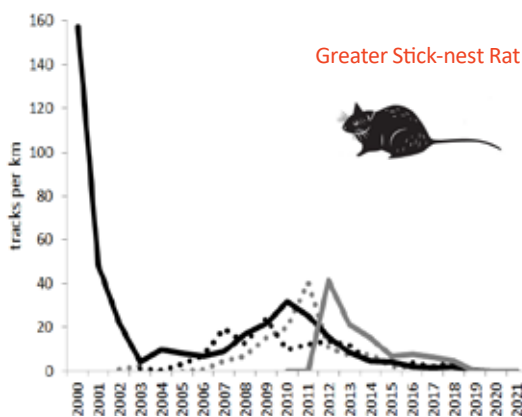
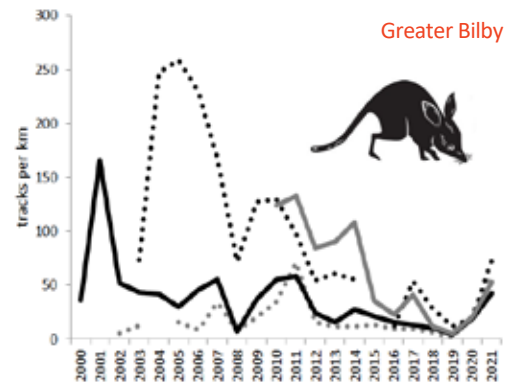
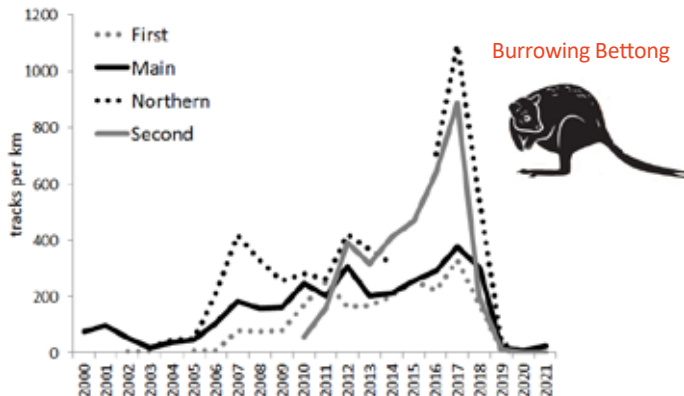
## Targeting killer cats

Research published using data from 1,748 feral cats removed during control operations by Arid Recovery and neighbours highlighted a 'lethal demographic' of concern in feral cat populations. Smaller cats weighing 3 kg fed mostly on smaller prey like mice (<50g), while larger cats up to 6kg fed on prey of 500g or more, meaning that these large cats pose the greatest risk to vulnerable native animals like bilbies and bettongs. Prioritising control of the larger male cats that make up the lethal 23% of an average feral cat population could have a more targeted impact for protecting threatened species.

Moseby, McGregor & Read (2020) *Animal Conservation*

## MONITORING REPORT

## TRACK COUNTS FOR REINTRODUCED SPECIES



# Re-introduced species monitoring

Track count monitoring of the four reintroduced mammal species was conducted in the four southern compartments of the reserve in four sessions. Focal trapping of burrowing bettongs in the Main Enclosure in May 2021 also yielded population estimates for bandicoots and bilbies for the first time.

### BURROWING BETTONGS

Bettong track counts remain low after falling through the 2018-19 drought to levels not observed since their initial reintroduction. Capture-mark recapture estimates from the Main Enclosure showed a drop from over 700 individuals in 2018 to around 50 in 2020 and 2021. Bettongs are more scarce still outside the Main Enclosure where there are fewer than 20 known to be alive. Bettong condition has not improved and remains fair to poor on average.

### GREATER BILBIES

Bilby activity has steadily increased post-drought in all compartments. A genetic supplementation of 19 individuals from Thistle Island to the Main Enclosure occurred through 2020-21 and bilbies were supplied to Wild Deserts in 2021.

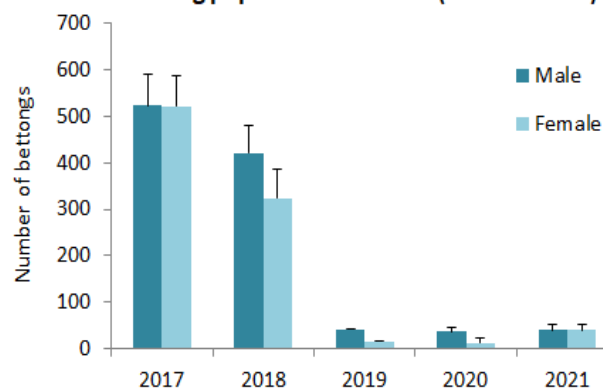
### GREATER STICK-NEST RATS

Stickies are active at just three nests (all in close proximity in the Main Enclosure). The population is at a critically low level and will require supplementation.

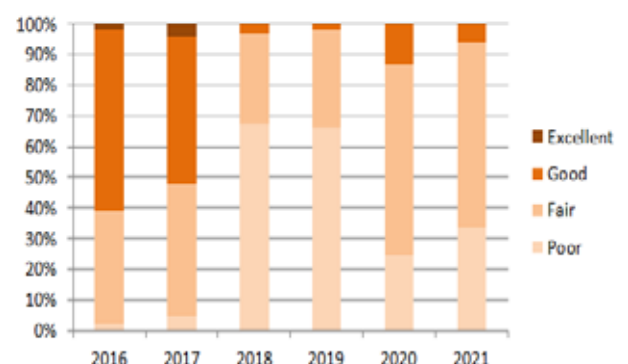
### SHARK BAY BANDICOOTS

Shark Bay Bandicoot activity has recovered reasonably well post-drought, particularly in the Main Enclosure where sufficient captures during the May trapping survey generated a population estimate of 150 individuals. Thirty bandicoots were provided to Wild Deserts and Mallee Refuge in 2021.

### Bettong population estimate (Main Enclosure)



### Bettong condition



# Quoll reintroduction

Carcass dumps were maintained as supplementary food for quolls during the drought and continue to be operated for UNSW PhD student Ben Stepkovitch to study their efficacy at supporting quolls and reducing quoll predation on native prey animals.

University of Adelaide student Rebecca Schaefer began her higher degree research in 2021 studying juvenile quoll dispersal and survival beyond the fence. The quolls have proved challenging to trap and to track and she is now moving to using camera traps.

After University of Adelaide Honours student, Tessa Manning, identified a single male quoll as the father of 60% of the first generation of offspring, that male (Coorlay) was translocated to the Ikara-Flinders Ranges and swapped for two new males to bring some fresh genes into the population.

Arid Recovery is a partner in a new national collaboration to map western quoll genetics for better population management.



↑ A quoll peers out from inside a kangaroo rib cage at a carcass dump. Photo: Jannico Kelk

# Translocations



↑ Thistle Island bilby translocation team. Photo: Liz McTaggart

New bilbies were brought from Thistle Island off the Eyre Peninsula in October 2020 and May 2021 in a genetic supplementation. The original bilby population was founded from just nine individuals, and while the genetic diversity has been maintained, genes from new individuals will put the population a better position to adapt to future changes.

The eight bilbies translocated in 2020 were monitored closely by PhD students Brianna Coulter and Cassandra Arkinstall to compare their movements and burrow use to resident bilbies as they settled into their new homes.

Arid Recovery's bilbies will feature in a new Netflix documentary.

The post-drought rapid recovery of Shark Bay bandicoots (formerly western barred bandicoots) enabled us to supply animals to other reintroduction projects in 2021.

Ten bandicoots were provided to the Wild Deserts project in NSW in May, a new fenced reserve established in Sturt National Park in partnership with the NSW government, the University of NSW and Ecological Horizons. A further three bandicoots were sent to Wild Deserts as a top up in July.

A further fifteen bandicoots were supplied to Mallee Refuge in July, a new fenced area at Secret Rocks Nature Reserve on the Eyre Peninsula.

The animals have settled in well and are breeding at both locations.



↑ Shark Bay bandicoot. Photo: Nathan Beerkens



# In situ fauna



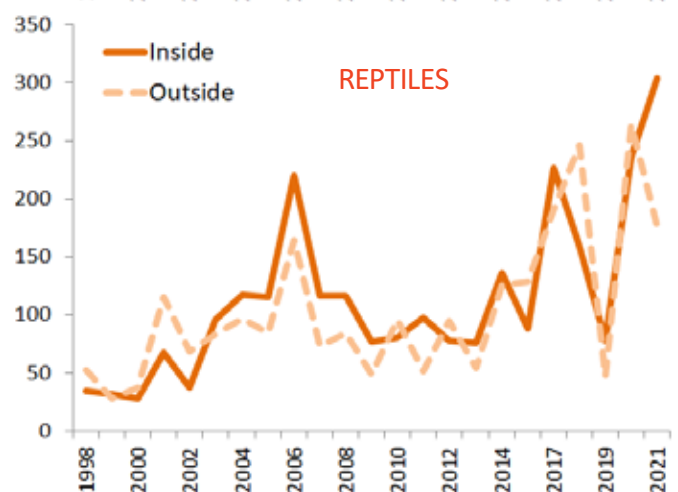
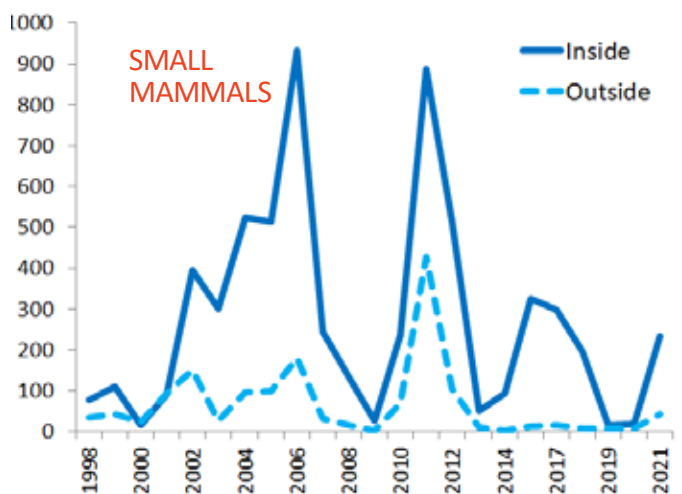
Desert Mouse in hand, checking pitfall lines and a Gibber Earless Dragon soaking up some rays. Photos by Katherine Tuft and Ines Badman

**2021 SURVEY** Small mammals and reptiles were captured at 19 swale sites during annual pitfall trapping in March 2021 with 759 captures of 31 species.

**NATIVE SMALL MAMMALS** Small mammal numbers showed some recovery from the drought conditions of 2018-20. Mammals were far more abundant inside the reserve compared to outside. One mammal species, desert mouse *Pseudomys desertor*, was captured for the first time in 10 years, as well as rarer native rodents short-tailed mouse *Leggadina forresti* and sandy inland mouse *Pseudomys hermannsburgensis*.

**REPTILES** Reptiles were especially abundant during the 2021 survey, and notably more abundant inside the reserve compared to outside. Reptiles from 22 species represented a healthy arid zone diversity.

**FALSE FLOORS** We have been testing devices for reducing predation of reptiles by larger rodents within pitfall traps since 2017. False floors are 'mezzanines' within traps that allow small reptiles to hide underneath while larger mammals sit on top. Research placement student Andrea Stiglingh analysed trends to test the efficacy of false floors. It is clear that false floors effectively separate small reptiles from larger rodents and reduce the potential risk of trap death. Data on this new animal welfare tool will be prepared into a publication.



Abundance of small mammals (above) and reptiles (below) captured in pitfall surveys between 1998 and 2021, both inside and outside the reserve.

Pitfall trapping team selfie. Photo: Millie Sutherland Saines

# Vegetation monitoring

## VEGETATION MONITORING

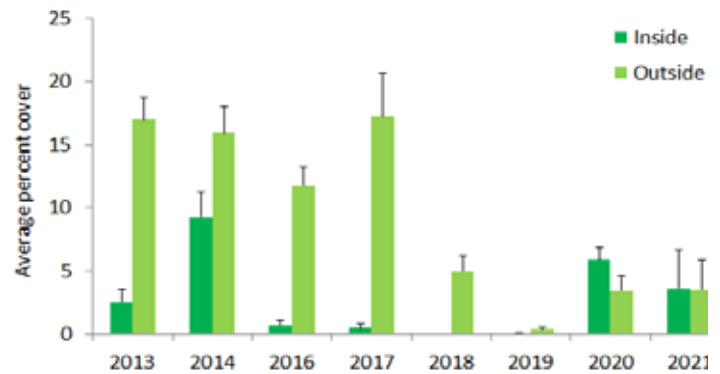
Quadrat sampling (established in 2013) has recorded some recovery for some species after the 2018-20 drought. Palatable succulent plant, ruby saltbush, was recorded in the reserve again after declining within the reserve and being undetectable in 2018 and 2019. This likely reflects some recovery from drought and also from browsing by overpopulated bettongs.

## REMOTE SENSING

Powerful tools are now available to analyse remote sensing data on vegetation cover. Comparison of vegetation cover measured from satellites using VegMachine shows the time series since the reserve was established in 1997 compared to an outside control area. Cover was higher inside the reserve compared to outside for a period up until 2010 when that trend reversed as bettongs became overpopulated. After the drought and reset of the bettong population, cover inside the reserve is now on par with outside.

## PERENNIAL PLANT DIE-OFF

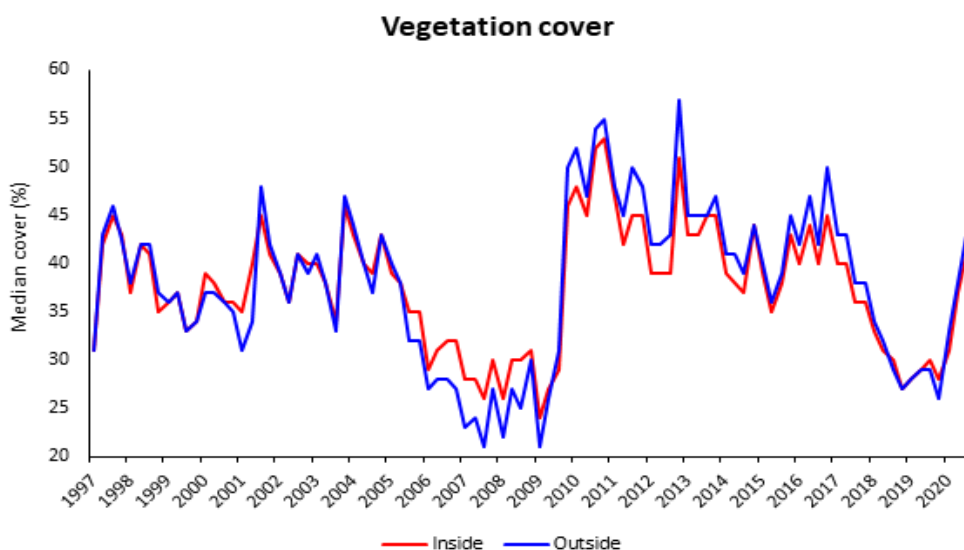
Monitoring and observations have noted a concerning rate of die-off in perennial plants such as mulga trees and long-lived chenopods (bluebushes and saltbushes) following the drought. We have collected preliminary data on these trends and are developing research collaborations to examine the current impacts and project scenarios for these keystone species across Australia's arid rangelands as the climate changes.



↑ Cover of ruby saltbush inside and outside the reserve since 2013.



↑ New leaves on mulga tree *Acacia aneura* after drought-breaking rain in early 2020. Dead mulga trees in background.



↑ Vegetation cover trends inside and outside the reserve using remote sensing tool VegMachine.



↑ Ruby saltbush  
*Enchyleana tomentosa*



# Safe haven grant success

Arid Recovery was successful in applying to the Australian Government's Environment Restoration Fund - Safe Haven program. The grant program offered \$6.7 million to support new and enhanced predator-free safe havens for a suite of under-represented species. The priority species were identified from work by the National Environmental Science Program's Threatened Species Recovery Hub's research that found 29 species vulnerable to predation by feral cats and foxes are not yet protected on islands or behind fences. One of these species is the kowari, a small dasyurid predator from the gibber plains of NE South Australia and SW Queensland that is calculated to have a 20% chance of extinction within the next 20 years.

The grant of \$699,800 will support Arid Recovery to reintroduce the kowari to the reserve. Kowaris are planned for release in early 2023. At the same time, the Red Lake paddock will be adapted into a drought refuge where herbivory will be minimised by excluding bettongs and knocking down rabbits in order to maintain and improve vegetation condition. Drought adaptations such as soaks and heat refuges will be complemented with innovations in new corrosion-resistant fencing materials including stainless steel as the paddock is upgraded to ensure it is rabbit- and cat-proof for the long-term.

Partners include Kokatha Pastoral, Waratah, DEW, SA Arid Landscapes Board, Bush Heritage Australia and BHP.



↑ Top to bottom: fence upgrades, aerial view of soak area, kowari in gibber habitat. Photos by Kath Tuft, Ariana Ananda

## Climate Change Action Plan

We set out four tangible targets to galvanise focused action.

### 1. MITIGATE

Driving us to mitigate where we can by testing electric vehicles for application to conservation work.

### 2. ADAPT

Focusing on adaptation by augmenting natural refugia to sustain arid ecosystems through droughts and heatwaves.

### 3. UNDERSTAND

Powering a research program to understand how native and introduced species stand to lose or gain as the climate shifts and to trial new innovations for adaptation.

### 4. SHARE STORIES

Giving voice to stories of climate change impact and adaptation, and the people working hard to make a difference on the land they care about in the face of this huge global challenge.



Arid Recovery's electric 4WD converted Suzuki ute



# Research

**PREY NAIVETY** The ARC Linkage project with the University of NSW continued with Research Officer Leanne van der Weyde running behavioural assays and other analyses with cat-exposed, cat-naïve and hybrid bettongs in a common garden experiment in the Main Enclosure's soft release pen. PhD student Ben Stepkovitch ran behavioural experiments to test bettongs' responses to visual and scent cues of quolls compared to controls to test whether quolls can elicit anti-predator behaviour in naïve prey species.

**GENETIC SUPPLEMENTATION** UNSW PhD student Brianna Coulter coordinated with University of Queensland PhD student Cassandra Arkinstall to test the impact of genetic supplementation of bilbies on bilby burrow use and movement behaviour. DNA sampling of bilbies in future years will be used to determine the impact of the supplementation on genetic diversity of the population.

**STICK-NEST RATS** University of Adelaide PhD student Isabelle Onley has published her analyses of stick-nest rat metapopulation genetics to help guide translocations and management of stickie populations. She also analysed relatedness between rats from different nests to map dispersal patterns, confirming that female stickies have high fidelity to nest sites while males disperse. Her work testing the thermal properties of nests has demonstrated that bettong warrens used by stickies during heatwaves are substantially cooler than above-ground stick-nests and that artificial rock piles provide some valuable moderation of heatwave conditions.

**NATIONAL COLLABORATIONS** Arid Recovery is a contributor to a new initiative to assess western quoll genetics for better metapopulation management and reintroduction planning. We are also a research partner and end user in the new National Environmental Science Program's Resilient Landscapes Hub.

**EUREKA PRIZES** Arid Recovery science was recognised in two Eureka Prize finalists in 2020: on feral cat research and prey naivety.

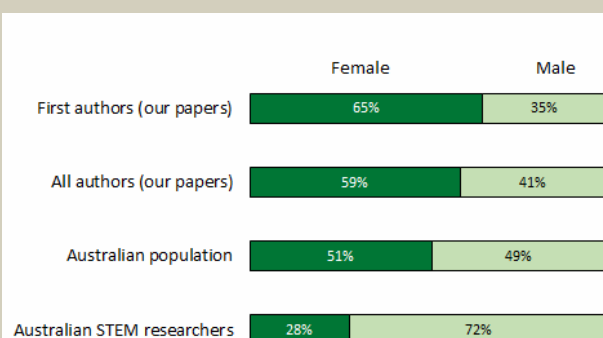


↑ Burrowing bettong carrying a VHF radiotracking collar.  
Photo: Jannico Kelk

↓ Hugh and Roly McGregor constructing a rock pile as an alternative thermal refuge for stick-nest rats.



## Measuring Arid Recovery's Research Impact



New Ecologist Genevieve Hayes started her work with Arid Recovery compiling statistics to measure the impact of Arid Recovery research.

In 24 years to Dec 2020, our small NGO produced 107 peer-reviewed publications with 300 collaborators from 76 institutions.

We are champions of women in STEM, with 65% of papers first-authored by women, compared to the national rate of women making up only 28% of STEM academic and research staff.

← Relative proportions of women in STEM

# Working together on Country

We continue to build our relationships with indigenous groups around Arid Recovery to work together for healthy Country. Arid Recovery is on the land of the Kokatha people and we have worked together from the early years, building the first feral-proof fences, and doing archaeological surveys revealing culturally significant sites within the reserve that are now protected. More recently, we are also working with the Arabana people to help care for their Country around Kati Thanda—Lake Eyre.



↑ Arabana Rangers with animals in hand: dunnart on Finnis Springs fauna survey (left) and bilby at Arid Recovery (right).



The Arabana Cultural Rangers formed in early 2020 to work with pastoralists, special interest groups, government and non-government bodies to improve and maintain the health of Arabana Country and culture. They work across the world's largest Indigenous Protected Area – 69,000 square kilometres incorporating Aboriginal land (Finniss Springs), numerous large pastoral leases and national parks and conservation reserves.

Arid Recovery was invited to Finnis Springs twice in 2020-21 to do a feral cat trapping workshop and a week-long fauna survey. The Rangers were generous with their time and knowledge and took Arid Recovery staff to a number of mound springs and other important sites. We hosted the rangers at Arid Recovery to assist with catching bilbies for DNA sampling ahead of the genetic supplementation.

We will continue this relationship supporting the Arabana Rangers as they develop and implement their Healthy Country Plan.



↑ Bush Heritage staff visit: Kath with Luke Bayley and Bruce Hammond

Three of the large pastoral leases owned by BHP around Olympic Dam are now managed by Kokatha people. The Kokatha Aboriginal Corporation through Kokatha Pastoral aspires to manage a sustainable pastoral operation on these stations where land condition is protected and repaired and there are opportunities for Kokatha people to get back on Country.

Arid Recovery coordinates with Kokatha Pastoral in managing feral predators on Roxby Downs and Andamooka stations to improve outcomes for quolls and other animals that disperse through the fence. Kokatha Pastoral are partners on the new Safe Haven grant project and we hope to develop these opportunities more and more to care for Country together.



↑ Visiting a mound spring with the Arabana Cultural Rangers.



# Community

## INTERNSHIPS

Three Conservation Internships and a Research Placement were offered to recent science graduates in 2020-21. Alex Marinelli joined the team from Brisbane in March and is now working as a project firefighter on the Eyre Peninsula. He was a great leader at community events and tours and made important contributions to land management work. Morgan Humphrey joined us from Tasmania and grew her data analytical skills collecting and analysing feral animal activity data to guide an expanded monitoring program around the reserve. Andrea Stiglingh spent three months completing a placement for her PhD program. She joined the annual pitfall trapping survey and then collated and analysed data on efficacy of false floor devices for reducing predation events within traps.

## STARLIGHT DINNERS

This year Arid Recovery hosted four starlight dinners alongside the Roxby Downs Rotary Club, including for the SA Museum's Waterhouse Club. The dinners include a sunset walk, three course meal under the stars, campfire conversations and a spotlight walk. These dinners introduce guests to desert conservation and show off what the outback has to offer.

## FAMILY NIGHTS

We were thrilled to expand our Dads & Kids nights branching out and also holding a Mums & Kids night and a Family Night in collaboration with Time For Wellbeing. It is aimed at strengthening relationships between families in a fun environment whilst teaching them why conservation is so important. These events are always a family favourite with scavenger hunts, running races, tracking activities, snake awareness, camp fires and a sausage sizzle. Each event continues to have a great response, often booking out, and we look forward to continuing our partnership with Time For Wellbeing on these events.

## WORKING BEES & VOLUNTEERS

Working bees are a fantastic way to get larger jobs completed. In May 2021 a group of volunteers helped to instal a new soak in the Main Enclosure of the reserve. This soak, alongside the existing one will allow us to provide refuge to our vegetation and animals through drought conditions. Two sets of Bush Heritage volunteers joined us for two weeks each making really useful improvements to the research station infrastructure and nocturnal viewing hide. Many volunteers continue to assist us on animal monitoring surveys, with feral animal control, infrastructure repairs and at community events. We are enormously grateful for the time our volunteers dedicate to helping Arid Recovery, and to the staff who often volunteer time outside of their regular work to assist.

## GRANTS

A WIRES-Landcare grant helped us to fund new soaks for drought relief and DEW supporting work measuring and communicating the impact of Arid Recovery's research.



↑ Community Coordinator Ines Badman educating children about snakes. Photo: Alex Marinelli



↑ BHP starlight dinner set up. Photo: Ines Badman



↑ Volunteer Natalie Barron prepping a running race at our Family Night



↑ Intern Tori Wilson teaching kids about animals reintroduced to Arid Recovery at the Marree Kids Day



## COMMUNITY



↑ 2021 intern: Alex Marinelli

**TOURS** Despite interruptions from COVID-19, Sunset Tours have still been operating with high demand. We trialled a new schedule this year advertising tours on Wednesdays and Fridays which has worked well. Although restrictions impacted the number of guests allowed on a tour, our tour guides and guests were very adaptable and ensured everyone was able to experience the incredible outback. The Roxby Downs Discovery Tours are still not running due to restrictions however Roxby Link's 20 minute movie has served as an alternative so that visitors can gain an insight into the operations of the mine and the history of the town.

**EDUCATION** COVID-19 restrictions continue to create challenges in the space of education although we were much more prepared this time around. This year we managed to hold both in person and zoom education sessions with the Roxby Downs Area School, St Barbara Parish School, Woomera Area School, Roxby Downs Area School, Marree School and the Andamooka Primary School. We also hosted a primary school camp and a the University of Adelaide's second year biology field school.

**OPERATION FLINDERS** In late June we collaborated with the Operation Flinders Foundation to host five Roxby Downs participants. Operation Flinders is an initiative for children aged 13-18 to bushwalk through the Flinders Ranges and develop life skills with a team of mentors. Participants had to draw on these skills at Arid Recovery to complete GPS and animal tracking challenges. They were given a visit from snake ambassador, Tirari the Woma Python.

**EVENTS** Face to face events have slowly started to resume as we all learn to adapt to COVID-19. We managed to adapt around outbreaks to hold a Dads & Kids night, Family Night, Toddler Story Time sessions and Snake Education sessions. In times where we were unable to hold community events we enacted plan B and went digital. We were involved in the Community Youth Centre's virtual science week, where 2020 intern Jannico Kelk created a video showcasing all the amazing ways we use science

in conservation work. We also collaborated with the Roxby Downs Library to create take home activity packs for Nature Play. Next year's events are already in the planning stages and we are excited to continue running these events with the community.

### DODOLAND PARTNERSHIP

This year we had the opportunity to partner with a New Zealand based organisation, Dodoland. Dodoland sells 3D animal models called 'Eugys' which are made out of recyclable materials. Their goal is to raise awareness of environmental issues and give back to not-for-profit organisations. They have donated generously with 10% of every Emu Eugy purchase. They also raised money for Arid Recovery during Reptile Month to purchase a new vivarium for our snake ambassador, Tirari the Woma Python. Eugys are a popular item stocked in the Roxby Downs Visitor Information Centre. We thank Dodoland for their amazing work and look forward to continuing this partnership next year.

📍 Further information about our community programs contact the Arid Recovery office on 08 8671 2402.



↑ Cockatoo, Emu & Kangaroo Eugy's stocked at the Roxby Downs Visitor Information Centre. Photo: Ines Badman

## Statistics

508	Tour guests
389	People attending events
12,295	Hours volunteered
36	Media articles, newsletters, blogs
13,752	Facebook followers
590,458	People engaged via Facebook
21,860	Website visitors

# 2020-21 Financial Report

## INTERPRETATION

Income remained sound in 2021 despite small ongoing losses in tourism revenue and the end of Covid-19 related support income. The losses were offset by increases in support from BHP and Bush Heritage, and with savings from wages from deferral of the Ecologist role.

Additional expenditure was made on infrastructure improvements that are reflected in an increase in value to plant & equipment, particularly replacement of the reserve solar power system.

The increase in administration expenses is due to re-coding the Principal Scientist consulting fees from wages into administration.

Substantial funds were held as income in advance at financial year end for grants committed to be expended in future years, particularly the Commonwealth Safe Haven grant. Provision for long-service leave was recognised in 2021 as a non-current liability.

Arid Recovery is in a very strong financial position with an operating surplus of \$111,535 and total equity of \$719,835 at 30 June 2021.

## Balance sheet

ASSETS		
CURRENT ASSETS	2021	2020
Cash and cash equivalents	\$547,176	\$387,524
Trade and other receivables	\$130,657	\$63,870
Prepayments	\$24,908	\$6,892
Inventories	\$17,927	\$19,786
<b>TOTAL CURRENT ASSETS</b>	<b>\$720,668</b>	<b>\$478,072</b>
NON-CURRENT ASSETS		
Land & buildings	\$259,000	\$255,000
Plant & equipment	\$147,158	\$108,288
<b>TOTAL NON-CURRENT ASSETS</b>	<b>\$406,158</b>	<b>\$363,288</b>
<b>TOTAL ASSETS</b>	<b>\$1,126,826</b>	<b>\$841,360</b>
LIABILITIES		
CURRENT LIABILITIES		
Trade and other payables	\$33,421	\$31,801
Income in advance	\$326,936	\$157,406
Provisions	\$17,576	\$16,019
Lease liability	\$13,647	\$14,187
<b>TOTAL CURRENT LIABILITIES</b>	<b>\$391,580</b>	<b>\$219,413</b>
Provisions	\$15,411	\$0
Lease liability - non-current	\$0	\$13,647
<b>TOTAL NON-CURRENT LIABILITIES</b>	<b>\$15,411</b>	<b>\$13,647</b>
<b>TOTAL LIABILITIES</b>	<b>\$406,991</b>	<b>\$233,060</b>
<b>NET ASSETS</b>	<b>\$719,835</b>	<b>\$608,300</b>
TRUST FUNDS		
Retained earnings	\$719,835	\$608,300
<b>TOTAL EQUITY</b>	<b>\$719,835</b>	<b>\$608,300</b>

## FULL FINANCIAL AND AUDIT REPORT

Arid Recovery's accounts were audited by MRL Group auditors. The full audited financial report can be found on the Arid Recovery website at [www.aridrecovery.org.au](http://www.aridrecovery.org.au).

## Income and Expenses

REVENUE	2021	2020
Sponsorship contributions	\$584,800	\$564,800
Research income	\$654	\$241
Fundraising	\$4,215	\$2,492
Grant income	\$38,000	\$10,000
Donations	\$57,039	\$34,674
Tours and events	\$10,021	\$16,192
Interest income	\$2,458	\$2,463
Covid-19 related support	\$0	\$71,828
Other income	\$21,005	\$27,600
<b>Total income</b>	<b>\$718,192</b>	<b>\$730,290</b>
OPERATING EXPENSES		
Administration	(\$73,319)	(\$40,078)
Depreciation	(\$32,771)	(\$37,249)
Wages and Salaries	(\$393,189)	(\$411,967)
Motor vehicles	(\$24,250)	(\$24,805)
Research	(\$28,882)	(\$24,116)
Reserve maintenance	(\$11,382)	(\$32,934)
Fencing materials	(\$18,207)	(\$55,520)
Flora and fauna management	(\$14,926)	(\$44,453)
Volunteer and community	(\$9,732)	(\$12,034)
<b>Total expenditure</b>	<b>(\$606,657)</b>	<b>(\$683,156)</b>
<b>OPERATING SURPLUS/(LOSS)</b>	<b>\$111,535</b>	<b>\$47,134</b>

## SUPPORTERS

What better way to contribute to Arid Recovery than sponsoring the Shark Bay bandicoot

### Adopt a Shark Bay bandicoot

Your sponsorship includes:

- Certificate of sponsorship
- Regular updates on bandicoot conservation
- Our heartfelt thanks for your support of this beautiful and industrious native animal.

① Adopt a bandicoot at [www.aridrecovery.org.au/adopt](http://www.aridrecovery.org.au/adopt)



↑ Shark Bay bandicoot. Photo: Genevieve Hayes

### Donate

Donate online or over the phone to assist the work of Arid Recovery.

### Volunteer

Join us for a working bee or assist around the office, there are many opportunities to volunteer with the staff of Arid Recovery.

### Adopt

Adopt a desert animal to support Arid Recovery's ongoing conservation work.

### Sponsor

Contact the Arid Recovery office if you or your organisation would like to become a sponsor.

# Thank you to the sponsors and supporters of Arid Recovery



Government of South Australia  
Department of Environment,  
Water and Natural Resources



THE UNIVERSITY  
OF ADELAIDE  
AUSTRALIA



Arid Recovery is a conservation initiative supported by BHP, the SA Department for Environment and Water, the University of Adelaide, Bush Heritage Australia and the local community.

**Thanks to the many businesses who continue to support the work of Arid Recovery:**

Ahrens Group	DEW	Living with Wildlife	Rotary Club of Roxby	The Waterhouse
Alliance Airlines	Dodoland	Mackey Reptile Supplies	Downs District	Club
Andamooka Primary	Camplin Computer Services	MinterEllison	Roxby Fabrication & Engineering	Woomera Area
Arabana Cultural Rangers	CSIRO Local Voices	Monadelphous Engineering	Roxby LPO	School
Arid Lands Botanic Garden	ESS	MyEnergy SA	RoxFM	Woolworths
AutoPro Roxby Downs	HEH Pty Ltd	National Science Week	St Barbs School	Xero Accounting
Bianco	Hern & Associates	SA Arid Landscape Board	Time For Wellbeing	
BHP	Kokatha Aboriginal Corporation	Northpoint		
Blackwoods		Rendere Trust		