



Australian Government

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A close-up photograph of a quokka, a small marsupial with brown and grey fur, looking towards the right. The background is a soft-focus natural setting with warm tones.

# THREATENED SPECIES STRATEGY

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YEAR THREE REPORT



# ACKNOWLEDGEMENT OF COUNTRY

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Photo: Kerry Cameron

The Department of the Environment and Energy acknowledges the traditional owners of country throughout Australia and their continuing connection to land, sea and community. We pay our respects to them and their cultures and to their elders both past and present. We are committed to working respectfully with Aboriginal and Torres Strait Islander peoples and give particular acknowledgement to their use, knowledge and custodianship of Australia's native plants and animals over countless generations.

The Department supports Aboriginal and Torres Strait Islander peoples and their aspirations to maintain, protect and manage their culture, language, land and sea country and heritage. For more information please see the Reconciliation Action Plan.







# COMMISSIONER'S MESSAGE

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THIS YEAR THREE REPORT MARKS AN IMPORTANT MILESTONE FOR THE THREATENED SPECIES STRATEGY.

As the mid-point of a five year Action Plan, this Report provides an opportunity to report on progress and adapt approaches to achieve the best outcomes for Australia's threatened and unique species.

It captures the actions and highlights in threatened species protection since my last report 12 months ago, and reports on progress against the targets in the Threatened Species Strategy.

Under the Strategy, the Australian Government outlined four key action areas to focus efforts to achieve significant, positive outcomes for our threatened species: tackling feral cats and their impacts, safe havens for species most at risk, improving habitat and undertaking emergency interventions to avert extinctions.

To measure progress against these action areas, the Strategy includes ambitious targets to decrease the impacts of feral cats on our threatened species, increase the number of fenced areas and feral-free islands as safe havens, improve the trajectories of 20 birds, 20 mammals and 30 threatened plant species and improve recovery practices. These are split into one year, three year and five year targets.

The year three targets are ambitious. Recovery can take time and the immediate threats to our threatened species can be difficult to combat. Improvements require utilising the most up-to-date science to inform management actions and depend on the contributions of many partners, including state and territory governments, business, non-government organisations, communities and Indigenous groups.

I am pleased to report that of the 21 targets for year three, 11 have been met and four partially met. Six of our targets were not achieved but, in many cases, good progress was still made.

Feral cat control is estimated to be occurring across 18 million hectares of the Australian landscape, which is reducing the impact on our birds and mammals such as the Western Ground Parrot, Central Rock-rat and the Woylie. Action to eradicate feral cats on five islands is well underway - on Christmas Island, feral cat eradication is being rolled out across the National Park and township, while the Western Australian Government's work on Dirk Hartog Island has led to it being declared completely feral cat-free, paving the way for the reintroduction of ten mammal and one bird species that had disappeared from the island. Five remaining mainland feral-free fenced areas have been identified to add to the existing fenced areas, which will provide safe havens for some of our iconic species such as the Eastern Quoll and the Bilby so they can recover and even thrive.







I am also delighted that the targets to protect Australia's plants have been met. More than 50 per cent of Australia's known threatened plant species are now stored in conservation seed banks. In addition, recovery actions are underway for many of our threatened plants and threatened ecological communities, funded by the Australian Government and our many partners.

Improving the trajectory of ten priority birds and ten priority mammals within the space of three years was always going to be a challenge. The assessment of these targets has also been demanding, requiring a robust, scientific approach which acknowledges the lack of data in some areas, but utilises a wealth of expertise to provide the best available assessment of population trends.

I'm pleased to see that the trajectories of six birds and eight mammals are improving at this mid-way point. While we have not met the target, there is ample evidence that the collective and sustained effort of committed individuals and organisations across Australia and the contributions from Australian Government programs such as the Threatened Species Recovery Fund, the 20 Million Trees Program and the National Landcare Program has made a real difference to species that are facing dire threats to their survival.

Actions over the past three years are likely to lead to further improvements in the future, as activities such as tree planting increase the quantity and quality of habitat available over time.

There is still considerable work to do to meet the target of all priority birds, mammals and plants improving their trajectory by 2020, and this will need sustained effort to protect and recover their populations.

Australia is home to many unique species, but awareness of this incredible diversity is not high. A really important and rewarding part of my role has been to meet the communities and organisations working to improve the outcomes of our threatened species and to share these endeavours through social media to an ever increasing Australian audience. My Facebook page now has 31,300 followers, while Twitter has 9,900 and Instagram 1,400. The Threatened Species Bake Off in September 2018 also reached a new audience of families and communities, united in baking their favourite threatened species-themed cakes and biscuits in tea rooms around the country. By raising awareness through social media and community engagements such as with schools and other audiences, the community can better understand their natural environment and this can lead to taking greater action to protect it. Through encouraging partnerships and funding through innovative means such as the Threatened Species Prospectus, our collective efforts can achieve greater results.

Looking forward, this report will help to inform the next steps, as we focus on the task of achieving the even more ambitious targets in year five. During this time, the Australian Government's Regional Land Partnerships program will provide an important boost to achieving outcomes for threatened species.

I would like to acknowledge the contribution from our many partners who have helped prepare this report, including scientists from the National Environmental Science Program's Threatened Species Recovery Hub, the Royal Melbourne Institute of Technology, state and territory governments and other organisations such as Australian Wildlife Conservancy, Bush Heritage Australia, Birdlife Australia, recovery teams and Indigenous ranger groups.

**Dr Sally Box**  
Threatened Species Commissioner

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# A YEAR IN REVIEW

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Photo: Dean Ingwersen, BirdLife Australia

## AUSTRALIA'S COLLECTIVE AND SUSTAINED RECOVERY EFFORTS HAVE ACHIEVED SOME IMPORTANT OUTCOMES FOR THREATENED SPECIES OVER THE PAST 12 MONTHS.

A list of some of the highlights can be found on page 15. There have been advancements in our knowledge of threatened species recovery techniques and increased effort and investment under the Threatened Species Strategy's science, action and partnerships framework.

Engaging with the community, and in particular Indigenous land managers, remains a key pillar of the Threatened Species Strategy, as we continue to seek to consolidate public support, form partnerships and build on the fantastic work that occurs right across the country.

### UTILISING SCIENCE

Knowledge is key. By engaging with scientists, using evidence-based decision-making and incorporating Indigenous Australians' unique knowledge of the environment, we can be confident we are choosing the actions most likely to succeed.

The Australian Government has committed \$145 million over six years from 2015 to 2021 for the National Environment Science Program. Under this program, the Threatened Species Recovery Hub provides world leading research to inform threatened species management. This includes evidence on the impact of feral cats, advancing our understanding about the Strategy's priority mammals, birds and plants, informing the design and implementation of cost-effective monitoring and adaptive management programs, and identifying critical management responses required to avoid extinction.

Critical research produced under this program in the last 12 months will help inform actions under the Strategy. For example, our knowledge of the impacts of introduced predators continues to grow: we now know more about the mammals that are most vulnerable to predation by cats and foxes, which include the Gilbert's Potoroo, the Central Rock-rat and the Eastern Quoll. Further research about the impacts of feral cats has shown that more than 1.7 million Australian reptiles are killed by cats every day.

Other research highlights that are directly contributing to the implementation of the Threatened Species Strategy include the publication of updated plant translocation guidelines, an assessment of the adequacy of threatened species monitoring in Australia, working with local partners to develop better monitoring methods for the Kangaroo Island Dunnart, and scientific collaborations with Indigenous groups on a range threatened species including orchids, Bilbies and other mammals.

The program is also contributing research to help our understanding about our most imperilled threatened species such as the top 20 Australian mammals and birds at risk of extinction, the top 100 Australian plant species at risk of extinction and Australia's Threatened Bird Index.

Action under the Threatened Species Strategy will continue to be informed by the latest research, both from the National Environmental Science Program and the scientific community more broadly.

More information can be found at: [www.nespthreatenedspecies.edu.au](http://www.nespthreatenedspecies.edu.au)





## SUPPORTING ACTION

Effective action is underpinned by evidence and requires partnerships to be sustainable. Governments, volunteers, Indigenous land managers, community groups, scientists, non-government organisations – we all have a role in supporting action to recover threatened species.

The Australian Government has invested more than \$425 million for projects supporting outcomes for threatened species since 2014. These projects have been delivered under a range of programs including the National Landcare Program, 20 Million Trees, Threatened Species Recovery Fund, the Green Army and the National Environmental Science Program.

Over the last 12 months, \$170 million has been committed through the \$450 million Regional Land Partnerships program between 2018-19 and 2022-23 for projects that directly support threatened species and threatened ecological community recovery activities. Many of these projects will support the recovery of the 20 priority birds, 20 priority mammals and 30 priority plants targeted under the Threatened Species Strategy. New threatened species projects are already being rolled out in the first year of the Regional Land Partnerships program in 2018-2019, to support the recovery of species like the Hooded Plover, Malleefowl, Small Purple-pea and Northern Hopping-mouse. Additional investments in World Heritage and Ramsar wetland projects

through the Regional Land Partnerships program are also likely to benefit many of our threatened species. A list of projects can be found at: [www.nrm.gov.au/publications/regional-land-partnerships-project-listing](http://www.nrm.gov.au/publications/regional-land-partnerships-project-listing)

In 2018, an additional 12 strategic projects were approved and announced under the Australian Government's \$5 million Threatened Species Recovery Fund. New strategic projects addressed emerging priorities, supported emergency interventions and the establishment of safe havens. They included actions to protect threatened plants such as the Bulberin Nut, Shy Susan and Silver Gum, emergency intervention for the Orange-bellied Parrot, support to assess the impact of Myrtle Rust, an emerging threat for nationally listed threatened plant species, and funding for a new fenced area in the ACT to provide a safe haven for Brush-tailed Rock-wallabies. A total of 42 projects were supported under the Threatened Species Recovery Fund and more information can be found on the Department's website.

State and territory governments are protecting native species from threats and undertaking actions to enable species to recover, such as the New South Wales Government's Saving our Species initiative that aims to secure threatened plants and animals in the wild, the Western Australian Government's Western Shield program that is implementing broad-scale fox and feral cat control in high conservation value areas, and the Victorian Government's investment

in Protecting Victoria's Environment – Biodiversity 2037, which is Victoria's plan to stop the decline of native plants and animals.

The non-government organisations and private philanthropic sectors have also made important contributions to saving our species, through constructing safe havens such as Newhaven Wildlife Sanctuary in the Northern Territory (Australian Wildlife Conservancy) establishing conservation areas such as Pullen Pullen in Queensland (Bush Heritage), funding collaborative projects such as the Numbat Detector Dog (Foundation for Australia's Most Endangered Species) and supporting habitat restoration across Australia (for example Greening Australia and Conservation Volunteers Australia).

Local groups play an important role, especially where local decisions are critical to Australia achieving successful outcomes. These groups undertake a range of on-ground activities such as monitoring, weed control and plantings that benefit their local species.

Many threatened species occur almost exclusively on lands owned or managed by Indigenous groups and working closely with Indigenous people to incorporate traditional ecological knowledge is vital for research and informing actions. The Australian Government has funded projects that contribute to knowledge sharing and action by Indigenous communities. For example, the Threatened Species Recovery Fund has supported Bush Heritage



and the Birrilburu Rangers to work in partnership to adopt a two-way science approach and undertake traditional mosaic burning for the long-term protection of habitat for the Bilby, the Night Parrot and the Great Desert Skink.

## FOSTERING PARTNERSHIPS

Protecting our natural environment and the remarkable species that call it home is every Australian's business. No entity can do it alone. Developing strong partnerships and drawing on the collective skills, passion, and resources of a diverse range of organisations and individuals can greatly amplify conservation efforts and maximises outcomes for our threatened species.

Partnerships occur between governments, organisations, businesses, researchers, Indigenous and community groups working together for a common purpose, ranging from short-term projects to long-term monitoring and protection.

For example, in Far North Queensland, Ergon Energy has been working in partnership with the Wildlife Preservation Society of Queensland to design and install glider poles to assist in the movement of fauna across fragmented habitat and roads. The poles are already seeing success with endangered Mahogany Gliders recorded utilising the crossing. The project has been made possible through public donations and support from the community, Girringun Rangers, HQ Plantations, City of Cairns Regional Council, Terrain NRM, Queensland Government and Energy Queensland.

The Australian Government has contributed to many partnerships that are achieving outcomes for threatened species. For example, funding from the Australian Government helped create a multi-jurisdictional project team comprised of Victorian and South Australian state government agencies, Natural Resource Management organisations, non-profit organisations, zoos, university researchers and community volunteers to re-introduce the Mallee Emu-wren back in to South Australia. This multi-year project culminated in 2018 with the release of 78 birds back to their former range. While it is still too early to assess the long-term success of the new population, initial surveys have shown the translocated birds adapting well to their new environment with breeding activity recorded within weeks of the release.

## BILBY BLITZ

### A case study on incorporating traditional ecological knowledge and practices

The Bilby Blitz initiative combines traditional knowledge and skills with digital technology and scientific knowledge. The Australian Government helped fund the development of the "Tracks App" that supports Indigenous rangers to digitally record and map wildlife tracks in remote regions of Australia.

In 2018, the Bilby Blitz saw around 11 Indigenous ranger groups undertake Bilby monitoring across the desert country. Data collected through the Tracks App has helped map the existing Bilby range and find new populations. It showed that the Bilby distribution was wider than once thought – information that will help target future research and recovery actions.

The Blitz also provided a platform for rangers from across arid Australia to come together to share their knowledge and coordinate ongoing management practices such as feral cat control and fire, which benefit not only the Bilby but a host of other species.



Photos: Central Land Council

The Australian Government has also taken a leadership role in creating partnerships through an innovative financing tool, the Threatened Species Prospectus. This tool enables partnerships to be formed over projects of common interest.

The Threatened Species Prospectus was developed in consultation with stakeholders including state and territory governments, Indigenous groups, non-government organisations, zoos, and community groups to help foster collaboration on recovery efforts. It builds on the Threatened Species Strategy's approach of using science, action and partnership to recover threatened species and includes 51 projects designed to deliver tangible benefits for Australia's threatened plants and animals.

Since its launch in February 2017, more than \$7 million has been mobilised for projects featured in the Prospectus. Contributions have come from a variety of sources including the Australian Government, corporations, universities, non-profit organisations, state and territory governments, zoos and private citizens contributing to crowdfunding campaigns. Prospectus projects have supported recovery actions benefiting more than 25 threatened plant and animal species including Morrisby's Gum, Mallee Emu-wren, Numbat, Matchstick Banksia, Golden-shouldered Parrot as well as the Platypus.

As a first-of-its-kind initiative by the Department, the Prospectus has proven to be an effective mechanism for mobilising resources to support threatened species recovery. But perhaps more importantly it has helped to change the conversation between Government and non-government entities and has led to the development of productive relationships that will endure beyond the life of the Prospectus itself. It has also served as a model that has informed the development of innovative new approaches and partnership opportunities across the Department.

## RAISING AWARENESS, BRINGING PEOPLE TOGETHER AND COMMUNITY ENGAGEMENT

Community engagement, raising awareness and bringing people together are key priorities for the Threatened Species Commissioner. In 2018, the Commissioner was the keynote speaker at several conferences and symposiums, met with scientists and practitioners in the field, and took part in national days of celebration and awareness raising.

Over the past 12 months, the Threatened Species Commissioner met with more than 280 individuals and organisations with a shared interest in threatened species recovery. The Commissioner met with conservation practitioners, policy makers and passionate individuals right across Australia and directly engaged with people on the ground about the various approaches for protecting and recovering our threatened species.



The Commissioner travelled to every state and territory this past year, and had the privilege of meeting with local communities and witnessing the incredible work underway powered by passionate and dedicated volunteers. In meeting with people on the ground, the Commissioner and staff from the Office of the Threatened Species Commissioner are able to gain a better understanding of what is needed on the ground now and into the future, and how the Australian Government can better work with the community.

### Highlights from 2018:

- Keynote presentation at the Fenner School of Environment and Society Conference on Urban Sustainability and Conservation at the Australian National University to provide a national perspective on why protecting threatened species in urban areas is important.
- Participation in the National Malleefowl Forum in Mildura, which brought together more than 130 people – from conservation professionals, to landholders, to volunteers – who are all dedicated to protecting the Malleefowl. Through the combined efforts of volunteers, supported by a committed and organised recovery team, more than 3,500 mounds are monitored each year.
- Site visit to see work underway and meet landholders involved in the recovery of the critically endangered Regent Honeyeater in the Capertee Valley. Since 1994, there have been more than 130,000 trees planted in the Regent Honeyeater's core breeding range in the Capertee. Supported by the Australian Government and many other partners, the recovery of the Regent Honeyeater is one of the longest community-driven recovery initiatives in Australia.



- Presentation at the Environmental Biosecurity Roundtable in Brisbane, with the newly appointed Chief Environmental Biosecurity Officer. The Commissioner and the Department more broadly are working closely with the Chief Environmental Biosecurity Officer to tackle the threat posed by invasive species to Australia's wildlife.
- Opening the Australasian Wildlife Management Society's annual conference in Hobart and reinforcing the importance of partnerships between governments and applied ecologists in threatened species recovery. The conference brought together research scientists, educators, wildlife managers and policy makers from across Australia and the Pacific region, to share different perspectives, showcase on-ground partnerships, and forge new collaborations.
- The Minister for the Environment and the Commissioner hosted an event at Parliament House for Threatened Species Day in September 2018. Parliamentarians were able to meet some of Australia's unique and incredible native animals, including a Koala, Tasmanian Devil, and an Olive Python from the Australian Reptile Park. The event generated media coverage, and helped raise awareness about the remarkable plants and animals that call Australia home.

The Commissioner's social media profile continues to go from strength-to-strength. Social media remains a powerful tool for championing threatened species, raising awareness of threatened species issues, encouraging



individual and community action, and broadcasting conservation efforts at a national level. The Commissioner's following has grown to over 42,000 followers across three channels (Facebook, Twitter and Instagram).

Through the Commissioner's social media channels over the past 12 months, we have promoted 'Bilbies not Bunnies' at Easter, supported Zoos Victoria and RSPCA's 'Safe Cat, Safe Wildlife' campaign to promote responsible pet ownership, promoted the use of 'bubbles not balloons' to reduce the impact of plastics on marine species, and encouraged Australians to get involved in citizen science activities like the Aussie Backyard Bird Count and recording echidna sightings through the Echidna CSI app. The Commissioner's social media channels have shared important research findings with the Australian public, including new research from the National Environmental Science Program's Threatened Species Recovery Hub. The channels have also helped to

introduce Australians to some of our lesser known, and arguably less cute, threatened critters through a regular Sunday 'critter of the week' feature.

Anyone who is interested in being involved in the conversation about threatened species, or would like to learn more about how Australia is fighting extinction, can follow the Commissioner on Facebook, Twitter and Instagram.

Traditional media is another important conduit to Australians and helps to communicate why we should care about threatened species and what we need to do to recover them. The Commissioner has given several interviews over the last year, from celebrating the Bilby Blitz program and the role of Indigenous Australians in threatened species conservation, to discussing the impact of feral cats and the importance of undertaking the National Feral Cat Management Survey, to encouraging Australians to get involved in the popular Threatened Species Bake Off.



The Commissioner has also brought people together, be it through playing a convening role, facilitating partnerships, or supporting coordinated effort. The Feral Cat Taskforce has convened seven times since its inception, bringing together scientists, representatives from each state and territory, as well as non-government organisations to share best practice, discuss common challenges and keep up-to-date with the latest science.

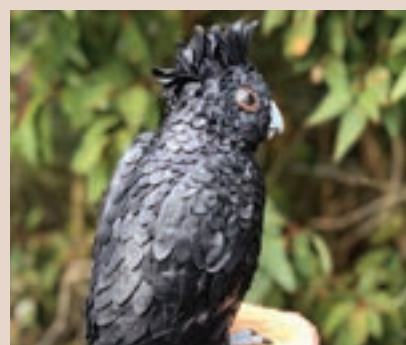
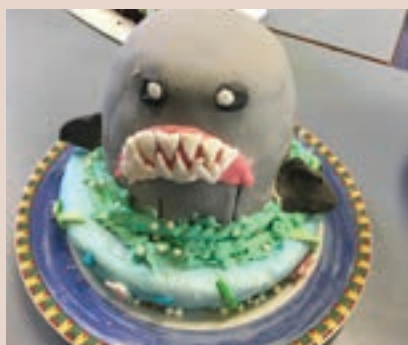
## CELEBRATING THREATENED SPECIES IN TEAROOMS AROUND AUSTRALIA

**In 2018 the Threatened Species Commissioner hosted the Threatened Species Bake Off for the second year running, with the Australian public invited to bake a threatened species-themed dessert to raise awareness of Australia's threatened species and Threatened Species Day.**

The three judges, Dr Sally Box, Dr Bec West, and Jackie French AM, had a tough time picking a winner across three categories – the open, children's and schools categories. The public also had a chance to pick their winner in a people's choice award.

There were over 260 entries from right across Australia, which was more than double the number of entries received in 2017. The Bake Off received both domestic and international media coverage and went viral on social media, with the hashtag #TSBakeOff trending on Twitter in Australia and around the world. Articles were published in Australian news outlets, the Australian Geographic, and even the Irish News.

The Threatened Species Bake Off was a fantastic opportunity to bring attention to lesser known threatened species, such as the Giant Gippsland Earthworm and the Growling Grass Frog. Few Australians are aware of just how many of Australia's native plants and animals are threatened, but by holding a nationwide Bake Off, the Commissioner was able to bring this issue to the attention and into the homes of many Australians.





## INDIGENOUS ENGAGEMENT

The knowledge and skills of Aboriginal and Torres Strait Islanders are critical for effective management of Australia's environment and heritage. Under the Threatened Species Strategy, the Australian Government recognises the importance of traditional ecological knowledge and the vital role that traditional owners and Indigenous rangers play in the fight against extinction.

Through the Threatened Species Strategy and complementary Australian Government initiatives, Indigenous groups are being supported to undertake on-ground action and monitoring, as well as projects that are integrating traditional ecological knowledge into contemporary practices. These partnerships have continued to grow over the past 12 months.

For example, the Commissioner launched the inaugural Bilby Blitz program and Tracks App on Arrernte Country, near Alice Springs in March 2018. The Bilby Blitz, delivered in partnership with the Central Land Council and the Indigenous Desert Alliance, brought together Indigenous ranger groups across Australia to use their expert tracking skills to monitor threatened species, including the Bilby.



The 2018 Indigenous Desert Alliance conference brought together women and men rangers from desert country, as well as traditional owners, Ministers, government officials and land managers. The Commissioner talked about threatened species at the conference, participated in recovery team meetings, and was able to learn more about biodiversity conservation measures underway across the desert country, as well as future opportunities for action and collaboration.

2018 marked 20 years of Indigenous Protected Areas (IPAs). The first IPA, the Nantawarrina IPA, was declared in 1998. Since then, the IPA network has grown to 75 IPAs across 68 million hectares. At Parliament House, the Commissioner joined the Minister, rangers and representatives from IPAs from right across Australia to celebrate their stories of success. From managing fire and tackling feral cats, to protecting

Photo: Central Land Council



threatened species and preventing the spread of invasive weeds, IPAs are critical in the fight against extinction.

Other Australian Government initiatives to support threatened species action by Indigenous Australians over the last year included: support for the Kaantju, Umpila and Lama Lama peoples in Queensland to map the distribution and abundance of Cassowaries around the McIlwraith ranges; funding for a project at the Newhaven Wildlife

Sanctuary in the Northern Territory to engage Indigenous rangers in feral animal and fire management and to undertake biological surveys, support for Paruku Indigenous Rangers in Western Australia to monitor and protect a newly discovered population of the Night Parrot; and, support for Martu traditional owners in Western Australia to lead the development of a consolidated two-way science program at Matuwa Kurrara Kurrara Indigenous Protected Area.

## BRINGING THE ALWAL HOME—A CASE STUDY ON WORKING WITH INDIGENOUS RANGERS TO PROTECT THE GOLDEN-SHOULDERED PARROT

**The Golden-shouldered Parrot is a totem species for Olkola people of central Cape York Peninsula, with the bird known as 'Alwal' in Olkola language. Olkola take their cultural responsibility to care for and protect Alwal very seriously, with Alwal conservation activities identified as a priority in their Healthy Country Plan.**

This iconic bird was once seen in large flocks across the Cape, but now there are only around 1,100 individuals left in the wild, restricted to two main subpopulations (Morehead and Staaten) over an area of about 2,000 km<sup>2</sup> in central Cape York Peninsula. This decline is partially due to the encroachment of Broad-leaved Paperbark Tea Tree into its tropical grassy savannah habitat as a result of changed fire regimes and cattle grazing, and partially due to feral cats.

Working with Bush Heritage Australia, the Australian Government is funding a project to improve the breeding success of the Alwal by engaging Indigenous rangers to tackle feral cats, improve habitat and monitor the species - actions that specifically support the implementation of the Recovery Plan.

An Olkola Land Managers Team, overseen by the Olkola Aboriginal Corporation, is specifically helping to develop and trial feral cat control options for two key Alwal breeding locations on Olkola Country and produce a predator abatement strategy for these areas. The team is also undertaking burns around key Alwal breeding habitat on Olkola country, as well as undertaking monitoring of the species, including breeding success, predator impacts, and trends.



Photo: Olkola/BHA



# YEAR THREE HIGHLIGHTS

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More than 18 million hectares of feral cat control undertaken since the launch of the Threatened Species Strategy – exceeding the year three target.

More than 60 per cent of Australia's known threatened plant species stored in conservation seed banks.

Mallee Emu-wrens successfully translocated back to South Australia after a devastating fire wiped out their original population.

Bilby Blitz undertaken in 2018 with Indigenous ranger groups, and more data about population and range made available.

Emergency intervention to prevent Central Rock-rat populations from going extinct by feral cat baiting around critical habitat in central Australia.

Dirk Hartog Island in Western Australia is now free of feral cats.

West Island in the Gulf of Carpentaria is close to eradicating feral cats due to the work of the local Li-Anthawirriyarra Sea Rangers.

New fenced areas have been constructed including at Newhaven Wildlife Sanctuary, Pilliga State Conservation Area, Mallee Refuge and Sturt National Park to protect species threatened by feral predators.

From a population of only fourteen plants in the wild, *Banksia vincentia* now number in the hundreds through propagation and plantings.

Best practice guidelines for recovery team governance published to support recovery team operations.

Gilbert's Potoroos successfully translocated to Bald Island and Waychinicup following a serious bushfire in their original habitat in 2015; ten more introduced to Middle Island in 2018.

Kangaroo Island has successfully eradicated feral goats and deer after a decade of effort.

# REPORTING AGAINST THE YEAR THREE TARGETS

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# THREATENED SPECIES STRATEGY TARGETS

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AUSTRALIA IS RICH  
IN UNIQUE PLANTS  
AND ANIMALS.  
THEY ARE CORE TO OUR  
IDENTITY, CULTURALLY  
SIGNIFICANT TO  
INDIGENOUS PEOPLES,  
IMPORTANT TO THE  
HEALTH OF OUR  
ENVIRONMENT AND A  
STRONG CONTRIBUTOR  
TO OUR ECONOMY.

Australia has more unique species than most other countries, with more than 80 per cent of our species existing only in Australia. The period since European settlement has seen a rapid change in land management and the introduction of a diverse array of threats to Australia's native species. According to the State of the Environment Report in 2016, "Based on the information available about vegetation extent and condition, and the small number of species for which there is some understanding of trends in distribution and abundance, the status of biodiversity in Australia is generally considered poor and worsening."

The Australian Government's long-term goal is to halt the decline of Australia's threatened plants and animals and support their recovery. To help achieve this goal, the Australian Government launched the Threatened Species Strategy in 2015. The Threatened Species Strategy outlines the Australian Government's approach to conserving Australia's threatened plants and animals by addressing threats and taking action.

The Strategy includes a five-year Action Plan to 2020 that relies on science, action and partnerships to focus effort on species recovery.

The key action areas are:

- Tackling feral cats
- Providing safe havens for species most at risk
- Improving habitat
- Emergency interventions to avert extinctions

The Strategy also established a set of principles for prioritisation. These inform the priority species and landscape-level threats the Strategy is focussing on, and they continue to guide implementation.

## OUR TARGETS

The Strategy sets targets to ensure accountability and incentivise action. They are ambitious to build momentum for species recovery.

The targets are that by 2020:

- 20 threatened mammals will have improved trajectories
- 20 threatened birds will have improved trajectories (an additional bird was added in 2016)
- 30 threatened plants will have improved trajectories
- Improved recovery guidance and practices will be in place, and
- The impacts of feral cats will be reduced, including by culling 2 million cats.

Targets to measure progress are also set for year one and year three of the Strategy.

To support the implementation of the Strategy, the Threatened Species Commissioner is reporting on progress against the Strategy targets. Two previous reports on the implementation of the Threatened Species Strategy, including progress against year one targets, are available on the Department's website. This Report captures our progress against the year three targets.



Photo: Erin Lake

This first national Action Plan is already creating momentum and building the public profile of Australia's threatened species. This Report on how the Strategy is delivering against year three targets identifies the successes to date, and where more work is required to meet the year five targets in 2020 and support long-term recovery.

**MEASURING TARGETS  
AND TRAJECTORIES**

Collecting data and gathering evidence has been essential to accurate reporting against the year three targets. Throughout the reporting process, the Office of the Threatened Species Commissioner worked closely with scientific experts, researchers, practitioners and the community to take stock of actions underway on the ground and to compile the most up-to-date data available on species' trends and threat abatement.

Using a robust, science-backed reporting framework, this information has been applied by experts from the National Environmental Science Program's Threatened Species Recovery Hub and the Royal Melbourne Institute of Technology to assess performance against the Threatened Species Strategy year three bird, mammal and feral cat targets.

An overview of progress against the year three targets is included in the first half of this report. A more detailed explanation of the methodology used and findings against each of the 21 targets can be found in the 'Targets in Focus' section in the second half of this report.

**TARGET TRACKING**

Of the 21 year three targets, **11 were successfully delivered**. Four targets were partially met and six were not achieved. One target was overachieved.



**MET**



**PARTIALLY MET**

Significant progress has been made or some of the target components have been met



**NOT MET**



# TACKLING FERAL CATS AND THEIR IMPACTS

## FERAL CAT TARGETS IN YEAR THREE - HOW DID WE DO?

### Eradication of feral cats underway on five identified islands

**Target met.** Management actions are underway on each of the five identified islands (Christmas Island, Bruny Island, Kangaroo Island, French Island and Dirk Hartog Island). Management actions are also underway on other islands including West Island, Norfolk Island and the Tiwi Islands.



### Five remaining mainland feral-free areas identified and with actions underway

**Target met.** All 10 mainland feral cat-free exclosures have been identified with actions underway. A number of exclosures have now been constructed or are in the final stages of construction.



### 5 million hectares of cat control, using the best techniques for each location

**Target overachieved.** Feral cat control undertaken across more than 18 million hectares.



### Best practice feral cat management across 1 million hectares of Commonwealth land

**Target not met.** Feral cat management has been undertaken across more than 600,000 hectares of Commonwealth land including Department of Defence properties and Commonwealth National Parks.



### 1 million feral cats culled at the national level

**Target not met.** The estimated number of feral cats culled between July 2015 and June 2018 is 844,000.



## OVERVIEW

Feral cats pose a significant threat to our wildlife. They predate on our precious native species, spread diseases such as toxoplasmosis and sarcosporidiosis and reduce viable habitat for species most at risk. Since European arrival, feral cats have been implicated in the extinction of at least 20 mammal species and currently threaten a further 124 nationally listed species.

Since 2014, the Australian Government has mobilised more than \$38 million for projects that support practical, on-ground action and action-based research to reduce the impacts of feral cats (Figure 1). This includes \$1.35 million

of funding for projects supporting feral cat control through the Threatened Species Recovery Fund.

Projects delivering feral cat management through Australian Government programs include:

- In the Northern Territory's West MacDonnell Ranges, targeted feral cat control has reduced extinction pressures on the critically endangered Central Rock-rat. Aerial deployment of Eradicator® baits across the last stronghold of the Rock-rat has reduced feral cat detections by 90 to 100 per cent.

- In Western Australia, integration of feral cat baiting into the Western Shield program has supported the recovery of Woylie populations at Dryandra Woodlands. The estimated number of Woylies increased from 342 individuals in February 2014 to more than 6,500 by April 2018.
- Targeted feral cat control occurring throughout the Flinders Ranges in South Australia is supporting the reintroduction of the Western Quoll. Surveys undertaken at the release sites in December 2017 recorded the highest number of Quolls captured (56 quolls) and a significant drop in feral cat numbers across all sites.



Photo: Hugh McGregor

The implementation of the Strategy has also helped to change the national conversation on feral cats. The establishment of the national Feral Cat Taskforce has drawn focus and effort from governments, universities and non-government organisations across the country. New scientific evidence on the feral cat population size has focused attention on the problem. While the national feral cat population is estimated to be lower than previously thought, new research quantifying the toll of feral cats on our wildlife, with more than 1.7 million reptiles and 1 million birds killed each day, has rallied community support for increased feral cat control.

## REPORTING ON THE YEAR THREE TARGETS

In order to track progress against the Threatened Species Strategy year three feral cat targets, researchers from the Royal Melbourne Institute of Technology conducted a nation-wide stratified survey to provide an updated assessment of national effort towards feral cat control, including area managed and number of feral cats culled. The survey included responses from 4,812 unique respondents and more than 300 organisations. In consultation with partners, the Office of the Threatened Species Commissioner undertook a stocktake of newly established or planned fenced areas and a desktop analysis of feral cat management actions across Commonwealth land, including properties managed or co-managed by Parks Australia and the Department of Defence.

Reporting against the Threatened Species Strategy feral cat targets has identified that feral cat action is occurring right across the country, on more than 18 million hectares of land. Management actions are being undertaken across each of the five identified islands and mainland feral cat exclosures are being constructed, providing important safe havens for our species most at risk. In October 2018, Dirk Hartog Island became the first of the five identified islands to announce that the Island was free of feral cats.

At the landscape scale, feral cats are being actively controlled across the continent including on Commonwealth lands, however there is an opportunity and need to increase this effort as we move towards year five.

## TOWARDS 2020

We remain on track to meet many of our year five feral cat targets in 2020, however a significant boost in effort will be required as the scale and ambition of these targets grow. Achieving the island eradication target by 2020 will be particularly challenging given the complexities of delivering humane and effective feral cat control across inhabited islands with wide-ranging landscapes and varying ecology. Nevertheless, there is strong momentum and community support for feral cat eradication on each of these islands, with project managers looking to further strengthen this through ongoing engagement as we progress towards 2020.

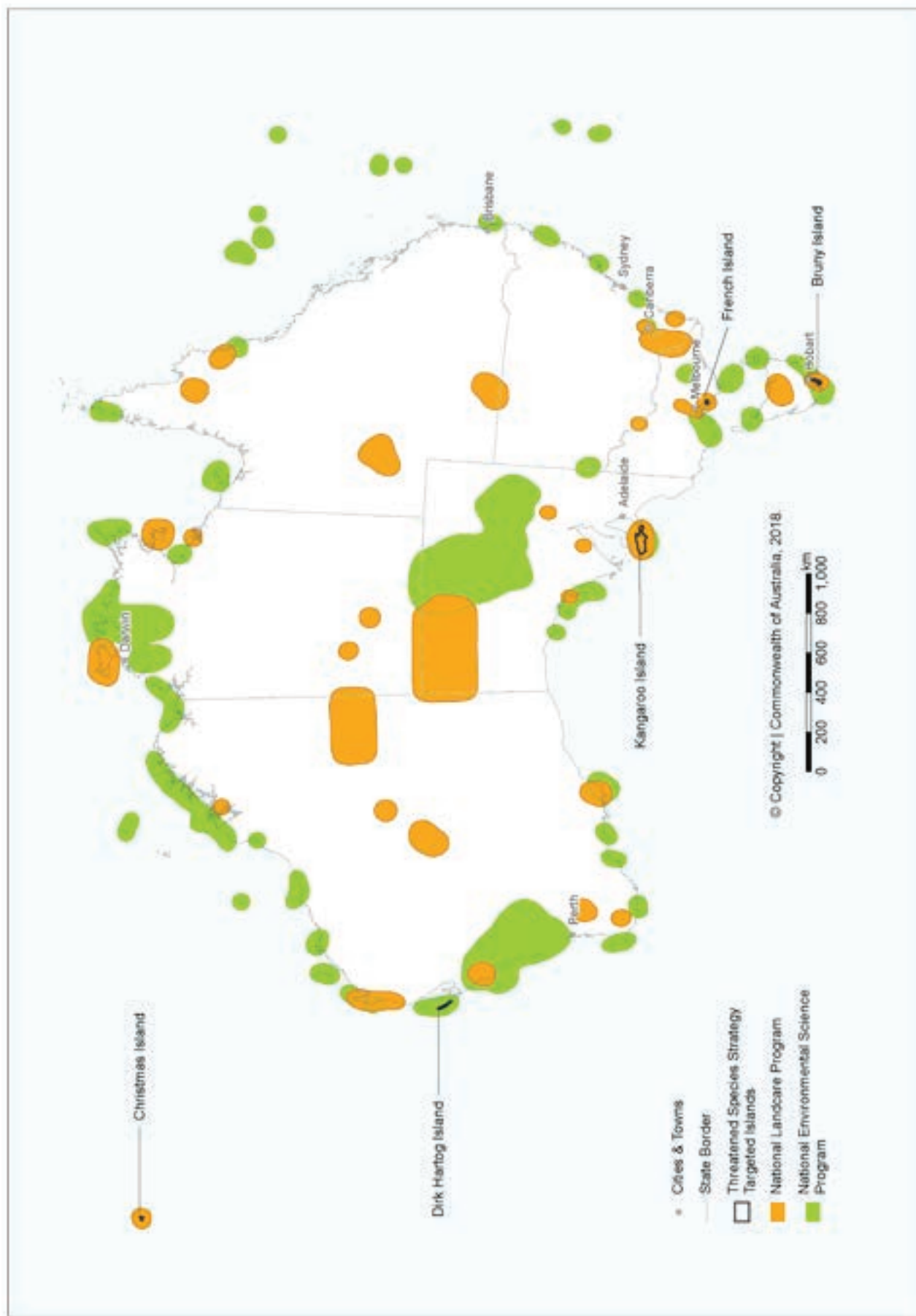
In coming years, innovation in feral cat control techniques, such as a new baiting technologies, will be essential to support land managers in undertaking broad scale feral cat management across regions. This is particularly important for areas such as south eastern Australia where broad scale management options do not currently exist.

The Australian Government continues to invest in preparations for the commercialisation and wide-scale deployment of Curiosity® bait for feral cats, and the development of Hisstory® feral cat bait. More tools, targeted intervention in particular landscapes and continued community engagement activities will be critical to meet the target of two million feral cats culled by 2020.

Continued promotion of responsible pet ownership practices and raising awareness through social media channels about the impacts of roaming domestic cats on wildlife, will also be important for species recovery. While not directly linked to any particular Strategy target, reducing the interaction of domestic cats with the feral population and with threatened species is important in the fight against extinction.



Figure 1. Locations of select Australian Government funded projects delivering feral cat control since 2014.



# 20 MAMMALS BY 2020

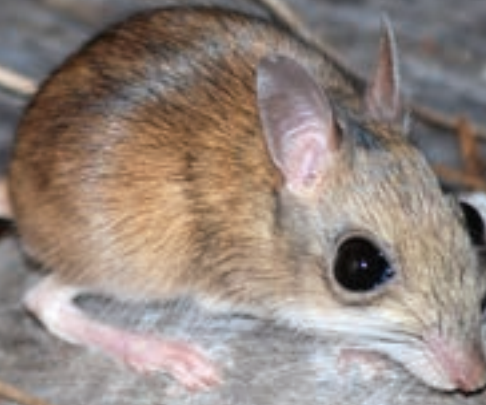


Photo: Rebecca Diete

## MAMMAL TARGETS IN YEAR THREE - HOW DID WE DO?

**Actions underway for all 20 mammals to improve their population trajectory**

**Target met.** Actions to improve population trajectory are underway for all 20 mammals.



**At least 10 identified mammals demonstrating an improved trajectory**

**Target not met.** Target not met. Eight identified mammals assessed by independent experts as having an improved trajectory.



**Projects evaluated and management adapted where required**

**Target partially met.** Projects funded by the Australian Government include a process for periodic, structured, and evidence-based reviews. The Australian Government's Monitoring, Evaluation, Reporting and Improvement Tool reports on project progress and adaptive management actions. Evaluations have been conducted at the program level, but evaluations have not been undertaken for all projects.



## OVERVIEW

Australia's mammal fauna are a huge part of our national identity, yet many species have become so rare that most Australians are not even aware that they exist. The flow on impacts of European settlement have, and continue to be, particularly hard on our native marsupials and rodents, with 27 mammals listed as extinct under the EPBC Act<sup>1</sup>.

Preventing further extinctions and securing threatened populations of mammals and birds has been a key focus of the Strategy since it commenced in 2015. Through targeted investment, mobilising external funding and partnering with state and territory governments and on-ground conservation organisations, the Australian Government has helped

halt rapid declines in several mammal species at high risk of extinction.

In collaboration with partners, we have worked hard to support populations of other threatened mammals persisting in the wild despite many threats, through significant investments in control programs for introduced predators and activities to promote long-term habitat restoration, such as tree planting.

Where threats in the wild are too great for some threatened species to persevere, we have supported the protection of populations of these species in introduced predator-free safe havens. This includes bringing some mammal species, such as Eastern Bettongs and Eastern Quolls, back to the mainland from Tasmania after several decades.

Projects delivering benefits for priority mammals through Australian Government programs include:

- Supporting control of feral cats on Kangaroo Island, to improve the opportunities for recovery of Kangaroo Island Dunnarts and other threatened fauna.
- Expansion of fenced areas for Eastern Bettong in the ACT, which will allow for population growth of this important ecological engineer species, which was restored to fenced areas on the Australian mainland in 2011.
- Partnering with the Western Australian Government and the Gilbert's Potoroo Action Group to monitor and establish new populations of Australia's rarest mammal, Gilbert's Potoroo, on Middle Island.

<sup>1</sup> As of 12 March 2019



## REPORTING ON THE YEAR THREE TARGETS

In 2018, we sought to determine whether the effort and resources invested in the Strategy's priority mammal species were having a positive impact on their population trajectories. In other words, were they recovering? Working with scientists from the National Environmental Science Program's Threatened Species Recovery Hub, the Office of the Threatened Species Commissioner reached out to its partners to collect as much data as we could find on the work being done around Australia on the 20 priority mammals. We received a wealth of information from the threatened species conservation management community on the current status of each species and actions undertaken or underway to support it. This information was collated and analysed by the Hub team, then provided to teams of independent experts to underpin population trajectory estimates using a well-established protocol of expert elicitation. Further details on the methodology are available in the 'Targets in Focus' section of the report on page 43.

To determine whether the Strategy target of improved trajectory had been met for each mammal species, the estimated trajectory of the species from 2005-15 was compared to the estimated trajectory from 2015-18, the period since the Strategy has been in effect. A summary of the trajectory findings for each species is provided in the 'Targets in Focus' section of this report, with snapshots for the 20 priority mammals starting on page 46.

Photo: Gilbert's Potoroo Action Group



Of the 20 priority mammal species, eight were estimated to be on an improved trajectory, meaning that the populations of those species were either increasing faster or declining slower than they were prior to 2015. Four species whose populations are now increasing more rapidly are Gilbert's Potoroo, Mala, Numbat and Woylie, and four species whose populations are continuing to decline but at a slower rate are the Brush-tailed Rabbit-rat, Central Rock-rat, Mahogany Glider and Western Ringtail Possum. Ten mammal species did not show improved trajectories and two species are under active assessment by the Threatened Species Scientific Committee, with their trajectory results still under review. All the priority mammals have actions underway or actions undertaken since 2015 to improve their recovery.

### TOWARDS 2020

While the year three Strategy target of improved trajectories for 10 mammals has not been met, it is greatly encouraging that actions have reduced the extinction risk for some species, such as the Central Rock-rat, or are assisting longer-term improvement. However, many of these species still require significant ongoing support to become secure and recover in the long-term. Many are still declining, albeit at a slower rate than before, and several have precariously low numbers, making them susceptible to stochastic events like floods and fire. We need to continue efforts to recover these species and improve the trajectories of the outstanding species by 2020.

As we approach 2020, the Australian Government will continue to provide considerable support for the recovery of threatened mammal species under the Regional Land Partnerships program. Direct investment in threatened species recovery will be augmented by secondary benefits derived from additional Regional Land Partnership projects aimed at protecting and improving threatened ecological communities, Ramsar wetlands, and World Heritage sites across the country.

We also look forward to continued productive and collaborative relationships with our partners in state and territory governments, Indigenous rangers and landholders, zoos and wildlife sanctuary organisations, regional NRM organisations, non-government organisations, conservation volunteer groups, the threatened species conservation research community and many more. To meet year five targets, actions will need to include improving land management practices to meet the habitat needs of threatened mammals, expanding the capacity of predator-free fenced areas and islands, and supporting threatened mammals to remain in their natural habitats despite the presence of threats.

# 20 BIRDS BY 2020

Photo: Merryn Kelly

## BIRD TARGETS IN YEAR THREE - HOW DID WE DO?

**Actions underway for all 20 birds to improve their population trajectory**

**Target met.** Actions to improve population trajectory are underway for 21 birds.



**At least 10 identified birds demonstrating an improved trajectory**

**Target not met.** Six identified birds assessed by independent experts as having an improved trajectory.



**Projects evaluated and management adapted where required.**

**Target partially met.** Projects funded by the Australian Government include a process for periodic, structured, and evidence-based reviews. The Australian Government's Monitoring, Evaluation, Reporting and Improvement Tool reports on project progress and adaptive management actions. Evaluations have been conducted at the program level, but evaluations have not been undertaken for all projects.



## OVERVIEW

Australia is one of the most biologically rich and diverse places on earth and nowhere is this more evident than with our more than 800 species of birds, many of which are endemic to our shores. Australia's birds are iconic symbols of our natural environment and cultural heritage and play critical roles as pollinators, seed dispersers, and predators in maintaining the ecological function of the diverse ecosystems they inhabit.

Since 2014, the Australian Government has invested in hundreds of projects across the country delivering benefits for threatened bird species. Many projects have included activities such as tree planting and pest plant and animal control which in-turn deliver umbrella benefits for countless other species of birds, mammals, reptiles and invertebrates.

No two species or recovery efforts are the same, but whether it be an emergency intervention to prevent extinction or a long-term habitat improvement initiative, all projects share the goal of improving the trajectories of our threatened bird species and ensuring their long-term survival.

Projects delivering benefits for threatened birds through Australian Government programs include:

- The critically endangered Orange-bellied Parrot is benefiting from three Threatened Species Recovery Fund projects that include efforts to improve the breeding success in Tasmania, trialling the over-winter 'ranching' of juvenile birds in preparation for wild release, and the development of a vaccination protocol for psittacine beak and feather disease.
- The Regent Honeyeater has benefited from recovery efforts including a captive breeding and release program led by Taronga Zoo. The Australian Government, state governments, regional NRM groups, non-government organisations, and countless volunteers have also contributed greatly to tree planting, weed control, and monitoring programs in important habitat like the Capertee Valley.
- On three small islands in Bass Strait, a Threatened Species Prospectus project helped project partners, including the World Wildlife Fund, CSIRO, the Tasmanian and Australian governments, and Tasmanian Albatross Fund, install artificial nest structures that helped breeding Shy Albatross pairs cope with changing climatic conditions and resulted in improved chick survival rates.



## REPORTING ON YEAR THREE TARGETS

In 2018, we sought to determine whether the effort and resources invested in the Strategy's priority species were having a positive impact on their population trajectories. In other words, were they recovering? Working with scientists from the National Environmental Science Program's Threatened Species Recovery Hub, the Office of the Threatened Species Commissioner reached out to its partners to collect as much data as we could find on the work being done around the country on the 21 priority birds<sup>2</sup>. We received a wealth of information from the threatened species conservation management community on the current status of each species and actions undertaken or underway to support it. This information was collated and analysed by the Hub team, then provided to teams of independent experts to underpin population trajectory estimates using a well-established protocol of expert elicitation. Further details on the methodology are available in the 'Targets in Focus' section of the report on page 43.

To determine whether the Strategy target of improved trajectory had been met for each bird species, the estimated trajectory of the species from 2005-15 was compared to the estimated trajectory from 2015-18, the period since the Strategy has been in effect. A summary of the trajectory findings for each species is provided in the 'Targets in Focus' section of this report, with snapshots for the 21 priority birds starting on page 68.

Of the 21 priority bird species, six were estimated to have an improved trajectory, meaning that the populations of those species changed from declining to increasing since 2015, or were increasing faster or declining slower than they were prior to 2015.

Photo: Wet Tropics Management Authority



Four species whose populations changed from declining to increasing are Eastern Bristlebird, Mallee Emu-wren, Norfolk Island Green Parrot and White-throated Grasswren. The Helmeted Honeyeater was found to be increasing at a faster rate and the Regent Honeyeater was found to still be declining, but at a significantly slower rate. Fifteen bird species did not show improved trajectories (i.e., no significant change estimated in population increase or decline). All the priority birds have actions underway or actions undertaken since 2015 to improve their recovery.

## TOWARDS 2020

While the year three Strategy target of improved trajectories for 10 birds has not been met, the results are still encouraging. Six out of the 21 species are showing significantly improved trajectories, and several others have stable populations. Importantly, wild populations of critically endangered species including the Orange-bellied Parrot and Western Ground Parrot are persisting thanks to dedicated recovery efforts.

The review process highlighted the extreme complexity of species recovery, which often requires long-term, multi-pronged initiatives to be effective. Meeting the Strategy's ambitious year five target of improved trajectories for all 21 identified bird species by 2020 will be challenging and will require sustained, and in some cases intensified, efforts.

As we approach 2020, the Australian Government will continue to provide considerable support for the recovery of threatened bird species targeted under the Threatened Species Strategy via the Regional Land Partnerships program. Direct investment in threatened species recovery will be augmented by secondary benefits derived from additional Regional Land Partnership projects aimed at protecting and improving threatened ecological communities, Ramsar wetlands, and World Heritage sites across the country.

As with the first three years of the Strategy, future success will rely heavily on effective partnerships and we look forward to ongoing collaboration with recovery partners including state and territory governments, regional natural resource management groups, non-government organisations, the scientific community, Indigenous groups and community organisations. Achieving the 2020 target of improved trajectories for all targeted bird species will be difficult, but we and our partners remain committed to securing the future of these incredible birds.

2 The Christmas Island Frigatebird, was included as 'additional initiative' in 2016 bringing the total number of priority bird species to 21

# PROTECTING AUSTRALIA'S PLANTS

Photo: Erin Lake

## PROTECTING AUSTRALIA'S PLANTS IN YEAR THREE - HOW DID WE DO?

### Recovery actions underway for at least 30 plants

**Target met.** There are recovery actions underway for all targeted plants under the Threatened Species Strategy, as well as actions underway for other threatened plant species under Australian Government programs such as 20 Million Trees, Green Army and National Landcare Program.



### Recovery actions underway for at least 40 threatened ecological community sites

**Target met.** There are recovery actions underway for more than 40 threatened ecological community sites, via Australian Government programs such as 20 Million Trees, Green Army and the National Landcare Program.



### At least 50 per cent of Australia's known threatened plant species stored in conservation seed banks

**Target met.** Over 61 per cent of Australia's known threatened species are stored in Australian Seed Bank Partnership seedbanks. Ongoing efforts will ensure the size and genetic diversity of these collections continue to improve.



## OVERVIEW

Australia's native plants are the backbone of our ecosystems. Clean air and clean water depend on plants, and plants provide shelter and food for animal life. Plants also form part of our national identity and have cultural significance for Indigenous Australians. More than 90 per cent of Australia's native plants are found nowhere else on Earth.

Since 2014, the Australian Government has funded hundreds of projects that support practical, on-ground action for Australia's threatened plants and ecological communities. From seed banking and translocations, to genetic research and habitat protection, the Australian Government is taking a range of actions to ensure the long-term survival of our native flora and ecological communities.

Projects delivering benefits for Australia's plants and ecological communities through Australian Government programs include:

- At the Wandiyali-Environa Wildlife Sanctuary near Googong New South Wales, the Australian Government has funded a project to establish new populations of the Small Purple-pea (*Swainsona recta*), through translocating seedlings grown by the Australian National Botanic Gardens.
- In South Australia, the endangered Whibley's Wattle (*Acacia whibleyana*) is benefiting from a project where school students and landholders are helping to propagate 800 seedlings, as well as reducing threats through controlled burns and fencing.
- In the Tasmanian Midlands, a project is underway to rebuild the threatened ecological community *Eucalyptus ovata* – *Callitris oblonga* through establishing more than 250,000 native plants and establishing 300 hectares of wildlife corridors along waterways and between patches of remnant vegetation.



## REPORTING ON YEAR THREE TARGETS

The Australian Government has achieved all three of the year three plant targets. There is work underway for all 30 plants targeted for recovery under the Threatened Species Strategy, as well as hundreds of other plant species listed as threatened under the EPBC Act. Action is also underway to conserve and restore the biodiversity and ecological functions provided by threatened ecological communities at well over 40 sites across Australia, with projects funded through a range of Australian Government programs. Both of these targets were determined by reviewing the number of threatened ecological communities and threatened plants supported by projects funded under Australian Government programs since 2014.

An important achievement was having 61 per cent of Australia's known threatened plant species stored in conservation seed banks. This figure was determined by collating data held by the nine major conservation seed banks of the Australian Seed Bank Partnership. This result is not only significant in light of the targets set out in the Threatened Species Strategy, but also the international targets set out in the Global Strategy for Plant Conservation – positioning Australia amongst the global leaders when it comes to seed banking.

Photo: Erin Lake



## TOWARDS 2020

The plant targets for year five of the Threatened Species Strategy are ambitious. These targets include having 100 per cent of Australia's known threatened plant species stored in seed banks, and all 30 priority plant species with improved trajectories.

While ambitious, significant work is underway to meet these targets, including on-ground recovery actions, further seed banking, and using plant orchards and nurseries to help grow plants to be returned to the wild.

In 2020, the Australian Government will use the same robust method used to assess the trajectories of the birds and mammals to determine whether the 30 priority plants have demonstrated improved trajectories. Further action to recover Australia's threatened plants is being supported through the Regional Land Partnerships program, with many projects benefiting plants targeted for recovery under the Threatened Species Strategy. There are likely to be benefits for Australia's threatened plants from additional Regional Land Partnership projects aimed at protecting and improving threatened ecological communities, Ramsar wetlands and World Heritage sites across the country.

New research<sup>3</sup> has suggested almost one third of the world's threatened plant species are not amenable to traditional seed banking techniques and that more work is needed to better understand alternative options. This will make it impossible for all threatened Australian plants to be stored in traditional conservation seed banks in the near future and will make it very difficult to deliver on the year five target. The Office of the Threatened Species Commissioner will continue to work closely with the Australian Seed Bank Partnership to conserve as many of Australia's threatened plants in seed banks as possible.

3 Sarah V. Wyse, John B. Dickie, Katherine J. Willis. Seed banking not an option for many threatened plants. *Nature Plants*, 2018; 4 (11): 848 DOI: 10.1038/s41477-018-0298-3

# IMPROVING RECOVERY PRACTICES

Photo: Kerry Cameron

## IMPROVING RECOVERY PRACTICES IN YEAR THREE - HOW DID WE DO?

**Australian Government and majority of states and territories operate under the common assessment methodology for species listing**

**Target met.** Eight of the nine Australian jurisdictions have signed the Memorandum of Understanding to give effect to the Common Assessment Method and all are actively involved in implementation.



**All 20 birds and 20 mammals with 2020 recovery targets in the Action plan have up-to-date conservation advices or recovery plans in place**

**Target partially met.** Thirty-three species have up to date plans in place guiding recovery effort, including the Christmas Island Frigatebird<sup>4</sup>. Seven species have had plans reviewed and, in response, new plans are currently in preparation. One species is not listed under the EPBC Act.



**Based on the work-plan, up-to-date conservation advices or recovery plans are in place for all high priority species and ecological communities**

**Target partially met.** Of the 30 priority plants, up-to-date recovery plans or conservation advices are in place for thirteen species. Sixteen species have had their plans reviewed and in response new plans are in preparation. One species has been delisted under the EPBC Act. For ecological communities, there are currently 15 communities on the EPBC Finalised Priority Assessment List and assessments are underway for each.



**Identified high-priority species and ecological communities reviewed, and work plan for updating conservation advices and recovery plans is varied as required**

**Target met.** A comprehensive forward work plan is established and is currently being delivered by the Department.



**All recovery teams follow best practice governance procedures**

**Target not met.** *Recovery Team Governance Best Practice Guidelines* are published and available on the Department of the Environment and Energy's website. Recovery teams can register by agreeing to follow best practice governance in accordance with the guidelines. It is however voluntary for recovery teams to be nationally registered and the Department is working with established teams to facilitate their registration.



**All active recovery teams report annually on progress**

**Target not met.** A national reporting framework has been established for recovery teams to report on progress in achieving the objectives of a recovery program and is published and available on the Department's website. Recovery teams are not yet reporting annually on progress, however the Department is trialling the tool with some teams.



**All projects funded under the 20 Million Trees and Green Army Programs, that involve threatened species or ecological community recovery, are guided by the relevant conservation advice or recovery plans**

**Target met.** The 20 Million Trees program and the Green Army program were targeted at national environmental priorities such as threatened species and threatened ecological communities and projects were guided by the relevant conservation advices or recovery plans.



4 The Christmas Island Frigatebird, was included as 'additional initiative' in 2016 bringing the total number of priority bird species to 21



## OVERVIEW

Successful recovery requires collaborative and effective governance structures to coordinate and rigorously monitor recovery action. The Australian Government is committed to improving the recovery of our threatened plants and animals through recovery plans and conservation advices, the Australia Government's statutory planning documents, and through providing support for recovery teams. The Australian Government also ensures that projects supported under Australian Government programs are aligned with the priorities set out in these planning documents.

## REPORTING ON YEAR THREE TARGETS

Year three targets were met for three out of the seven targets. The majority of states and territories and the Australian Government are operating under a Common Assessment Method for threatened species listings, and a work plan is in place, and is regularly reviewed, for updating conservation advices or recovery plans for high priority species and threatened ecological communities. The project selection processes under the 20 Million Trees and Green Army programs were guided by relevant conservation advices and recovery plans.

Photo: Kerry Cameron



Significant progress was made against two targets focussed on ensuring that up-to-date conservation advices and/or recovery plans are in place for priority species and ecological communities. For the 20 priority mammals and 21 priority birds, 33 species have up-to-date plans in place guiding recovery effort, and new recovery plans are in preparation for the remaining species following reviews of their plans. The status of each species' planning documents is included in the species snapshots from page 46 (mammals) and from page 68 (birds). The Department has also made significant progress towards having up-to-date recovery plans and/or conservation advices in place for the 30 priority plant species, and 15 priority threatened ecological communities currently under assessment.

Progress has been made in supporting recovery teams through publishing guidelines on best practice governance and establishing a national framework for reporting. While not all recovery teams are following this guidance, the Department is actively supporting recovery team registration and is trialling the reporting tool with some teams.

Reporting will progressively build a national snapshot of implementation progress of recovery programs and complement and/or augment other threatened species reporting processes.

## TOWARDS 2020

More effort will be directed towards encouraging and supporting recovery teams to use the new guidance and reporting tool, noting that participation is voluntary. The development of a user-friendly online version may encourage greater uptake.

# TARGETS IN FOCUS

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# TARGETS IN FOCUS – TACKLING FERAL CATS ON ISLANDS

Photo: Department of the Environment and Energy

## FERAL CAT TARGET

**Eradication of feral cats underway on five identified islands**

**Target met.** Management actions are underway on each of the five identified islands (Christmas Island, Bruny Island, Kangaroo Island, French Island and Dirk Hartog Island). Management action is also underway on other islands including West Island, Norfolk Island and the Tiwi Islands.



ISLANDS ARE IMPORTANT FOR INSURING AGAINST EXTINCTION. ONCE THREATS HAVE BEEN ELIMINATED, THEY CAN ACT AS SAFE HAVENS FOR SPECIES MOST AT RISK. WITH ENHANCED BIOSECURITY DUE TO DISCONNECTION WITH THE MAINLAND, THEY CAN ACT AS ARKS FOR OUR PRECIOUS THREATENED WILDLIFE.

The Threatened Species Strategy recognises the important role that islands can play for conservation and includes a target to eradicate feral cats from five islands by 2020. This target is ambitious, as successful island eradications are highly complex and require long-term coordinated effort. Factors such as remoteness, level of community support, land use, accessibility, availability of fit-for-purpose control tools and the local species present all influence the planning and roll-out of successful eradications.

### HOW ARE WE TRACKING?

Action is underway on each of the five identified islands. On-ground effort to tackle the threat of feral cats has been tailored to the different environments on each island. Robust project planning and extensive community engagement has been critical for initiating action and delivering the Threatened Species Strategy year three target.

**Island Action Inventory – A summary of action occurring across each of the identified islands.**

### Dirk Hartog Island

- The Western Australian Government is delivering the 'Return to 1616' ecological restoration program which is aimed at removing feral animals from the island and reintroducing threatened native wildlife. The project is supported by the Western Australian Government and the Gorgon Barrow Island Net Conservation Benefits Program.
- Following extensive baiting, trapping and monitoring, feral cats have not been detected on the island since October 2016. In October 2018, the Western Australian Government announced that the island was free of feral cats, goats and sheep, making it the world's largest successful island-based feral cat eradication project.
- Reintroductions of threatened wildlife to the island safe haven have begun with Rufous and Banded Hare-wallabies released in 2017. There are plans to reintroduce other species including the Chuditch, Mulgara, Stick-nest Rat, Desert Mouse and Heath Mouse.

## French Island

- French Island, located in Victoria's Western Port Ramsar site is an ecologically diverse island of high conservation value. Over 230 bird species have been recorded at the site including significant species such as the White-bellied Sea-eagle, King Quail and Orange-bellied Parrot, as well as 33 species of waders which forage along the coast at low tide. The island also supports a large population of Long-nosed Potoroo, as well as containing the most significant population of Koalas in Victoria.
- French Island has been identified as a potential translocation site for the threatened Eastern Barred Bandicoot. If successful, the release would support the recovery of the species by establishing an insurance population against extinction.
- Australian Government funding has supported active feral cat control across the island to maintain feral cat densities at low levels. Since feral cat management on the island was initiated in 2010, more than 900 feral cats have been removed.
- Baseline surveys of feral cat densities and native wildlife abundance have been undertaken to support eradication efforts.
- An eradication plan has been developed by partners Zoos Victoria, Phillip Island Nature Park, French Island Landcare Group, Port Phillip and Westernport Catchment Management Authority, Parks Victoria, the Department of Environment, Land, Water and Planning and the Australian Government. The project has strong community support.

## Bruny Island

- Bruny Island, located on Tasmania's south east coast is recognised for its high quality tourism, agriculture and conservation values. The island is home to 12 of Tasmania's endemic bird species such as the endangered Forty-spotted Pardalote and critically endangered Swift Parrot. Bruny is also known as a stronghold for the endangered Eastern Quoll.
- The island was identified as one of the five islands under the Threatened Species Strategy due to its high conservation values and support from community, government, industry, environmental and research partners to undertake the eradication.
- Australian Government funding of more than \$680,000 has supported the delivery of feral cat control on the ground and enabled pre-eradication baseline data to be collected.
- Project lead, Kingborough Council in partnership with the Ten Lives Cat Centre, Bruny Island Community Association and Bruny Island Environment Network has been working closely with island residents to encourage responsible pet ownership practices.
- Detailed baseline data collected by partners University of Tasmania, the Tasmanian Government and Birdlife Tasmania is informing the deployment of effective control actions and a feral cat management feasibility study.
- Feral cat control has been focussed at 'The Neck', a narrow isthmus that links North Bruny with South Bruny and is home to a significant colony of migratory Shearwaters and Little Penguins. It is also a key site for limiting the dispersal of feral cats to North Bruny where their numbers are much lower than on South Bruny.
- The eradication will be delivered in stages. After an initial focus on 'The Neck', the next stage is focussed on North Bruny. Weetapoon Aboriginal Corporation, a significant landholder on North Bruny, is supportive and is partnering to deliver the project.



## Kangaroo Island

- Kangaroo Island, Australia's third-largest island, is home to a diverse range of threatened species such as the endemic Kangaroo Island Dunnart and Kangaroo Island Echidna.
- The island community has successfully eradicated feral deer and feral goats and is currently working towards the eradication of feral cats. Once complete, it will be one of the world's largest inhabited islands to be free of feral cats.
- The Australian Government has been a significant partner in the eradication program mobilising more than \$800,000 for projects that include a focus on feral cat control across the island.
- Program lead, Natural Resources Kangaroo Island is undertaking a multi-stage approach to feral cat eradication, sectioning the island into smaller management units. A fence is being constructed across the isthmus to isolate the Dudley Peninsula which will be the focus of the second phase of the eradication.
- The eradication is supported by robust research to understand densities of feral cats across the island, recolonisation rates following control efforts, efficacy of control techniques and prevalence of native species. Density of feral cats has been estimated at 0.72 cats per km<sup>2</sup>, which is more than ten-fold the density on mainland South Australia.
- Feral cat management is also being undertaken by Kangaroo Island Land for Wildlife members which is a voluntary, biodiversity conservation program supporting landholders to enhance conservation assets on private property.

## Christmas Island

- Eradication efforts are underway across Christmas Island to reduce predation pressures on the Island's unique and endemic wildlife, including the endangered Christmas Island Giant Gecko, Christmas Island Flying-fox and Christmas Island Emerald Dove.
- The Christmas Island community is supportive of island-wide feral cat eradication. Community members are undertaking responsible pet ownership practices including registration, microchipping and de-sexing of all pet cats. No new domestic cats will be introduced to the island.
- The first island-wide forest deployment of over 16,000 Eradicator® (1080) feral cat baits was completed in 2015.
- Control continued during 2016 with increased shooting, trapping and refinement of elevated trapping methods.
- More than 200 feral cats were removed in 2017 using baiting, shooting and targeted trapping throughout the National Park and township.
- Management efforts will be intensified in future years, informed by trials in 2019 of a range of new methods, such as different lures and trap types that could be used to complement current approaches.

## Action underway on other islands

Under the Threatened Species Strategy the Australian Government has also supported action to tackle the threat of feral cats on Norfolk Island, West Island, Tiwi Islands and Groote Eylandt. This includes activities such as promoting responsible pet ownership practices, establishing and implementing management plans, undertaking active feral cat control and supporting Indigenous rangers to manage and eradicate feral cats.

# TARGETS IN FOCUS – ESTABLISHING FERAL CAT-FREE SAFE HAVENS

Photo: Australian Wildlife Conservancy

## FERAL CAT TARGET

**Five remaining mainland feral-free areas identified and with actions underway**

**Target met.** All 10 mainland feral cat-free exclosures have been identified with actions underway. A number of exclosures have now been constructed or are in the final stages of construction.



FERAL CAT-FREE EXCLOSURES ARE ARKS OF SAFETY FOR OUR PRECIOUS WILDLIFE. THEY PROVIDE SANCTUARY FROM A LANDSCAPE UNDER THREAT FROM INVASIVE PREDATORS LIKE FOXES AND FERAL CATS.

Across Australia, governments, non-government organisations, the private sector, scientists and the community are coming together to establish and maintain a national network of safe havens which are supporting conservation efforts right across the country.

Research under the National Environmental Science Program's Threatened Species Recovery Hub has provided valuable insights into the future prioritisation of locations for new fenced areas to ensure that all threatened mammal species that are susceptible to feral cats and foxes can be represented within the haven network<sup>5</sup>.

### HOW ARE WE TRACKING?

Since 2015, a network of at least 10 new feral cat-proof exclosures has been identified on mainland Australia. Fenced areas were identified and captured as part of this target if they were announced during or after 2015, were to be constructed on the mainland and were focused on excluding feral cats. These exclosures include smaller fenced areas which are providing services to support specialised threatened species captive breeding programs, through to large-scale wild release conservation areas. The network of safe havens represents a broad range of ecosystems including Ramsar wetlands, arid deserts and grassy woodlands.

Fenced areas identified under the Strategy have received funding from a range of sources including Australian Government, state and territory governments and private and philanthropic investment. Not all of the 10 identified fenced areas have received Australian Government funding, but have been included to capture the national conservation effort.

Across all of the identified fenced areas, action is underway. Fences are being built, feral animals are being eradicated and native wildlife is being reintroduced.

**Fenced-area Action Inventory – A summary of action occurring across each of the identified fenced areas.**

### Goorooyarroo Nature Reserve/ Mulligans Flat Nature Reserve

- Located in Canberra's northern suburbs, Goorooyarroo Nature Reserve feral-free fenced area (801 hectares) borders with the already established feral-free fenced area at Mulligans Flat Nature Reserve (485 hectares).

<sup>5</sup> Legge et al. (2018) Havens for threatened Australian mammals: the contributions of fenced areas and offshore islands to the protection of mammal species susceptible to introduced predators Wildlife Research, 45, 627–644 <https://doi.org/10.1071/WR17172>



- The combined reserves protect some of the largest, best-connected and floristically diverse Box-gum Woodlands in Australia including some of the last remnants of critically endangered White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.
- The construction of the fenced area, including pest animal removal, is supported by the ACT Government, through funding from the Australian Government's National Landcare Program and the Woodlands and Wetlands Conservation Trust.
- The Australian Government has also supported strategic restoration of approximately 24 hectares of Box-gum Woodlands throughout the reserve under the 20 Million Trees program.
- Eradication of invasive species throughout the Goorooyarroo Reserve has begun. Once feral predators have been removed, native species including the Eastern Quoll and Eastern Bettong will be reintroduced into the safe haven.

### **Newhaven Wildlife Sanctuary**

- Newhaven Wildlife Sanctuary is located in the arid deserts of central Australia. The property was transferred to the Australian Wildlife Conservancy in 2006 and is currently managed to enhance the natural ecological values of the desert country.
- With Australian Government support of \$750,000, the Australian Wildlife Conservancy has completed the first stage (9400 hectares) of the ambitious project which is ultimately planned to be the largest feral cat eradication project in the world, covering at least 65,000 hectares.
- The enormous scale of this project has already broken records with the construction of stage one being the world's largest cat-proof fence. The 44 kilometre fence is made up of 85,000 pickets, 400 kilometres of wire and 130 kilometres of netting.

- Feral cat eradication is underway within the newly established area with assistance from expert Indigenous cat hunters and local Warlpiri trackers.
- Once eradication is complete, threatened native mammals such as the Golden Bandicoot, Western Quoll, Mala and Bilby will be reintroduced back into the desert ecosystem.

### **Wandiyali-Environs Wildlife Sanctuary**

- The Wandiyali-Environs Wildlife Sanctuary is located near the township of Googong on the central tablelands of NSW and is owned and operated by the Wandiyali Restoration Trust.
- Australian Government funding under the Threatened Species Recovery Fund is supporting construction of a 100 hectare predator-proof fenced area. Reintroductions of Eastern Quoll and Eastern Bettong are planned following the fence completion and feral predator eradication.
- The fenced area will also protect populations of endangered Small Purple Pea by mitigating the impacts of grazing by over-abundant herbivores.
- The Wandiyali Restoration Trust is also working with Ngunawal traditional owners to restore Indigenous mosaic burning practices throughout the Wandiyali-Environs Wildlife Sanctuary.

### **Tidbinbilla**

- Tidbinbilla Nature Reserve, located at the foot of the Brindabella Mountains is operated by the ACT Government as a community-focussed environmental education and conservation facility.
- The Reserve has an established threatened species captive breeding program which is supporting the recovery of species such as the Northern Corroboree Frog and Brush-tailed Rock-wallaby.

- A 120 hectare feral predator-free fenced area is being established at the Reserve, made possible through a conservation partnership between Zoos Victoria, the ACT Government and the Australian Government.
- Once completed, the newly established safe haven will provide suitable habitat for a free-ranging insurance population of up to 100 Brush-tailed Rock-wallabies.

### **Aussie Ark**

- Building on the success of the Devil Ark conservation initiative, Aussie Ark was established to support the recovery of a range of species including Eastern Quolls, Long-nosed Potoroos, Rufous Bettongs, Southern Brown Bandicoots, Long-nosed Bandicoots and Parma Wallabies.
- The conservation facility has been made possible through generous donations from the private and philanthropic sectors.
- Located in NSW's Barrington Tops, Aussie Ark celebrated the construction of a new 64 hectare feral predator-free sanctuary in November 2017.
- Construction of a larger 400 hectare sanctuary is now underway, with plans to build an additional 500 hectare sanctuary at the site for large, mixed-species wild management.
- In the 2018 breeding season, Aussie Ark confirmed the birth of 109 joeys including 48 Tasmanian Devils, 30 Eastern Quolls, 12 Parma Wallabies, 7 Long-nosed Potoroos and 12 Southern Brown Bandicoots.

### **Mallee Refuge**

- Mallee Refuge is a newly constructed privately funded conservation facility located within Secret Rocks Nature Reserve on South Australia's Eyre Peninsula.
- The 900 hectare safe haven has been under construction since 2016. Foxes, cats, kangaroos, rabbits, goats and emus are being excluded to support the regeneration of the mallee landscape.
- Mallee Refuge is already seeing success with a threatened juvenile Malleefowl chick identified for the first time at the site following eradication efforts.
- This sanctuary is also an important trial site for the Felixer Grooming Trap, a new innovative feral cat management tool which uses rangefinder sensors to differentiate between cats and non-target species such as other wildlife and humans. When a feral cat is detected, the trap deploys a measured dose of toxic gel onto the fur which is then consumed by the feral cat through grooming. Feral cats known from camera trap monitoring within Mallee Refuge were removed with Felixer Grooming Traps.

### **Hunter Wetland Centre**

- Located near Newcastle NSW, the Hunter Wetlands Centre is part of the Hunter Estuary Wetlands Ramsar site and is Australia's longest-running community owned wetlands centre.
- In December 2017, the Centre celebrated the launch of a new 40 hectare feral predator-free sanctuary. The newly established fenced area will protect a wide range of wetland species including internationally recognised migratory waterbirds and shorebirds from the threat of feral cats, foxes and unrestrained domestic dogs.

- The project has been delivered by a group of dedicated volunteers in partnership with, the NSW Community Building Partnership Program, Conservation Volunteers Australia and the Australian Government's Green Army Program.
- Since construction of the feral predator-free sanctuary, the Centre has reported seeing increased evidence of bandicoots and successful fledging of predator-susceptible cygnets.

### ***New South Wales – Reintroducing locally extinct mammals***

The reintroduction of locally extinct mammals into national parks is an innovative new measure under the NSW Government's Saving our Species program. The NSW Government has committed more than \$40 million over 10 years to a scientific program that will explore the responses of native species to predator control actions.

The project, delivered in partnership with the Australian Wildlife Conservancy and University of New South Wales, is constructing three new feral predator-free exclosures at Sturt National Park, Pilliga National Park – State Conservation Area and Mallee Cliffs National Park.

Once complete, locally extinct species including the Bridled Nail-tail Wallaby, Brush-tailed Bettong, Burrowing Bettong, Crest-tailed Mulgara, Golden Bandicoot, Greater Bilby, Greater Stick-nest Rat, Mitchell's Hopping-mouse, Numbat, Plains Rat, Red-tailed Phascogale, Western Barred Bandicoot and Western Quoll will be reintroduced.

This is the first time in New South Wales that locally extinct mammals will be released into large predator-free areas in national parks.

### **Sturt National Park**

- Fence construction commenced at Sturt National Park in New South Wales in March 2018 and was completed in October 2018.
- The fenced area has been designed as two complementary replicates to support the scientific research program.

### **Pilliga National Park – State Conservation Area**

- Fence construction commenced at Pilliga State Conservation Area in January 2018 and was completed in August 2018.
- In December 2018, the first reintroduction of Bilbies occurred inside the fenced area. This was the first time in more than a century that Bilbies were running wild in New South Wales.

### **Mallee Cliffs National Park**

- Fence construction at Mallee Cliffs National Park is expected to commence in early 2019.



## Other feral free fenced areas occurring across Australia

A number of other feral-free fenced areas have also been established, repaired or are in the process of being constructed across Australia, with significant contributions from the private sector, state agencies, non-government organisations and the community.

These include:

### Currawinya Bilby fence

- The Currawinya National Park Bilby fence was originally constructed in 2001.
- The fenced area was a functioning predator-proof sanctuary until it was impacted by significant flood damage in 2010 and 2011. The damage resulted in large numbers of feral cats breaching the fence.
- In 2016, the Queensland Government provided support to undertake repairs and re-establish the fenced area as a functioning Bilby sanctuary, free from the threat of feral predators.
- The fence has now been repaired, feral predators have been removed and plans are in place for the Save the Bilby Fund to release 60 Bilbies back into the sanctuary over the next three years.

### Wadderin Sanctuary

- Wadderin Sanctuary is managed by the local community and located near the town of Naremburn in Western Australia's wheatbelt.
- The 430 hectare sanctuary was established in 2008, and is now home to reintroduced nationally listed species including Woylie, Malleefowl and Banded Hare-wallaby.
- In 2015, following breaches by feral predators into the reserve, the Australian Government mobilised funding under the National Landcare Program to undertake invasive species control throughout the reserve and upgrade the fence to reduce future incursions.

### Dryandra predator-proof fence

- In 2013, the Western Australian Government supported the construction of a new 1,000 hectare sanctuary at the Dryandra Woodlands in the State's south-west.
- The fence was completed in 2017.
- Following feral predator eradication, the newly established fenced area is now home to unique native fauna including the endangered Numbat.

### Ned's Corner Station predator-proof fence 'Pine Paddock'

- Ned's Corner is a property in the Victorian Mallee region owned and managed by Trust for Nature.
- Since 2004, Trust for Nature has progressively expanded exclosures to manage invasive rabbits which were threatening cultural and heritage sites. A larger rabbit-proof exclusion fence was constructed in 2011 to encapsulate approximately 500 hectares.
- A grant from the Yulgilbar foundation in 2016-2017 supported Trust for Nature in upgrading the fence to predator-proof standard including electrification around the 9 kilometre perimeter. The fenced area is now home to native wildlife including the Giles Planigale and Fat-tailed Dunnart.

# TARGETS IN FOCUS – FERAL CAT CONTROL ACROSS 5 MILLION HECTARES

Photo: Nick Rains

## FERAL CAT TARGET

**5 million hectares of feral cat control, using the best techniques for each location**

**Target overachieved.** Feral cat control has been undertaken across more than 18 million hectares.



SINCE EUROPEAN SETTLEMENT FERAL CATS HAVE EXPANDED ACROSS THE CONTINENT AND MANY OFFSHORE ISLANDS. THEY ARE A HIGHLY ADAPTIVE SPECIES AND ABLE TO THRIVE IN THE HARSHTEST CONDITIONS, FROM OUR SNOW-CAPPED MOUNTAINS TO OUR ARID DESERTS.

Research from the National Environmental Science Program's Threatened Species Recovery Hub has estimated that feral cats are found across more than 99.8 per cent of Australia's land area, including almost 80 per cent of the area of our islands<sup>6</sup>.

### HOW ARE WE TRACKING?

Since July 2015, it is estimated that feral cat management has been undertaken across more than 18 million hectares of unique area. This is the sum of the area of land where feral cat management has been undertaken at least once. It includes more than 10 million hectares managed by conservation organisations, Indigenous Protected Area managers and Indigenous rangers and more than 8 million hectares managed by farmers.

The cumulative area of feral cat control, which takes into account repeated annual management of some areas, is estimated to be more than 41 million hectares.

In order to support effective conservation through best practice feral cat management, control actions must be undertaken strategically and repeatedly. Undertaking feral cat management through an ad-hoc approach without follow-up treatment is unlikely to achieve significant conservation outcomes.

Under the Threatened Species Strategy, funding mobilised for on-ground feral cat management has been targeted to ensure action is focussed on delivering humane and effective control across high conservation value areas.

For example, the 'Returning Waru to Country' project, supported under the Australian Government's National Landcare Program, has supported Indigenous rangers to undertake intensive feral cat control across 600 hectares of endangered Black-footed Rock-wallaby habitat to support wallaby reintroductions. The rangers have removed over 140 invasive predators, such as foxes and feral cats, reducing the effort required for ongoing feral predator suppression.

<sup>6</sup> Legge et al. (2017) Enumerating a continental-scale threat – how many feral cats are in Australia Biological Conservation 206, 293-303 <https://doi.org/10.1016/j.biocon.2016.11.032>



In Kosciusko National Park, funding mobilised under the Strategy has supported the New South Wales Government to deploy a highly trained feral cat detector dog to identify areas of recent feral cat activity and support more effective control. Since deployment, the project has removed more than 90 feral cats and 130 foxes from habitat home to the Konoom (Smoky Mouse) and critically endangered Mountain Pygmy-possum. The detector dogs are continuing their work in the National Park with ongoing support from the New South Wales Government.

## HOW WAS THE TARGET MEASURED?

Researchers from ICON Science at the Royal Melbourne Institute of Technology's (RMIT) School of Global, Urban and Social Studies conducted an updated assessment of national effort towards feral cat control using the methodology established to report against the Strategy's year one targets. This involved collating and evaluating available data from existing repositories, such as the FeralCatScan database and RSPCA records, conducting online surveys targeted at organisations and individuals, and stratifying results to deliver a bounded estimate of national feral cat action.

Through the stratification process, researchers were conservative in extrapolating from hard data, to mitigate the potential for over-estimation. This means that the estimates of area managed and feral cats culled are likely to represent a reliable minimum estimate.

The report from RMIT '*An updated assessment of the national effort towards feral cat control*' includes a detailed description of the methods.

# TARGETS IN FOCUS – FERAL CAT CONTROL ACROSS COMMONWEALTH LANDS

Photo: Jim Mollison

## FERAL CAT TARGET

**Best practice feral cat management across one million hectares of Commonwealth land**

**Target not met.** Feral cat management has been undertaken across more than 600,000 hectares of Commonwealth land including Department of Defence properties and Commonwealth National Parks.



AUSTRALIA'S COMMONWEALTH LANDS ARE HOME TO UNIQUE AND PRECIOUS WILDLIFE, FROM THE STUNNING ALLIGATOR RIVERS YELLOW CAT LIVING ACROSS KAKADU'S COASTAL FLOODPLAINS TO THE ENDANGERED GRASSLAND EARLESS DRAGON WITHIN THE MAJURA PARK TRAINING AREA ON DEFENCE LAND IN THE ACT.

The vast majority of Commonwealth land is managed by Parks Australia and the Department of Defence. Commonwealth lands include a diverse range of habitats including coastal rainforest, desert country, stone country and grassy woodlands. Each site requires a tailored approach to ensure that feral cat control actions are fit-for-purpose. Best practice management is the deployment of the most appropriate tools for humane, effective and justifiable feral cat control and will differ from site to site.

### HOW ARE WE TRACKING?

Since July 2015, best practice feral cat management has been undertaken across more than 600,000 hectares of Commonwealth land. While this fell short of our target of one million hectares, it is anticipated that feral cat management on Commonwealth land will increase over time, as new humane and fit-for-purpose management tools become available.

Over the next two years, as we move towards the Threatened Species Strategy year five target to deliver best practice feral cat action across two million hectares of Commonwealth land, the Office of the Threatened Species Commissioner will work with Commonwealth land managers to support the integration of feral cat control into their land management practices.

### HOW WAS THE TARGET MEASURED?

Information on feral cat control actions across Commonwealth land was compiled by the Office of the Threatened Species Commissioner in collaboration with the Department of Defence and Parks Australia. Defence properties were included where pest management plans identified feral cats for strategic management and where feral cat control had occurred in the last three years. Parks Australia properties were included where feral cat management had occurred as part of an ongoing program, or specific project, in the last three years. Parks Australia's feral cat management is guided by best practice cat control under the Threat Abatement Plan for predation by feral cats.



The total area of 600,000 hectares represents the unique area managed. It is the sum of the area of Commonwealth land where best practice feral cat management has been undertaken at least once since the commencement of the Threatened Species Strategy in 2015. On many sites, there has been repeated management across multiple years, which means that the cumulative area managed exceeds the unique area managed.

### **Commonwealth Land Action Inventory – a snapshot of action occurring across Commonwealth properties**

#### **Christmas Island National Park**

- Eradication efforts are underway across the island to reduce predation pressures on the island's unique and endemic wildlife, including the endangered Christmas Island Giant Gecko and Emerald Dove.
- Christmas Island is one of five islands identified under the Threatened Species Strategy for feral cat eradication. A summary of action underway can be found on page 32 under the five islands target.

#### **Norfolk Island National Park**

- A feral cat trapping program has been undertaken across the Park to reduce predation pressures on the island's threatened birds such as the endangered Norfolk Island Green Parrot, which is endemic to the island.
- Over the last three years, approximately 165 feral cats have been removed.
- Camera surveys have been initiated to estimate the feral cat population across the island and to inform locations for strategic feral cat control.
- Different management techniques will be trialled across the island to support humane and effective control.

#### **Kakadu National Park, NT**

- Research has been undertaken to understand the impact of feral cats on the Park's native reptiles using two 64 hectare cat-proof exclosures. Results showed that the absence of cats supports larger populations and greater species diversity of reptiles.
- Some feral cats were removed from the Park as part of the larger feral pest management program on the northern floodplains in 2017.
- Feral cat trapping control techniques have been trialled in consultation with the local community and a feral cat control expert from Biosecurity Queensland. Remote camera monitoring at multiple sites in the Park, as part of a joint monitoring program with the Northern Territory Department of Environment and Natural Resources, is supporting park managers to identify high priority areas for strategic feral cat control.
- Funding from the Director of National Parks to Animal Management in Rural and Remote Indigenous Communities (AMRRIC) has supported the Park's remote communities in undertaking responsible pet ownership practices.

#### **Learmonth Weapons Air Range, WA**

- Learmonth Weapons Air Range is located on the north-west Cape in the Pilbara Region of Western Australia, approximately 30 kilometres south of the township of Exmouth. The Range is home to the endangered Black-footed Rock-Wallaby and an exceptional range of endemic reptile species.
- The site's pest management plan identifies feral cats for strategic management across the property. Feral cats have been strategically managed across the 18,781 hectare property in the last three years.

- Feral cat detections across the site reduced by 33 per cent and 56 per cent following the first and second feral cat control actions, respectively.
- The Department of Defence works closely with the Western Australian Government to deliver a landscape approach to feral predator control under the Western Shield feral cat and fox baiting program.

#### **Yampi Sound Training Area, WA**

- The Yampi Sound Training Area is located at the intersection of three bioregions in the north-west of Western Australia. The site supports a wide range of ecosystems and is home to threatened species such as the Northern Quoll, Golden Bandicoot, Golden-backed Tree-rat, Kimberley Brush-tailed Phascogale, Western Partridge Pigeon, Ghost Bat and Gouldian Finch.
- The Department of Defence has engaged the Australian Wildlife Conservancy to undertake conservation-focussed land management services throughout the Yampi Sound Training Area.
- Conservation actions include restoration of traditional mosaic burning, feral herbivore control, feral cat control, weed management and monitoring.
- In 2017, the Australian Wildlife Conservancy undertook a comprehensive feral cat occupancy survey to determine the density of feral cats across the property. The survey revealed that feral cats were detected more regularly across lowland habitats.
- A site-specific Feral Cat Strategy was developed and best practice control measures are now being implemented across the property.



# TARGETS IN FOCUS – 1 MILLION CATS CULLED AT THE NATIONAL LEVEL

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Photo: Hugh McGregor

## FERAL CAT TARGET

**1 million feral cats culled at the national level**

**Target not met.** The estimated number of feral cats culled between July 2015 and June 2018 is 844,000.



Across Australia, feral cats are taking a toll on our wildlife. Australia's feral cat population is estimated to be around 2.1 million when times are lean, and up to 6.3 million when conditions are optimal<sup>7</sup>.

FERAL CATS KILL  
APPROXIMATELY  
596 MILLION REPTILES  
AND 316 MILLION  
BIRDS EACH YEAR<sup>8</sup>.

The Threatened Species Strategy's ambitious feral cat management targets have an important role. They support community and conservation efforts by mobilising action, refocussing and refining existing management activities, promoting the development of new, innovative and humane management tools, removing legislative barriers to feral cat control, and raising awareness about the impacts of invasive species on our natural environment.

## HOW ARE WE TRACKING?

Since July 2015, an estimated 844,607 feral cats were culled across Australia (211,560 in 2015-2016, 316,188 in 2016-2017 and 316,859 in 2017-2018).

This represents the culmination of feral cat management efforts by a range of organisations such as conservation groups, local councils and state agencies, and individuals such as farmers, sporting shooters and hunters. More than 80 per cent of feral cats culled since July 2015 were removed by farmers, sporting shooters and hunters, with this management group increasing its contributions over time (from approximately 159,015 feral cats culled in 2015-16 to 264,863 cats culled in 2017-18).

This target is supporting an increased focus on addressing the impacts of feral cats. Of the 2,607 unique respondents to the online survey who indicated they undertook feral cat management, 16 per cent said that they began removing feral cats in the last two years. Overall, more survey respondents indicated they were increasing control efforts than respondents who said they were decreasing efforts.

While this fell short of the target of one million feral cats culled at the national level, it is anticipated that the national effort will grow, as new humane and fit-for-purpose management tools become available.

In order to achieve the year the five target of two million feral cats culled at the national level, a significant increase in effort will be required. This target is considered particularly ambitious, given that the estimated national feral cat population has been revised down, from 15-20 million to 2.1-6.3 million, since the target was established in 2015.

7 Legge et al. (2017) Enumerating a continental-scale threat – how many feral cats are in Australia *Biological Conservation* 206, 293-303 <https://doi.org/10.1016/j.biocon.2016.11.032>

8 Woinarski et al. (2018) How many reptiles are killed by cats in Australia? *Wildlife Research* 45(3) 247-266 <https://doi.org/10.1071/WR17160>



## HOW WAS THE TARGET MEASURED?

Researchers from ICON Science at the Royal Melbourne Institute of Technology's (RMIT) School of Global, Urban and Social Studies conducted an updated assessment of national effort towards feral cat control using the methodology established to report against the Strategy's year one targets. This involved collating and evaluating available data from existing repositories, such as the FeralCatScan database and RSPCA records, conducting online surveys targeted at organisations and individuals, and stratifying results to deliver a bounded estimate of national feral cat action.

Through the stratification process, researchers were conservative in extrapolating from hard data, to mitigate the potential for over-estimation. This means that the estimates of area managed and feral cats culled are likely to represent a reliable minimum estimate.

RMIT's report '*An updated assessment of the national effort towards feral cat control*' includes a detailed description of the methods.

# TARGETS IN FOCUS – MEASURING ACTIONS AND TRAJECTORIES FOR MAMMALS AND BIRDS

Photo: Nick Rains

THE THREATENED SPECIES STRATEGY HAS AMBITIOUS TARGETS TO IMPROVE THE TRAJECTORIES OF 20 BIRDS, 20 MAMMALS AND 30 PLANTS BY 2020. THESE TARGETS HELP US TO ASSESS WHETHER THERE HAS BEEN AN IMPROVEMENT IN THE SPECIES' POPULATION TRENDS SINCE THE THREATENED SPECIES STRATEGY WAS LAUNCHED IN 2015.

The year three target aimed for 10 of the priority birds and 10 of the priority mammals to be on an improved trajectory in 2018.

To help improve the trajectory, the Threatened Species Strategy also sets targets for action underway for each of our priority species. Data collected to assess the species' trajectories provided a stocktake of action underway across Australia.

Summaries of the trajectory assessments for each of the 21 priority birds and 20 priority mammals are provided in species snapshots on pages 46 to 89. Please note that these summaries are not statutory documents and do not replace approved Commonwealth or state and territory recovery plans or conservation advices for these species.

Further, the process for estimating changes in species trajectories before and after 2015 is different to, and separate from, the process for assessing the conservation status of species for listing as threatened under the *Environment Protection and Biodiversity Act 1999* (EPBC Act). For example, while a species listed as critically endangered may have been assessed as having an improved trajectory from 2015 to 2018, it may still meet the eligibility criteria for listing in the critically endangered category because the number of mature individuals remains extremely low and its geographic distribution is highly precarious.

## TRAJECTORY DEFINITION

A species' trajectory is the rate of change of its population over a particular time period. A species is demonstrating an improved trajectory if:

- its rate of population increase is significantly faster between two time periods,
- its rate of population decline is significantly slower between two time periods, or
- its population trend changes from declining to stable or increasing between two time periods.

To assess progress against the year three targets, trajectory change in each priority species is measured by the difference in population trend in the 10 years prior to the Threatened Species Strategy (2005-2015) compared with the population trend in the three years since the launch of the Strategy (2015-2018). This takes into account the collective management actions of all partners involved in the species' conservation before and after 2015, when the Threatened Species Strategy was launched. A species is considered to have an improved trajectory if there was a significant and positive change in population trend between 2005-2015 and 2015-2018.

## TRAJECTORY METHODOLOGY

Determining population trajectories for 41 very different species demanded a consistent and methodical approach. In partnership with the National Environmental Science Program's Threatened Species Recovery Hub, the trajectory assessments reported here were based on the best available information and then quantified by a consistent expert elicitation process, following these steps:

### 1. Initial data gathering

Species-specific data collection templates were provided to species experts including recovery team members, regional natural resource management organisations, scientific researchers, conservation organisations and on-ground volunteer groups, as well as relevant government agencies in



the states and territories in which each species occurs. These templates collected data on species indicators such as population numbers, extent of occurrence and number of sub-populations, as well as information on monitoring, recovery, and conservation actions underway for each species.

While data collection templates were sent out to hundreds of recipients, including an open invitation for wider distribution, we acknowledge that some data holders may have inadvertently been missed. The Office of the Threatened Species Commissioner invites all data holders who would like to be consulted on year five trajectory assessments to register their interest with the Department.

## 2. Collation and checking

All the information collected for each individual species was collated and synthesised by the Threatened Species Recovery Hub scientists. The collated information was circulated again to organisations and individuals approached at step 1, to provide an additional opportunity to address obvious data gaps and check for anomalies.

## 3. Expert elicitation

Expert elicitation involves obtaining experts’ judgement based on the systematic consideration of relevant evidence. It is a useful tool where there are data gaps or uncertainty and was well suited to the considerable variation in data quality and availability across the 41 priority mammals and birds.

For this process, an established expert elicitation protocol<sup>9</sup> was followed, where a group of individuals used the same information set (the collated information on each species) to provide their best estimate of population size of the species at time X, the upper and lower bounds of that estimate, and their confidence in the actual population size being within those bounds.

Experts were provided with feedback on how their estimates conformed or otherwise with the rest of the participants and were offered the opportunity to determine whether the outputs were a reasonable representation of the truth. These elicitation discussions provided further opportunity to share evidence, as well as opportunity for experts to revise and change their initial estimates if they considered that appropriate after collective discussion.

All individuals and organisations who contributed species information were invited to participate in the expert elicitation. For every species, a minimum of six experts contributed to the elicitation. To help provide consistency across species, a set of six experts provided elicitations for all priority birds and a set of five experts provided elicitations for all priority mammals, with five experts participating in elicitations for all species. These were then supplemented by a variable number of experts familiar with individual species.

## 4. Analysis



All data was aggregated and converted from population size estimates at specified time points to relative percentage changes in population size over the same time points. To determine if there had been an improvement in trajectory since implementation of the Threatened Species Strategy, the relative

annual percentage change for the 2005-2015 period (i.e. 10 years prior to implementation of the Threatened Species Strategy) was compared to the relative annual percentage change for the 2015-2018 period (i.e. the time since implementation of the Threatened Species Strategy).

A species’ trajectory was deemed to have significantly improved where there was statistically significant agreement (i.e. probability <0.05) among experts on a rate of positive change in trajectory between 2005-2015 and 2015-2018. In some cases, a trend for improvement (or deterioration) in trajectory from 2005-15 to 2015-18 was apparent, but was not considered significant if there was low concordance among experts. Such cases did not meet the threshold of ‘improved trajectory’.

## INTERPRETING THE TRAJECTORY TARGETS

Among the 41 priority species, significantly improved trajectory was expressed in three different paths, shown in the table below. While this represents good news for all species with improved trajectories, clearly more work will be required to further arrest declines in species that are still declining, albeit at slower rates, to ensure their recovery and security into the future.

<div>  <b>Year three target met</b> </div>	<div>  <b>Year three target not met</b> </div>
Population was decreasing in the period 2005-2015, but stable or increasing from 2015-2018.	Population was increasing or stable in the period 2005-2015, but decreasing from 2015-2018.
Population was decreasing in the period 2005-2015 and decreasing at a slower rate from 2015-2018.	Population was decreasing in the period 2005-2015 and decreasing more rapidly from 2015-2018.
Population was increasing in the period 2005-2015 and increasing more rapidly from 2015-2018.	Population was increasing in the period 2005-2015, but increasing less rapidly from 2015-2018.
	No significant change in the trajectory from 2005-2015 to 2015-2018.

9 McBride MF et al (2012) Structured elicitation of expert judgments for threatened species assessment: a case study on a continental scale using email. *Methods in Ecology and Evolution* 3, 906-920. doi:10.1111/j.2041-210X.2012.00221.x

# TARGETS IN FOCUS – ACTION UNDERWAY FOR MAMMALS

Photo: Alexander Dudley

## MAMMAL TARGET

**Action underway for all 20 mammals to improve their population trajectory**

**Target met.** Every species has actions underway to improve their population trajectory.



A RANGE OF STATE AND TERRITORY GOVERNMENT AGENCIES, NON-GOVERNMENT ORGANISATIONS, RECOVERY TEAMS AND EXPERTS CONTRIBUTED TO A STOCKTAKE OF MANAGEMENT ACTIONS UNDERWAY THAT ARE SUPPORTING THE CONSERVATION OF THE PRIORITY MAMMAL SPECIES IN THE THREATENED SPECIES STRATEGY.

This stocktake confirmed that actions are underway for all 20 mammals to improve their population trajectory. The species snapshots on pages 46 to 66 provide a brief overview of the types of activities that are being undertaken for each species by organisations, governments, non-government organisations, research institutions, Indigenous groups and community groups across the country.

Examples of actions underway include:

- Research, monitoring and protecting the biodiversity (through testing the use of baits for feral cat control) on Groote Eylandt in the Northern Territory to benefit the Brush-tailed Rabbit-rat and Northern Hopping-mouse through a partnership between the Northern Territory and Australian governments and the Anindilyakwa Rangers.
- Emergency baiting by Northern Territory Government with funding from the Australian Government to control feral cats in and around Central Rock-rat refuges in the West MacDonnell Ranges to protect the remaining populations.
- Captive breeding of Eastern Barred Bandicoots by Zoos Victoria with support from Parks Victoria and the subsequent release of 577 of their offspring to 11 sites including Mt Rothwell fenced area, and Churchill and Phillip islands.
- Translocation of Gilbert's Potoroo to fox and cat-free areas such as Bald Island, Waychinicup National Park fenced enclosure and Middle Island by the Western Australia Government with support from the Gilbert's Potoroo Action Group and funding from the Australian Government for Middle Island.
- Reintroduction of the Golden Bandicoot to a 11,000 hectare predator-free enclosure at Matuwa in Western Australia through support from Western Australian Government and Matuwa Kurrara Kurrara Rangers.
- Extensive camera surveying for the Kangaroo Island Dunnart by the Kangaroo Island Land for Wildlife Program.
- Control of rabbits, hares and feral cats around ski resorts in New South Wales to benefit the Mountain Pygmy-possum as part of the New South Wales Government's 'Saving our Species' program, along with predator control at the Victorian alpine resorts by the Victorian Government.
- Control of introduced cats with the aim of fully eradicating them from Christmas Island to benefit the Christmas Island Flying-fox and other threatened species by Parks Australia with support from partners such as Australian Government, Western Australian Government, Christmas Island Shire and Christmas Island Phosphates.



Photo: Linda Broome





# TARGETS IN FOCUS – IMPROVING THE TRAJECTORIES OF 20 MAMMALS

Photo: Wet Tropics Management Authority

## MAMMAL TARGET

**At least 10 identified mammals demonstrating an improved trajectory**

**Target not met.** Eight identified mammals assessed by independent experts as having an improved trajectory.



EIGHT MAMMALS OUT OF 20 WERE ESTIMATED AS HAVING AN IMPROVED TRAJECTORY. MAMMALS THAT ARE SHOWING A SIGNIFICANTLY IMPROVED TRAJECTORY ARE THE BRUSH-TAILED RABBIT-RAT, CENTRAL ROCK-RAT, GILBERT'S POTOROO, MAHOGANY GLIDER, MALA, NUMBAT, WESTERN RINGTAIL POSSUM AND WOYLIE.

Of these eight, four are estimated to have populations increasing. The Numbat is showing some population recovery, with populations increasing due to long-standing management actions including translocations. Gilbert's Potoroo, the world's rarest marsupial, has also benefited from translocation to feral-cat free islands and is increasing,

although numbers are still precariously low. The Mala is completely protected from predators through feral-free islands and fenced exclosures while the Woylie has benefited from broad scale fox and cat control in Western Australia.

Four mammals are estimated to have an improved trajectory but still have populations declining, although at a slower rate. Actions have prevented some of these species from facing extinction, such as feral cat baiting around some of the last refuges of the Central Rock-rat. Mahogany Gliders are also showing signs of slight improvement after a long period of decline, due to the maintenance of habitat corridors and fire management. The Brush-tailed Rabbit-rat, while still declining, may be benefiting from recent management to reduce feral cats and fire threats in the Kimberley. The Western Ringtail Possum's steep decline appears to be reducing since 2015, but could continue to decline as the climate warms and their food supply is affected.

Ten mammals have been assessed as not having a significantly improved trajectory. The majority of these were found to have a better trajectory in 2015-18 than in 2005-2015, however the change was not significant and therefore has not been counted against the target.

One of these ten species is the Eastern Bettong, whose trajectory is complicated, as by strict definition its trend has worsened since 2015, at the same time as the population has continued to increase, just at a slower rate. This species was extinct on Australia's mainland until reintroduction to enclosures in 2011-2012, leading to a dramatic increase from zero prior to 2011 to approximately 150 animals in 2015. The population growth on the mainland has slowed since this initial expansion, but is still increasing within the limits of the enclosures. The Eastern Bettong is a success story for reintroducing an important ecosystem engineer that contributes to healthy soils. The Tasmanian population was not included in this assessment as it is not listed under Commonwealth law.

The Threatened Species Scientific Committee is currently assessing the conservation status of two priority mammal species – the Leadbeater's Possum and the Northern Hopping Mouse. This Report does not include a trajectory assessment for these two species.

The summaries of the species trajectories over the following pages provide further details.



# THREATENED SPECIES STRATEGY – MAMMALS AT A GLANCE

## Black-footed Rock-wallaby



Photo: Tony Howard

**Significant change in trajectory from 2005-15 to 2015-18?** No, populations generally stable across range.

**Improved trajectory?**



The Black-footed Rock-wallaby (*Petrogale lateralis*) is a small, nocturnal wallaby. Predation by foxes and feral cats has fragmented and contracted its range to isolated rocky habitats across inland Australia, parts of coastal WA and SA, and some islands. Other ongoing threats include habitat degradation, competition with introduced herbivores and fire. The species complex now comprises five recognised subspecies with varying distributions, population sizes, threats, management priorities and conservation statuses.

Effective control of introduced predators is helping facilitate the recovery of the Black-footed Rock-wallaby in a number of locations. This is important to continue, as intensive and sustained control of foxes and feral cats has allowed stabilisation and even increases of subpopulations at some sites. Many successful translocations of Black-footed Rock-wallabies to mainland sites where introduced predators are effectively controlled have succeeded in re-establishing some new subpopulations and bolstering dwindling subpopulations.

<b>Found in</b>	WA, NT, SA
<b>EPBC Act status</b>	Varied, different subspecies are Endangered/ Vulnerable/not listed (West Kimberley subspecies currently under review by TSSC)
<b>Conservation planning</b>	Recovery Plan (2014), Conservation Advices (2010 & 2016)
<b>2018 population estimate</b>	~10 000 mature individuals
<b>Confidence in 2018 estimate</b>	Medium (varies across range between subspecies)
<b>Recovery partners</b>	SA, WA, NT and Australian governments, Warru Recovery Team, WWF, Australian Wildlife Conservancy, Greening Australia, Wheatbelt NRM, Indigenous landholders and ranger groups, volunteers

## Returning Warru to Country

The reintroduction of the Warru to the Musgrave Ranges in South Australia was identified by the Warru Recovery Team as a key conservation action needed to support the recovery of the species.

Under the National Landcare Program, the Australian Government provided \$200,000 in funding to the Royal Zoological Society of South Australia Inc to reintroduce Black-footed Rock-wallabies to the Musgrave Ranges in South Australia. Warru were reintroduced to Wamitjara, to strengthen the Musgrave Ranges metapopulation and create an additional viable population of Warru within their former range.

A critical component of this project was the management of key threatening processes. Feral cats and foxes were targeted around Warru colonies using baiting, shooting, trapping and new technologies such as Felixer grooming traps.

# THREATENED SPECIES STRATEGY – MAMMALS AT A GLANCE

## Brush-tailed Rabbit-rat



Photo: Hugh Davies

**Significant change in trajectory from 2005-15 to 2015-18?** Yes, decline ongoing but at a slower rate.

**Improved trajectory?**



The Brush-tailed Rabbit-rat (*Conilurus penicillatus*) is a medium-sized rodent with a distinctive long brush-tipped tail. Formerly spread across tropical woodlands and open forests of northern Australia, it has declined extensively, most likely because of predation by feral cats and frequent high-intensity fires. Brush-tailed Rabbit-rats are now only found in some higher rainfall areas and on a few islands.

Overall decline in Brush-tailed Rabbit-rats is continuing, however the rate of decline has slowed since 2015 and data indicate populations in the Kimberley are stable or increasing. WA and NT governments, Indigenous groups and other organisations have worked hard to manage feral cats and reduce fire threats. Australian Government support has contributed to fire management activities in the Kimberley, research on Groote Eylandt, conservation research and management of the species on the Tiwi Islands, and will assist with a proposed translocation to a cat-free island in Kakadu National Park.

<b>Found in</b>	NT, WA
<b>EPBC Act status</b>	Vulnerable
<b>Conservation planning</b>	Conservation Advice (2016), Recovery Plan (2019)
<b>2018 population estimate</b>	Not available. 2015: ~45 000 mature individuals
<b>Confidence in 2018 estimate</b>	Low
<b>Recovery partners</b>	NT, WA and Australian governments (including Parks Australia), Indigenous ranger groups, Tiwi Land Council, Dambimangari Aboriginal Corporation, WWF, Charles Darwin University, NESP Threatened Species Recovery Hub

# THREATENED SPECIES STRATEGY – MAMMALS AT A GLANCE

## Central Rock-rat

Photo: Perth Zoo



**Significant change in trajectory from 2005-15 to 2015-18?** Yes, decline ongoing but at a slower rate.

**Improved trajectory?**



The Central Rock-rat (*Zyzomys pedunculatus*) is a medium-sized rodent confined to arid areas in central Australia. It has experienced extreme declines in range and population size, and a recent analysis ranked it as the mammal taxon most likely to go extinct in the next 20 years. Key threats are predation by feral cats and extensive fires which can remove cover and reduce food availability across the entire current range of the species. Due to its very small population and distributional extent, the species' persistence is highly sensitive to these threats.

Recovery efforts have focused on landscape-scale feral cat control at refuge sites for the Central Rock-rat. This work has been undertaken by the NT Government with support from the Australian Government, and has contributed to the improved population trajectory for the species since 2015. Ongoing management of feral cats and fire will be important to prevent future declines.

To further safeguard the population in the longer-term, the Australian Government also provided funding to the Australian Wildlife Conservancy for a cat-proof enclosure at Newhaven Wildlife Sanctuary in the NT, which is one of several potential future translocation sites for the Central Rock-rat.

<b>Found in</b>	NT
<b>EPBC Act status</b>	Critically Endangered
<b>Conservation planning</b>	Conservation Advice (2018), Recovery Plan (2019)
<b>2018 population estimate</b>	650 mature individuals
<b>Confidence in 2018 estimate</b>	Medium
<b>Recovery partners</b>	NT, WA and Australian governments, Central Land Council, Australian Wildlife Conservancy, Territory NRM

### Emergency intervention for the Central Rock-rat

One of the threats to the Central Rock-rat is feral cats that are in and around the refuge areas in the West MacDonnell Ranges. With populations rapidly declining, the Australian Government provided \$270,000 to the Northern Territory Government to control feral cats through an aerial baiting program during the winters of 2016, 2017 and 2018. Camera traps were used to monitor the cat population and test the effectiveness of the baiting program.

The project report following baiting in 2016 and 2017 indicated a 90-100 per cent reduction in cat numbers and researchers were optimistic about Rock-rat recovery.



# THREATENED SPECIES STRATEGY – MAMMALS AT A GLANCE

## Christmas Island Flying-fox

Photo: Yvonne McKenzie



**Significant change in trajectory from 2005-15 to 2015-18?** Slight decline before 2015; may have stabilised, but change is not significant.

**Improved trajectory?**



The Christmas Island Flying-fox (*Pteropus natalis*) is the last remaining endemic mammal persisting on Christmas Island. Roughly a quarter of the species' habitat has been lost since the late 1880s due to mining and other developments. Ongoing threats include predation by feral cats, poisoning from environmental contaminants and physical disturbance and habitat change caused by Yellow Crazy Ants.

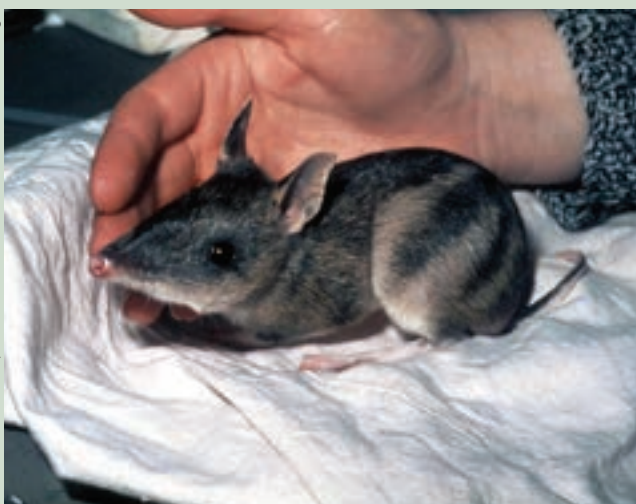
Conservation management is carried out by Parks Australia and overseen by the Christmas Island Flying-fox Advisory Panel and has focused on control of introduced animals and habitat restoration. Over 1000 feral cats have been culled since 2010 and there have been major control efforts for Yellow Crazy Ants. These actions have benefited a number of threatened species including the Christmas Island Flying-fox. Rehabilitation of nearly 200 ha of rainforest habitat over former mine sites since 1989 has included plantings of specific native fruiting trees to provision frugivores, including the Christmas Island Flying-fox. This species has been the subject of an intensive research effort over the last few years that has helped clarify population status, habitat use and threats. Work is ongoing to identify the main threats to the species and to prioritise management options to support recovery.

<b>Found in</b>	Christmas Island (Indian Ocean Territories)
<b>EPBC Act status</b>	Critically Endangered
<b>Conservation planning</b>	Conservation Advice (2014)
<b>2018 population estimate</b>	~650 mature individuals
<b>Confidence in 2018 estimate</b>	Medium
<b>Recovery partners</b>	WA and Australian governments (including Parks Australia), CSIRO, Christmas Island Shire, Christmas Island Phosphates, Taronga Conservation Society, Royal Botanic Garden Sydney, LaTrobe, Sydney and Western Sydney universities, NESP Threatened Species Recovery Hub

# THREATENED SPECIES STRATEGY – MAMMALS AT A GLANCE

## Eastern Barred Bandicoot

Photo: Victorian Department of Environment, Land, Water and Planning



**Significant change in trajectory from 2005-15 to 2015-18?** No, increasing at a steady rate.

**Improved trajectory?**



The Eastern Barred Bandicoot (*Perameles gunnii*) is a small, nocturnal marsupial that inhabits grasslands and grassy woodlands. The Threatened Species Strategy focus is on recovery of the mainland subspecies in Victoria, following near-extinction in the late 1980s due to predation by foxes and feral cats, habitat loss, and impacts from livestock grazing.

A very effective multi-organisational recovery team formed in 1989 and Zoos Victoria commenced a captive breeding program in 1991. This has produced over 960 captive-bred Eastern Barred Bandicoots, 577 of which have been released to 11 different translocation sites. Of the earlier translocation attempts, only the translocation to Mt Rothwell has persisted continuously, but more recent translocations to Hamilton Community Parklands and Churchill Island have been successful, and a recent translocation to Phillip Island appears promising. Currently, ~1000 Eastern Barred Bandicoots persist in three fenced mainland enclosures (Mt Rothwell, Hamilton Community Parkland, Woodlands Historic Park), and two islands (Churchill and Phillip). After coming back strongly from the brink of extinction, these new sites have significantly improved recovery prospects for the mainland subspecies with planning underway for reintroductions at additional sites.

<b>Found in</b>	Victoria, Tasmania
<b>EPBC Act status</b>	Endangered
<b>Conservation planning</b>	Recovery Plan (2011)
<b>2018 population estimate (mainland)</b>	>900 mature individuals in the wild ~60 in captivity
<b>Confidence in 2018 estimate</b>	High
<b>Recovery partners</b>	Victorian and Australian governments, Zoos Victoria and wildlife parks, regional NRM groups, agricultural industry, conservation foundations, Southern Grampians Shire Council, Conservation Volunteers Australia and other volunteer groups, Mt Rothwell Biodiversity Interpretation Centre, Odonata, University of Melbourne, University of Tasmania, Australian National University, NESP Threatened Species Recovery Hub

### Translocation to Phillip Island

Phillip Island is a 10,000 hectare island, 140 kilometres south-east of Melbourne, Victoria. The island was declared fox-free in 2017, after intensive eradication was undertaken by Phillip Island Nature Parks. While feral cats persist, cats are intensively controlled which has reduced density.

In 2017, 67 Eastern Barred Bandicoots were released at Summerland Peninsula, as a result of the combined efforts of Phillip Island Nature Parks, Zoos Victoria and the Eastern Barred Bandicoot Recovery Team. The most recent survey, in September 2018, captured 42 unique individuals, including 11 new individuals, which indicates the population is increasing.

# THREATENED SPECIES STRATEGY – MAMMALS AT A GLANCE

## Eastern Bettong

Photo: Woodlands and Wetlands Trust



**Significant change in trajectory from 2005-15 to 2015-18?** Rapid increases since 2011 have slowed, and population now stable.

**Improved trajectory?**



The Eastern Bettong (*Bettongia gaimardi*) is a small, kangaroo-like marsupial. Its pre-European range included eastern Tasmania and a broad coastal strip from south-east Queensland to south-east SA. However, the mainland subspecies was extinct by the 1920s due to predation by foxes and feral cats, habitat loss and degradation, and persecution. The Threatened Species Strategy focus is on restoring the important ecological function of Bettongs to the mainland, which is occurring through translocations of the Tasmanian subspecies.

Tasmanian Bettongs were brought to the ACT in 2011 and 2012 to begin captive colonies at Tidbinbilla Nature Reserve and Mulligans Flat Woodland Sanctuary. The Mulligans Flat population has increased from the founding 32 adults to a self-sustaining population of between 120 – 180 individuals. Population growth has slowed due to space limitations, but should increase when Bettongs are soon released into an adjacent fenced area (Goorooyarroo Woodland).

The population at Tidbinbilla has also grown and has stabilised to 50-85 individuals. A new 120 ha predator-free area is being constructed and may provide additional areas for Eastern Bettongs to expand in the future.

<b>Found in</b>	Tasmania, ACT (reintroduced)
<b>EPBC Act status</b>	Subspecies (mainland) Extinct, Subspecies (Tasmania) not listed
<b>Conservation planning</b>	N/a
<b>2018 population estimate (mainland)</b>	140 mature individuals in fenced exclosures; >50 in captivity
<b>Confidence in 2018 estimate</b>	High
<b>Recovery partners</b>	ACT and Australian governments, Woodlands and Wetlands Trust, James Hutton Institute, NESP Threatened Species Recovery Hub, CSIRO, Australian National University, James Cook University



# THREATENED SPECIES STRATEGY – MAMMALS AT A GLANCE

## Eastern Quoll

Photo: Maree Clout, Rewilding Australia



**Significant change in trajectory from 2005-15 to 2015-18?** No significant change overall.

**Improved trajectory?**



The Eastern Quoll (*Dasyurus viverrinus*) is a medium-sized carnivorous marsupial that was once found throughout south-east Australia, and in Tasmania. It disappeared from the Australian mainland last century, due to disease, predation by foxes, feral cats and domestic dogs, poisoning and persecution. Original wild populations remain only in Tasmania, where declines occurred up until the early 2000s, in association with several years of unusual weather. Other threats such as feral cats and vehicle strike in some areas appear to now constrain recovery across Tasmania, except on Bruny island, where the population has at least partly recovered.

Conservation for Eastern Quolls depends on effective cat management in Tasmania, biosecurity to prevent disease introductions, especially for the Bruny Island population, and ongoing expansion and management (including genetic management) of populations on islands and within fenced areas that are cat- and fox-free. Since 2002, Eastern Quolls have been reintroduced to three mainland sites: Mt Rothwell Biodiversity Centre in Victoria, Mulligans Flat Woodland Sanctuary in the ACT (both fenced), and Booderee National Park in NSW (unfenced). A new captive breeding and management program is under development at Trowunna Wildlife Sanctuary in Tasmania, and translocations to other fenced sites are being considered.

<b>Found in</b>	Tasmania, NSW, Victoria (fenced), ACT (fenced)
<b>EPBC Act status</b>	Endangered
<b>Conservation planning</b>	Conservation Advice (2015)
<b>2018 population estimate</b>	Wild: <10 000 mature individuals; Enclosures: ~100 mature individuals; Captive breeding: ~200 individuals
<b>Confidence in 2018 estimate</b>	Wild population: Low; Enclosed populations: High
<b>Recovery partners</b>	ACT and Tasmanian governments, Australian Government (including Parks Australia), Mt Rothwell Biodiversity Interpretation Centre, Odonata, Australian National University, James Cook University, Woodlands and Wetlands Trust, Rewilding Australia, WWF Australia, Taronga Conservation Society, Eastern Quoll Mainland Recovery Team, Wreck Bay Community, Aussie Ark, NESP Threatened Species Recovery Hub

### Translocation to Mulligans Flat Woodland Sanctuary

The Australian Government, in partnership with the Australian Capital Territory Government, contributed \$600,000 towards the construction of predator-proof fencing at Mulligans Flat Woodland Sanctuary in the ACT – which is acting as another safe haven for the species on the mainland. The Sanctuary fence encloses approximately 485 hectares of Mulligans Flat Nature Reserve and has a perimeter of 11.5 kilometres.

Thirty-seven Eastern Quolls were released into the Sanctuary between 2016 and 2018. The quolls are closely monitored using GPS-tracking, spotlighting, remote cameras and cage trapping by researchers from the Australian National University, the ACT Government, and the Woodlands and Wetlands Trust. Over 180 juveniles have been conceived in the Sanctuary since 2016.

# THREATENED SPECIES STRATEGY – MAMMALS AT A GLANCE

## Gilbert's Potoroo

Photo: Gilbert's Potoroo Action Group



**Significant change in trajectory from 2005-15 to 2015-18?** Yes, rate of increase has improved.

**Improved trajectory?**



Gilbert's Potoroo (*Potorous gilbertii*) is the rarest marsupial in the world, with around 100 individuals. It was once locally abundant around the WA south-west coast, however declined rapidly from the mid-1800s, shrinking to only one small population at Mt Gardner, in Two Peoples Bay.

The WA Government has led recovery efforts, first by establishing two insurance populations at Bald Island from 2005, and in a fenced enclosure in Waychinicup National Park from 2009. This timely intervention prevented disaster in 2015, when an intense wildfire burnt most of the Gilbert's Potoroo's habitat at Mt Gardner. Seven surviving Potoroos were translocated for safety, and intensive control of foxes and feral cats was undertaken around the Mt Gardner site to reduce predation risk for remaining Potoroos. Another population was established on Middle Island in 2017, with support from the Australian Government.

Although the original wild population at Mt Gardner has declined severely as a result of the 2015 fire, the populations that had earlier been established elsewhere and the new translocations to Middle Island have improved the overall population trajectory for Gilbert's Potoroo. However, with such low numbers the future of this species is precarious and will require ongoing careful management.

<b>Found in</b>	WA
<b>EPBC Act status</b>	Critically Endangered
<b>Conservation planning</b>	Conservation Advice (2016)
<b>2018 population estimate</b>	~100 mature individuals
<b>Confidence in 2018 estimate</b>	High
<b>Recovery partners</b>	WA Government, Australian Government, Gilbert's Potoroo Action Group, WA Recovery Team, community volunteers

## Community Action – the Gilbert's Potoroo

The Gilbert's Potoroo Action Group, a not-for profit community group, is assisting the recovery of the Gilbert's Potoroo through fund raising, raising awareness and participating in research and recovery programs. Volunteers have participated in monitoring activities such as radio tracking, population monitoring and the search for new populations. The Gilbert's Potoroo Action Group has also assisted the West Australian Government to monitor and establish new populations on Middle Island as an additional insurance population with support from the Australian Government. Communities are key to saving our iconic threatened species. Their knowledge, support and enthusiasm provide an invaluable contribution to recovery work.

# THREATENED SPECIES STRATEGY – MAMMALS AT A GLANCE

## Golden Bandicoot

Photo: Judy Dunlop/Parks and Wildlife Western Australia



**Significant change in trajectory from 2005-15 to 2015-18?** No, populations stable or increasing slightly.

**Improved trajectory?**



The Golden Bandicoot (*Isoodon auratus*) was previously widespread across the mainland, but now has a highly fragmented distribution near coastal areas and islands of north and north-west Australia, following declines due to predation by feral cats and foxes and altered fire regimes.

Recovery efforts have focused on maintaining Golden Bandicoots in protected areas through predator control and appropriate fire management. Many of these management actions have been undertaken by traditional owners, with Indigenous rangers helping with control of feral animals, managing fire and undertaking biological surveys. The Australian Government has provided support for feral cat control and fire management in the north-west Kimberley through the Threatened Species Recovery Fund.

Translocations of Golden Bandicoots to predator-free sites, including islands, have also been successful. From 2010, individuals from Barrow Island have been reintroduced to large predator-free enclosure at Matuwa in mainland WA. Breeding inside the fence has been successful, and releases outside of the enclosure are now underway.

<b>Found in</b>	WA, NT
<b>EPBC Act status</b>	Vulnerable
<b>Conservation planning</b>	Conservation Advice (2015)
<b>2018 population estimate</b>	60 000 mature individuals
<b>Confidence in 2018 estimate</b>	Low (varied across range)
<b>Recovery partners</b>	WA, NT and Australian governments, traditional owners, Indigenous ranger groups, Indigenous Protected Areas, Aboriginal Corporations, WWF, Australian Wildlife Conservancy, Bush Heritage, Chevron

### Creating one of Australia's Largest Fenced Feral Cat and Fox Free Areas

Newhaven Wildlife Sanctuary, just north-west of Alice Springs, will become one of Australia's largest feral cat and fox-free areas.

Announced at the Threatened Species Summit in 2015, and in partnership with the Australian Wildlife Conservancy, the Australian Government has provided \$750,000 in funding to support this project.

The two-stage project will establish a 100,000 hectare enclosure to protect at least nine threatened mammals, including the Golden Bandicoot. Once completed, Newhaven will host an estimated population of more than 32,000 Golden Bandicoots. The project is being delivered in collaboration with the traditional owners of Newhaven, the Ngalia Warlpiri people. Their specialist cat hunting skill and participation in land management will be integral to the success of the project.



# THREATENED SPECIES STRATEGY – MAMMALS AT A GLANCE

## Greater Bilby

Photo: Queensland Department of Environment and Science



**Significant change in trajectory from 2005-15 to 2015-18?** No, generally stable overall.

**Improved trajectory?**



The Greater Bilby (*Macrotis lagotis*) once ranged over three-quarters of Australia, mostly in semi-arid and arid areas, but contracted to 20% of this original distribution following European settlement. Its decline coincided with the spread of foxes, which remain a key threat today, along with habitat changes from introduced herbivores (especially rabbits), changed fire regimes and predation by feral cats, with the relative importance of these threats varying geographically.

Bilbies are culturally significant for many Indigenous groups and around 70% of current Bilby populations are on Indigenous lands. The persistence of Bilbies in some local areas is linked to ongoing land management carried out by Indigenous communities and Indigenous people have a critical role in Bilby conservation. Recovery actions have focused on maintaining or restoring traditional patchwork fire regimes and controlling introduced predators. Translocations into predator-free enclosures and a predator-free island have allowed for further increases in population and re-establishment into the species' former range, with more translocations planned in future.

Overall, while the total population size of Greater Bilbies is uncertain, numbers have been roughly stable for more than a decade. With the growth of management on Indigenous land, and the expansion of populations within fenced areas, the population may increase in the future.

<b>Found in</b>	WA, NT, SA, Qld
<b>EPBC Act status</b>	Vulnerable
<b>Conservation planning</b>	Recovery Plan (2007), Conservation Advice (2016)
<b>2018 population estimate</b>	Wild: (>10,000?) Enclosures: >2000 mature individuals Many bilbies also in captivity
<b>Confidence in 2018 estimate</b>	Very low for wild populations High for enclosed populations
<b>Recovery partners</b>	WA, NT, SA, Qld, NSW and Australian governments, Central Land Council, Indigenous Desert Alliance, Indigenous rangers, landholders and community groups, conservation and sanctuary groups, zoos and research community, industry partners, Save the Bilby Fund, Australian Wildlife Conservancy, Arid Recovery, Recovery Team

# THREATENED SPECIES STRATEGY – MAMMALS AT A GLANCE

## Kangaroo Island Dunnart

Photo: Jody Gates



**Significant change in trajectory from 2005-15 to 2015-18?** No significant change likely.

**Improved trajectory?**



The Kangaroo Island Dunnart (*Sminthopsis aitkeni*) is a small carnivorous marsupial, now found only on Kangaroo Island. It is notoriously difficult to sample so determining population trends is challenging. However, it is likely to have suffered major declines due to historic land clearing, particularly in the eastern part of Kangaroo Island.

Since the 1970s, much of the western part of Kangaroo Island has been protected in conservation reserves. This provides security against ongoing habitat loss so declines may have stabilised. A significant amount of private land is now under heritage agreement. Recently there has been increased action and investment to tackle other threats, including controlling the impact of feral cats, managing the spread of *Phytophthora*, and engaging private land owners in conservation activities. Efforts have also increased to find ways of monitoring the Kangaroo Island Dunnart, with a two year research and monitoring program undertaken by the NESP Threatened Species Recovery Hub, and with the Kangaroo Island Land for Wildlife Program undertaking extensive camera trapping surveys. This survey work will expand in 2019, with planned attempts to sample the species at key monitoring sites. This will inform future management actions to best protect and conserve this species. Longer term, this species is also likely to benefit from efforts to eradicate feral cats from Kangaroo Island, which is being supported by the Australian Government.

<b>Found in</b>	SA
<b>EPBC Act status</b>	Endangered
<b>Conservation planning</b>	Recovery Plan (2012)
<b>2018 population estimate</b>	No reliable estimate
<b>Confidence in 2018 estimate</b>	N/a
<b>Recovery partners</b>	SA and Australian governments, Terrain Ecology, Kangaroo Island Land for Wildlife, NESP Threatened Species Recovery Hub, Foundation for Australia's Most Endangered Species, Wettenhall Environment Trust, Charles Darwin University

## Controlling Feral Cats on Kangaroo Island

Feral cats are widespread across Kangaroo Island, with densities in some areas at least double the average density on mainland Australia. As a result, a large-scale long-term program is underway to eradicate feral cats on Kangaroo Island and contribute to the protection and recovery of the Kangaroo Island Dunnart.

The Australian Government initially provided \$236,500 in funding through the Threatened Species Recovery Fund to the Kangaroo Island Natural Resources Management Board. The project has also been supported by the Foundation for Australia's Most Endangered, with strong engagement from the local council, Natural Resources Kangaroo Island, farmers and the broader local community.

The high level of local community and landholder engagement, as well as the strong partnership potential, boosts the likelihood of success for the Kangaroo Island Dunnart and the potential for enduring outcomes.

# THREATENED SPECIES STRATEGY – MAMMALS AT A GLANCE

## Leadbeater's Possum



Photo: Dan Harley

**UNDER  
ASSESSMENT**

Leadbeater's Possum (*Gymnobelideus leadbeateri*) is a small marsupial restricted to an area of about 3000 km<sup>2</sup> in the Victorian Central Highlands and a lowland swamp forest at Yellingbo. Its distribution and numbers have varied over time, with episodic severe declines associated with extensive wildfire, notably in 1939 and 2009. Fire history and timber harvest practices are major determinants in habitat suitability in montane ash forests, where Leadbeater's Possum is dependent on tree hollows that only form in large trees over 120 years old.

Conservation actions have focused on managing forested areas sympathetically with Leadbeater's Possum habitat requirements. This includes mitigation of timber harvesting impacts through pre-harvest survey programs and management prescriptions for timber harvesting areas. Habitat augmentation with artificial tree hollows and nesting boxes has been undertaken in some areas, and a specific reserve system for Leadbeater's Possum is in place, a captive population is also held at Healesville Sanctuary. Intensive efforts to enhance habitat have been undertaken for the small population at Yellingbo, however that population continues to decline.

Some future trend uncertainties may be resolved through the current review of the species' conservation status by the Threatened Species Scientific Committee (TSSC).

<b>Found in</b>	Victoria
<b>EPBC Act status</b>	Critically Endangered (currently under review by the TSSC)
<b>Conservation planning</b>	Recovery Plan (2007), Conservation Advice (2015)
<b>2018 population estimate</b>	Under assessment
<b>Confidence in 2018 estimate</b>	N/a
<b>Recovery partners</b>	Victorian and Australian governments, Zoos Victoria, Friends of Leadbeater's Possum, Trust for Nature, Biosis, Deakin, Monash and Melbourne Universities, Australian National University, NESP Threatened Species Recovery Hub



# THREATENED SPECIES STRATEGY – MAMMALS AT A GLANCE

## Mahogany Glider

Photo: Wet Tropics Management Authority



**Significant change in trajectory from 2005-15 to 2015-18?** Yes, decline ongoing but at a slightly slower rate.

**Improved trajectory?**



Mahogany Gliders (*Petaurus gracilis*) are arboreal marsupials, found in a small narrow band of open, wet sclerophyll forest along the Queensland coast north of Townsville. While the species' overall range has remained stable, available habitat within this area has been severely reduced and fragmented due to clearing for agriculture, roads and residential development. Mahogany Gliders are also threatened by road and fence strike and predation by cats and dogs, while their limited distribution makes them vulnerable to extreme weather events that affect continuity of their habitat and availability of nectar.

Gliders are poor dispersers across habitat gaps, so to address the risk of populations in smaller habitat patches disappearing over time, conservation efforts have focused on restoring and managing habitat corridors. These have included revegetation projects, fire management to maintain the quality of glider habitat on private and state lands, as well as installation of glide pole crossings across roads and easement corridors, and community engagement projects to raise awareness of Mahogany Gliders' habitat requirements. These projects have occurred over small areas of the species' total distribution, but could provide proof-of-concept for future conservation action.

<b>Found in</b>	Queensland
<b>EPBC Act status</b>	Endangered
<b>Conservation planning</b>	Recovery Plan (2008)
<b>2018 population estimate</b>	1500-2000 mature individuals
<b>Confidence in 2018 estimate</b>	Low
<b>Recovery partners</b>	Queensland and Australian governments, Terrain NRM, Giringun Aboriginal Corporation, Townsville City Council, Recovery Team, Wildlife Preservation Society of Queensland, James Cook University

# THREATENED SPECIES STRATEGY – MAMMALS AT A GLANCE

## Mala

Photo: Wayne Lawler, AWC



**Significant change in trajectory from 2005-15 to 2015-18?** Yes, rate of increase has improved.

**Improved trajectory?**



Mala (*Lagorchestes hirsutus* Central Australian subspecies) are small marsupials with reddish-orange fur. Following European settlement, Mala suffered catastrophic declines throughout arid and semi-arid Australia, due to predation by foxes and feral cats and altered fire regimes. The last population was removed from the wild in 1991 and translocated to Trimouille Island off the WA Pilbara coast. All surviving Mala are now in managed areas where introduced predators are excluded, either on Trimouille Island or in predator-free fenced exclosures.

Since 2015, the older rescued populations have generally remained stable while more recently established populations have generally been increasing in numbers. While overall numbers are still very low, the trajectory of Mala is improving due to sustained and intensive efforts by many individuals and organisations over many years. Limited genetic diversity remains an ongoing issue for active management, as all existing Mala populations are descended from a small number of individuals from the last wild population sourced for captive breeding. Future challenges include establishing Mala populations without relying on islands and fenced exclosures that are cat- and fox-free.

<b>Found in</b>	WA, NT, NSW (translocated captive population)
<b>EPBC Act status</b>	Endangered
<b>Conservation planning</b>	Recovery Plan (2012)
<b>2018 population estimate</b>	800 mature individuals on an island >400 individuals within fenced areas
<b>Confidence in 2018 estimate</b>	High
<b>Recovery partners</b>	WA and NT governments, Australian Government (including Parks Australia), Australian Wildlife Conservancy, Recovery Team, Martu traditional owners, volunteer groups

# THREATENED SPECIES STRATEGY – MAMMALS AT A GLANCE

## Mountain Pygmy-possum

Photo: Casey Harris



**Significant change in trajectory from 2005-15 to 2015-18?** No significant change.

**Improved trajectory?**



The Mountain Pygmy-possum (*Burramys parvus*) is a very small possum endemic to the snow-covered alpine regions of Victoria and New South Wales. Fossil evidence shows the species was formerly more widely distributed, but its range has reduced and its population has declined due to predation by feral cats and red foxes, habitat changes arising from introduced herbivores, habitat loss, changing climatic conditions, altered fire regimes, loss of genetic diversity and probable reduction in a main food source (Bogong moths).

Most of these threats are being managed to some extent, through a range of actions to control feral cats and foxes, reconstruct habitat and undertake genetic rescue in some populations. The overall population appeared generally stable between 2015-18, although geographically separated populations may be undergoing different trends. Loss of genetic diversity remains a threat and over future decades, the species is likely to become increasingly impacted by climate change.

Intensive and long-lasting monitoring of Mountain Pygmy-possums is undertaken in both NSW and Victoria and has guided effective management activities

<b>Found in</b>	NSW, Victoria
<b>EPBC Act status</b>	Endangered
<b>Conservation planning</b>	Recovery Plan (2016), Conservation Advice (2018)
<b>2018 population estimate</b>	2300 mature individuals
<b>Confidence in 2018 estimate</b>	Medium (varies across populations)
<b>Recovery partners</b>	NSW, Victorian and Australian governments, Zoos Victoria, Cesar, alpine resorts

### Deploying dogs to detect feral cats

The Mountain Pygmy-possum is severely affected by predation by feral cats and the European red fox. As a result, in 2015, the Australian Government provided \$140,000 in funding to the NSW Office of Environment and Heritage to increase the intensity and effectiveness of feral cat and fox control in key areas of habitat, including the use of two detector dogs – “Dottie” and “Maggie”.

Dottie has had particular success in locating fresh cat scent, which allowed her handler to strategically place leg-hold traps within control sites. During one year of her deployment, a total of 56 cats and 37 foxes were trapped.

The response of Mountain Pygmy-possums to cat control has been very encouraging. At one location, Whites River, the numbers of possums tripled since soft-jaw trapping commenced in December 2010.



# THREATENED SPECIES STRATEGY – MAMMALS AT A GLANCE

## Northern Hopping Mouse

Photo: Rebecca Diete



**UNDER  
ASSESSMENT**

The Northern Hopping-mouse (*Notomys aquilo*) is a rodent currently only found on Groote Eylandt in the NT. It was previously known on the Australian mainland, most recently in Arnhem Land in 1973, but declined due to a number of threats including inappropriate fire regimes that impact food availability, predation by feral cats and habitat loss from mining activities.

Recovery efforts for the Northern Hopping-mouse include ongoing fire management by traditional owners and post-mining habitat restoration. A recent project supported by the Australian Government to monitor threatened species on Groote Eylandt, while also monitoring feral cats and evaluating non-target impacts of cat baiting, will better inform management of Northern Hopping-mouse in future.

Unfortunately, although decline appears to have slowed, the Northern Hopping-mouse is likely still decreasing in numbers. Ongoing and increased conservation efforts are required to secure this species into the future. Some uncertainties with population trends may be resolved through the current review of the species conservation by the Threatened Species Scientific Committee (TSSC).

<b>Found in</b>	NT
<b>EPBC Act status</b>	Vulnerable (currently under review by the TSSC)
<b>Conservation planning</b>	Conservation Advice (2015)
<b>2018 population estimate</b>	Under assessment
<b>Confidence in 2018 estimate</b>	N/a
<b>Recovery partners</b>	NT and Australian governments, Anindilyakwa Land Council, Groote Eylandt traditional owners, Dhimurru rangers (Arnhem Land)

# THREATENED SPECIES STRATEGY – MAMMALS AT A GLANCE

## Numbat

Photo: Alexander Dudley



**Significant change in trajectory from 2005-15 to 2015-18?** Yes, rate of increase has improved.

**Improved trajectory?**



Numbats (*Myrmecobius fasciatus*) are small, striped marsupials that were once widespread across mainland Australia. Numbats declined to only about 300 individuals in WA by the late 1970s, primarily due to predation by foxes and habitat loss. Additional threats include predation by feral cats, and frequent and intense fires.

Long term fox control undertaken at Dryandra and other specific key sites by the WA Government has benefited Numbats, in parallel with the broad-scale Western Shield Program for fox and feral cat baiting, supported by the Australian Government. Along with careful fire management, these recovery efforts have increased Numbat populations in WA.

Translocations to other sites in WA to re-establish Numbats in parts of their former range have been successful at some sites although not all. Translocations to a fenced area in SA and in NSW have resulted in self-sustaining populations. Recent translocations to fenced areas in WA look promising, and more translocations to predator-free exclosures in SA, NSW and the NT are underway or being considered.

These intensive and long-term recovery efforts have increased the total population to over 1300 individuals. Ongoing work will ensure each subpopulation persists, particularly the unfenced populations in WA, and that additional subpopulations are established and genetic health and diversity is maintained.

<b>Found in</b>	WA, SA (fenced), NSW (fenced)
<b>EPBC Act status</b>	Endangered
<b>Conservation planning</b>	Recovery Plan (2017), Conservation Advice (2018)
<b>2018 population estimate</b>	~ 650 mature individuals in unfenced areas; 750 mature individuals in fenced exclosures; ~15 in captive breeding
<b>Confidence in 2018 estimate</b>	Medium
<b>Recovery partners</b>	WA, SA, NSW, NT and Australian governments, Project Numbat, Perth Zoo, WA Recovery Team, Australian Wildlife Conservancy, Murdoch University, Numbat Taskforce

### New ways to tackle threats to the Numbat

The Australian Government provided \$150,000 to the Foundation for Australia's Most Endangered Species for the Numbat Protection Dog project. This project is developing the use of dogs to protect the last remaining wild populations of Numbats by detecting feral cats in the Numbat's habitat. The project will measure the effectiveness of the trained dogs in detecting and this may also benefit other threatened fauna, including Woylies and Chuditch.

Stage one of the project confirmed that the detector dogs can locate the scent from feral cat scats. The next step is to see if dogs can translate the detection of cat scent to tracking down feral cats.

Other partners in this project include the Western Australia Department of Biodiversity, Conservation and Attractions and the Numbat Task Force. This project demonstrates an innovative way to counter the threats to Australia's native animals.

# THREATENED SPECIES STRATEGY – MAMMALS AT A GLANCE

## Western Quoll (Chuditch)

Photo: Todd R Soderquist



**Significant change in trajectory from 2005-15 to 2015-18?** No significant change. Increases from 2005-15, probably stable since.

**Improved trajectory ?**



The Western Quoll (*Dasyurus geoffroii*), or Chuditch, is a carnivorous marsupial similar in size to a small domestic cat. Chuditch used to occupy most of continental Australia, but disappeared from >90% of this range after European settlement and the introduction of foxes and feral cats. Chuditch have persisted across a range of forest and woodland habitats in south-western Australia, thanks to broad-scale control of foxes and feral cats.

Given the long term and ongoing nature of these feral predator control programs, such as Western Shield, populations of Chuditch in south-west WA have remained stable or increased over the last 20 years. Translocations of Chuditch from these populations to other predator managed areas, such as Bounceback and Arid Recovery in SA, have also allowed for the reintroduction of the species back into former parts of its range. As these translocated Chuditch establish breeding populations, the population trajectory is likely to continue increasing, if introduced predators are effectively controlled.

<b>Found in</b>	WA and SA
<b>EPBC Act status</b>	Vulnerable
<b>Conservation planning</b>	Recovery Plan (2013)
<b>2018 population estimate</b>	4400-6200 mature individuals; ~9 mature individuals in fenced enclosure
<b>Confidence in 2018 estimate</b>	Medium
<b>Recovery partners</b>	WA, SA and Australian governments, WWF, Foundation for Australia's Most Endangered Species, WA Recovery Team, Australian Wildlife Conservancy, Arid Recovery

## Returning home

The spread of foxes and feral cats across Australia had a devastating impact on Chuditch, with the species lost from most of the country. The small surviving populations in southern Western Australia have remained stable or increased slightly over the last 20 years, thanks to sustained broad-scale fox-baiting programs, most notably Western Shield.

The persisting Chuditch have been used as source populations for translocations of the species into wider Western Australia. Since 2015, translocations of Chuditch have even crossed the border into South Australia, with Chuditch successfully released into unfenced locations in the Flinders Ranges where there is intensive feral predator control and into a fenced feral-predator-free enclosure at Arid Recovery near Roxby Downs. Translocation is difficult and challenging with no guarantees of success, but it's a significant win for wildlife conservation management when it works. It's really important to have these native predators returned to landscapes where they have been missing for many decades.



# THREATENED SPECIES STRATEGY – MAMMALS AT A GLANCE

## Western Ringtail Possum

Photo: Adrian Wayne



**Significant change in trajectory from 2005-15 to 2015-18?** Yes, decline ongoing but at a slower rate.

**Improved trajectory?**



The Western Ringtail Possum (*Pseudocheirus occidentalis*) is an arboreal, herbivorous marsupial endemic to the south-west of WA. It depends on high quality forage from myrtaceous tree species. Western Ringtail Possums disappeared from at least 80% of their pre-European range by 1980, and their distribution and population size has continued to decline due to habitat loss and fragmentation, changed fire regimes, and predation by cats, foxes and dogs in some areas. Declines are likely to continue as climatic conditions become drier and warmer, as this affects the nutritional quality of the possums' preferred foliage, further changes fire regimes, causes overheating in the Possums, and changes their behaviour in ways that increase predation risk.

Actions to conserve Western Ringtail Possums include control of introduced predators (foxes and cats), guidelines to reduce impacts from timber harvesting and prescribed, controlled burning in Western Ringtail Possum habitat. Numerous organisations are undertaking education and awareness-raising events to minimise the impact of human activities on Western Ringtail Possums where they co-exist in urban and peri-urban areas.

<b>Found in</b>	WA
<b>EPBC Act status</b>	Critically Endangered
<b>Conservation planning</b>	Recovery Plan (2017), Conservation Advice (2018)
<b>2018 population estimate</b>	<3400 mature individuals
<b>Confidence in 2018 estimate</b>	Low
<b>Recovery partners</b>	WA and Australian governments, Nature Conservation Margaret River, NESP Threatened Species Recovery Hub, local government and community groups, University of Western Australia, WA Recovery Team.

### Learning to live together

Western Ringtail Possums love to live in the habitats that many people do, coastal forests. While habitat loss for development is one of the threats acting against Western Ringtail Possums, the species can be observed in some settled urban areas, particularly where mature peppermint trees with large, dense, overlapping canopies have been retained. It's possible that artificial watering in urban environments buffers these trees from a drying climate, providing nutritious foraging for Western Ringtail Possums.

The Western Ringtail Possum Recovery Team is working with community groups in south-west Western Australia to raise awareness among residents on how to support Western Ringtail Possums in urban and peri-urban landscapes. This includes promoting activities such as planting and preserving peppermint trees, keeping domestic cats and dogs indoors at night, providing shelter and water for possums in a safe elevated positions in back yards, and driving with extra caution at night when possums are most active.

# THREATENED SPECIES STRATEGY – MAMMALS AT A GLANCE

## Woylie

Photo: John Lawson



**Significant change in trajectory from 2005-15 to 2015-18?** Yes, rate of increase has improved.

**Improved trajectory?**



Woylies (*Bettongia penicillata*) are small, brush-tailed marsupials that were once the most widely-distributed of all the Bettongs, occurring across much of the mainland. Woylies rapidly declined after European settlement and were restricted to four areas in south-west WA by the 1960s. Population recovery as a result of broad scale fox baiting was observed in the 1990s, but this was followed by sudden population decline again in 2000s, mostly due to increased cat predation.

Implementation of integrated broad scale fox and feral cat control using Eradicat, aerially deployed over 15,000 km<sup>2</sup>, is again facilitating the recovery of Woylies in south-west WA, via the WA Government's Western Shield program.

Other management actions have included translocations to intensively managed areas that are free of introduced predator or where predators are strongly controlled. Woylies are currently extant on three SA islands (all cat- and fox-free), within eight cat- and fox-free fenced enclosures, and in one fenced peninsula where some feral cats are present. Translocations of Woylies to two large predator-proof enclosures in NSW are planned for 2019 and 2021.

<b>Found in</b>	WA, SA, NSW (fenced)
<b>EPBC Act status</b>	Endangered
<b>Conservation planning</b>	Recovery Plan (2012), Conservation Advice (2018)
<b>2018 population estimate</b>	100 000 mature individuals; 5500 in fenced enclosures and on islands
<b>Confidence in 2018 estimate</b>	Medium for wild populations High for fenced and island populations
<b>Recovery partners</b>	WA, SA and Australian governments, Australian Wildlife Conservancy, Wheatbelt NRM, Shire of Naremben, community groups



# TARGETS IN FOCUS – ACTION UNDERWAY FOR BIRDS

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Photo: Tom Hunt

## BIRD TARGET

**Action underway for all 20 birds to improve their population trajectory**

**Target met.** Every species has actions underway to improve their population trajectory.



A RANGE OF STATE AND TERRITORY GOVERNMENT AGENCIES, NON-GOVERNMENT ORGANISATIONS AND EXPERTS CONTRIBUTED TO A STOCKTAKE OF MANAGEMENT ACTIONS UNDERWAY THAT ARE SUPPORTING THE CONSERVATION OF THE PRIORITY BIRD SPECIES IN THE THREATENED SPECIES STRATEGY.

Full methodology on how this target was measured is available in the 'Methods for measuring actions and trajectories for mammals and birds' section of Targets in Focus on page 43.

This stocktake confirmed that actions are underway to support recovery of all 20 birds as well as the Christmas Island Frigatebird. The species snapshots from page 68 provide a brief overview of the types of activities that are being undertaken for each species by organisations, governments, non-government organisations, research institutions, Indigenous groups and community groups across the country.

Examples of actions underway include:

- Support from the Victorian and Australian Governments for the purchase of land and for the Friends of the Helmeted Honeyeater to undertake actions such as supplemental feeding, tree planting, nest protection, and management of invasive species to benefit the Helmeted Honeyeater at Yellingbo Reserve in Victoria.

- The application of effective fire management practices by Warddeken and Djelk Indigenous Ranger groups as well as Kakadu National Park managers resulting in improved habitat conditions and trajectory for the White-throated Grasswren.
- Australian Government funded management action on Norfolk Island including invasive rodent and feral cat control, nest protection, and habitat improvement has helped the population of the Norfolk Island Green Parrot increase significantly in recent years.





# TARGETS IN FOCUS – IMPROVING THE TRAJECTORIES OF 20 BIRDS

Photo: Dejan Stojanovic

## BIRD TARGET

**At least 10 identified birds demonstrating an improved trajectory**

**Target not met.** Six identified birds assessed by independent experts as having an improved trajectory.



SIX BIRD SPECIES TARGETED UNDER THE THREATENED SPECIES STRATEGY WERE ESTIMATED AS HAVING AN IMPROVED TRAJECTORY. BIRDS THAT ARE SHOWING A SIGNIFICANTLY IMPROVED TRAJECTORY ARE THE EASTERN BRISTLEBIRD, HELMETED HONEYEATER, MALLEE EMU-WREN, NORFOLK ISLAND GREEN PARROT, REGENT HONEYEATER AND WHITE-THROATED GRASSWREN.

Five of the six species with significantly improved trajectories are estimated to have increasing populations. The Eastern Bristlebird has benefited from active habitat and fire management, and the Helmeted Honeyeater's population has increased with supplemental feeding and the improvement of habitat in the Yellingbo Reserve in Victoria. The Mallee Emu-wren has seen the re-establishment of a geographically distinct population in South Australia, while the White-throated Grasswren has benefited from improved fire management practices. The Norfolk Island Green Parrot population has more than doubled in recent years with increased efforts to manage introduced rodents and secure nest sites.

The Regent Honeyeater was also assessed as having a significantly improved trajectory. The species continues to show signs of ongoing decline, but the rate of loss has been significantly arrested since 2015.

Fifteen birds were assessed as not having statistically significant changes in their trajectories. Most of these species have experienced multiple decades of decline making recovery a complex, long-term undertaking. Recovery action is underway for all of the targeted bird species under the Strategy. For critically endangered birds like the Orange-bellied Parrot and the Western Ground Parrot, emergency interventions have helped prevent the extinction of the species. Other species, like the Southern Cassowary, now have reasonably stable populations thanks to concentrated efforts to improve habitat connectivity and reduce threats.

Several species including the Australasian Bittern, Eastern Curlew, and Swift Parrot continue to exhibit evidence of population decline. Achieving significantly improved trajectories for these species by 2020 will require ongoing, and in some cases, intensified recovery efforts.

The summaries of the species trajectories over the following pages provide further details.

# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## Alligator Rivers Yellow Chat

Photo: Micha V Jackson



**Significant change in trajectory from 2005-15 to 2015-18?** No, ongoing decline.

**Improved trajectory?**



The Alligator Rivers Yellow Chat (*Epthianura crocea tunneyi*) is a small insectivorous bird that now occurs mostly within Kakadu National Park. The species' range and numbers are thought to have declined after habitat loss from cattle grazing, and habitat degradation caused by feral pigs and water buffalo. Its total population size is now very small.

Parks Australia has undertaken targeted control of feral pigs in Kakadu National Park, as well as ongoing control of the invasive Prickly Mimosa and controlled burning to reduce the occurrence of high-intensity fires late in the dry season that may also threaten the species.

This improved environmental management may have slowed the decline of Alligator Rivers Yellow Chat, and with ongoing support, the population could increase in future.

Inclusion in the Threatened Species Strategy has specifically raised the profile of the Alligator Rivers Yellow Chat, encouraging research by other organisations that is critical in improving understanding of the species' needs.

Found in	NT
EPBC Act status	Endangered
Conservation planning	Conservation Advice (2016)
2018 population estimate	100 mature individuals
Confidence in 2018 estimate	Low
Recovery partners	NT and Australian governments (including Parks Australia) , traditional owners, NESP Threatened Species Recovery Hub, Charles Darwin University

# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## Australasian Bittern

Photo: Andrew Silcocks



**Significant change in trajectory from 2005-15 to 2015-18?** No, ongoing slow decline.

**Improved trajectory?**



The Australasian Bittern (*Botaurus poiciloptilus*) is a large, heron-like bird that was once widespread across reedy wetlands of southern Australia but loss and degradation of its preferred habitat caused substantial declines. This has been made worse by the increased frequency and length of droughts, in some places making it possible for fires to damage remaining habitat. Australasian Bittern chicks and juveniles are also vulnerable to predation by foxes.

The largest population now nests in irrigated rice paddies in the Riverina, where industry partners have significantly contributed to recovery activities, including through encouraging rice farmers to use bittern-friendly methods.

Recovery efforts are also focussing on restoring natural wetlands, with active management of reed beds to maximise habitat suitability. Provision of environmental water flows and control of foxes are also important for securing the future of Bitterns.

<b>Found in</b>	NSW, Vic, Tas, SA, Qld, WA
<b>EPBC Act status</b>	Endangered
<b>Conservation planning</b>	Conservation Advice (2019)
<b>2018 population estimate</b>	1500 mature individuals
<b>Confidence in 2018 estimate</b>	Medium
<b>Recovery partners</b>	SA, Victorian, WA and Australian governments, BirdLife Australia, Rice Growers Association, irrigation farmers, NRM and CMA groups, local conservation groups, Charles Darwin University

### Farming and wildlife conservation working together

As the world's population grows so to do the demands on agriculture and on the availability of land to support biodiversity. But conserving biodiversity and agricultural production can go hand-in-hand.

Loss of habitat has been a clear driver for declines in the Australasian Bittern but long-term monitoring has revealed that rice paddies in the Riverina provide ideal Bittern habitat with a significant number of the rare species calling these environments home.

Since 2012, the Bitterns in Rice project has brought together key industry players, private corporations, non-government organisations, local and state governments and natural resource management organisations to undertake vital work connecting Bittern conservation to agricultural management. This has included research on Bittern abundance in and use of rice paddies, the development of tips for growing Bittern friendly rice and trailing independently managed habitat bays within rice fields.

Citizen science has made a significant contribution to Bittern conservation through raising awareness and engaging with the rice growing community in the Riverina. By providing expertise into the experimental design phase of the project, allowing access to their land for professional surveys, and getting involved interpreting the findings of the project, the rice-growing farmers of the Riverina region play a key role in the project's success and help to demonstrate that food production and wildlife conservation can work together to support healthy local economies and vulnerable threatened species.



# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## Cassowary



Photo: Wet Tropics Management Authority

The Southern Cassowary (*Casuarius casuarius johnsonii*) is a flightless bird and the largest native animal in Australian rainforests. Cassowaries have an important function in maintaining the rainforest plant diversity and community structure through dispersing large seeds.

In Australia, Southern Cassowaries are found in Queensland's Wet Tropics and Cape York Peninsula, but occurrence within their natural range has been greatly reduced and fragmented by historical forest clearance. Since the 1990s, habitat protection and rehabilitation of the Wet Tropics rainforest by many people, including natural resource managers, Indigenous and conservation groups, private landholders, local councils and the Queensland Government, have reduced the threat of ongoing habitat loss and cassowary populations currently appear stable.

Through the Threatened Species Strategy, the Australian Government has contributed to expansion of rainforest rehabilitation areas, to join up previously fragmented rainforest blocks and provide greater habitat connectivity for cassowaries.

**Significant change in trajectory from 2005-15 to 2015-18?** No, population generally stable.

**Improved trajectory?**

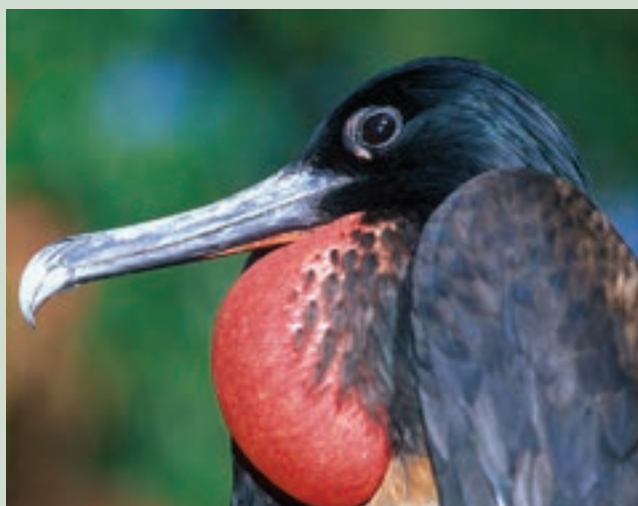


<b>Found in</b>	Qld
<b>EPBC Act status</b>	Endangered
<b>Conservation planning</b>	Recovery Plan (2007)
<b>2018 population estimate</b>	5000-6000 mature individuals
<b>Confidence in 2018 estimate</b>	Medium
<b>Recovery partners</b>	Qld and Australian governments, Australian Wildlife Conservancy, Terrain NRM, traditional owners, Cassowary Recovery Team, Biotropica, Kuranda Conservation, Mission Beach Cassowaries, CSIRO, James Cook University, Charles Darwin University

# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## Christmas Island Frigatebird

Photo: Chris Surman/ Christmas Island Tourism



**Significant change in trajectory from 2005-15 to 2015-18?** No, population generally stable.

**Improved trajectory?**



Christmas Island Frigatebirds (*Fregata andrewsi*) forage over the Indian Ocean and into the Indo-Malay Archipelago, but only breed in rainforest trees on Christmas Island. The breeding population has declined substantially due to historic habitat clearance and secondary impacts from phosphate mining on the island, and ongoing off-island impacts including hunting, marine pollution, bycatch in fisheries and reduced prey availability as fish stocks have been depleted.

Threats on Christmas Island are being mitigated through effective management by Parks Australia and island partners, and constraints on ongoing clearing. However, threats are still active beyond the breeding sites, when the birds are foraging or resting. Managing these threats will require ongoing cooperative work with foreign fishing communities and authorities to reduce direct mortality of frigatebirds, as well supporting sustainable fisheries management to halt overfishing and subsequently reduce prey depletion.

<b>Found in</b>	Christmas Island (Indian Ocean Territories)
<b>EPBC Act status</b>	Endangered
<b>Conservation planning</b>	Conservation Advice (2016)
<b>2018 population estimate</b>	4000-5000 mature individuals
<b>Confidence in 2018 estimate</b>	Medium
<b>Recovery partners</b>	WA and Australian governments (including Parks Australia), Christmas Island Seabird Project, NESP Threatened Species Recovery Hub, CSIRO, University of Hamburg, Indonesian conservation groups

# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## Eastern Bristlebird

Photo: Mick Bramwell



**Significant change in trajectory from 2005-15 to 2015-18?** Yes, ongoing recovery.

**Improved trajectory?**



The Eastern Bristlebird (*Dasyornis brachypterus*) comprises three distinct populations that occupy different habitat types and are managed separately.

The northern population is found only in grassy forest habitat in south-east Queensland and north-east NSW. This habitat depends on a particular fire regime to maintain patches suitable for northern Eastern Bristlebirds, and until recently populations had been rapidly declining. However, active habitat restoration, targeted fire management and captive breeding efforts in recent years have halted this decline and numbers are now increasing.

The central and southern populations have experienced significant range contraction from southern coastal NSW and are now found in small pockets of suitable heathland habitat in south-east NSW and far-eastern Victoria. All monitored populations, including several that have been re-introduced, are either stable or increasing, mostly as a result of intensive management of fire and exotic predator management.

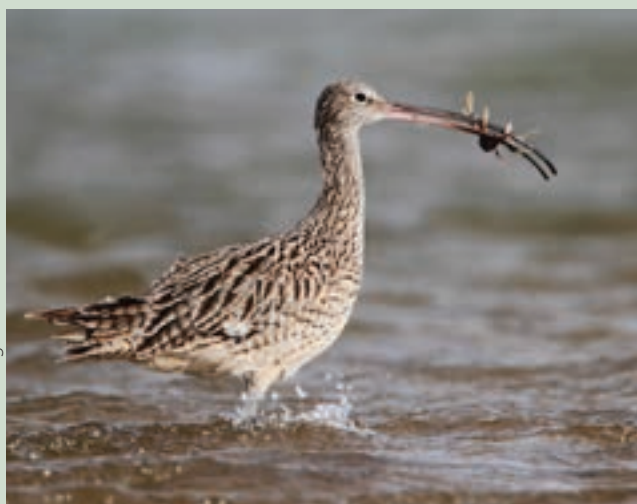
<b>Found in</b>	Qld, NSW, Victoria
<b>EPBC Act status</b>	Endangered
<b>Conservation planning</b>	Recovery Plan (2014)
<b>2018 population estimate</b>	Northern – 30-40 mature individuals in the wild, 15 in captivity; Central and southern – 2800 mature individuals
<b>Confidence in 2018 estimate</b>	Northern – high Southern – medium
<b>Recovery partners</b>	Qld, NSW, Victorian and Australian governments (including Parks Australia), NESP Threatened Species Recovery Hub, Currumbin Wildlife Sanctuary, Fleay's Wildlife Park, volunteers, University of Wollongong



# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## Eastern Curlew

Photo: Dean Ingwersen



**Significant change in trajectory from 2005-15 to 2015-18?** No, ongoing marked decline.

**Improved trajectory?**



The Eastern Curlew (*Numenius madagascariensis*) is a large wading bird that breeds in China and Russia and then migrates to coastal regions in Australia, south-east Asia and Papua New Guinea. Global populations are declining steadily, primarily due to loss of intertidal mudflats around the Yellow Sea which provide critically important staging and stopover sites during migration. Additional threats include coastal development in non-breeding range, bycatch in fishing nets, disturbance of nest sites and degradation of coastal mudflats.

Recovery efforts in Australia focus on coastal habitat restoration, raising community awareness and protecting important foraging sites, while research to improve understanding of the species' needs is underway to inform better management. Internationally, the Australian Government and conservation partners are working through the Convention on Migratory Species to help protect key intertidal habitats.

However, overall Eastern Curlews are still decreasing and more work to protect the species is needed, particularly overseas. Investment by the Australian Government in international flyway agreements should yield benefits to the species in the long term.

<b>Found in</b>	Coastal areas, all states
<b>EPBC Act status</b>	Critically Endangered
<b>Conservation planning</b>	Conservation Advice (2015)
<b>2018 population estimate</b>	35 000 mature individuals
<b>Confidence in 2018 estimate</b>	High
<b>Recovery partners</b>	NT and all state governments, Australian Government, East Asian - Australasian Flyway Partnership, Australasian, Queensland and Victorian Wader Study Groups, BirdLife Australia, NESP Threatened Species Recovery Hub, Australian Trust for Conservation Volunteers, Charles Darwin University, University of Queensland, Griffith University

# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## Golden-shouldered Parrot



Photo: Graeme Chapman

**Significant change in trajectory from 2005-15 to 2015-18?** No, ongoing slow decline.

**Improved trajectory?**



The Golden-shouldered Parrot (*Psephotus chrysopterygius*), or Alwal in Olkola language, is a significant cultural species for Indigenous peoples in far north Queensland. The species once occurred in tropical savanna woodland throughout Cape York Peninsula, but has now contracted to two small areas of less than 2000 km<sup>2</sup> following changes in fire regimes and competition with cattle for wet season seeding grasses.

From the late 1990s, recovery efforts for Golden-shouldered Parrots focused on habitat restoration through strategic burning, vegetation and feral animal management, including some destocking. Since 2016, specific activities have been undertaken through the 'Bringing Alwal Home' program, including training for Olkola rangers, feral cat control, improved fire management, supplementary feeding and research on breeding success and predation. Australian Government funding has supported this program and the Golden-shouldered Parrot Recovery Team. Early signs are that these activities should stabilise the decline of Golden-shouldered Parrots but more work will be needed to secure the species into the future.

<b>Found in</b>	Queensland
<b>EPBC Act status</b>	Endangered
<b>Conservation planning</b>	Recovery Plan (2004), Conservation Advice (2017)
<b>2018 population estimate</b>	700-1100 mature individuals in the wild; unknown numbers in captivity
<b>Confidence in 2018 estimate</b>	Medium
<b>Recovery partners</b>	Cape York traditional owners , Artemis Station, Queensland Parks and Wildlife Service, Recovery Team, Bush Heritage Australia, Australian Government

# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## Helmeted Honeyeater

Photo: Merryn Kelly



**Significant change in trajectory from 2005-15 to 2015-18?** Yes, rate of increase has improved

**Improved trajectory?**



The Helmeted Honeyeater (*Lichenostomus melanops cassidix*) is a small woodland bird from central southern Victoria. Its distribution and numbers contracted dramatically after historic land clearing and altered hydrological regimes, while subsequent agricultural development and increased fire frequency have caused ongoing habitat loss and degradation.

Almost the entire remaining population is now in the Yellingbo Nature Conservation Reserve, where intensive and continuous recovery efforts since the late 1980s have increased total numbers from 70 to around 200 and rising.

Protection and enhancement of critical habitat at Yellingbo has been central to recovery efforts. Activities such as supplementary feeding, tree planting, nest protection and management of invasive species have been led by the Friends of the Helmeted Honeyeater volunteer group with support from the Victorian and Australian Governments. Additional recovery efforts include attempted establishment of additional wild populations outside Yellingbo and a captive breeding program led by Zoos Victoria.

<b>Found in</b>	Victoria
<b>EPBC Act status</b>	Critically Endangered
<b>Conservation planning</b>	Recovery Plan (2008), Conservation Advice (2014)
<b>2018 population estimate</b>	160 mature individuals
<b>Confidence in 2018 estimate</b>	High
<b>Recovery partners</b>	Victorian and Australian governments, Recovery Team, Friends of the HeHo, Zoos Victoria, Port Phillip and Westernport CMA, Trust for Nature, Greening Australia, Monash University, Melbourne University

### A friend in need

After the devastating 'Ash Wednesday' fires in 1980s, the 80 hectare Yellingbo Nature Conservation Reserve became home to the last remaining population of Helmeted Honeyeaters. With perhaps as few as 50 birds left in the wild the future of the species looked bleak.

In 1989, a group of concerned citizens came together to form the Friends of the Helmeted Honeyeater. Since that time, Friends of the HeHo have been a constant champion for the species, raising public awareness, lobbying for greater protection, and contributing countless volunteer hours to support the delivery of on-ground activities.

Among the Friends of the HeHo's many achievements over the past three decades has been the creation of a native plant nursery at Yellingbo that produces thousands of trees and plants for habitat restoration. Additional land purchases initiated by the group have expanded the reserve and its members have developed public education campaigns, provided supplemental food, and contributed dozens of other recovery initiatives. Many recovery challenges lie ahead, but it's comforting to know that Helmeted Honeyeater can rely on the support of its friends.



# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## Hooded Plover

Photo: Graeme Chapman



**Significant change in trajectory from 2005-15 to 2015-18?** No, ongoing slow decline.

**Improved trajectory?**



The Hooded Plover (Eastern) (*Thinornis rubricollis rubricollis*) is a small beach-dwelling bird. Widely dispersed along coastal south-east Australia, they are easily disturbed while nesting on sandy beaches and numbers have fallen over time in areas where human activity has increased.

BirdLife Australia and its partners have played leading roles in coordinating recovery efforts for Hooded Plovers. State and local governments and community coalitions formed with the help of BirdLife Australia have led public education campaigns, mobilised local volunteers, and led on-ground action to protect and monitor the species. Community and volunteer support has been central to these efforts.

Recovery efforts have helped reduce the rate of population declines, but trends are variable across the species' range and without the continuation of interventions, even more severe declines are likely.

<b>Found in</b>	NSW, Vic, Tas, SA
<b>EPBC Act status</b>	Vulnerable
<b>Conservation planning</b>	Conservation Advice (2014)
<b>2018 population estimate</b>	3000 mature individuals
<b>Confidence in 2018 estimate</b>	High
<b>Recovery partners</b>	NSW, Victorian, Tasmanian, SA and Australian governments, BirdLife Australia, Friends of the Hooded Plover and other volunteer groups, local councils, regional NRM groups, Deakin University

### Local communities key to Hooded Plover conservation

Conservation frequently comes down to people and their behaviours. Just as people can be the source of problems, they can equally be the potential solution.

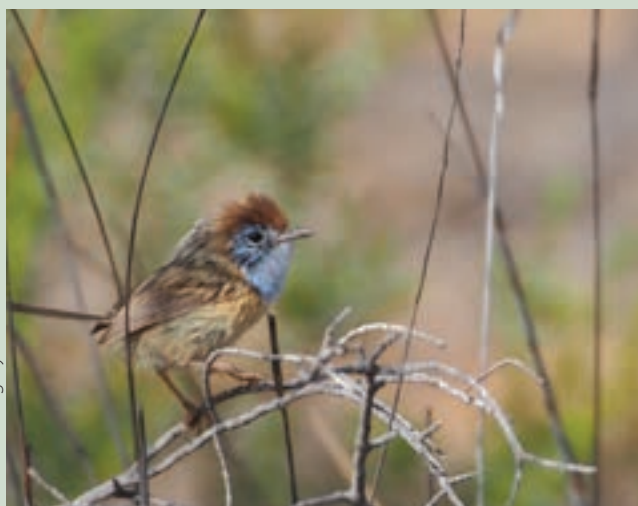
Human activity on beaches has been a key driver of Hooded Plover decline - particularly when those activities involve unleashed dogs, riding horses or driving vehicles in nesting areas. But bright spots also exist. In many coastal communities simple education campaigns and some dedicated volunteers have shown it's possible for Hooded Plovers and people to co-exist.

Monitoring shows that breeding success is significantly higher at beach sites that are effectively managed. Local community groups play a critical role in this management by educating beach goers, changing behaviours, and implementing on-ground measures to protect the Hooded Plovers near them.

# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## Mallee Emu-wren

Photo: Gregory Andrews



**Significant change in trajectory from 2005-15 to 2015-18?** Yes, was declining and now increasing.

**Improved trajectory?**



The Mallee Emu-wren (*Stipiturus mallee*) is a tiny insectivorous bird that forages among mature spinifex hummocks in the Mallee regions of south-eastern Australia. Once more widespread, their habitat and numbers have been significantly reduced by agricultural land clearing and altered fire regimes.

Mallee Emu-wrens are not strong flyers and do not traverse open patches such as cleared land or fire scars, so remaining populations are further threatened by fragmentation and impacts of fire. In 2014, the entire SA population was lost in a single large-scale fire event in Ngarkat Conservation Park.

Conservation efforts for Mallee Emu-wrens have traditionally focused on habitat restoration, including fire management and reducing grazing pressures by native and introduced herbivores. More recently, a cross-jurisdictional consortium with support from the Australian Government has trialled translocations from the Victorian population to re-establish Mallee Emu-wren in SA, with initial monitoring showing promising results. Zoos SA has also undertaken preliminary work to establish a captive breeding program. These intensive management measures have shifted the population trajectory from declining to increasing, however the species remains at severe risk from wildfire.

<b>Found in</b>	Victoria, SA
<b>EPBC Act status</b>	Endangered
<b>Conservation planning</b>	Conservation Advice (2008), Recovery Plan (2016)
<b>2018 population estimate</b>	4500 mature individuals
<b>Confidence in 2018 estimate</b>	High
<b>Recovery partners</b>	Victorian, SA and Australian governments, BirdLife Australia, Conservation Action Plan Implementation team, Zoos SA, Zoos Victoria, Rotary Australia, La Trobe University, Monash University

### A South Australian comeback story

In 2014, devastating fires caused the local extinction of Mallee Emu-wren in South Australia. The entire remaining wild population was then confined to three closely located sites Victoria where another major fire event could potentially cause the outright extinction of the species.

In 2015, a \$100,000 investment from the Australian Government helped bring experts together and enabled the science and planning required for possible translocations of Mallee Emu-wren back to South Australia. In 2017, a further \$225,000 provided through the Threatened Species Recovery Fund helped to make this project a reality.

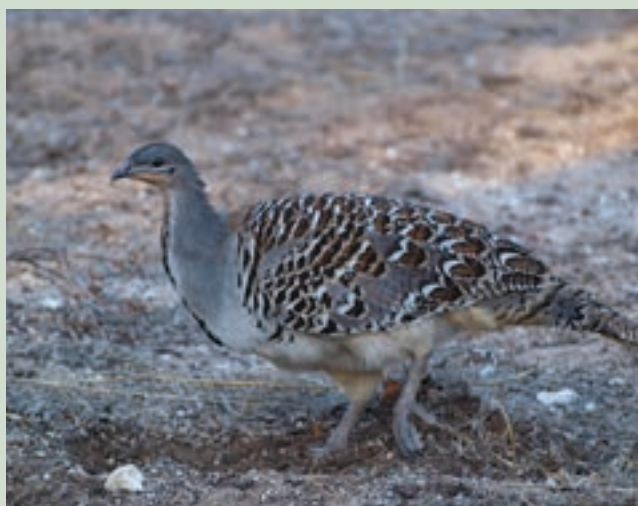
In 2018, a committed multi-jurisdictional project team comprised of staff from Natural Resources SA Murray-Darling Basin, BirdLife Australia, Zoos SA, DELWP Victoria, Parks Victoria, La Trobe University, Monash University and Zoos Victoria executed the translocation plan.

Project leaders, volunteers, and even members of the local Rotary Club travelled to Victoria's Murray Sunset and Hattah-Kulkyne National Parks to source birds for the founder population. The birds were carefully caught, banded, and transported back to South Australia.

# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## Malleefowl

Photo: Sharon Gillam



**Significant change in trajectory from 2005-15 to 2015-18?** No, ongoing decline.

**Improved trajectory?**



The Malleefowl (*Leipoa ocellata*) is a large ground dwelling bird found in semi-arid to arid shrublands and woodlands across southern Australia. The population has declined sharply since European settlement, initially because of agricultural land clearing, altered fire regimes, introduced predators and competition with introduced herbivores, and more recently due to a long term trend of declining rainfall.

The Malleefowl has a strong multi-jurisdictional recovery team and one of the best and longest running monitoring efforts of any species in Australia. Across the country, a well-coordinated army of volunteers and professionals undertake on-ground works and annual surveys of the species' distinctive nesting mounds. Significant interventions include improving management of remaining habitats and mitigating direct threats, particularly fire and predation from foxes, as well as the purchase, covenanting and revegetation of lands connecting Malleefowl populations by NGOs and regional NRM organisations.

These considerable research, monitoring and recovery efforts may have slowed the rate of Malleefowl decline in recent years but overall numbers continue to fall and this species will require ongoing support under changing climatic conditions.

<b>Found in</b>	NSW, Victoria, SA, NT, WA
<b>EPBC Act status</b>	Vulnerable
<b>Conservation planning</b>	Recovery Plan (2010)
<b>2018 population estimate</b>	19 000 mature individuals
<b>Confidence in 2018 estimate</b>	High
<b>Recovery partners</b>	Vic, SA, WA, NSW and Australian governments, Recovery Team, community groups and volunteers, private landholders, regional NRM groups, BirdLife Australia, Trust for Nature, Bush Heritage, Australian Wildlife Conservancy, Indigenous rangers, NESP Threatened Species Recovery Hub



# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## Norfolk Island Boobook Owl



Photo: Amy Svendsen, 2012

**Significant change in trajectory from 2005-15 to 2015-18?** No, population stable.

**Improved trajectory?**



The Norfolk Island Boobook Owl (*Ninox novaeseelandiae undulata*) nearly became extinct in the 1980s, when it was discovered that only a single female remained after extensive historic clearing of vegetation and harvesting of large trees destroyed most suitable nesting sites on the island. Two males of a different subspecies were introduced from New Zealand and the subsequent current population of 45-50 Boobooks is highly inbred.

Very few natural nesting sites remain in Norfolk Island's limited forest habitat so recovery efforts for the Boobook have focused on securing nest sites, through provision of nest boxes and active culling of next competitors, such as introduced rosellas.

Of great concern, there has been no successful breeding observed since 2012 and the outlook for the aging population of Boobooks is poor. Research required to inform management that can best support the Norfolk Island Boobook Owl should determine whether this is due to genetic constraints or issues with nest box placement.

Found in	Norfolk Island
EPBC Act status	Endangered
Conservation planning	NI Region Recovery Plan (2010), Conservation Advice (2016)
2018 population estimate	45-50 mature individuals
Confidence in 2018 estimate	High
Recovery partners	Parks Australia, Australian Government

# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## Norfolk Island Green Parrot

Photo: Cassandra Jones, Parks Australia



**Significant change in trajectory from 2005-15 to 2015-18?** Yes, was declining and now increasing.

**Improved trajectory?**



The Norfolk Island Green Parrot (*Cyanoramphus cookii*) was a common forest bird when the island was settled by humans in the late 1700s, but after extensive clearing of trees and introduction of feral predators, fewer than 50 individuals remained by the 1970s.

While land clearing on the Island has ceased, competition for suitable nesting sites with introduced species such as rosellas and common starlings is fierce, and predation from rats and cats remains a current threat.

In recent years, the Norfolk Island Green Parrot population has responded well to recovery activities, even expanding beyond the borders of the Norfolk Island National Park to which its range had contracted. Parks Australia has worked hard to secure the species through maintaining predator-proof nest sites, restoring habitat and controlling rats, cats and rosellas. Under the Threatened Species Strategy, the Australian Government has mobilised funds for rodent control, feral cat management and for a trial translocation of Norfolk Island Green Parrots to the adjacent Phillip Island to further secure the species' range with a geographically separate insurance population.

<b>Found in</b>	Norfolk Island
<b>EPBC Act status</b>	Endangered
<b>Conservation planning</b>	NI Region Recovery Plan (2010), Conservation Advice (2016)
<b>2018 population estimate</b>	250-450 mature individuals
<b>Confidence in 2018 estimate</b>	High
<b>Recovery partners</b>	Parks Australia, Australian Government, Green Parrot Advisory Panel, BirdLife Australia

### Norfolk Island: addressing threats to the Green Parrot

The Norfolk Island Green Parrot was a common forest bird in the late 1700s, but by the 1970s only 50 individuals remained. The population recovered to some extent thanks to predator control and protection of nests, but declined again between 2007 and 2013.

Parks Australia, with support from funding mobilised through the Threatened Species Strategy, has been actively addressing the threats facing the bird in Norfolk Island National Park, including through control of rodents, feral cats and feral birds (birds such as Crimson Rosellas, while common on mainland Australia, were introduced to Norfolk Island and compete for scarce hollows), nest protection and habitat rehabilitation and weed control to improve habitat quality.

These actions have led to a doubling of the Norfolk Island Green Parrot numbers to between 250 and 400 by 2018. There is also growing anecdotal evidence that its range has increased and is now regularly seen outside the park.

# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## Night Parrot



Photo: Steve Murphy

**Significant change in trajectory from 2005-15 to 2015-18?** No significant change.

**Improved trajectory?**



The Night Parrot (*Pezoporus occidentalis*) is a medium-sized ground dwelling bird associated with mature Spinifex habitat in arid and semi-arid regions. Presumed extinct for a century, a population was rediscovered in 2013, but it remains one of Australia's most cryptic species. Its distribution and population numbers declined severely after European settlement, Night Parrots are now known only in isolated populations in south-west Queensland and northern inland WA. Key threats are predation by feral cats, altered fire regimes, and habitat degradation associated with overgrazing and changing climatic conditions.

A fundamental challenge in protecting and recovering the Night Parrot is simply locating existing populations, which requires significant research and monitoring effort in remote locations. Conservation activities have focused on effective management of fire, feral cats and grazing pressures to maintain suitable Night Parrot habitat. The overall population and distribution of Night Parrots is not well known, but the rediscovery and subsequent protection efforts provides hope for the future of the species.

<b>Found in</b>	Qld, NT, WA
<b>EPBC Act status</b>	Endangered
<b>Conservation planning</b>	Conservation Advice (2016)
<b>2018 population estimate</b>	30 mature individuals
<b>Confidence in 2018 estimate</b>	Low
<b>Recovery partners</b>	Bush Heritage Australia, Qld, WA, NT and Australian governments, Recovery Team, Australian Wildlife Conservancy, Birriliburu traditional owners, Paruku Rangers, University of Queensland



# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## Orange-bellied Parrot

Photo: Graeme Chapman



**Significant change in trajectory from 2005-15 to 2015-18?** No, ongoing decline with some recent possible abatement.

**Improved trajectory?**



The Orange-bellied Parrot (*Neophema chrysogaster*) is a small migratory bird that breeds in south-west Tasmania in summer and spends the rest of the year in coastal regions of the south-eastern Australian mainland. A combination of threats has caused precipitous decline in numbers over the past 100 years and fewer than 50 birds remain in the wild. A large, multi-jurisdictional recovery effort has prevented the extinction of the species, but its perilously small population and loss of genetic diversity means threat of extinction remains high.

Significant recovery efforts have been underway since the 1980s, with management actions and recovery interventions escalating in recent years, particularly around the critical breeding area of Melaleuca, Tasmania. Recent actions include release of captive bred Orange-bellied Parrots to augment the wild population, increased fire and predator management around nesting sites, supplemental feeding, and habitat restoration. The high level of investment and intensive management has reduced population declines and prevented extinction. However, without maintained effort the current wild population will not be sustained.

<b>Found in</b>	Tasmania, Victoria
<b>EPBC Act status</b>	Critically Endangered
<b>Conservation planning</b>	Recovery Plan (2016)
<b>2018 population estimate</b>	30-40 mature individuals in the wild; 350 in captivity
<b>Confidence in 2018 estimate</b>	High
<b>Recovery partners</b>	Tasmanian, Victorian and Australian governments, Recovery Team, Captive Management Group, Zoos Victoria, BirdLife Australia, Australian National University, NESP Threatened Species Recovery Hub, regional NRM groups, volunteer groups

# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## Plains-wanderer

Photo: Taronga Zoo



**Significant change in trajectory from 2005-15 to 2015-18?** No significant change likely.

**Improved trajectory?**



The Plains-wanderer (*Pedionomus torquatus*) is a ground-dwelling bird that lives in grasslands. Once widespread across south-east Australia, declines were first observed in the 1960s, from overgrazing during droughts and predation by introduced carnivores and native birds of prey. Habitat loss and degradation also remain key threats, exacerbated by a warming climate and small population size.

The species is cryptic and difficult to monitor, so population trends are hard to measure. Declines are inferred in the last decade, particularly in parts of Victoria and NSW, but insurance populations in captivity have also been successfully established in these states.

Recovery efforts have focused on habitat management, including improved grassland stewardship and fox control. The Threatened Species Strategy has contributed to Plains-wanderer conservation by assisting with the establishment of captive breeding and also by supporting improved grazing practices and fox control on areas of private land in the Riverina. These actions to support the Plains-wanderer are expected to lead to an improved trajectory over the next few years.

<b>Found in</b>	NSW, Vic, Qld, SA
<b>EPBC Act status</b>	Critically endangered
<b>Conservation planning</b>	Conservation Advice (2015), Recovery Plan (2016)
<b>2018 population estimate</b>	500-1000 mature individuals in the wild; 20-30 in captivity
<b>Confidence in 2018 estimate</b>	Low
<b>Recovery partners</b>	NSW, Victorian, SA and Australian governments, Recovery Team, Taronga Zoo, Zoos Victoria, Zoos South Australia, Featherdale Wildlife Park, NRM groups, Trust for Nature, private landholders.

### Together we can achieve more

Plains-wanderers occur in native lowland grasslands of south-eastern Australia. The length of ground cover is very important for the species - if grass is too long it makes it difficult to forage for seed and insects, too short and it leaves them without cover from predators. Agricultural development since European settlement, particularly cropping and grazing activities, has greatly reduced the amount of viable habitat for the species and today perhaps less than 1000 birds remain in the wild.

The recovery of this critically endangered species is a complex undertaking requiring a long-term, coordinated effort. Fortunately, a diverse and committed cohort of partners is stepping up to help secure the future of this extraordinary bird. The Australian Government, along with Victorian, South Australian, and Queensland Government agencies, zoos, non-profit organisations, regional land managers, and private landholders are working to reduce threats, maintain critical habitat, and implement recovery actions for the species.

The New South Wales Government is also playing a leading role in Plains-wanderer recovery through their 'Saving our Species' (SoS) program. The Plains-wanderer is one of the 'Iconic Species' under the program with identified priority actions including protecting important habitat in the Southern Riverina. The New South Wales Government also provided support for the construction of 30 purpose built aviaries at the Taronga Western Plains Zoo to help start conservation-breeding program for the species.

Many challenges and a long road to recovery lie ahead for the Plains-wanderer, but continuing harness the skills and resources of multiple recovery partners provides the best opportunity for success.

# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## Red-tailed Black Cockatoo (south-eastern)

Photo: Bob McPherson



**Significant change in trajectory from 2005-15 to 2015-18?** No, ongoing slow decline.

**Improved trajectory?**



The single south-eastern population of Red-tailed Black Cockatoos (*Calyptorhynchus banksii graptogyne*) is found in limited numbers in south-east SA and south-west Victoria. The species is highly dependent on seeds from just three tree species, as well as deep hollows in old eucalypt trees for nesting sites that can take centuries to form. It is therefore very sensitive to habitat loss through tree decline caused by steadily drying climatic changes and to disturbance from fire.

Recovery actions over more than a decade have focused on habitat protection and regeneration, with local communities, governments, private landholders and industry partners making significant contributions to landscape rehabilitation and the protection of nesting sites. While many hard-working people have planted thousands of important food trees for Red-tailed Black Cockatoos to connect and expand habitat so that the long-term future of this iconic species can be secured, the number of young birds joining the population in recent years has been falling for reasons that are still unclear.

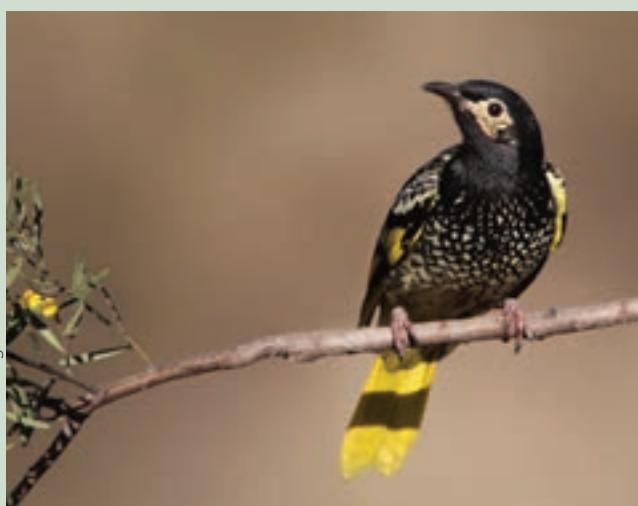
<b>Found in</b>	SA, Victoria
<b>EPBC Act status</b>	Endangered
<b>Conservation planning</b>	Recovery Plan (2007)
<b>2018 population estimate</b>	1000-2000 mature individuals
<b>Confidence in 2018 estimate</b>	Medium
<b>Recovery partners</b>	SA, Victorian and Australian governments, Recovery Team, regional NRM organisations, environmental NGOs, BirdLife Australia, local councils, community and volunteer groups.



# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## Regent Honeyeater

Photo: Dean Ingwersen



**Significant change in trajectory from 2005-15 to 2015-18?** Yes, decline ongoing but at a slower rate

**Improved trajectory?**



The Regent Honeyeater (*Anthochaera phrygia*) is a striking black and yellow bird endemic to eucalypt woodlands of mainland south-east Australia. Once abundant and ranging from Adelaide to south-east Queensland, much of its habitat was cleared for agriculture and the species now moves between widely spaced patches of remnant habitat and its population has declined severely.

Recovery actions include habitat protection, restoration and revegetation at key habitat sites and the release of captive bred birds, combined with volunteer surveys and the use of cutting edge science such as satellite tracking.

The reasons for ongoing decline over recent years are poorly understood and are the subject of ongoing research. Therefore, while the rate of population change appears to have improved, uncertainty remains about the population trajectory for Regent Honeyeaters in the future.

<b>Found in</b>	Qld, NSW, ACT, Victoria
<b>EPBC Act status</b>	Critically Endangered
<b>Conservation planning</b>	Conservation Advice (2015), Recovery Plan (2016)
<b>2018 population estimate</b>	350 mature individuals in the wild; unknown numbers in captivity
<b>Confidence in 2018 estimate</b>	Medium
<b>Recovery partners</b>	Victorian, NSW, ACT and Australian governments, Recovery Team, Taronga Conservation Society, Zoos Victoria, Adelaide Zoo, Australian Reptile Park, BirdLife Australia, Nature Conservation Trust, regional NRM and CMA groups, Landcare Australia, Australian National University, Latrobe University

## Community leading the way

The recovery of the Regent Honeyeater is one of the longest community-driven recovery initiatives in Australia.

Since 1994, there have been more than 130,000 trees planted on more than 50 properties within the Regent Honeyeater's core breeding range in the Capertee Valley - the culmination of 2,500 hours of community work every year.

This community effort has been supported by dedicated landholders and staff from BirdLife Australia, Central Tablelands Local Land Services, NSW Office of the Environment and Heritage and NSW National Parks and Wildlife Service. These recovery initiatives have also been supported by the Australian Government.

# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## Swift Parrot

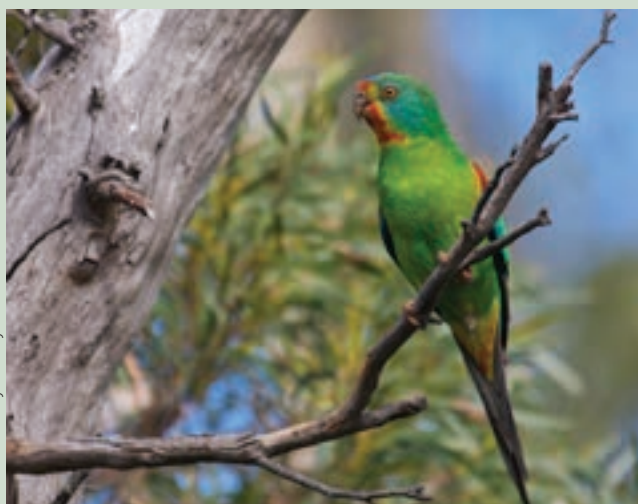


Photo: Dejan Stojanovic

**Significant change in trajectory from 2005-15 to 2015-18?** No, ongoing marked decline.

**Improved trajectory?**



Swift Parrots (*Lathamus discolor*) breed in Tasmania during spring and summer and migrate to woodlands across south-east mainland states for the rest of the year. Swift Parrots are nomadic, with varied nesting sites and winter foraging from SA to southern Queensland depending on nectar availability.

Clearing of high quality breeding and foraging habitat has been a key driver of population declines over the past 150 years. Additional threats include nest predation by Sugar Gliders and habitat degradation from altered fire regimes, timber harvesting and changing climatic conditions.

Swift Parrots' geographically complex life cycle is challenging for conservation. Traditionally effort has focused on habitat improvement through tree planting and weed control, which are important for long-term recovery, but have limited short-term benefits. Actions to improve habitat, including limiting harvest of old growth nesting trees and winter feeding habitat, and also attempts to reduce the impacts of Sugar Gliders, are of greater immediate benefit but will need to be amplified to reverse negative population trends.

<b>Found in</b>	Tasmania, Victoria, SA, NSW, ACT, Qld
<b>EPBC Act status</b>	Critically Endangered
<b>Conservation planning</b>	Recovery Plan (2012), Conservation Advice (2016)
<b>2018 population estimate</b>	Unknown number of mature individuals in the wild, about 260 in captivity
<b>Confidence in 2018 estimate</b>	N/a
<b>Recovery partners</b>	Tasmanian, Victorian, NSW, ACT, Queensland, SA and Australian governments, Recovery Team, NESP Threatened Species Recovery Hub, Australian National University

# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## Western Ground Parrot

Photo: Abby Berryman



**Significant change in trajectory from 2005-15 to 2015-18?** No, ongoing decline.

**Improved trajectory?**



The Western Ground Parrot (*Pezoporus flaviventris*) is a medium-sized ground dwelling parrot confined to near-coastal regions of south-western WA. The species is currently known from only two locations, with initial declines caused by habitat loss and degradation exacerbated by higher fire frequencies, predation from introduced carnivores and, more recently, sustained reductions in rainfall.

Recovery actions have focused on protecting wild populations from fire and introduced predators, plans to establish additional populations and attempted captive breeding at Perth Zoo. Predator baiting through the WA Government's Western Shield program and more locally focused programs to reduce feral cat abundance have improved the outlook for Western Ground Parrots. Local conservation groups deliver on-ground recovery activities and undertake important work to raise awareness and community support.

Considerable investment and action in recent years has averted the extinction of Western Ground Parrots. However, the small remaining wild population and the vulnerability of the small area of occupied habitat to fire present considerable recovery challenges and the situation for this species remains perilous.

<b>Found in</b>	WA
<b>EPBC Act status</b>	Critically Endangered
<b>Conservation planning</b>	Conservation Advice (2013), Recovery Plan (WA south coast birds) (2014)
<b>2018 population estimate</b>	<150 mature individuals in the wild; <10 in captivity
<b>Confidence in 2018 estimate</b>	Low
<b>Recovery partners</b>	WA and Australian governments, Friends of the Western Ground Parrot, BirdLife WA, Recovery Team, Perth Zoo, South Coast NRM and volunteers

### Enduring hope

Since European settlement in Western Australia agricultural development, frequent fires, and introduced predators have drastically reduced the population of the Western Ground Parrot. Today, perhaps less than 150 total individuals remain in the wild. With such perilously low population numbers and confined range a major focus of conservation efforts in recent years has been to prevent the outright extinction of the species.

Improved fire management practices and increased efforts to control feral cats and foxes around known Western Ground Parrot populations, most notably via the WA Government's Western Shield broad-scale baiting program, have helped to conserve the remaining population. Public knowledge and community support for recovery efforts have grown due thanks largely to the efforts of the Friends of the Western Ground Parrot group and the Perth Zoo has established a pilot captive breeding program for the species.

These efforts have helped prevent the species extinction and preserve hope for the future, however, there has been no discernible improvement in the population of the Western Ground Parrot and without intensive ongoing management the risk of extinction remains high.



# THREATENED SPECIES STRATEGY – BIRDS AT A GLANCE

## White-throated Grasswren



Photo: Peter Cooke

**Significant change in trajectory from 2005-15 to 2015-18?** Yes, was declining and now increasing.

**Improved trajectory?**



The White-throated Grasswren (*Amytornis woodwardi*) is a small ground-dwelling bird that historically occurred across the Arnhem Land sandstone. However, due to its reliance on large unburnt spinifex patches and the fire history of the habitat, numbers are likely to have declined as the habitat has become fragmented.

Intensive fire management in Arnhem Land over the last decade has been extended to Kakadu National Park since 2016 by Parks Australia. This has reduced the total area affected by destructive late season fires, allowing more spinifex to mature to an age when it can support White-throated Grasswren.

Inclusion in the Threatened Species Strategy has raised the profile of the species, with recent increasing efforts to find and monitor the birds, particularly in Kakadu National Park and Wardeken and Djelk Indigenous Protected Area, where improved fire management is assumed to be allowing numbers to increase.

<b>Found in</b>	NT
<b>EPBC Act status</b>	Vulnerable
<b>Conservation planning</b>	Conservation Advice (2014)
<b>2018 population estimate</b>	1000 mature individuals
<b>Confidence in 2018 estimate</b>	Low
<b>Recovery partners</b>	Parks Australia (Kakadu National Park), Australian Government, traditional owners and rangers of the Warddeken and Djelk Indigenous Protected Areas, Northern Territory Government

### Kakadu National Park: Combining traditional burning methods and modern science

One of the key threats to the White-throated Grasswren is the increase in the extent and frequency of fire. In recent decades, fire regimes across western Arnhem Land have been characterised by high annual frequencies of late dry seasons that cover large areas.

In Kakadu National Park, the Australian Government, through Parks Australia, is working to improve fire management practices. Traditional owners in Kakadu National Park, working jointly with staff from Parks Australia, have combined traditional burning techniques with modern technology to reduce the number of hot fires at the end of dry season.

Since 2016, strategic fire management has reduced the total area of the Kakadu stone country affected by fire from close to 50 per cent in 2014 and 2015, to 20 – 30 per cent in 2017. Fire management plans and controlled burning has also minimised the occurrence of destructive late fires, from approximately 30 per cent prior to 2015, to less than 4 per cent after 2016. These actions are also being supplemented with associated weed and feral animal control.

# TARGETS IN FOCUS

## — PROJECT EVALUATION AND ADAPTIVE MANAGEMENT

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Photo: Kerry Cameron

### MAMMAL TARGET

**Projects evaluated and management adapted where required**

**Target partially met.** Projects funded by the Australian Government include a process for periodic, structured, and evidence-based reviews. The Australian Government's Monitoring, Evaluation, Reporting and Improvement Tool reports on project progress and adaptive management actions. Evaluations have been conducted at the program level, but evaluations have not been undertaken for all projects.



### BIRD TARGET

**Projects evaluated and management adapted where required**

**Target partially met.** Projects funded by the Australian Government include a process for periodic, structured, and evidence-based reviews. The Australian Government's Monitoring, Evaluation, Reporting and Improvement Tool reports on project progress and adaptive management actions. Evaluations have been conducted at the program level, but evaluations have not been undertaken for all projects.



MONITORING AND EVALUATION IS AN ESSENTIAL ELEMENT OF PROJECT MANAGEMENT AND CONTRIBUTES TO EFFECTIVE POLICY DEVELOPMENT. PROJECT ACTIVITIES CAN BE AFFECTED BY A RANGE OF ISSUES. FOR EXAMPLE FIRES OR DROUGHTS. AND ADAPTATION CAN BE NECESSARY TO DELIVER THE INTENDED OUTCOMES.

To support the delivery of these targets, a process has been put in place for projects funded by the Australian Government under the National Landcare Program to be evaluated and adapted in accordance with the *Australian Government natural resource management monitoring, evaluation, reporting and improvement framework* and include the development of a project specific implementation plan (MERI Plan). The degree of evaluation and adaptation is commensurate with the scale and risk of a project, so a small-scale project (for example, a project that is completed within 3-6 months) may be evaluated at the end while larger scale projects (for example, delivered over multiple years) may be evaluated at milestones during the life of the project.

MERI Plans include a requirement for grantees and service providers to outline a process for periodic, structured, and evidence-based reviews that capture the learnings and impacts of implementing project decisions, and applying these learnings by refining, adapting, and improving the project delivery. Processes aimed at continuously improving project delivery and implementation are critical to maximising project effectiveness and program outcomes.

The Australian Government's Monitoring, Evaluation, Reporting and Improvement Tool (MERIT) developed with the Atlas of Living Australia tracks the progress of projects to deliver against program outcomes, and reports on the adaptive management actions undertaken by grantees and service providers in project delivery.

Program evaluations also examine how projects have been implemented. These evaluations are an important input to Australian Government program design, and have been undertaken throughout the rollout of the Green Army and 20 Million Trees programs. Under the National Landcare Program, a program-wide evaluation was conducted which helped inform the design of the new Regional Land Partnerships program. Further information about Australian Government program evaluations is available on the Department's website.

### HOW ARE WE TRACKING?

The Australian Government has been working closely with funding recipients to align project reporting processes with the *Australian Government natural resource management monitoring, evaluation, reporting and*

*improvement framework*. Since the Strategy was launched in 2015, projects delivered through the National Landcare Program have used this framework to support effective project management and evaluation. This includes all projects delivered under programs such as 20 Million Trees, Green Army and the Threatened Species Recovery Fund. Evaluations have been conducted at the program level, but evaluations have not been undertaken for all projects, resulting in a partially met target.

The Department is aiming to ensure that all new Australian Government funded natural resource management projects will be delivered in line with the framework by 2020.

The Australian Government recognises that in some cases a more extensive monitoring approach building on

the MERI framework is required to effectively assess and report on outcomes. For example, while there is a process in place to monitor projects and adapt them where required, further work is being undertaken under the Regional Land Partnerships program to identify the longer-term outcomes from projects. The Australian Government commissioned Griffith University to develop a Long-term Monitoring Framework for the Regional Land Partnerships program to identify outcomes beyond the funding cycle. Long-term monitoring is expected to commence in the 2019-20 financial year. Once implemented, the Framework will improve the Australian Government's ability to determine the success of Regional Land Partnerships and tell the story of the impact of interventions on sites across Australia, as well as enabling adaptive management.

## ADAPTIVE MANAGEMENT AT WORK ON BRUNY ISLAND

Bruny Island is one of five islands targeted to be feral cat free by 2020. To support this target, the Australian and the Tasmanian governments contributed \$681,500 to reduce feral cat numbers in areas critical to the ongoing survival on threatened species. This funding also supports engaging the community in activities and establishing the strategy to achieve feral cat eradication on the island.

Photo: Oliver Tester



The 'Progressing feral cat eradication on Bruny Island' project has actively adapted and improved project delivery, by monitoring and tracking the impact and effectiveness of delivery methods, decisions and approaches, using the expertise of a project steering committee and monitoring and research sub-group to review and refine the project's implementation.

For example, initial baseline data collection revealed that seabird colonies around the 'neck' - a narrow strip of land that divides the island and a favoured nesting site for shearwaters and other birds - are acting as a key location 'or sink' for the movement of feral cats. GPS tracking has found feral cats in high densities at the neck as birds migrate to the island, dispersing to the north as the seabirds leave. This new knowledge about the seasonal movement of feral cats may provide a unique opportunity to focus feral cat management and increase efficiency of the eradication efforts.

This adaptive management approach has led to ongoing improvements in the design of feral cat eradication plans on the island, strengthened community and landowner engagement and support for the project, and improved knowledge about effective feral cat control.



# TARGETS IN FOCUS – ACTION UNDERWAY FOR PLANTS

Photo: Erin Lake

## PLANT TARGET

**Recovery actions underway for at least 30 plants**

**Target met.** There are recovery actions underway for all targeted plants under the Threatened Species Strategy, as well as actions underway for other threatened plant species under Australian Government programs such as 20 Million Trees, Green Army and National Landcare Program.



FROM EUCALYPTS AND WATTLES, TO GREVILLEAS AND ORCHIDS, AUSTRALIA IS HOME TO THOUSANDS OF UNIQUE AND BEAUTIFUL PLANTS FOUND NOWHERE ELSE ON EARTH. THERE ARE 1356 PLANTS LISTED AS THREATENED UNDER THE EPBC ACT.

Under the Threatened Species Strategy, there are 30 plants targeted for recovery by 2020, and these priority plants cover every state and territory. On-ground recovery actions to protect Australia's plants include seed banking, translocations, and using plant orchards and nurseries to help grow plants to be returned to the wild.

## HOW ARE WE TRACKING?

Action is underway for all 30 plants targeted for recovery under the threatened species strategy, as well as over 200 plants listed as threatened under the EPBC Act.

Since 2014, the Australian Government has funded more than 600 projects with outcomes benefiting threatened plants and threatened ecological communities.

**Snapshot of some actions underway for Australia's threatened plants under the Threatened Species Strategy supported by the Australian Government**

### Translocations

- Establishing new populations of four threatened Western Australian species – the Matchstick Banksia (*Banksia cuneata*), the Glossy-Leaved Hammer Orchid (*Drakaea elastica*), the Black Grevillea (*Grevillea calliantha*) and the Scaly-leaved Featherflower (*Verticordia spicata* subsp. *squamosa*).

### Seed-banking

- Collecting seed from four nationally-listed threatened orchid species across South Australia and Victoria - the Blue Top Sun-orchid (*Thelymitra cyanapicata*), the Fleurieu Leek-orchid (*Prasophyllum murfetii*), the Basalt Greenhood (*Pterostylis basaltica*) and the Limestone Spider-orchid (*Caladenia calcicola*).

### Habitat protection

- Reinstating and improving fencing for four out of five known subpopulations of the Shy Susan (*Tetratea gunnii*) in Tasmania to reduce the impacts of native browsers.
- Protecting the endangered Silver Gums (*Eucalyptus crenulata*) in the Buxton Silver Gums Reserve in Victoria and establishing a seed orchard at a secure location away from the threat of cross pollination with other eucalypts.

### Research and genetic testing

- Assessing the impact of Myrtle Rust on nationally threatened plant species and capturing genetically representative material ex situ from two threatened species – the Sweet Myrtle (*Gossia fragrantissima*) and the Red Lilly Pilly (*Syzygium hodgkinsoniae*).

### Ex-situ insurance populations

- Creating four collections of genetically distinct Bulberin Nut trees (*Macadamia janseni*) within each of: Bundaberg Botanic Gardens, Brisbane Botanic Gardens, the Australian National Botanic Gardens, and Gayndah Agricultural Research Station.

### Commercial propagation

- Funding research on methods for the seed generation, collection, and propagation of the Ant Plant (*Myrmecodia beccarii*), which is now in commercial propagation.

Photo: Leonie Monks, Department of Biodiversity, Conservation and Attractions



## TRANSLOCATIONS IN ACTION: A CASE STUDY ON THE MATCHSTICK BANKSIA

The Matchstick Banksia (*Banksia cuneata*) grows in the Wheatbelt region near Perth. Its name comes from its bright pink flower spikes that look like match sticks. There are only about 500 of these plants left in the wild at 11 different sites. It's also one of 30 plants targeted for recovery under the Threatened Species Strategy.

Under the Threatened Species Recovery Fund, the Australian Government funded a project to improve the outlook and population trajectories of four Western Australian species listed under the EPBC Act, including the Matchstick Banksia.

In July 2017, staff at the Western Australian Department of Biodiversity, Conservation and Attractions planted 471 Matchstick Banksia seedlings into a reserve near Quairading, Western Australia. The species had virtually disappeared from the Reserve, and the overall wild population was decreasing.

Plant survival, growth and health are being monitored and so far, the results are promising. The site has been fenced to protect the plants from vertebrate herbivores and the plants will be watered over the next two summers by an automated watering system. There will be ongoing monitoring to help determine whether the translocated seedlings have successfully established at the site.

The translocation of the Matchstick Banksia is underpinned by a research component. Matchstick Banksia is a seeder species, with recruitment of seedlings mainly confined to a post-fire environment. The research component of this project is looking at how important the post-fire environment is to the successful establishment of seedlings for this species.



# TARGETS IN FOCUS – ACTION UNDERWAY FOR THREATENED ECOLOGICAL COMMUNITIES

Photo: Matt White

## PLANT TARGET

**Recovery actions underway for at least 40 threatened ecological community sites**

**Target met.** There are recovery actions underway for more than 40 threatened ecological community sites, via Australian Government programs such as 20 Million Trees, Green Army and the National Landcare Program.



FROM WETLANDS TO FORESTS, TO CAVE COMMUNITIES AND GROUND SPRINGS, AUSTRALIA HAS A DIVERSE RANGE OF ECOLOGICAL COMMUNITIES.

An ecological community is a naturally occurring group of native plants, animals and other organisms that interact a unique habitat. There are 79 ecological communities listed as threatened under the EPBC Act.

## HOW ARE WE TRACKING?

Action is underway to conserve and restore the species diversity and ecological functions provided by threatened ecological communities at well over 40 sites across Australia, with projects funded through a range of Australian Government programs.

This was determined by reviewing the number of threatened ecological communities supported by projects funded under Australian Government programs since 2015. Under the 20 Million Trees program alone, recovery actions are being undertaken at 54 different threatened ecological community sites across Australia.

Photo: Matt White





**Snapshot of some actions underway for Australia's threatened ecological community sites supported by Australian Government programs**

**Green Army**

- Undertaking weed control, erosion control, and native plant revegetation to help improve the condition of the critically endangered threatened ecological community Lowland Rainforest of Subtropical Australia in South East Queensland.
- Improving the condition of the critically endangered threatened ecological community Swamps of the Fleurieu Peninsula in South Australia through the removal of invasive species, and increasing the connectivity of habitat.

**20 Million Trees**

- Working with Indigenous Groups (Dowreng Aboriginal Corporation and Tambellup Noongar Corporation) to restore 317 hectares of native vegetation cover and connectivity across the critically endangered ecological community Eucalypt Woodlands of the Western Australian Wheatbelt.
- Revegetating 17 sites on private land across Victoria's Otway Plain bioregion, to improve the condition of the critically endangered ecological community White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.

**Threatened Species Recovery Fund**

- Reducing threats to the endangered ecological community Littoral Rainforest across 70 kilometres of New South Wales coastline through implementing a strategic, broad scale program to target weeds of national significance and transformer weeds.

## RECONNECTING BUDJ BIM – RESTORING CRITICALLY ENDANGERED GRASSY EUCALYPT WOODLANDS OF THE VICTORIAN VOLCANIC PLAIN

The critically endangered Grassy Eucalypt Woodlands of the Victorian Volcanic Plain has provided vital resources to land managers for thousands of years. The site also contains the traces of 7,000 years of Gunditjmara history. However, since European settlement, extensive clearing has degraded and fragmented this ecosystem, and it faces ongoing threats from climate change and agricultural intensification. The once abundant manna forests, home to the Spotted-tailed Quoll, have all but disappeared due to farming and a bushfire that ravaged the region 12 years ago.

Greening Australia is working with the Gunditj Mirring Traditional Owners Aboriginal Corporation and local land managers to deliver a 20 Million Trees project that is combining Indigenous ecological knowledge with leading-edge revegetation techniques to restore 400 hectares of Grassy Eucalypt Woodlands across the Budj Bim National Heritage Landscape. As well as restoring habitat for the region's unique community of wildlife, it is also providing more future feeding habitat for the critically endangered Swift Parrot for when it migrates each year through the region.

The region's harsh volcanic terrain has made traditional seed planting impossible. So, to cater for this, thousands of specially-crated native manna seed clay balls are being dropped from a plane – it's the largest project of its type in Australia. The traditional owners, the Gunditjmara, are using traditional burning practices to prepare the ground below.

The project is funded through the Australian Government's 20 Million Trees program and forms part of Greening Australia's Great Southern Landscapes program.

# TARGETS IN FOCUS — SEED BANKING

Photo: Erin Lake

## PLANT TARGET

**At least 50 per cent of Australia's known threatened plant species stored in conservation seed banks**

**Target met.** Over 61 per cent of Australia's known threatened species are stored in Australian Seed Bank Partnership seed banks. Ongoing efforts will ensure the size and genetic diversity of these collections continue to improve.



FOR MANY OF OUR THREATENED PLANTS, SEED BANKING PROVIDES A PRACTICAL SAFEGUARD AGAINST COMPOUNDING THREATS SUCH AS LAND USE CHANGE, PESTS, DISEASE AND CLIMATE CHANGE.

Once collected, most seed can be used in various ways, including for scientific research to increase our understanding of seed germination and seed biology, and in restoration and translocation projects throughout Australia.

## HOW ARE WE TRACKING?

As of June 2018, the nine major conservation seed banks of the Australian Seed Bank Partnership had secured collections of 826 of the 1,355<sup>10</sup> EPBC nationally-listed threatened plant species. This equates to 61 per cent of Australia's known threatened flora.

This figure was determined by collating data held by the nine major conservation seed banks of the Australian Seed Bank Partnership and comparing the total list of unique species against the list threatened flora available on the Species Profiles and Threats Database (SPRAT). Some species are represented by multiple collections within an individual facility or across multiple seed banks. Collecting seed from multiple locations across a species range is one of the best ways of capturing a species' genetic diversity. A species' range may be as little as several metres or it may occur across many states and territories.

With 61 per cent of Australia's nationally listed threatened species represented in conservation seed banks we have achieved the year three target set out in the Threatened Species Strategy. Australia is also well on its way to meeting Target 8 of the Global Strategy for Plant Conservation that aims to have 75 per cent of threatened plants held in ex situ collections by 2020. Having 61 per cent of Australia's known threatened plant species stored in conservation banks means Australia is well placed to improve conservation outcomes for Australia's threatened plants.

The size of a collection matters. While some species are represented by multiple collections of suitable size, many species are represented by collections of less than 500 seeds. It will be important to continue to grow the collection size of these species to improve their long-term conservation value.

## BACK FROM THE BRINK: A CASE STUDY ON THE *BANKSIA VINCENTIA*

Photo: Corrine Le Gall



The *Banksia vincentia* was first discovered a decade ago in a small patch of remnant vegetation near Vincentia on the New South Wales South Coast. Only 14 of the plants were found, and then a deadly mixture of bushfire and a soil-borne disease reduced the population to just four.

This resulted in the *Banksia vincentia* being listed as one of 30 priority plants in the Australian Government's Threatened Species Strategy. Thanks to the Threatened Species Strategy, as well as various partners, the *Banksia vincentia* is making a comeback. Parks Australia, Booderee National Park, the NSW Office of Environment and Heritage, and various Botanic Gardens from the south-east NSW Bioregion Partnership, are all working together to help save this stunning plant.

At the Australian National Botanic Gardens (ANBG), the Australian Government has funded an insurance population, where the ANBG has cultivated 45 plants above the ground. Each *Banksia vincentia* has its own 60 centimetre by 60 centimetre container, designed to maximise their chances of producing seed. By having the plants off the ground, it gives them the best possible shot at survival, and will help counter possible issues such as pests, soil, and poor drainage.

At Booderee National Park, a new in-ground seed orchard is being constructed to secure the future of the *Banksia vincentia*. Booderee National Park has propagated about 520 individual plants, which are destined for the orchards as the park enters its second year of propagation. The plan is to generate another 500 plants, with the ultimate goal of having at least 800 within the Booderee orchard to secure genetic diversity and the survival of the species.



# TARGETS IN FOCUS

## — ALIGNING THREATENED SPECIES LISTINGS

Photo: Kerry Cameron

### PLANT TARGET

**Australian Government and majority of states and territories operate under the common assessment methodology for species listing**

**Target met.** Eight of the nine Australian jurisdictions have signed the Memorandum of Understanding to give effect to the Common Assessment Method and all are actively involved in implementation.



THE COMMON ASSESSMENT METHOD IS A SUCCESSFUL COLLABORATION BETWEEN THE AUSTRALIAN AND STATE AND TERRITORY GOVERNMENTS, PROVIDING A CONSISTENT AND HARMONISED APPROACH TO THREATENED SPECIES LISTINGS ACROSS AUSTRALIA.

The Common Assessment Method is based on the best-practice standard developed by the International Union for Conservation of Nature, as used for the global IUCN Red List of Threatened Species. Each species is assessed by only one jurisdiction, in consultation with the Australian Government and all states and territories where it occurs, and listed in the same national threat category in all jurisdictions. This approach is not only more efficient, but provides better outcomes for threatened species conservation and more certainty for businesses and industry.

#### HOW ARE WE TRACKING?

An intergovernmental Memorandum of Understanding to give effect to the Common Assessment Method commenced in 2015. Since then, eight of the nine Australian jurisdictions have signed the memorandum and all are actively involved in implementation. Each jurisdiction is making the administrative and legislative changes necessary to fully implement the method, including adopting the IUCN Red List categories

and criteria. Progressively, all currently listed threatened species are being reviewed and all new assessments are being undertaken in accordance with the Common Assessment Method, leading to the alignment of lists across Australia.

This collaborative effort is ensuring that the best science is used in threatened species assessments, providing for appropriate protection and targeted conservation actions. Consistent and accurate lists of threatened species are the first step in turning the trajectory around for Australia's plants and animals at most risk of extinction.

# TARGETS IN FOCUS – MAINTAINING CURRENT CONSERVATION PLANS

Photo: Kerry Cameron

## RECOVERY PRACTICES TARGET

**All 20 birds and 20 mammals with 2020 recovery targets in the Action plan have up-to-date conservation advices or recovery plans in place**

**Target partially met.** Thirty-three species have up to date plans in place guiding recovery effort, including the Christmas Island Frigatebird. Seven species have had plans reviewed and, in response, new plans are currently in preparation. One species is not listed under the EPBC Act.



CONSERVATION ADVICES  
AND RECOVERY PLANS  
ARE STATUTORY  
PLANNING DOCUMENTS  
PREPARED UNDER  
THE EPBC ACT WHICH  
PROVIDE GUIDANCE  
ON RECOVERY ACTION  
FOR LISTED SPECIES  
AND ECOLOGICAL  
COMMUNITIES.

These plans are generally prepared to operate over a five to ten year period with a review process required for recovery plans that begins at five years.

### HOW ARE WE TRACKING?

Since the commencement of the Threatened Species Strategy, the Department has prioritised the development of updated conservation advices and recovery plans for the priority 20 mammals and 20 birds (plus the Christmas Island Frigatebird)<sup>11</sup>.

We now have updated plans in place for 15 mammals and 18 birds. For the remainder, their plans have been progressively reviewed at the five year implementation mark and new planning documents are being prepared.

Of the 20 mammal species as at 30 June 2018:

- Fifteen have current recovery plans and/or conservation advices in place.
- Four have recovery plans that have been reviewed and, in response, new plans are currently being prepared.
- The Eastern Bettong was assessed under the IUCN criteria and was found not eligible for listing under the EPBC Act in February 2019. Consequently, it does not require a recovery plan or conservation advice.

Of the 21 bird species (includes the Christmas Island Frigatebird) as at 30 June 2018:

- Eighteen have current recovery plans and/or conservation advices in place.
- Three have recovery plans that have been reviewed and, in response, new plans are currently being prepared.

The status of plans in place for each priority mammal or bird is identified in the species snapshots from page 46 (mammals) and page 68 (birds). Information in the species snapshots is current as of February 2019, and therefore may differ from the information presented in this section, which captures progress for the first three years of the Strategy (to June 2018).

11 The Christmas Island Frigatebird, was included as 'additional initiative' in 2016 bringing the total number of priority bird species to 21

## RECOVERY PRACTICES TARGET

**Based on the work-plan, up to-date conservation advices or recovery plans are in place for all high priority species and ecological communities**

**Target partially met.** Of the 30 priority plants, up-to-date recovery plans or conservation advices are in place for thirteen species. Sixteen species have had their plans reviewed and in response new plans are in preparation. One species has been delisted under the EPBC Act. For ecological communities, there are currently 15 communities on the EPBC Finalised Priority Assessment List and assessments are underway for each.



**Identified high-priority species and ecological communities reviewed, and work plan for updating conservation advices and recovery plans is varied as required**

**Target met.** A comprehensive forward work plan is established and is currently being delivered by the Department



The Department has prioritised the development of up-to-date conservation advices and/or recovery plans for the Strategy's 30 priority plant species as well as 15 threatened ecological communities, currently under assessment.

A comprehensive multi-year forward work plan steers the Department's work program in meeting EPBC Act requirements for listing threatened species and ecological communities and developing conservation advices and recovery plans.

### HOW ARE WE TRACKING?

Since commencement of the Strategy to June 2018, 453 conservation advices covering 437 threatened species and 16 ecological communities came into force under the EPBC Act. Seventeen recovery plans covering 67 threatened species and one ecological community also came into force over this time.

Of the total number of threatened species and ecological communities listed under the EPBC Act, 99.8 per cent have either a conservation advice or recovery plan, or both, in place guiding recovery action.

Consistent with our approach to the priority mammals and birds, plans for the 30 priority plants are being progressively reviewed at the five year implementation mark and are being updated to ensure currency.

Of the 30 priority plant species as at 30 June 2018:

- Thirteen have current recovery plans and/or conservation advices in place.
- Sixteen have recovery plans that have been reviewed and, in response, new plans are currently being prepared.
- The Fitzgerald's Mulla-Mulla (*Ptilotus fasciculatus*) is not listed under the EPBC Act and therefore does not require a recovery plan or conservation advice. The species was previously listed but was assessed under the Common Assessment Method as no longer meeting the criteria for listing. It was delisted in 2018.

For ecological communities, there are currently 15 communities on the EPBC Finalised Priority Assessment List. Assessments are underway for each, with five nearing completion. In addition, updated conservation advices are being prepared for two listed ecological communities for which older recovery plans are in place.

Looking forward, as per the work plan, updated recovery plans or conservation advices are being progressively prepared for all Department-identified priority species and ecological communities, including species and ecological communities not prioritised in the Threatened Species Strategy. Non-Strategy priority species include threatened species from other broad taxonomic groups – reptiles, freshwater fish, frogs and invertebrates – listed under the EPBC Act.

A conservation advice is prepared at the time a species or ecological community is listed. A more comprehensive recovery plan may also be developed for some species or ecological community if required. Plans are also reviewed and updated, if required, in response to those reviews.



# TARGETS IN FOCUS – ENHANCING GOVERNANCE AND REPORTING

Photo: Kerry Cameron

## RECOVERY PRACTICES TARGET

**All recovery teams follow best practice governance procedures**

**Target not met.** *Recovery Team Governance Best Practice Guidelines* are published and available on the Department of the Environment and Energy's website. Recovery teams can register by agreeing to follow best practice governance in accordance with the guidelines. It is however voluntary for recovery teams to be nationally registered and the Department is working with established teams to facilitate their registration.



RECOVERY TEAM GOVERNANCE BEST PRACTICE GUIDELINES, WERE PUBLISHED IN 2017 AND ARE AVAILABLE ON THE DEPARTMENT'S WEBSITE.

The guidelines provide an overarching framework for establishing and operating effective recovery teams where required and set out a series of 'best practice' principles to guide and support recovery teams in establishing governance arrangements.

As identified in the guidelines, not all recovery programs necessarily require a recovery team as other systems are in place steering recovery action. For example, some programs are being managed under state or territory threatened species programs.

## HOW ARE WE TRACKING?

The Department is actively promoting the adoption of the guidelines and working with recovery teams to facilitate national registration. Participation by recovery teams is voluntary and not all recovery teams are following best practice governance procedures.

Where established, recovery teams have been invited to submit their terms of reference should they wish to be nationally registered. These include recovery teams for both Strategy and non-Strategy species. A nationally registered recovery team's terms of reference demonstrates how the team operates in accordance with these best practice guidelines including reporting requirements. A nationally registered recovery team provides national recognition of the team's work and ensures that it becomes part of, and contributes to, the building of a national network of community of practice recovery teams.

The Department is engaged with existing recovery teams and is providing guidance and support, where required, to finalise terms of reference over the next six months.

In working towards the year five target, the Department is identifying other species that would also benefit from the formation of a recovery team as recommended in the governance guidelines. For example, species like the Northern Quoll that is found across multiple states and territories could benefit from a recovery team to coordinate implementation of the national recovery plan. The Department is working with the relevant partners to encourage, and where appropriate help facilitate, formation of these teams.

## RECOVERY PRACTICES TARGET

**All active recovery teams report annually on progress**

**Target not met.** A national reporting framework has been established for recovery teams to report on progress in achieving the objectives of a recovery program. The framework is published and available on the Department's website. Recovery teams are not yet reporting annually on progress, however the Department is trialling the tool with some teams.



A NATIONAL REPORTING FRAMEWORK HAS BEEN ESTABLISHED FOR RECOVERY TEAMS TO REPORT ON PROGRESS IN ACHIEVING THE OBJECTIVES OF A RECOVERY PROGRAM. THIS REPORTING FRAMEWORK IS ALIGNED WITH THE RECOVERY TEAM GUIDELINES AND IS PUBLISHED AND AVAILABLE ON THE DEPARTMENT'S WEBSITE.



Reporting against this framework will progressively build a national snapshot of implementation progress of recovery programs. Recovery team reporting will complement and/or augment other threatened species reporting processes through for example Australian Government investment in natural resource management programs, State of the Environment reporting and the National Environmental Science Program. Reporting will also support assessment against other Strategy targets.

### HOW ARE WE TRACKING?

The Department is undertaking a trial of the reporting template with a selection of recovery teams. We are collecting and assessing feedback from the recovery teams on the template's application, ease of use and alignment with other reporting requirements, such as state and territory reporting processes.

Recovery teams have been using the template through the recovery plan review process. Work is currently underway to develop a user friendly online reporting version of the tool, which is taking into account feedback on current reporting processes.



## THE PLAINS-WANDERER RECOVERY TEAM

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Photo: Tom Wheller

The Plains-wanderer was uplisted to critically endangered in 2015 and a new recovery plan for the species was made in 2016. On the back of these developments, interested parties and state governments from four states decided that a recovery team was required to help coordinate actions across its range. The Australian Government agreed to take on the role of developing the team and to act as Chair for the first few years. Since its formation in 2017, the Recovery Team has played a crucial role in coordinating activities and facilitating communication between diverse groups involved in Plains-wanderer recovery.

The Recovery Team endeavours to meet twice yearly to share knowledge and capture information on recovery plan implementation activities. These meetings ensure members, and their organisations, are across what other stakeholders are doing and can share learnings from their experiences. This close collaboration has ensured rapid take-up of new techniques, such as the use of song meters to detect Plains-wanderers in the field. A captive breeding sub-group has also been developed to share information on breeding techniques, establish best practice guidelines on keeping birds in captivity and to, ultimately, coordinate exchange of individuals to ensure optimal genetic mixing and share learnings on releasing the birds into the wild. These types of activities could not occur without the close collaboration facilitated by the Recovery Team.



# TARGETS IN FOCUS — LINKING FUNDING WITH PLANNING

Photo: Erin Lake

## RECOVERY PRACTICES TARGET

**All projects funded under the 20 Million Trees and Green Army programs, that involve threatened species or ecological community recovery, are guided by the relevant conservation advice or recovery plans**

**Target met.** The 20 Million Trees program and the Green Army program were targeted at national environmental priorities such as threatened species and threatened ecological communities and projects were guided by the relevant conservation advice or recovery plans.



THREATENED SPECIES OUTCOMES ARE AN IMPORTANT CONSIDERATION IN THE DESIGN OF AUSTRALIAN GOVERNMENT PROGRAMS. IN BOTH THE 20 MILLION TREES AND GREEN ARMY PROGRAMS, PROJECT GUIDELINES INCLUDED SELECTION CRITERIA FOR FUNDING THREATENED SPECIES PROJECTS BASED ON RELEVANT CONSERVATION ADVICES OR RECOVERY PLANS.

## HOW ARE WE TRACKING?

The 20 Million Trees Program is being delivered by the Australian Government with the objective of planting 20 million trees by 2020. The program is re-establishing green corridors and urban forests to improve connectivity and condition of native vegetation that supports native species.

Under the 20 Million Trees Program, projects that contributed to threatened species outcomes, including Threatened Species Strategy priorities, were prioritised for approval. When funding rounds were open, applicants were required to demonstrate that the activities proposed for funding were consistent with activities identified in threatened species recovery plans, conservation advices and management plans. Approximately 95 per cent of all 20 Million Trees projects support listed threatened species and/or threatened ecological communities.

The Green Army Program (from 2014 to 2018) was a hands-on, practical environmental action program that supported local environment and heritage conservation projects across Australia. The program delivered more than 1,000 projects across Australia and engaged with more than 11,000 young Australians as participants. The Green Army Program was designed to contribute to a range of priority areas with environmental and heritage outcomes. Each round under the Program was focussed on specific priorities in support of environmental, heritage and conservation outcomes.

There were three specific funding rounds that focussed on threatened species. In rounds two, three, and four, the investment priorities included protecting and conserving threatened species or ecological communities, migratory species, and regionally significant species, as well as their habitat. The assessment criteria in these funding rounds required that projects demonstrate that they

align, and strongly contribute to, the implementation of relevant environmental or Conservation Management Plans, strategies or advices. Relevant plans and strategies included conservation advices and recovery plans.

During the assessment process trained assessors reviewed all applications against selection criteria to determine if a project clearly outlined activities which deliver threatened species outcomes, particularly those that align with the Australian Government's Threatened Species Strategy. Trained assessors referred to supporting materials about threatened species such as recovery plans and conservation advices to inform their assessment.

Further information on the 20 Million Trees Program is available at [www.nrm.gov.au/national/20-million-trees](http://www.nrm.gov.au/national/20-million-trees)

Further information on Green Army Program, including guidelines for funding rounds, is available at [www.environment.gov.au/land/green-army](http://www.environment.gov.au/land/green-army)

## GREEN ARMY TEAM HELPING SWIFT PARROTS

Photo: Dejan Stojanovic



A Green Army team was undertaking various activities in Tasmania when it became clear that illegal firewood harvesters had cut down important Swift Parrot nesting habitat nearby. Specific nesting sites are important to Swift Parrots who tend to nest near favoured Blue Gum trees when flowering.

This Green Army team was able to quickly build nest boxes for Swift Parrots that were then quickly installed so parrots had somewhere to breed. This wasn't the only work that this team did, but it was critical work for the species and helped improve the outcomes for Swift Parrots. The project led to the uptake of many of the new nest boxes and artificially cut hollows and resulted in a significant boost to the Swift Parrot population.



# LINKS TO OTHER INFORMATION

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Photo: Tom Hunt

**The Australian Government's Threatened Species Strategy**

[www.environment.gov.au/biodiversity/threatened/publications/strategy-home](http://www.environment.gov.au/biodiversity/threatened/publications/strategy-home)

**Species Profiles and Threats Database (SPRAT)**

[www.environment.gov.au/cgi-bin/sprat/public/sprat.pl](http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl)

**National Environmental Science Program**

[www.nespthreatenedspecies.edu.au/](http://www.nespthreatenedspecies.edu.au/)

**The Department of the Environment and Energy**

[www.environment.gov.au](http://www.environment.gov.au)

**Monitoring, Evaluation, Reporting and Improvement Tool (MERIT)**

[www.fieldcapture.ala.org.au](http://www.fieldcapture.ala.org.au)



