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Collaboration in a time of crisis

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Cover image:
Kangaroo Island Dunnart Brad Leue/AWC

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The mission of Australian Wildlife Conservancy (AWC) is the *effective* conservation of all Australian animal species and the habitats in which they live.

To achieve this mission our actions are focused on:

- Establishing a network of sanctuaries which protect threatened wildlife and ecosystems. AWC now owns, manages or works in partnership across 30 locations, spanning more than 6.5 million hectares (16.1 million acres).
- Implementing practical, on-ground conservation programs to protect the wildlife at our sanctuaries. These programs include feral animal control, fire management, weed eradication and the translocation of threatened species.
- Conducting (either alone or in collaboration with other organisations) scientific research that will help address the key threats to our native wildlife.
- Hosting visitor programs at our sanctuaries for the purposes of education and promoting awareness of the plight of Australia's wildlife.

About AWC

AWC is an independent, not-for-profit organisation based in Perth, Western Australia. Donations to AWC are tax deductible.

Over the last 10 years, around 87 per cent of AWC's total expenditure was incurred on conservation programs, including land acquisition, while only 13 per cent was allocated to development (fundraising) and administration.



CEO MESSAGE

It has been a grim start to 2020. Catastrophic bushfires raged across southern Australia on an unprecedented scale, followed by floods. As I write, the world is grappling with the health and economic impact of the COVID-19 global pandemic.

The southern Australian bushfires were a conservation disaster, adding more species to the national endangered species list and pushing some to the precipice. While the Koala garnered significant media attention, there were many other species severely impacted, including the Kangaroo Island Dunnart, Long-footed Potoroo, Regent Honeyeater, invertebrates and native flora species.

These fires serve as a wake-up call as to how our land is being managed. There must be active, science-informed land management across the Australian landscape, particularly on the public estate. There is no silver bullet, nor an easy answer – it requires the dedicated efforts of skilled people like AWC's team of ecologists and land managers to implement practical, science-based conservation solutions that are proven to work.

Disasters, like the bushfires, also bring out the best in human nature, and I couldn't be prouder of how the AWC team stepped up. While no AWC sanctuaries were impacted, AWC ecologists and land managers volunteered to help those in need – to utilise their skills, equipment and expertise to help individuals and wildlife in crisis. For example:

- Within weeks of the Kangaroo Island fires, we had materials and teams of staff and contractors deployed to the island to work in partnership with Kangaroo Island Land for Wildlife and local landholders, the Doube family, to construct the first stage fence and eradicate feral cats to protect surviving wildlife.
- Completion of the first stage fence on Kangaroo Island has secured a vulnerable population of Kangaroo Island Dunnarts – top of the list of species most impacted by the fires – and protects other threatened wildlife such as the Kangaroo Island Short-beaked Echidna.
- AWC ecologists dispersed across NSW to assist private land conservation organisations to survey for threatened wildlife, and assess the impact of the bushfires on the populations of threatened species.

- AWC ecologists and land managers were deployed to assist private landholders impacted by the fires to determine what to do next and develop priority action plans to effectively preserve surviving wildlife and restore vegetation.

The COVID-19 pandemic is causing havoc across the globe. At AWC we have taken the unprecedented step of closing our sanctuaries to external visitation to keep our field team, Indigenous Rangers and wildlife safe. We remain focused on our mission to protect Australian wildlife and habitats. We continue to undertake strategic research and deliver core business – such as fire management, feral animal control and weed eradication – to address key threats to biodiversity, albeit with a few changes. Our Kimberley fire team, for example, self-isolated at Charnley River-Artesian Range Wildlife Sanctuary (with two helicopters, food, fuel, supplies and rangers from our Indigenous partners) to ensure continuation of the Kimberley fire program.

On another note, we welcomed two new Directors to the Board of AWC: Professor John Woinarski, one of Australia's most senior and respected conservation scientists, and Nick Butcher, Vice Chair of Macquarie Capital's Infrastructure and Energy Group. Both John and Nick have had a long association with AWC (John has participated in our Science Advisory Network, and Nick as Chair of Friends of AWC in New York). We are proud to include them on our Board and their valuable knowledge will help further AWC's mission.

Finally, I have been humbled by the commitment of our supporters during these difficult times. Our work is only possible because of you – you are part of the AWC family, and the results we generate are due to your continued support. In these difficult times, be reassured that AWC's team is committed to ensuring the protection and survival of Australia's most vulnerable species.

Thank you for your support. Please stay safe and well.

Tim Allard
Chief Executive





Senior Field Ecologist Andy Howe searches for signs of life in the Blue Mountains in the wake of devastating fires. *Brian Coulter/AWC*

Hope amid the ashes

By Joey Clarke, Science Communicator

It has been a difficult summer for wildlife in parts of the country. Following years of dry conditions, the catastrophic bushfires that raged through south-eastern Australia took an unprecedented toll on Australia's biodiversity, with more than 1.25 billion animals estimated to have perished. But after all the stories of loss and destruction, hope is sprouting from the ashes.

Fortunately, no AWC sanctuaries were directly impacted by the fires so we were uniquely placed to take a proactive approach to help with the recovery effort. AWC ecologists and land managers stepped up, embracing a renewed spirit of collaboration among the conservation community. Working with local partners, AWC's dedicated field team volunteered their skills to deliver camera trap surveys, fence construction, cat trapping, tree climbing, and even Koala catching. AWC teams have been deployed across six sites to conduct targeted surveys, assess damage to habitat, provide strategic advice, and carry out urgent interventions to protect surviving populations of threatened species.

Saving the Kangaroo Island Dunnart

Kangaroo Island was hit especially hard by the bushfires in January when vast tracts of mallee woodland were incinerated. Even before the fires, the unique Kangaroo Island Dunnart (a small carnivorous marsupial), was considered very rare, having been recorded at only a small handful of locations in the past two decades. Overnight it became one of Australia's most critically threatened species, losing more than 95 per cent of its habitat to fire.

In the days immediately following the fires, to everyone's great relief, Kangaroo Island Land for Wildlife (KI LfW) detected dunnarts in an unburnt patch of critical habitat. AWC immediately provided additional cameras to replace equipment lost in the fires, enabling rapid assessment of dunnart habitats within the Western River Refuge.

The loss of habitat meant the dunnarts were at extreme risk of predation by feral cats – without urgent intervention, this population was headed for extinction.



Images

1. South East Regional Operations Manager Joe Schofield and Pat Hodgens, of Kangaroo Island Land for Wildlife, mark out the fence line to create a critical refuge. *Brad Leue/AWC*

2. AWC Feral Control Officer Murray Schofield removing feral cats. *Brad Leue/AWC*

3. The fires on Kangaroo Island sent the Kangaroo Island Dunnart to the top of the list of endangered species in Australia. *Brad Leue/AWC*

4. A Koala and her joey are restored to their recovering Blue Mountains habitat by Science for Wildlife and AWC. *Science For Wildlife*

5. Field ecologist Emily Rush sets a camera trap among the burnt landscape of Bezzant's Lease. *Wayne Lawler/AWC*

The immediate priority was to create a safe refuge for the remaining dunnarts by fencing out predators. AWC partnered with KI LfW and local landholders, the Doube family, to secure and protect the dunnart population with feral-proof fencing. AWC's Regional Operations Manager in the south-east, Joe Schofield, oversaw construction of the 'critical refuge area'. With troops and machinery already stationed on the island to help with the bushfire clean-up, the Australian Army graded the 1.7 kilometre perimeter fence line. Within a week, materials were assembled and construction of the fence had begun. Meanwhile, AWC's feral predator control expert, Murray Schofield, supported KI LfW by removing cats from the area. By the time the fence was closed, seven cats had been removed and none remained within the refuge. The dunnarts within the refuge are faring well and frequently detected on camera traps.

Western River Refuge – a full-scale wildlife sanctuary

The critical refuge area ensures immediate protection for a small population of Kangaroo Island Dunnarts, but plans are now underway to expand the feral predator-free area into a 'Stage 2 Western River Refuge' to secure a further 370 hectares. Incredibly, the team has already removed a total of 23 cats from the Stage 1 and 2 areas. The expected outcomes from this project are exciting: the expanded sanctuary will provide long-term protection for a suite of threatened species, including Southern Brown Bandicoot, Southern Emu Wren, Heath Goanna, Western Whipbird, Bassian Thrush and Kangaroo Island Echidna.

Vital ecological assessments

The impact of the bushfires was felt far and wide. In northern New South Wales, two conservation reserves owned by South Endeavour Trust were heavily impacted: Bezzant's Lease near Glen Innes, and Kewilpa near Casino. Both reserves fall within the range of several threatened species, including the Powerful Owl, Giant Barred Frog and Spotted-tailed Quoll – the largest marsupial carnivore on mainland Australia and a nationally endangered species. AWC offered rapid response, post-fire camera trap surveys at both properties, conducted surveys for frogs and birds, and spotlighting for nocturnal mammals. The results are encouraging: AWC ecologists confirmed the survival of a number of significant species, including Greater Gliders, Koalas, and Common Wombats (part of an isolated population in the Northern Tablelands). Significantly, the team also sighted two Spotted-tailed Quolls.

AWC also provided staff and resources to offer professional bushfire recovery advice to Wollombi Valley Landcare in the NSW Hunter region. One of our ecologists joined researchers from the Australian National University to assess the fire impacts on Regent Honeyeater habitat sites in the Wolgan, Widden and Capertee Valleys in NSW. Before the bushfires, the population of this critically endangered species was estimated to be fewer than 400 individuals.

Koala rescue

In late March, AWC joined Blue Mountains organisation Science for Wildlife to assist in the release of a group of Koalas that were rescued from the path of the raging Gosper's Mountain 'mega-fire' in December. This newly rediscovered Koala population is among the most genetically diverse in Australia, making it critical for the conservation of the species. AWC ecologists and expert tree-climbers provided on-site assistance with the release, and to radio-track and monitor the animals as they settled home over the following days. Beyond our involvement in this important rescue operation, AWC is actively looking to secure an area of high-quality Koala habitat to bolster conservation efforts for this Australian icon.

Prospects for potoroos

AWC is committed to helping bushfire-affected species. Work is now underway to identify critical habitat for threatened species like the Long-nosed Potoroo, a pint-sized kangaroo relative with an already highly fragmented population. Long-nosed Potoroo habitat was badly impacted by bushfires in the area around the NSW-Victoria border. AWC is now searching for large tracts of land that are strategically positioned to make a significant, positive impact on the future of this species.

Despite the heavy losses sustained by Australia's biodiversity last summer, we believe these projects highlight that hope springs eternal for Australia's wildlife. If there is a silver lining, perhaps it is the unprecedented focus on Australia's biodiversity and recognition of the urgent need to act. AWC maintains a strong commitment to helping our wildlife to recover from the bushfires. With 80 per cent of the team in the field and a strong track record delivering an innovative conservation model that works, AWC's practical approach to conservation is exactly what the times demand.



Mornington-Marion Downs Operations Manager Jason Lavery uses a drip torch to implement a low-intensity prescribed burn after the wet season. Joey Clarke/AWC

Burning the fire continent

By Dr John Kanowski, AWC Chief Science Officer

Australia – a fire continent

Following years of drought, exacerbated by heat-wave conditions, the 2019-20 wildfires burnt over 10 million hectares of south-east Australia's forests and woodland, killing 34 people and incinerating countless animals. More than 100 threatened species had over half their habitat blackened by the fires, while the animals that survived remain at increased risk of predation by feral cats and foxes.

The fires, burning through and around major population centres, made many Australians acutely aware of the importance of effective fire management. However, this issue has long been a central concern for forest and conservation managers.

Australia is particularly susceptible to fire, due to its climate and vegetation. Wildfires have shaped its environment for millennia. The particular frequency, intensity and seasonality of fire prevailing at a location – the 'fire regime' – is a key driver of the ecology of Australian ecosystems, affecting the structure, composition and dynamics of the vegetation and the habitat it provides for fauna. Many native plants exhibit adaptations to fire. Some require fire to germinate and establish. In fire-prone ecosystems, many species of wildlife have a remarkable capacity to survive the passage of fire, provided it is not intense, and many species favour the resources available after fire. However, large wildfires such as those that burnt much of south-east Australia in 2019-20 are generally devastating to wildlife.

Repeated intense fire events alter ecosystems – favouring species that tolerate repeated disturbance – and eliminating fire-sensitive species.

Fire management in Australia

Fire has been part of the tool kit of humans for a very long time. Indigenous Australians may well have used fire to manage country from the time they settled the continent. On this basis – and this entails a major paradigm shift in our understanding – the Australian bush is the product of an unimaginably long history – likely tens of thousands of years – of deliberate fire management. Certainly, by the time Europeans arrived, Aboriginal people demonstrated great facility in use of fire. Traditional fire management practices continue to the present in parts of central and northern Australia, and typically result in a fine-scale, patchy mosaic of vegetation at different ages since fire and unburnt vegetation. This fire regime generally protects wildlife from the impacts of intense wildfires, which rarely burn through such actively-managed country. Unfortunately, less is known of traditional burning practices in the environments of southern Australia.

European colonisation resulted in the dispossession of Aboriginal people and the disruption of their fire management practices. Across much of the country, a wildfire regime took hold. In northern Australia, this resulted in the annual conflagration of 20-30 million hectares of savannas in the late dry season. In arid Australia, massive landscape-scale

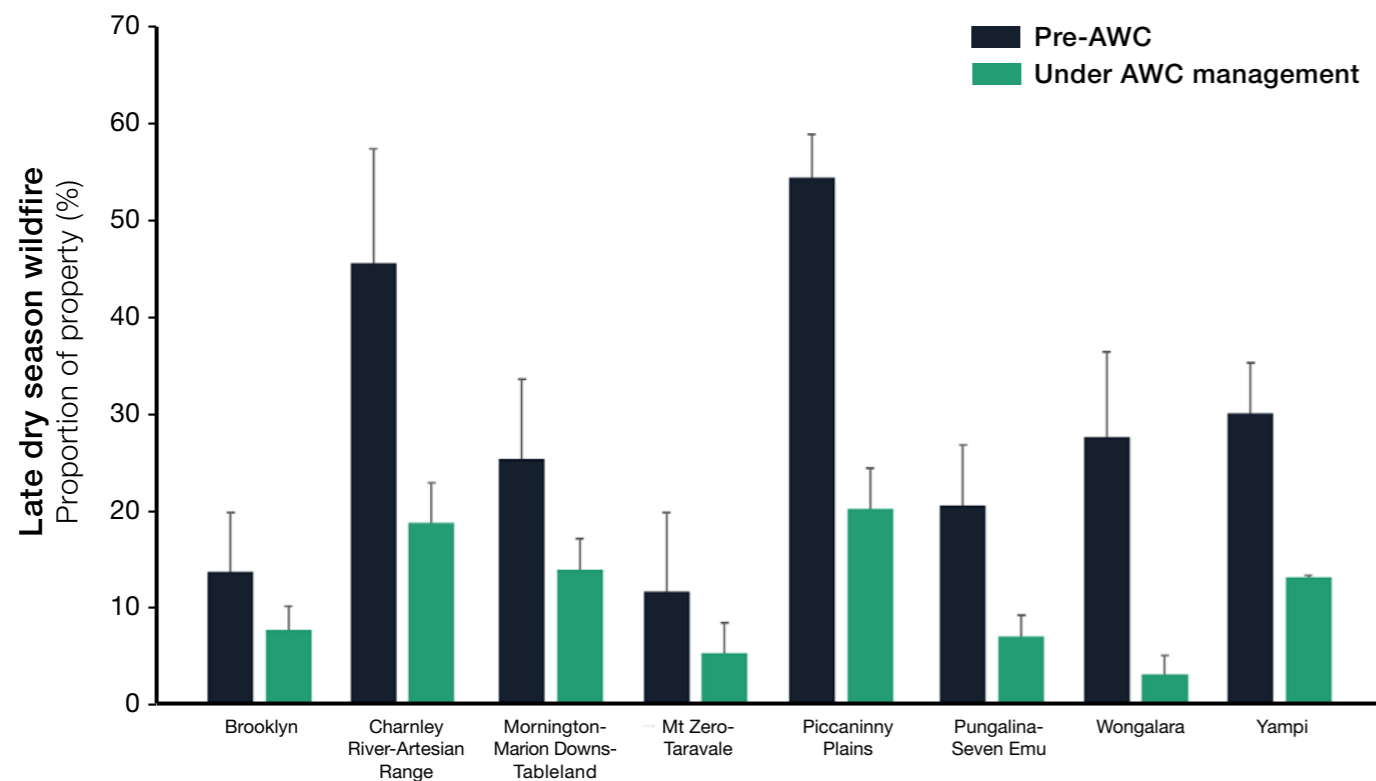


Fig. 1. Table showing reduction in late dry season wildfire before and after AWC management across our north Australian sanctuaries.

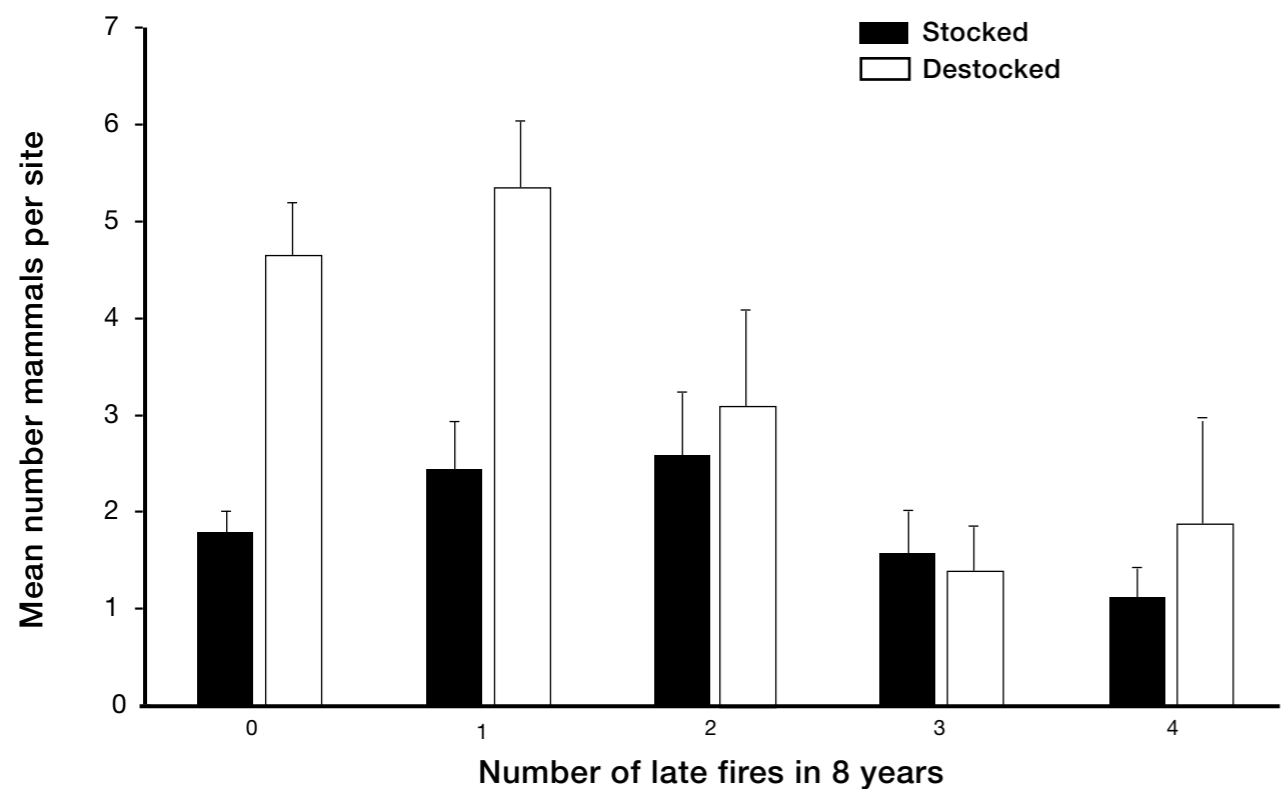
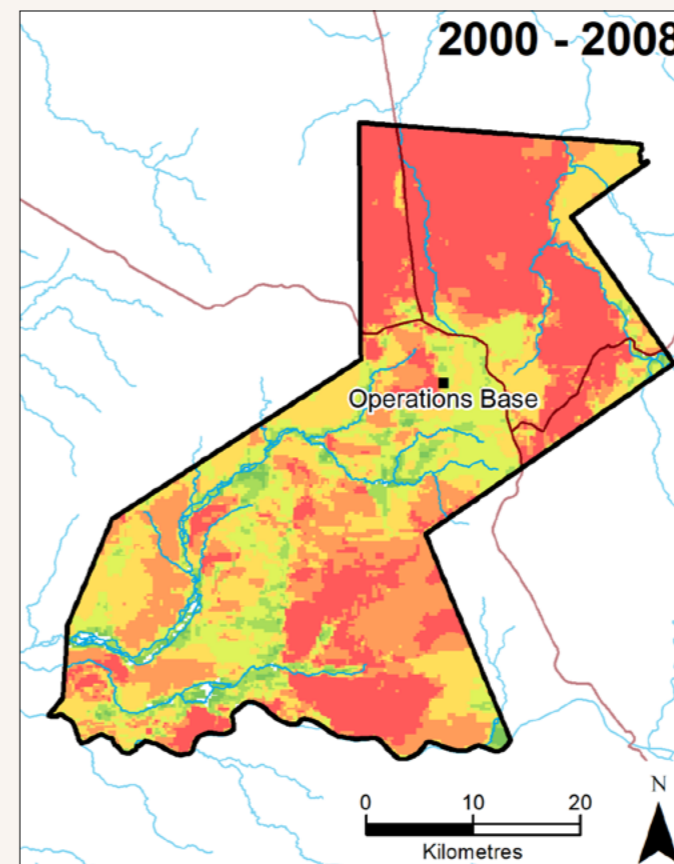
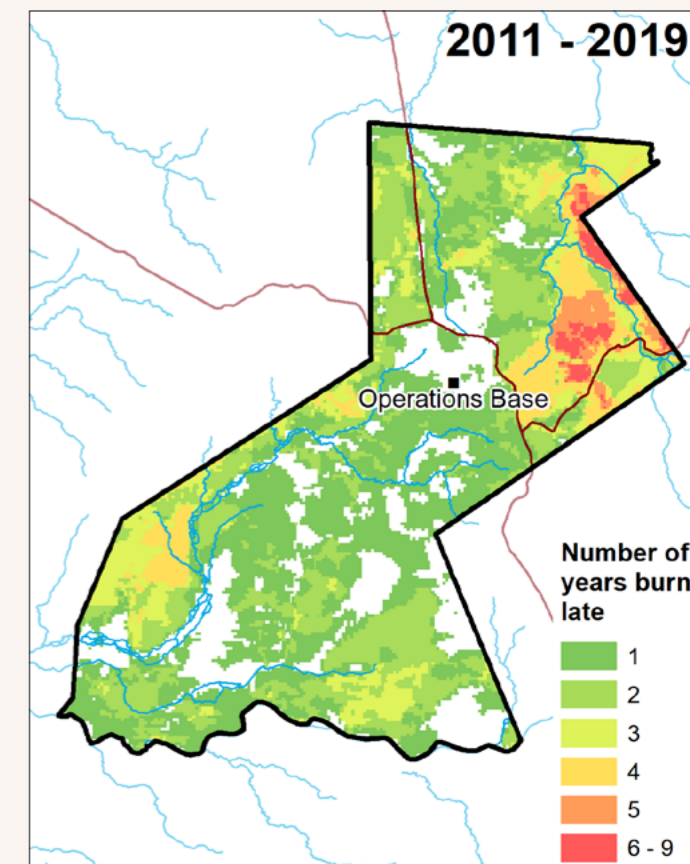


Fig. 2. The abundance of small mammals at AWC's wildlife sanctuaries in the Kimberley increases with a reduction in the frequency of late dry season wildfires, particularly on destocked sites.



Piccaninny Plains late fire frequency. Late fire frequency is the number of years each area has been burnt in a late fire in the nine years for each time period.



wildfires followed periods of extensive rainfall, at intervals of up to 30 years. In south-east Australia, extensive wildfires have burnt through the forests at approximately decadal intervals, most recently this last summer.

AWC's approach to fire management

AWC's mission is the effective conservation of Australia's wildlife and their habitats. Effective fire management is a primary focus of AWC's operations. At present, our approach to fire management is best articulated for properties in northern and central Australia, where we have a good understanding of ecologically-appropriate fire regimes and how to implement those regimes.

For each property in these regions, AWC develops fire management strategies, drawing on the available ecological knowledge as well as the practical experience of our land managers. While the particulars of each strategy vary between sites, common key objectives include the protection of life and property, the conservation of biodiversity and landscape-scale control of certain weeds. This is achieved through managing patterns of fire, in particular, through deliberately lighting relatively 'cool' burns to strategically reduce fuels across the landscape with the aim of reducing the likelihood of large, homogenous wildfires. In northern Australia, there is generally good alignment between conservation-

oriented fire management and abatement of greenhouse gas emissions. Given that intense, large wildfires are potent sources of greenhouse gases, AWC's fire management also makes a contribution to reducing rates of global warming. Where we are engaged in partnerships with Indigenous landholders, such as on Dambimangari and Wilinggin countries, fire strategies also address the interests and concerns of our partners, such as the protection of cultural sites and involvement of culturally-appropriate managers in burning programs.

Each year, a burn plan is developed for each property by AWC land managers, ecologists and partners, to give effect to the fire management strategies. These annual burn plans provide detailed guidance for operations staff, noting areas to be burnt from the ground, the location of firebreaks, and flight lines for aerial-delivery of incendiaries. They are built up from detailed knowledge of country and informed by analysis of fire scars from satellite imagery. In northern Australia, annual fire management is a necessity.

At the end of each year, specialist technical staff in AWC's science program download the satellite data, conduct additional interpretation of fire scar data, and produce maps and analyses of fire patterns. This information allows us to assess the effectiveness of our



fire management against a range of metrics and to plan for the following year's fire management.

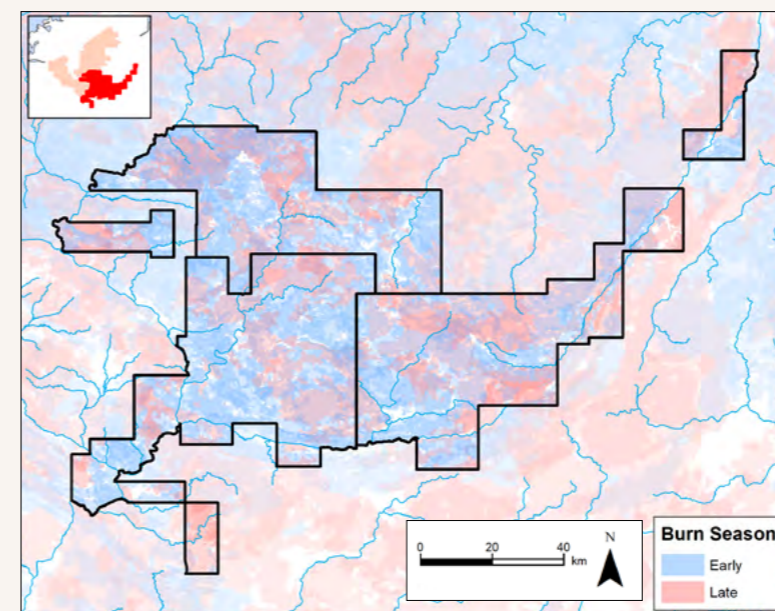
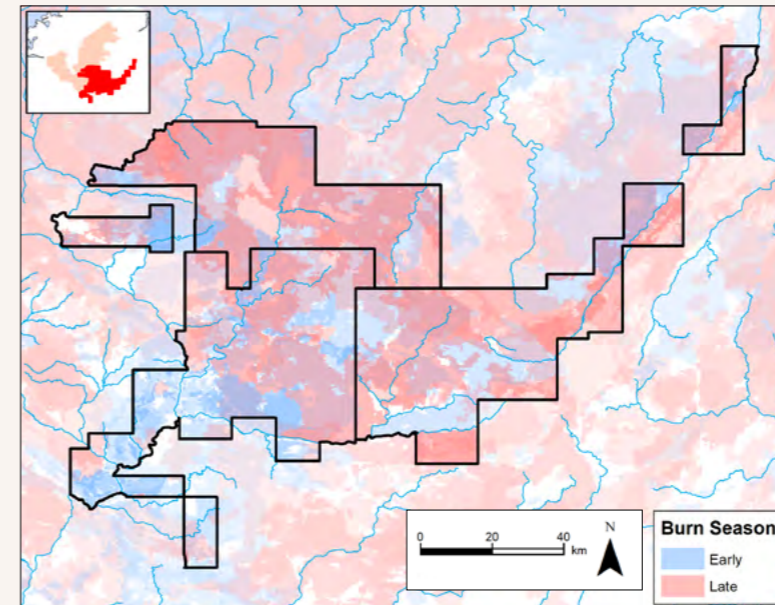
Results of AWC's fire management

Implementation of AWC's fire management program has halved the extent of wildfire in properties we manage across northern Australia. This holds true for Western Australia, Northern Territory and Queensland and indicates that our general approach to fire management in northern Australia is effective, despite differences between sites and details of the approaches adopted by each manager.

Research by AWC ecologists has shown that a reduction in the extent and frequency of wildfire has positive consequences for wildlife. In the Kimberley region of WA, for example, AWC's fire management has resulted in an increase in the abundance of small mammals, especially where grazing is also controlled. One of the key factors driving the increase in small mammal populations is reduced predation by feral cats in landscapes where more cover is retained due to better fire management.

AWC will continue to refine our fire management program based on analysis of its outcomes, including evidence from our research on the response of plants and animals to fire regimes. Like other conservation managers, we need to work out how best to implement fire management in our southern forests, given their long history of modification, and their occurrence within urbanised landscapes where methods employed in remote Australia do not readily apply. Across the continent, implementation of effective fire management will only become more important as temperatures increase with climate change.

Image
1. Small mammal populations, like those of the Pale Field Rat (*Rattus turneyi*), have benefited significantly from AWC's fire management programs. Brad Leue/AWC



Mornington Fire history 2006 and current. Shows seven year fire history before/after AWC management for Mornington-Marion Downs-Tableland.

AWC's fire management program in the Kimberley

While AWC has a network of wildlife sanctuaries and partnership sites across Australia, our largest footprint (by area) is in the Kimberley, in north-west Western Australia. This region largely supports savanna vegetation, characterised by various eucalypts, boabs and other trees above a grassy understorey of spinifex and tussock grasses. The grasses grow during the wet season, and cure over the long dry season. Without deliberate fire management, such as practised under Aboriginal fire management, the savannas are prone to extensive wildfire from lightning during the build-up season. Without deliberate fire management, nearly half the savannas in the Kimberley burn annually, the majority in late dry season wildfires.

AWC began its regional fire management program, EcoFire, in the Kimberley in 2007. The program involves AWC properties, neighbouring pastoral stations and Indigenous lands. In recent years, AWC has expanded the area under fire management in the region to include Yampi Sound Training Area and the Dambimangari and Wilinggin Aboriginal Corporations partnerships, such that it now extends over 6.5 million hectares. This is the largest non-government fire management program in Australia.

Compared with the situation prevailing in the region, the implementation of the EcoFire program has resulted in a halving of the average annual extent of wildfire, from 31 to 15 per cent, brought about by an increase in prescribed burns in the early dry season and targeted suppression. Early dry season burns tend to be cooler and burn more patchily than late dry season wildfires. AWC's ecological survey program has demonstrated that small mammals, seed-eating birds and riparian (streamside) birds have responded positively to the reduction in wildfires.

In 2020, COVID-19 has posed an unexpected challenge to AWC's fire program in the Kimberley, as it has to all of our lives. Not delivering fire management this year was simply not an option. Quick thinking by AWC staff, our partner organisations and contractors resulted in our Kimberley team enforcing strict quarantine measures – the entire team as well as all vehicles (including two helicopters) and equipment were required to self-isolate for 14 days. As a result, the fire management program is being implemented in full.



Dambimangari and AWC work together to protect this area of international conservation significance and the threatened species that find refuge here. Colin Leonhardt/AWC

Indigenous partnerships protect Kimberley jewel

Dr Skye Cameron, North West Regional Ecologist, David Nelson, Senior Field Ecologist, and Dr Karen Young, Wildlife Ecologist.

Indigenous managed lands and protected areas are vital for the conservation of Australia's unique biodiversity. Nowhere is this more apparent than in Western Australia's remote Kimberley – a region of international conservation significance.

A massive 93 per cent of the 42.35 million hectare region falls within Native Title lands, including Indigenous Protected Areas. AWC is working with Dambimangari and Wilinggin Aboriginal Corporations to protect this stronghold for threatened and endemic species. These pivotal partnerships are crucial for the successful delivery of conservation outcomes in the region.

Dambimangari Rangers, Wilinggin's Wungurr Rangers and AWC field staff have been working together to further develop and implement science and land management strategies in line with Healthy Country Plans and AWC's conservation goals. This includes collaborative development and implementation of early dry season burning programs – 'right-way fire'. Right-way fire protects Dambimangari and Wilinggin land and protects threatened and endemic species that find refuge here.

Dambimangari wet season surveys (2019-2020)

Biodiversity surveys target the most pressing gaps in western knowledge regarding the presence and distribution of mammal fauna within

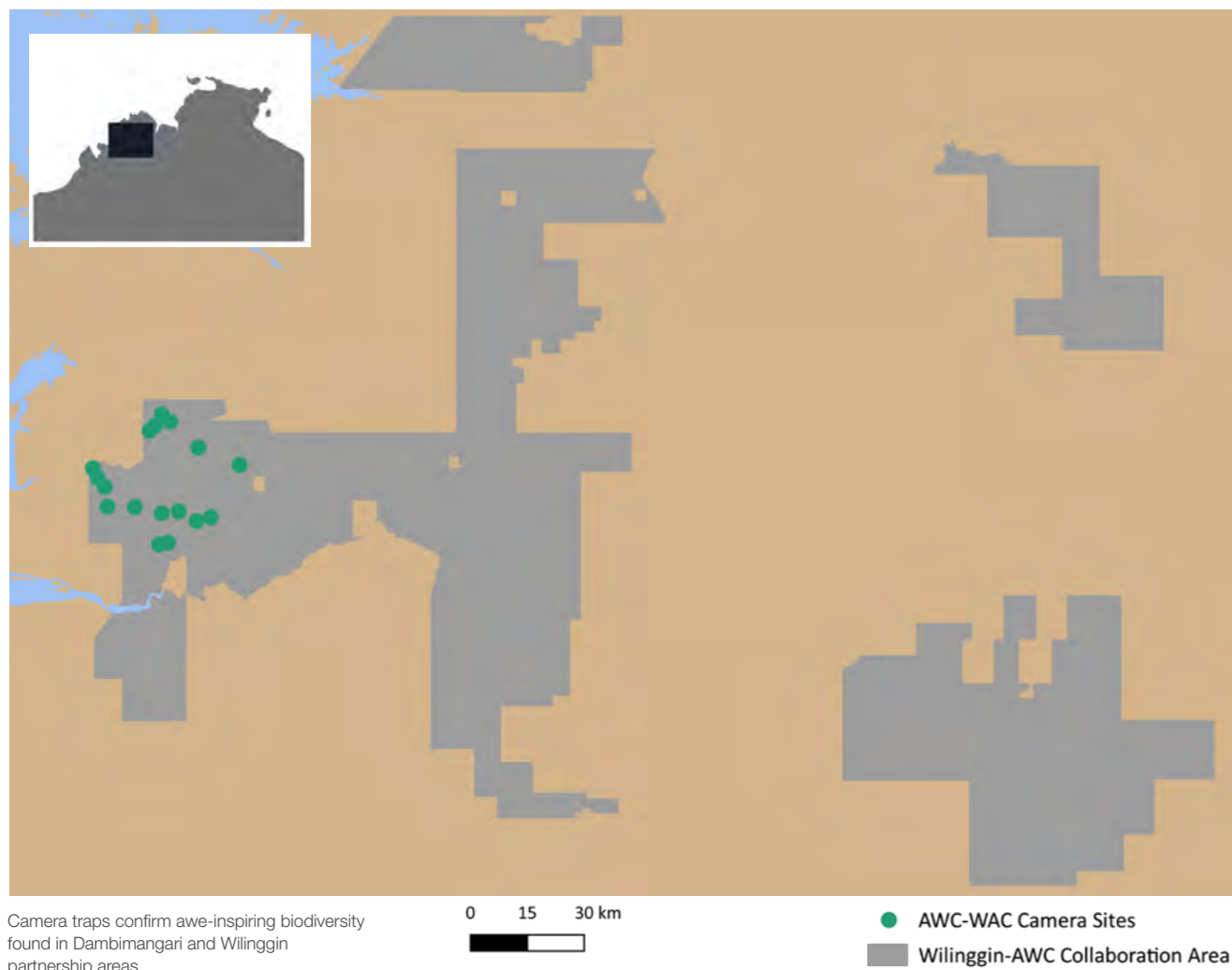
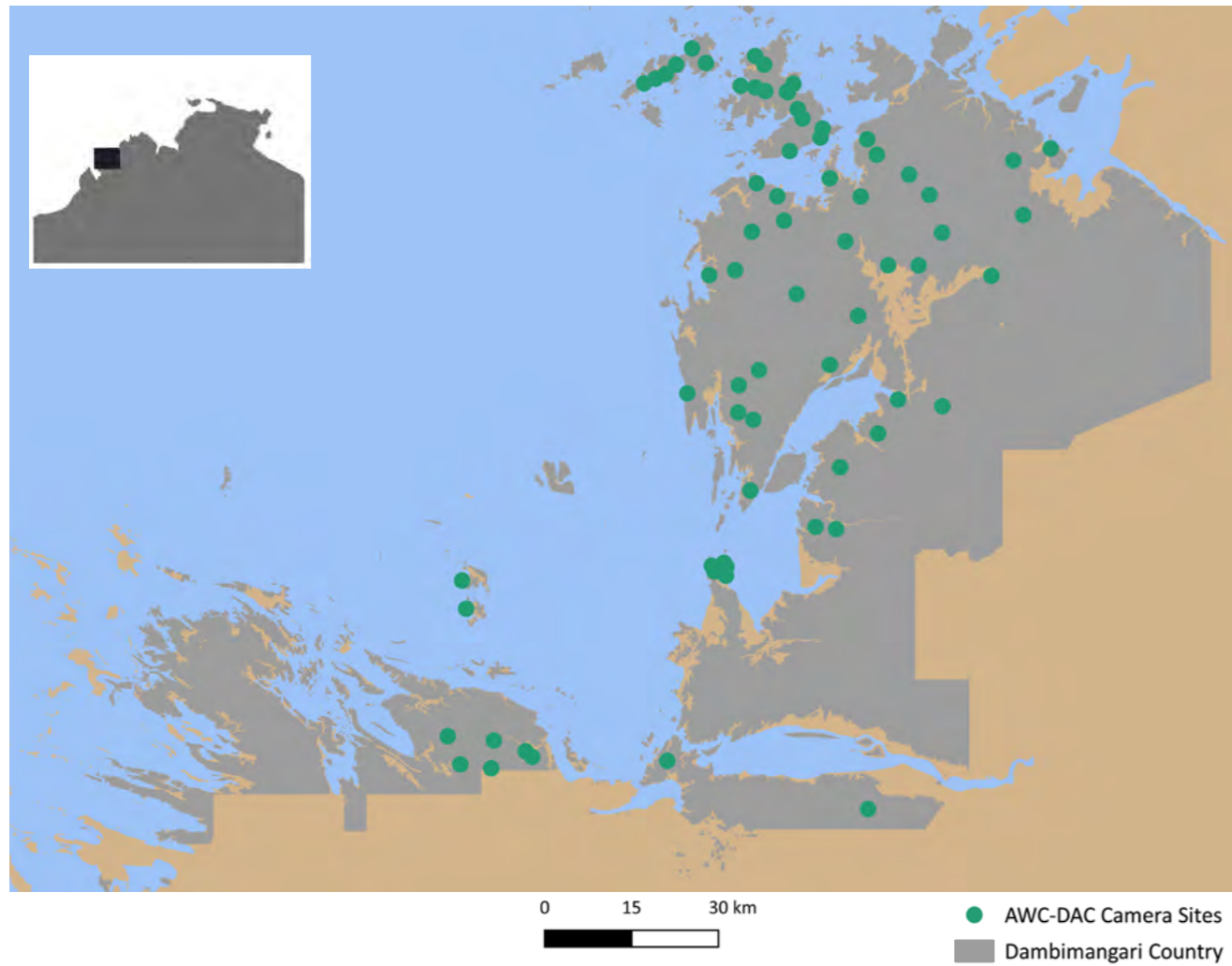
the 800,000 hectare Dambimangari partnership area. Navigating driving rain and cyclonic winds that typify wet seasons in the north-west, Dambimangari Rangers Azarnia Malay and Shorisha Ozies, and AWC ecologists deployed 100 camera-traps over a large area of the basalt-dominated central-northern region. A further 25 were dispersed on the Yampi Peninsula (3,500 trap nights in total).

The hard work is paying off; previously unrecorded species continue to be confirmed. The most recent survey grew the inventory by one mammal, six reptile, 10 bird and 10 frog species, taking the total to 82 confirmed species. These results highlight the astonishing biodiversity of this Kimberley jewel.

Dambimangari Ranger Peter O'Connor was in awe of the diversity delivered by this survey. He says two-way learning will benefit both the rangers and AWC.

"I can learn a lot from western conservation, and it's also about teaching the people I work with from AWC what I know" he said.

"For me, the highlight is just being on Country and having the connection back to land. Seeing the beauty of the country, the ancientness of it. People walked the country back before Dambi and AWC. It's a last frontier, a last bit of country in Australia that's untouched. And that's unique."



Camera traps confirm awe-inspiring biodiversity found in Dambimangari and Wilinggin partnership areas.



Images

1. Cassidy Charles (Wilinggin Traditional Owner) deploying a camera trap on survey. Karen Young/AWC
2. WAC Pantijan team – Cassidy Charles (Wilinggin Traditional Owner), Karen Young (AWC Wildlife Ecologist), Luke Russ (WAC Wungurr Ranger), Joseph Porter (AWC Field Ecologist) and Liam Watson (Wilinggin Traditional Owner) AWC
3. An endangered Nabarlek (*Petrogale concinna*) caught on one of the camera traps on Dambimangari county. AWC

Wilinggin wet season surveys (2019-2020)

Wilinggin and AWC completed the first joint biodiversity inventory surveys over the recent wet season. In total, 86 cameras were deployed by Wungurr Ranger Luke Russ, Traditional Owners Liam Watson and Cassidy Charles, and AWC ecologists at 17 sites across the 1.7 million hectare partnership area.

Deployment and later retrieval of cameras occurred under very hot and humid conditions. Abundant enthusiasm and excessive sweat delivered an astonishing 4,644 trap nights. Wilinggin Aboriginal Corporation's Desiree White is learning how to tag and identify all the animals captured on camera with AWC Wildlife Ecologist Dr Karen Young. Preliminary results have already identified 22 mammal, 17 reptile, 30 bird and one amphibian species, plus two notable plant species. That's a total of 72 species from this survey alone which covers only one portion of the partnership area.

Capturing the essence of this partnership, Wilinggin's Wungurr Ranger Luke Russ said the partnership with AWC brings "opportunities for knowledge exchange travelling both ways between Wilinggin and AWC – to get a more solid footing of knowledge."

The future looks bright

The results of these surveys, across both partnership areas, are contributing towards the development of an extensive wildlife inventory of the Kimberley. This survey effort is building our collective knowledge and enables us to measure, refine and prioritise our conservation efforts. It also helps to build Traditional Owner capacity and provide greater opportunities for Traditional Owners to get on Country in a meaningful way. Reflecting the sentiment that resonates throughout our Kimberley partnerships, Luke Russ said: "We look forward to the full flowering of the partnership. The future looks bright." We couldn't agree more.



This adult Red Goshawk has been fitted with a transmitter and is ready to be released. Simon Cherriman

Uncovering the mystery of Australia's rarest bird of prey

Dr Richard Seaton, Senior Ecologist

With its enormous taloned feet, rufous-striped body, powerful hooked bill and crested head, the Red Goshawk is nothing short of spectacular. This Australian endemic was once found throughout the tall eucalypt forests that stretch from New South Wales to Cape York, and across the Top End to the Kimberley. Although never a common species, its range has greatly retracted in recent decades and the Red Goshawk is now considered Australia's rarest bird of prey. Widespread habitat clearance and modification have been the primary drivers of this decline.

Conservation challenges

Requiring large tracts of biodiverse habitat, the Red Goshawk naturally occurs at low densities and is highly cryptic in nature. As a result, it is regarded among birders and ecologists as a difficult bird to see and study. The specifics of the bird's ecological requirements and, accordingly, how we might best conserve them, have been frustratingly difficult to describe.

Actions to assist Red Goshawk recovery

In 2014, a Recovery Team for the Red Goshawk was formed and a feasibility study began to find nesting pairs and establish whether their movements could be tracked using satellite GPS technology.

Efforts to locate Red Goshawks in south-east Queensland and northern NSW came up empty-handed, strongly suggesting the species no longer breeds in the southern part of its former range. The following year however, a nest was reported on Cape York Peninsula, near Weipa. Through a partnership between Rio Tinto and the Queensland Government, plans were quickly hatched

to trial capture techniques and – all going well – fit a lightweight transmitter to track the bird's movements. After several unsuccessful trapping attempts in which I became uncomfortably familiar with Cape York's green ants and mosquitoes, we successfully caught our first bird and attached a transmitter. Since then several birds on Cape York have been successfully tracked.

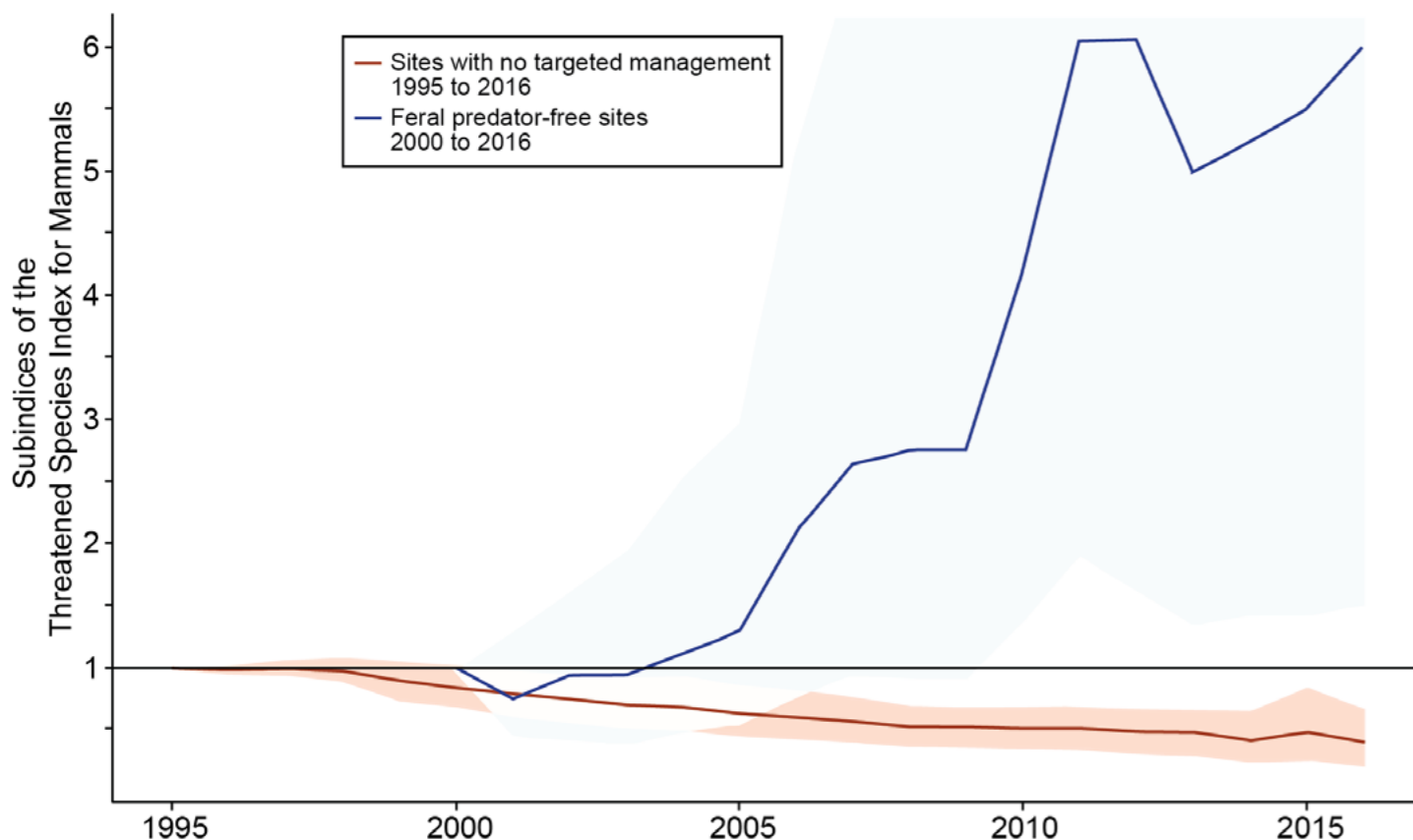
AWC's role in protecting the Red Goshawk

AWC is conducting crucial research to describe the ecological requirements of the Red Goshawk and increase our understanding about how to effectively conserve these rare birds. AWC's involvement has expanded the survey area to potentially include tracking birds on AWC sanctuaries. Suitable habitat occurs on many of AWC's north Australian sanctuaries. We are hopeful Red Goshawks are present and we can expand our tracking efforts to include all of these sites.

Adding a huge boost to the research effort is Chris MacColl, from University of Queensland, who is researching the ecological requirements of the Red Goshawk for his doctorate. To date, Chris, with the help of AWC and other project partners, has begun tracking the movements of eight birds – four adults and four fledglings. Preliminary findings indicate some huge and unexpected movements made by both adults and juveniles of up to several hundred kilometres, but there is still work to be done before the full picture is revealed. These initial results are exciting and give us confidence AWC can make a significant contribution to both our understanding and the conservation of Australia's rarest bird of prey.



The abundance of reintroduced mammals like the Burrowing Bettong has increased by 500 per cent in feral predator-free areas. Wayne Lawler/ AWC



AWC makes major contribution to national Threatened Species Index for Mammals

By Dr Liana Joseph, National Science Manager, Dr Elisa Bayraktarov, University of Queensland – Threatened Species Hub, Researcher, Dr Fay Lewis, Science Coordinator, and Dr John Kanowski, Chief Science Officer

Ecological monitoring is a critical tool in the conservation toolbox. Collecting field data is essential if conservation agencies are to know anything about the status of species, the processes that are threatening them, and the effectiveness of management actions.

AWC is committed to collecting field data as part of our EcoHealth Monitoring Program. Each year, AWC's science team spends months in the field conducting surveys across our sanctuaries and partnership areas.

Collecting the data is a gargantuan effort: in 2019 alone AWC's team of field ecologists and volunteers undertook more than 220,000 trap nights across the continent in order to collect valuable data. This is the largest field science program in Australia and possibly the world.

The information we gather enables us to report on the status of biodiversity and threat indicators for each sanctuary in our annual EcoHealth scorecards and reports.

We also share these data with other conservation and science bodies as we recognise that utilising the type of ecological data AWC collects is

a key component for conserving Australian wildlife.

Australia's Threatened Species Index

The Threatened Species Index for Mammals is a new national tool to assist policy makers, conservation managers and the public to understand how some of the population trends across Australia's threatened species are changing over time. This composite index pulls together information on populations of all threatened mammals for which there are ecological data available.

The index enables coherent and transparent reporting on relative changes in threatened mammals at national, state and regional levels, and across different management settings (e.g., feral predator-free areas versus areas under other kinds of management, or areas with no management interventions at all).

The first iteration of this new index covers the period between 1995 and 2016 and captures high-quality time series (monitoring) data on 57 threatened and near-threatened Australian mammals from a total of almost 10,000 surveys and from over 1,000 locations across the

country. For the first time in Australia, an index has been developed that can provide rigorous, measurable trends across Australia's threatened species.

AWC's contribution

AWC is the major contributor of data to the Threatened Species Index for Mammals, adding long-term survey data for 10 threatened mammals to the 2019 index. This year, we will increase our data contribution to include more species and more sanctuaries.

The index was developed by the Threatened Species Recovery Hub of the Australian Government's National Environmental Science Program. AWC has been a collaborating partner in the development of this index since its inception in 2016. We have also contributed our data to the 2018 Threatened Species Index for Birds.

Through AWC's commitment to evidence-based conservation, we are a national leader in not just the collection of biodiversity survey data but ensuring it forms an integral component of, and gets embedded in, important assessments such as these.

Data confirms success of AWC model

The results are out and the index shows that while threatened mammals in Australia are generally not doing well, AWC's model for threatened mammal conservation is working:

- Mammals that have been monitored at sites across Australia without any (known) targeted conservation management have declined by 60 per cent on average between 1995 and 2016 and they are on a decreasing trajectory.
- At sites with targeted conservation management,

such as baiting of feral predators and ecological fire management, the data on 17 mammals indicate a decrease of 63 per cent between 2000 and 2003 but a very stable trend since 2003.

- Most remarkable is the over 500 per cent average increase in mammal abundance for 15 taxa on island and mainland feral predator-free safe-havens between 2000 and 2016.

This is further evidence that, where AWC establishes feral predator-free fenced areas, we are making a major contribution to the conservation of Australia's threatened mammals.



AWC has undertaken more reintroductions of threatened mammals than any other non-government organisation. Wayne Lawler/AWC

Reintroductions deliver exciting outcomes for threatened wildlife

By Dr John Kanowski, Chief Science Officer

Over the past two centuries, large areas of Australia have lost most of their small to medium-sized native mammals: carnivorous marsupials, Bilbies, bettongs, bandicoots, small wallabies and native rodents. This hollowing out of our mammal fauna represents a major loss of our natural and cultural heritage, and a part of our national identity.

No other nation has faced such an extinction crisis: 10 per cent of Australian mammals have gone extinct and another 20 per cent are threatened, with predation by feral cats and foxes a primary driver of these extinctions and declines.

The consequences for conservation extend beyond the loss of species to the disruption of the ecological processes in which the lost mammals participate – soil engineering (digging for food and shelter), spore and seed dispersal, herbivory and predation.

Establishing a network of feral-free areas

For over a century, and increasingly in recent decades, Australian ecologists have made attempts to re-establish populations of locally-extinct mammals at sites within their former ranges. These projects have been undertaken by private

individuals, government agencies and conservation organisations. AWC began its reintroduction program over 25 years ago, when our founder, Martin Copley, fenced foxes and feral cats out of Karakamia Wildlife Sanctuary in the hills, east of Perth, Western Australia, and reintroduced Brush-tailed Bettongs (Woylies) and several other threatened species.

Since then, AWC has established a national network of reintroduction projects, including one island (Faure Island, WA), and seven fenced 'mainland islands': Karakamia and Mt Gibson Wildlife Sanctuaries in WA, Newhaven Wildlife Sanctuary in the Northern Territory, Yookamurra Wildlife Sanctuary in South Australia, and in New South Wales at Scotia Wildlife Sanctuary, and the Pilliga State Conservation Area and Mallee Cliffs National Park, in partnership with the NSW Government.

Feral cats and foxes have been eliminated from these reintroduction sites. AWC also conducts reintroduction programs at two sites where feral predators are controlled, but not excluded, by fences: Paruna Wildlife Sanctuary, in WA, and North Head, in NSW, in partnership with Sydney Harbour Federation Trust.



Fig. 1. AWC has established a national network of reintroduction projects including fenced feral predator-free safe-havens, a feral predator-free island, and feral predator-reduced sanctuaries.

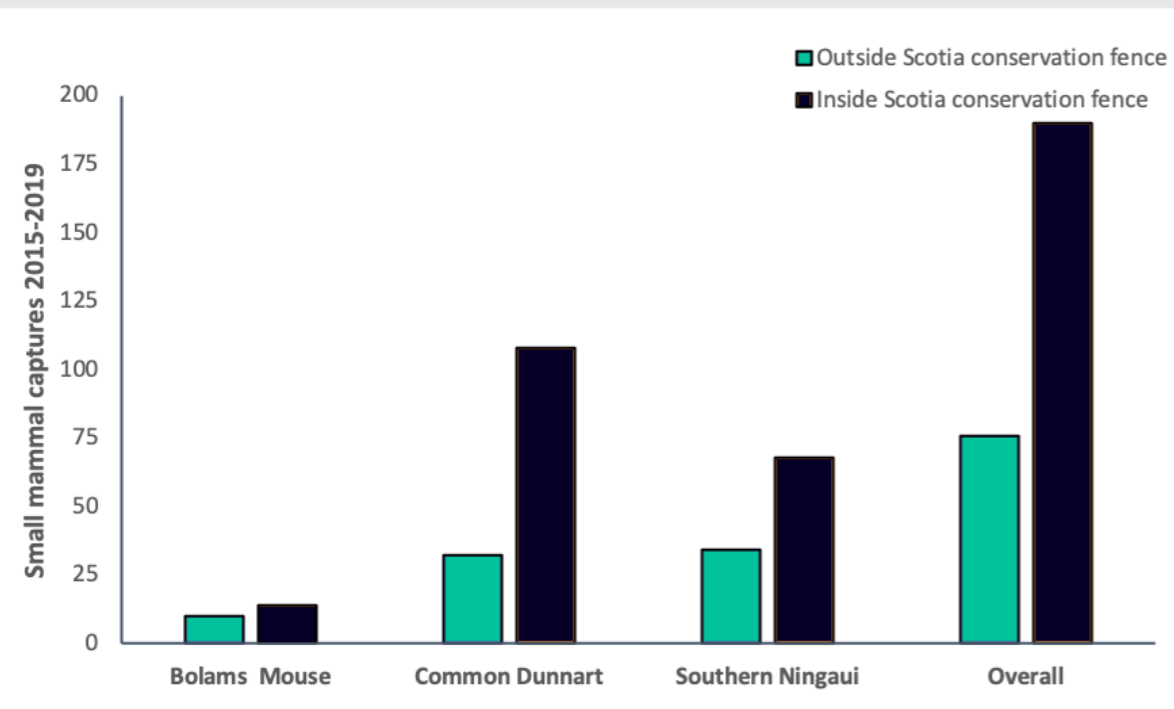


Fig. 2. Graph shows that capture rates of extant species inside the fence is much higher compared to capture rates outside the fence.



Restoring threatened wildlife populations

AWC's reintroduction projects support, in total, a dozen nationally-threatened mammal species. For some species, like the Bridled Naitail Wallaby, Greater Bilby, Burrowing Bettong, Mala and Numbat, the populations in AWC's reintroduction program represent a substantial proportion of individuals remaining on the planet. AWC plans to reintroduce additional species to the network in the next few years, including endangered mammals, such as the Central Rock Rat and Northern Bettong, that are not currently represented in any secure (i.e., feral predator-free) area.

As well as threatened species, AWC's reintroduction projects support a range of locally-extinct mammal species, for example, the Eastern Pygmy Possum, Brown Antechinus and Bush Rat have been reintroduced to North Head. None of these species are nationally threatened – they were all originally part of the North Head ecosystem – and their return is as much part of looking after the bush as removing weeds or implementing ecologically-appropriate fire regimes. For the same reason, AWC has reintroduced the Common Brushtail Possum to Yookamurra and Karakamia, and we plan to return this species to Mt Gibson and Newhaven in coming years.

Research conducted by AWC has shown the exclusion of feral predators from fenced reintroduction sites has other benefits for wildlife. At Scotia, analysis of long-term trapping data has shown populations of native mammals are generally higher inside the fenced area than outside (see figure 2, Roshier et al. 2020). Similarly, since construction of the fence at Mt Gibson, analysis of bird survey data has shown some birds are recorded more frequently inside the fence than outside (Smith et al. 2020).

Other work in progress indicates ground-active birds are particularly advantaged by the exclusion of feral predators. There are, for example, higher levels of active Malleefowl nest

mounds inside the fenced areas at Scotia and Mt Gibson than outside where foxes and cats persist.

Measuring, monitoring and refining our approach

In conjunction with our reintroduction program, AWC ecologists conduct a suite of monitoring and research projects aimed at documenting the outcomes of reintroductions, improving our knowledge of reintroduction techniques, and enhancing our understanding of the ecology of threatened mammals and the ecological processes in which they participate.

Reintroduced animals are monitored using radio-telemetry, live-trapping, cameras and observational surveys. Extant fauna are monitored using trapping and observational surveys, while vegetation is monitored on plots inside and outside fenced areas.

At Mt Gibson, surveys have shown seven of the eight species of mammals reintroduced since 2015 have increased in population size or expanded their range since release within the fenced area. The population of Woylies has grown to over 1,000 individuals – large enough to support harvests for other reintroduction projects. Research has compared outcomes for Numbats sourced from wild and captive-bred populations, with important lessons for future reintroduction projects (e.g., Palmer et al. 2020).

A key strength of AWC's research is that our field ecologists who conduct the reintroductions are the same people who undertake the research, ensuring the work is tightly focused on issues of applied conservation relevance.

In addition to the conservation and research outcomes, AWC's reintroduction program has provided opportunities for engagement with Traditional Owners, who have been involved in 'Welcome to Country' ceremonies, releases of reintroduced species, and ranger work on a number of projects. The broader community has also been involved through public education events.

Images

1. The tiny Eastern Pygmy Possum is vulnerable to extinction in NSW and has been reintroduced by AWC to North Head. Wayne Lawler/AWC
2. AWC has reintroduced Bridled Naitail Wallabies to Scotia Wildlife Sanctuary and the Pilliga. Wayne Lawler/AWC



SAVING OUR SPECIES



Endangered Brush-tailed Bettongs (Woylies) will be restored to NSW national park estate at Mallee Cliffs and the Pilliga. Brad Leue/AWC

Benchmarking AWC's progress at two NSW National Parks

By Dr Greg Holland, Acting Regional Ecologist NSW

In 2016, Australian Wildlife Conservancy, in partnership with the NSW National Parks and Wildlife Service (NPWS) as part of its *Saving our Species* program, embarked on a historic project. AWC delivers ecological and land management services for two areas of the public estate: Mallee Cliffs National Park and the Pilliga State Conservation Area. Under this historic partnership, AWC is establishing large-scale, feral predator-free fenced areas and restoring regionally-extinct mammals at each park.

Following fence construction, an immense, sustained eradication program continues to be implemented at both Mallee Cliffs and Pilliga to remove feral animals within the fenced areas. These two areas form the largest fenced, feral predator-free refuges in national parks on mainland Australia. When completing projects on this scale, adaptability and perseverance are critical, with AWC employing a variety of techniques to achieve success.

Feral animal control – Mallee Cliffs

Construction of the Mallee Cliffs fence – protecting 9,570 hectares – was completed in August 2019. Efforts to remove feral animals include:

- Laying more than 350 ground baits;
- Deploying 69 Canid Pest Ejectors (CPEs);
- 12,200 trap nights (cage and soft jaw traps);
- 6,700 kilometres of road 'dragging' for footprint track identification; and
- 16,600 camera trap nights.

At Mallee Cliffs, eradication efforts have resulted in the removal of two cats, 12 foxes and 18 goats. Monitoring indicates feral cats have been eradicated inside the Mallee Cliffs conservation fence. With the recent removal of a fox, it's hoped this species has also been successfully eradicated. Ongoing monitoring will verify this in coming months. Once confirmed, Mallee Cliffs will become the largest feral predator-free area on mainland Australia, wresting the title from AWC's Newhaven Wildlife Sanctuary (9,450 hectares).

Feral animal control - Pilliga

The Pilliga fence, surrounding 5,800 hectares, was completed in July 2018. Eradication efforts included:

- Laying more than 1,600 ground baits;
- Deployment of 178 CPEs;
- 7,124 trap nights (cage and soft jaw traps);
- 2,600 kilometres of road dragging; and
- 60,205 camera trap nights.

Specialist detection dogs have been used in the Pilliga to locate elusive feral predators. Four foxes, four cats and 59 goats have been removed. Feral cats have been successfully eradicated. One remaining fox is the subject of ongoing eradication efforts.

Reintroductions of threatened mammals

At Mallee Cliffs and Pilliga, a smaller 'breeding area' has been established inside the main fence. Population founders of each target species are sourced from genetically different populations. This area facilitates interbreeding to maintain and expand genetic diversity. Reintroductions commenced once feral animals were eradicated within these breeding areas.

Greater Bilbies were reintroduced to the Mallee Cliffs breeding area (480 hectares) in October 2019. The results are promising: survival in the months following reintroduction was ~90 per cent and individuals captured three months post-release were in good condition.

Two species have been reintroduced to the Pilliga breeding area (680 hectares): Greater Bilby in December 2018 and Bridled Naitail Wallaby in September 2019. Survival in the months immediately following reintroduction was high (Bilby – up to 91 per cent; Bridled Naitail Wallaby – 88 per cent). Individuals captured during routine post-release monitoring are healthy, with evidence of successful reproduction observed for both species.

Reintroductions – what's next?

With each large fenced area soon to be declared feral-free, the partnership between AWC and NSW NPWS is entering an exciting new phase. Over the next few years, reintroductions of nine mammal species, including eight classified as Threatened, are planned for Mallee Cliffs, including Brush-tailed Bettong, Western Quoll, Greater Stick-nest Rat, Numbat, Mitchell's Hopping-mouse, Bridled Naitail Wallaby, Western Barred Bandicoot and Red-tailed Phascogale. Four reintroductions are planned for Pilliga, including Brush-tailed Bettong, Western Quoll, Western Barred Bandicoot and Plains Mouse. These reintroductions will help secure the long-term future of these species and restore important natural ecological processes at each site.

These reintroductions represent the most ambitious native mammal restoration program ever ventured in NSW. Under this historic partnership, AWC will ultimately restore up to 10 regionally-extinct mammals to NSW. Few projects have made such a significant contribution to the conservation of Australia's threatened wildlife.



Predation by cats and foxes has driven Greater Bilbies to the brink of extinction. Wayne Lawler/AWC

Feral predator control – for life beyond the fence

By Dr David Roshier, Senior Ecologist (Research), Dr Andrew Carter, Wildlife Ecologist, Dr Michael Smith, South West Regional Ecologist, and Dr John Kanowski, Chief Science Officer.

Feral cats and foxes are the primary threat to small to medium-sized Australian mammals, with over 60 species rated as extremely or highly susceptible to these predators (Woinarski et al. 2014; Radford et al. 2018). Conservation of these species requires the elimination or heavy suppression of foxes and cats.

AWC has established a network of feral predator-free areas (or 'safe havens') at eight properties in southern and central Australia that currently support a dozen threatened mammal species, with further species to be added in the next few years (see article on page 22).

AWC's long-term objective

AWC's long-term objective is to have populations of species susceptible to feral predators living 'outside the fence'. Such a strategy, if successful, has the potential to greatly expand the area of habitat available to those species. However, implementation of this strategy is predicated on two conditions:

1. That source populations of susceptible species are available for reintroduction (the safe haven program is important in this context); and
2. That densities of feral predators can be reduced to sufficiently low levels to safely allow reintroduction of susceptible species.

Meeting the second condition requires both the development of targeted control methods (i.e., baits) and the capacity to robustly monitor densities of feral predators so we can confidently determine the impact of the control measures.

In recent years, control methods have improved for feral predators. The introduction of canid pest ejectors (CPEs) has assisted with controlling foxes, while considerable effort has gone into developing baits that are attractive to feral cats. Field trials of machines that detect and spray poison on feral cats and foxes

are also underway in Australia (Read et al. 2019). However, unless we can robustly measure densities of feral cats and foxes, we can't be sure that deployment of any control measure has a meaningful impact on their populations. Without that, we cannot commit to releasing threatened species into landscapes that still support feral predators.

Feral predator ecology research

Over the last decade, AWC has undertaken a series of ground-breaking research projects aimed at understanding the ecology of feral cats and foxes, their impacts on native animals, and how those impacts might be mitigated. The initial research was conducted primarily in the Kimberley and resulted in a series of papers on feral cats and their management in the savannas of northern Australia (e.g., MacGregor et al. 2014, 2017).

Since 2015, AWC's feral predator research program has shifted to Scotia Wildlife Sanctuary, in western New South Wales. Here, Drs David Roshier and Andrew Carter have conducted intensive camera-trap monitoring across 14,000 hectares while simultaneously tracking a large number of cats and foxes fitted with GPS collars. The purpose of the research has been to determine the movement patterns of foxes and cats and to use this information to refine statistical methods for estimating population density of these predators (see, e.g., Carter et al. 2019).

Developing robust feral animal density estimates

Most current methods for estimating animal density from camera trap data are not easily implemented, while those methods that are easy to implement produce results that are not particularly robust. In contrast, we have been looking to develop robust operational methods. In particular, we have been trying to develop a method that doesn't rely on the

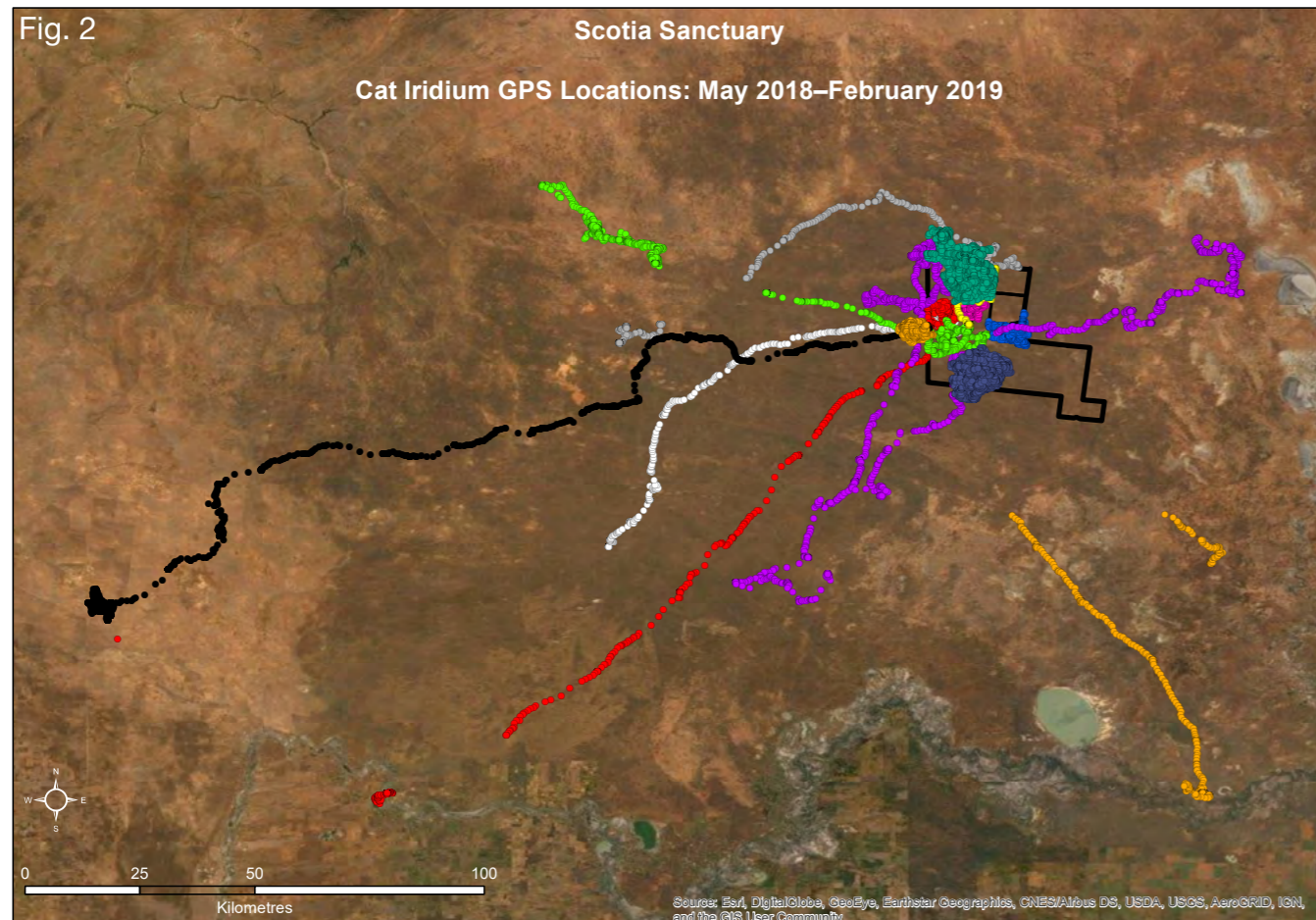
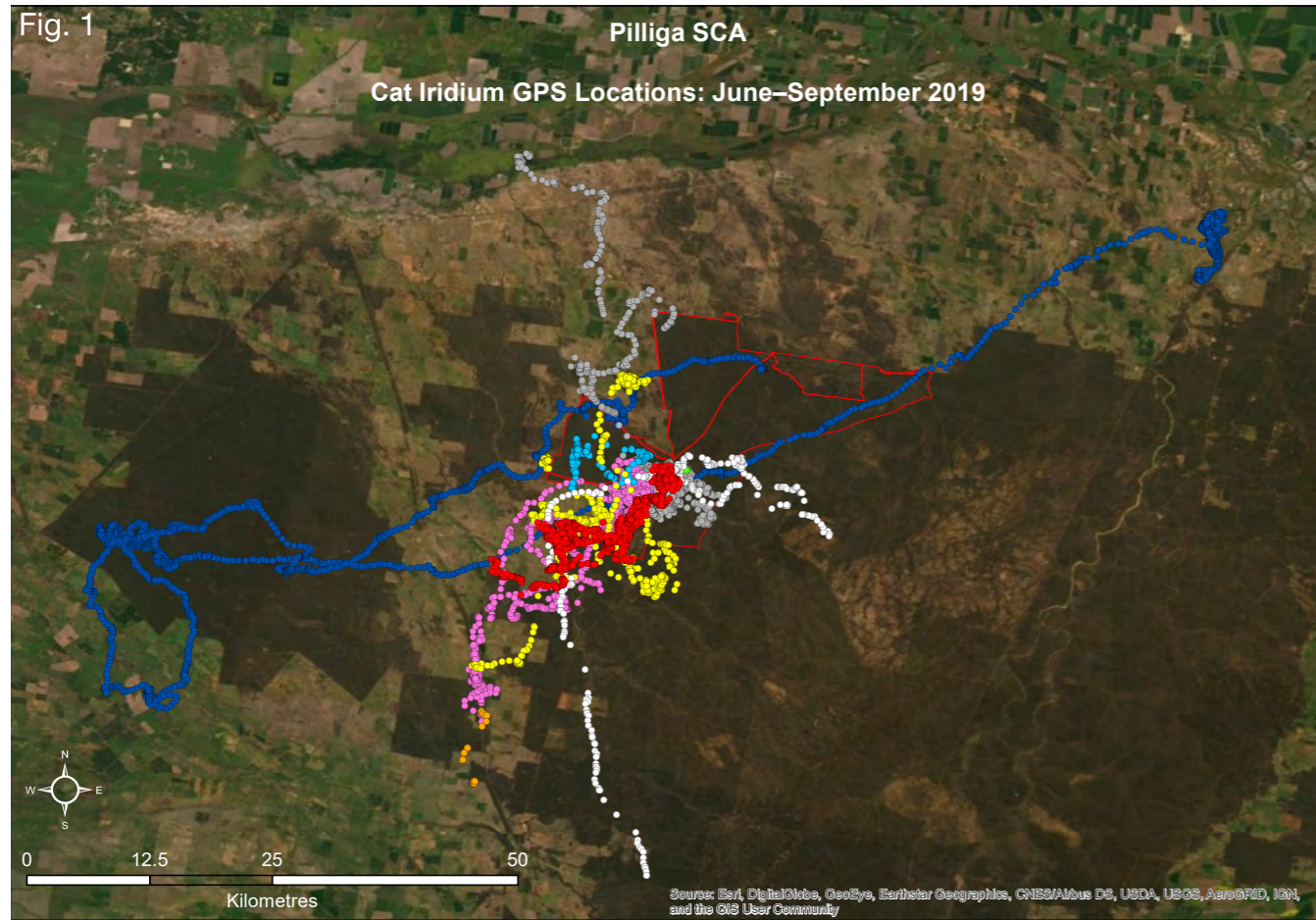


Fig. 1 and 2 (above)
A major finding of AWC's research is that feral cats travel vast distances. Each colour represents a single cat's movements across the landscape at Pilliga and Scotia.

Image (opposite page)

1. Methods and outcomes from AWC's extensive feral predator research in the Kimberley are now being applied in NSW. AWC



identification of individual cats and foxes from camera trap images which is time-consuming and unreliable. Instead, the methods we have been developing (with statistical consultant, Dr Joanne Potts) utilise information on the movements of foxes and cats in a landscape. This greatly simplifies data collection and analysis, and unifies the estimation process for similar-sized species.

Recently, we have used this approach to examine the responses of feral cats and foxes to implementation of fox control in the study area at Scotia. Fox control commenced in October 2017 and fox (and cat) activity – the number of camera 'hits' – has remained low since (noting the region has been in severe drought). These data have been converted to density estimates so we have a reproducible measure rather than an index of activity. In 2021, we plan to implement cat control via aerial bait delivery in the study area at Scotia, and will use the same approach to determine the response of feral predators to this baiting program.

Elsewhere, we are building on this research to better understand the ecology of cats and foxes in other biomes. Since 2018, Dr Carter has worked with AWC ecologists in the Pilliga State Conservation Area and National Park, in central-west New South Wales, to catch and track cats and foxes, and measure their density in the landscape. The long-term objective is to inform development of an 'outside the fence' reintroduction strategy at this site. Research in the Pilliga is part of the 'Reintroduction of Locally-extinct Mammal Species' project being run by

AWC in partnership with NSW National Parks and Wildlife Service, as part of the New South Wales Government's *Saving our Species* program. The research is revealing: at both Scotia and the Pilliga, many cats are travelling over long distances (tens to hundreds of kilometres). This finding has major implications for attempts to control cats at a local scale.

Measuring outcomes on a large scale

AWC is extending the design and statistical methods developed at Scotia to measure the outcomes of large-scale aerial baiting of foxes and cats at Mt Gibson Wildlife Sanctuary in Western Australia, ahead of proposed 'outside the fence' reintroductions. AWC ecologists, led by Dr Michael Smith, have established two large grids of camera traps at Mt Gibson: the first across a 32,000 hectare 'treatment' grid of camera traps and a second camera grid across a 13,000 hectare 'control' area that will remain unbaited. The team will then measure the density of cats and foxes in both areas before and after bait delivery to determine the effectiveness of the baiting and the exact densities that are achieved.

Assuming we effectively reduce cat and fox density, AWC will attempt to re-establish populations of the locally extinct Western Quoll (*Dasyurus geoffroii*) outside the fenced area. We also hope that with effective control of introduced predators, some of the mammals reintroduced to the fenced area at Mt Gibson will be able to establish populations in the broader landscape.



Eminent ecologist and AWC board member Dr John Woinarski has dedicated his life to nature and conservation. *Photo supplied*

A perspective on nature

By Dr John Woinarski, eminent ecologist and AWC Director

My world has been lived in and for nature. The bush permeated my childhood. Its beauty and mystery inspire me, giving salve to my life. Endlessly intrigued by how it all works, I have spent many years studying wildlife. Done well, it is the closest we can come to shape-shifting: to get to know a species and its idiosyncrasies so well that you can see and feel the world from a non-human perspective, stripping away the unconscious biases and constraints of our otherwise limited vision.

Ecology is an enduring puzzle, and there is so much in the workings of Australian nature that remains unresolved. Scientific training gave me tools to unlock and understand ecology. Fortunately, I have also worked a lot in remote communities of northern Australia, where I was shown a little of the far greater depth of understanding of nature held by Indigenous Australians. This includes the value of nature, our place within it, and our responsibility for it. Our nation would be in a better place if all Australians shared that perspective and respect for Country.

Studying and enjoying nature is a fine thing. But our nature is dwindling. Much of my career has been spent monitoring the decline

of biodiversity and documenting extinctions. In a sad inquest, we recently demonstrated that 100 Australian species had been rendered extinct since 1788, with an undiminished rate of loss of about four species per decade.

We should not let those losses continue; we need to do more than admire and use our natural environments. We owe it to our descendants to leave this place as wonderful, healthy and diverse as that which we have inherited. We owe it to other species, that our collective actions should not cause their extinction. We will live better lives in this country if our natural landscapes are healthy. We can become a better society if we care more for our country and the variety of life within it.

But conservation is a formidable challenge. The wounds we have given our country are deeply etched and pervasive, and the threats are mounting. This has struck home most recently in the 2019-20 wildfires, with the bushfires impacting innumerable animals and subverting many of the hard-won recoveries arising from decades of conservation efforts. Sadly, these fires are just a symptom of the world we will face with escalating climate change.

But conservation success is possible, and needed. A major component of biodiversity loss in Australia has been within our extraordinary radiation of mammals – Australia has lost the thylacine, and far less well-known potoroos, bilbies, rabbit-rats, hopping-mice, bandicoots and rat-kangaroos. These losses have mostly been due to the lack of foresight or care of previous generations who introduced cats and foxes to a country without comparable predators. However, we can solve this inherited problem, at least at local levels, by establishing sanctuaries that use fencing to exclude those predators. The model works, as evident in many AWC sanctuaries where native fauna has recovered dramatically. This demonstrates that our animals aren't effete losers predestined for extinction but that they can recover their place in a healthier Australian ecology.

In these sanctuaries, we can see a little of what Australian nature was, and can still be, and challenge how much we have come to accept a diminished biota as normal. Conservation can work to maintain and restore the life and wonder of our land.



Dr Margaret Middleton

Vale Margaret

On behalf of Australian Wildlife Conservancy - especially our dedicated team of field ecologists, interns and expert volunteers - we thank and celebrate you.

Bequest inspires major investment in conservation science

By Shauna Chadlowe, Chief Development Officer

We are pleased to announce a major new investment in the application of science for conservation: The Middleton Conservation Science Fund.

The fund is the result of a generous bequest by Dr Margaret Middleton who passed away on 2 March 2019 at the age of 90. Dr Middleton, who was a Reader in Psychology at ANU, will be remembered for her keen scientific mind, active participation in, and generous patronage of ecological and environmental research throughout her life.

Dr Middleton put forward an exceptionally generous proposal to support AWC's conservation science program in perpetuity after hearing a radio interview with AWC's founder, Martin Copley, in 2013. She was particularly keen to help secure Australia's biodiversity and encourage the next generation of Australian scientists to develop their skills in conservation science.

Application of The Middleton Conservation Science Fund

This exceptionally generous bequest, which is valued at \$4 million, will see The Middleton Conservation Science Fund established and managed by AWC. Only the income earned by the Fund will be available for distribution: the capital component will be managed in perpetuity. The income will be applied exclusively towards AWC's science program, the role of which is to:

- Measure and report on the ecological health of AWC properties.
- Design our land management strategies (such as

fire management and feral animal control) and measure their effectiveness.

- Undertake strategic research into critical issues affecting Australia's wildlife, such as reintroduction biology, the ecology of threatened species, or solutions for controlling key threats, like fire, feral animals and weeds.
- Provide scientific advice in relation to major decisions by AWC, such as property acquisitions and investments in new projects.

Income from the Fund will also contribute towards the delivery of our science program by AWC's skilled team of scientists, interns and expert volunteers (AWC employs around 60 ecologists, representing about 40 per cent of our total staff team), and the publication of our research. In the last five years, the AWC science program has generated over 150 peer-reviewed publications.

Reporting on outcomes

The Middleton Conservation Science Fund is currently being established. AWC will report each year on the income generated by the Fund, provide a summary of the projects that have benefited and a link to publications related to those projects.

This Fund represents a major investment in the application of science for conservation. Species will be saved from extinction and Dr Middleton's legacy will live on in perpetuity, providing opportunities for generations of bright Australian scientists to better protect Australia's unique wildlife and habitats.

Every bequest makes an important difference to the outcomes we can achieve for Australia's threatened wildlife.

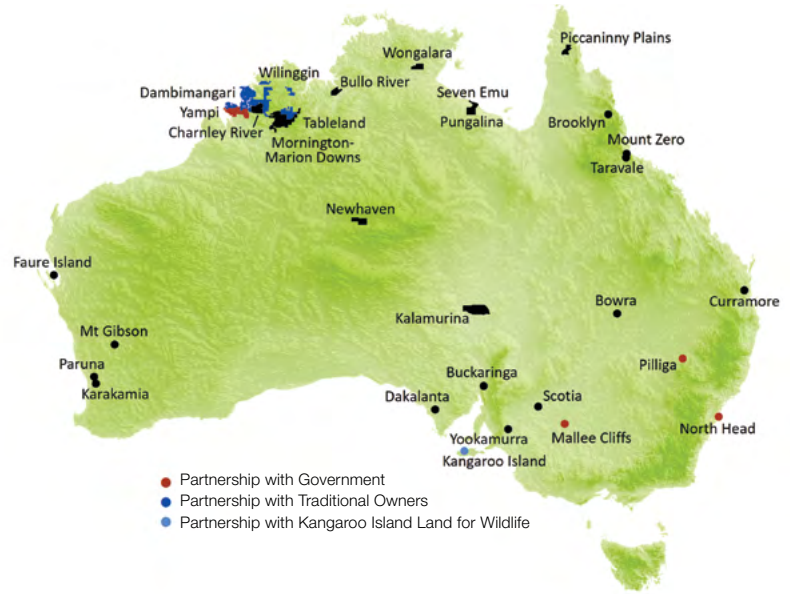
Please contact us on 08 9380 9633 if you would like more information about how you can leave a lasting legacy and help secure the future of Australia's threatened wildlife and habitats

PLEASE HELP SAVE AUSTRALIA'S ENDANGERED WILDLIFE



Please direct my donation to:

- Reducing the impact of feral cats and foxes
- Supporting endangered mammal translocations
- Supporting AWC's bushfire recovery efforts
- Supporting AWC's field science program
- Supporting AWC operations generally



Please post this donation form/cheque/money order to:

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I wish to become a regular supporter and give a **tax deductible**

donation each month of: \$25 \$50 \$100 \$ _____
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Please fill in Direct Debit Request (see opposite).

Credit card - Please fill in details or call (08) 9380 9633

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I / We request that you draw by way of the Direct Debit System, \$ _____ per month, for the payment of a monthly donation to Australian Wildlife Conservancy Fund.

My / Our Account details are:

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I / We acknowledge that this Direct Debit Request is governed by the terms of the "Direct Debit Client Service Agreement" (set out below).

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INFORMATION

Please tick this box if you do NOT wish to receive news and information on our latest initiatives and progress.

Please send any news or information by email only.

Our Commitment to You, Drawing Arrangements:

- We will advise you, in writing, the details of your monthly donation to Australian Wildlife Conservancy (amount, frequency, commencement date) at least 3 calendar days prior to the first drawing. Thereafter each drawing will be made on the 15th day of each month (or part thereof as specified).
- Where the due date falls on a non-business day, the drawing will be made on the next working day.
- We will not change the amount or frequency of drawings arrangements without your prior approval.
- We reserve the right to cancel your monthly donation to Australian Wildlife Conservancy if three or more drawings are returned unpaid by your nominated Financial Institution and to arrange with you an alternative payment method.
- We will keep all information pertaining to your nominated account at the Financial Institution, private and confidential.
- We will promptly respond to any concerns you may have about amounts debited to your account.
- We will send a receipt within 45 days of the conclusion of the financial year summarising your entire year's gifts for tax purposes.

Your Rights:

- You may terminate your monthly donation to Australian Wildlife Conservancy at any time by giving written notice directly to us (PO Box 8070 Subiaco East WA 6008), or through your nominated Financial Institution. Notice given to us should be received by us at least 5 business days prior to the due date.
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- You may request a change to the donation amount and/or frequency of the monthly donations by contacting us on (08) 9380 9633 and advising your requirements no less than 5 business days prior to the due date.
- Where you consider that a drawing has been initiated incorrectly (outside the monthly donation to Australian Wildlife Conservancy arrangements) you may take the matter up directly with us on (08) 9380 9633, or lodge a Direct Debit Claim through your nominated Financial Institution.

Privacy

AWC collects personal information to process donations, issue tax deductible receipts and to contact you. AWC's full privacy policy is available at www.australianwildlife.org/privacy.

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- It is your responsibility to ensure that sufficient funds are available in the nominated account to meet a drawing on its due date. (You may be charged a fee by your Financial Institution if the account details are incorrect or there are insufficient funds in the nominated account when we attempt to deduct donations.)
- It is your responsibility to ensure that the authorisation given to draw on the nominated account, is identical to the account signing instruction held by the Financial Institution where your account is based.
- It is your responsibility to advise us if the account nominated for transactions with the Australian Wildlife Conservancy Fund is transferred or closed.
- It is your responsibility to arrange a suitable alternative payment method with us if the Australian Wildlife Conservancy Fund drawing arrangements are cancelled either by yourselves or by your nominated Financial Institution.
- Please enquire with your Financial Institution if you are uncertain whether direct debit functions are available on your account. (You may be charged a fee by your Financial Institution if the direct debit facility is not available on your account.)