

# wildlife matters

Issue 43 | May 2022

30 YEARS   
australian  
wildlife  
conservancy



A giant leap forward for  
conservation in Australia

## Contents

- 4 Landmark partnership for conservation across 6 million hectares
- 10 Landmark partnership for conservation: *Collaboration key to understanding Bilby population in western Queensland*
- 12 Landmark partnership for conservation: *Species spotlight*
- 14 Yampi partnership extended with an expanded ecological audit
- 18 Curramore Wildlife Sanctuary: expansion, collaboration, and discovery
- 22 Climate change adaptation in action
- 24 Reintroductions crucial to the effective conservation of Australia's threatened mammals
- 28 Trialling technology and crunching data for conservation: *Listening to the natural world*
- 30 Trialling technology and crunching data for conservation: *Data informs fire management priorities in the Kimberley*
- 32 Trialling technology and crunching data for conservation: *Using drones to track reintroduced species and estimate population size*
- 34 Biodiversity champions Ross Ledger AM and Ross Grant retire

For references see online articles  
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Cover image:  
A large Water-holding Frog emerges after rain on one of NAPCo's stations. This arid specialist can live underground for years in a water-holding cocoon that prevents the frog from drying out. *Brad Leue/AWC*

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### About Australian Wildlife Conservancy

Australian Wildlife Conservancy (AWC) is a global leader in conservation, providing hope for Australia's wildlife with a science-informed, land management partnership model that delivers high impact results.

The mission of 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 more than 12.5 million hectares (30.9 million acres).
- Implementing practical, on-ground conservation programs to protect wildlife. 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 native wildlife.
- Hosting visitor programs at our sanctuaries for the purposes of education and promoting awareness about the plight of Australia's wildlife.

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



## CEO MESSAGE

The year ahead is set to be an extraordinary one for Australian Wildlife Conservancy (AWC) and the threatened wildlife and landscapes we protect. In 2022 and beyond, AWC's transformative conservation approach will see new partnerships established, acquisitions announced, research hubs created, and regionally extinct species restored where they have been lost. But I'm getting ahead of myself.

In this important edition of Wildlife Matters – perhaps one of the most important AWC has published to date – I am very pleased to announce AWC and the North Australian Pastoral Company (NAPCo) are joining forces to generate positive, measurable outcomes for biodiversity across an astonishing 6 million hectares, effectively doubling AWC's area of influence! This is a giant leap forward for conservation in Australia. The partnership is expected to bring 31 species not currently on AWC's inventory under our protection, making a substantial contribution towards the mission of effectively conserving all Australian animal species and the habitats in which they live.

While pastoralism and conservation may have been viewed as unusual bedfellows in the past, unconventional partnerships such as these are crucial for unlocking conservation at scale. The success of this conservation model has already been demonstrated at Bullo River Station – the first partnership of its kind in Australia – paving the way for the AWC–NAPCo partnership. An integrated approach provides incentives for all involved and this partnership will see the development of a biodiversity accounting tool to better equip decision-makers to balance biodiversity and commercial outcomes.

Around 427 million hectares of Australian land is used for pastoralism and agriculture – 55% of the country – while only 151 million hectares are part of the National Reserve System. Partnerships offer a means to expand the reach of protected areas and an exciting pathway for catalysing positive change and deploying conservation on a massive scale.

With your support, AWC is committed to scaling up our efforts to meet the critical challenge of protecting Australia's unique biodiversity and leading the way for the global conservation community. Across the country, AWC is taking a 'ready for anything' approach to climate change, ensuring the proactive protection of species. Investments in technology for conservation continue to improve the quality, accuracy and efficiency of monitoring and management programs. In the west Kimberley, AWC and Dambimangari Aboriginal Corporation are undertaking the most comprehensive round of wildlife surveys ever at Yampi Sound Training Area, Australia's second-largest military training area. On the opposite end of the spectrum, the science team at Curramore Wildlife Sanctuary – one of AWC's smallest sanctuaries – in south-east Queensland have confirmed new inventory species including the Squirrel Glider, Broad-toed Feathertail Glider and Eastern Horseshoe Bat.

There is still a great deal of work to do, and Australia's wildlife and habitats are facing many challenges, but AWC's science-informed, land management partnership model is delivering high impact results at scale.

In March, AWC bid farewell to long-serving Directors Ross Grant and Ross Ledger AM when they retired from the Board. I would like to personally thank the 'two Rosses' for their significant contributions to conservation and for the commitment, care and passion for wildlife they have shared with the AWC family – staff and supporter alike. At the same time, Graeme Morgan handed over the position of Board Chair to Nick Butcher. Graeme has been a fundamental driver and advocate for change in AWC's safety programs, operating standards and providing care to staff in need and we are lucky to be able to continue to draw on his skills and deep knowledge as a Board Director. Nick Butcher has been involved in a range of environmental causes in Australia and internationally and I look forward to utilising his skills in governance and finance to push ahead with alternative finance models to support AWC's conservation efforts.

I trust you feel proud as you read the articles in this edition and excited for the extraordinary year ahead. It is only through your support as donors, partners and volunteers that AWC is able to provide hope for threatened wildlife.

On behalf of the AWC team across the country and the animals and plants we protect, thank you for your support.

Tim Allard  
Chief Executive



## Landmark partnership for conservation across 6 million hectares

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*Tim Allard, Chief Executive  
Dr Richard Seaton, Senior Ecologist (Pastoral Partnerships)  
Dr Eridani Mulder, Senior Wildlife Ecologist*

Australian Wildlife Conservancy (AWC) is proud to announce a new landmark partnership with the North Australian Pastoral Company (NAPCo) – one that will see AWC delivering and advising on conservation management activities across 6 million hectares of NAPCo’s property portfolio, effectively doubling AWC’s influence in generating positive, measurable outcomes for biodiversity.

Around 44% of Australia is covered by pastoral land. In contrast, protected areas managed by government make up only 8.5% of the country, and jointly managed and non-government nature reserves, including Indigenous Protected Areas, make up just 11%. It is evident then that a strategic, cross-sector and collaborative approach is key to significantly scaling up conservation and for securing the future of Australia’s threatened wildlife.

NAPCo and AWC are both committed to this historic partnership which represents a momentous step forward for conservation in this country. A collaborative plan is being developed that will see AWC’s strategically significant model expanded for the benefit of biodiversity.

AWC’s first priority under the partnership will be to assess the extant conservation values and undertake biodiversity surveys to confirm the presence of key threatened species. NAPCo will contribute funding based on the development of initial activity plans and budgets. The assessment and survey data will underpin the development of a biodiversity accounting tool. This tool will enable decision-makers to explicitly assess the costs and benefits of different land management options for biodiversity, production, and financial sustainability. Ultimately, the system will equip pastoralists to more scientifically manage, measure and influence the sustainability of their operations, and shift to a more fact-based land management approach that balances biodiversity and commercial outcomes.

**NAPCo’s property portfolio**

NAPCo is one of Australia’s largest private landholders, and one of the largest and oldest cattle producers, operating across 14 properties in the Northern Territory

and Queensland. The company is committed to sustainable environmental management. Given the scale of operations, these vast stations are expected to have considerable conservation value and contribute substantially to AWC’s existing conservation efforts.

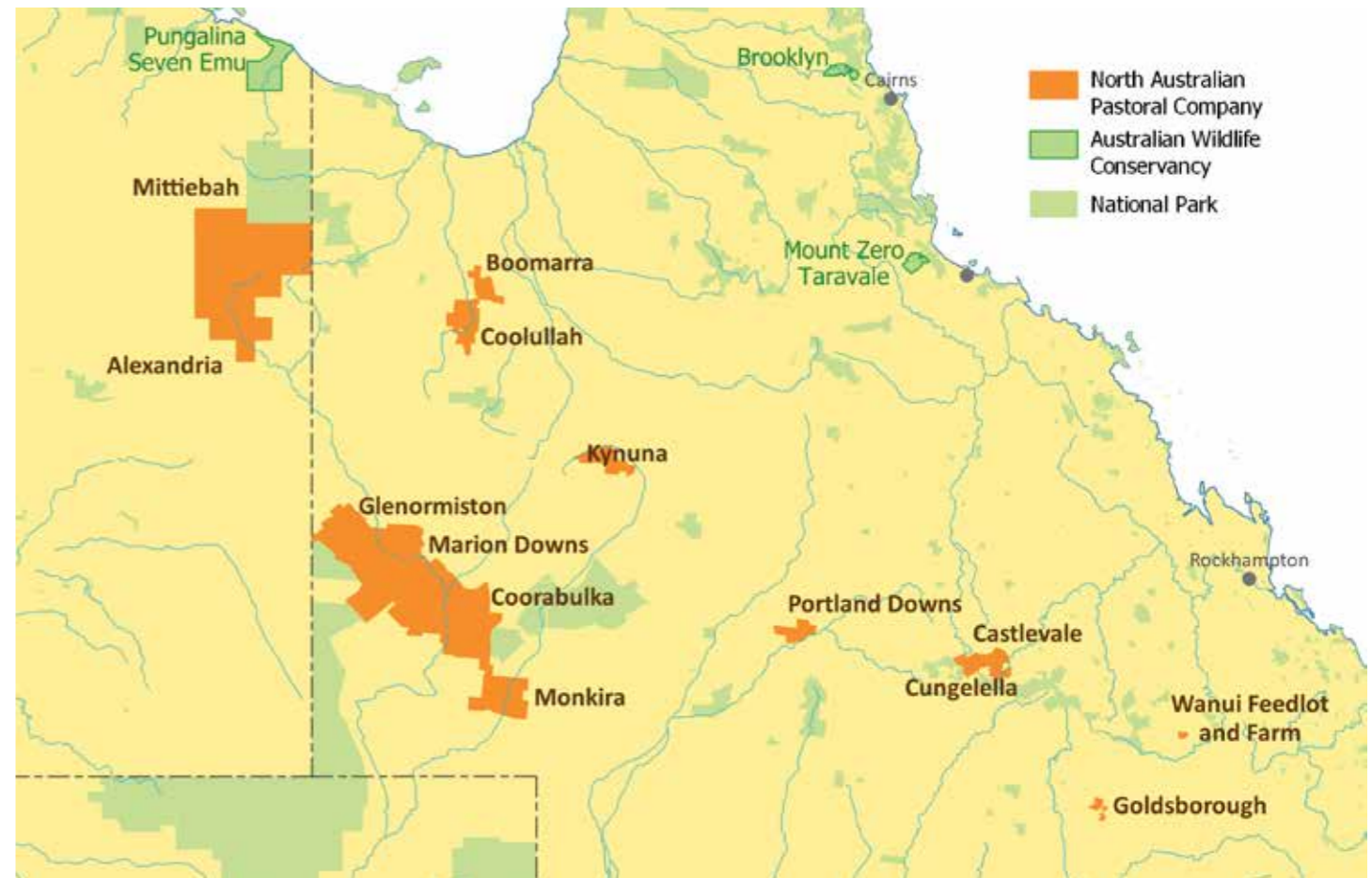
NAPCo’s properties stretch across rolling grass plains, ancient red sand dunes, spinifex-dominated ridges, flood-out country, grasslands laden with blue bush and native sorghum, through Channel Country and to the fringe of Munga-Thirri–Simpson Desert. The major waterways of the Georgina, Burke, Hamilton, Mulligan and Diamantina Rivers carve watery pathways across the stations. One property encompasses the headwaters of the Cloncurry River and another’s homestead is on the Leichhardt River, both eventually flowing into the Gulf of Carpentaria.

**Conservation values**

From desktop analysis of previous ecological surveys, historical records and publicly available fauna spatial distribution data, AWC scientists predict that NAPCo properties may support up to 760 vertebrate species – 99 mammal, 361 bird, 260 reptile and 40 frog species. Of these, 70 are listed as threatened.

Excitingly, a total of 31 of the species predicted to occur on NAPCo properties are not currently protected on AWC properties. As such the partnership has the potential to substantially contribute to AWC’s mission: the effective conservation of all Australian animal species and the habitats in which they live. At present AWC protects 74% of terrestrial mammals, 88% of terrestrial birds, 56% of amphibians and 54% of reptiles.

Of the 31 species not currently protected by AWC, 15 are listed as threatened, including the Plains-wanderer, Carpentarian Grasswren, and the small but ferocious Kowari and Julia Creek Dunnart. In addition, several NAPCo properties support some of the last remaining wild populations of the Bilby in Queensland, and a number of properties are located in bioregions poorly represented in the National Reserve System.



Top: The landmark AWC–NAPCo partnership will see the development of a biodiversity accounting tool, with the aim of equipping pastoralists to better balance biodiversity and commercial outcomes. Brad Leue/AWC

Map: The NAPCo property portfolio includes areas AWC has not previously worked in. Map created by Terry Webb/AWC



#### Preliminary surveys

In September 2020, at the invitation of NAPCo, AWC ecologists undertook a preliminary ecological assessment of two of the company's properties. Coorabulka (637,000 hectares) and Monkira (373,000 hectares) stations are located in south-west Queensland in the Mitchell Grass Downs and Channel Country bioregions.

Field surveys were led by Senior Wildlife Ecologist Dr Eridani Mulder and involved deploying camera traps and undertaking observational surveys for a broad array of fauna. A total of 51 bird, 10 reptile, 7 mammal and 6 frog species were recorded. Threatened Bilbies, Kowaris and Pink Cockatoos were detected, as well as rare or specialist species such as Black Falcons, Inland Taipans, Eyrean Earless Dragons and Water-holding Frogs. Small mammals were abundant – of the 10,683 images of fauna collected, 2,291 were Bilbies, 139 Kowaris and 8,292 native Long-haired Rats. Kowaris were also spotted using Bilby burrows.

Feral cats were detected in 21 camera trap images and during night surveys, utilising creeklines and rocky outcrops. Feral cats can pose a particular threat in this region after rain, as their numbers build up after population booms of the native Long-haired Rat. In tandem with the sustainable management of livestock, a successful program will therefore likely include improving ways to predict future booms of small native mammals and targeted control of feral cats in this environment.

#### AWC–NAPCo partnership

This landmark partnership will see AWC's ability to precipitate positive outcomes for biodiversity doubled – with the area across which AWC works alone or in partnership leaping from 6.5 million to more than 12.5 million hectares – with conservation and pastoralism working side by side for the benefit of biodiversity. The success of such an arrangement has already been demonstrated at Bullo River Station in the Northern Territory, paving the way for this new partnership. Evidenced by the recently released IPCC report, which identified Australia as one of the most at risk regions for biodiversity loss with increased warming, Australia's wildlife needs our help more than ever. By taking a pragmatic approach, the AWC–NAPCo partnership will contribute substantially towards AWC's mission to effectively conserve all Australian animal species and to scaling up conservation efforts. The outcomes generated for Australia's wildlife will enable NAPCo to advance their work and successes in sustainable environmental management and continue to focus on improving biodiversity.

The success of this partnership is important not only for the future of native wildlife but for the conservation landscape of Australia. It will demonstrate to the rest of the world what can be done – commercial pastoralism can operate and better outcomes for biodiversity can be achieved by working together.

This page: The Gibberbird (top) and Inland Taipan (bottom) are specialist inhabitants of the Channel Country and Mitchell Grass Downs bioregions. Brad Leue/AWC

Opposite page: The burrowing Water-holding Frog can only be detected when emerging after rain. Brad Leue/AWC



Collaboration key to understanding Bilby population in western Queensland

The Greater Bilby (*Macrotis lagotis*) is one of Australia's most recognisable oddities, with its long soft-pink ears, kangaroo-like hind legs and loping gait. Despite their small size, Bilbies are industrious burrowers, individually turning over up to 20 tonnes of topsoil in a year and significantly modifying the ecosystems they inhabit. This digging activity not only bioturbates the soil, increasing water infiltration and nutrient cycling, but also provides shelter for other native species from feral predators, fire, heat and other threats, making the Bilby an important ecosystem engineer.

Bilbies were once widespread in arid and semi-arid landscapes across mainland Australia, but now occupy less than 20% of their former range. Remnant Bilby populations are patchily distributed in the Diamantina River region in Queensland, and, across the state, Bilbies now occupy less than an estimated 5% of their former range.

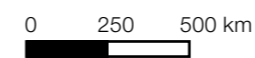
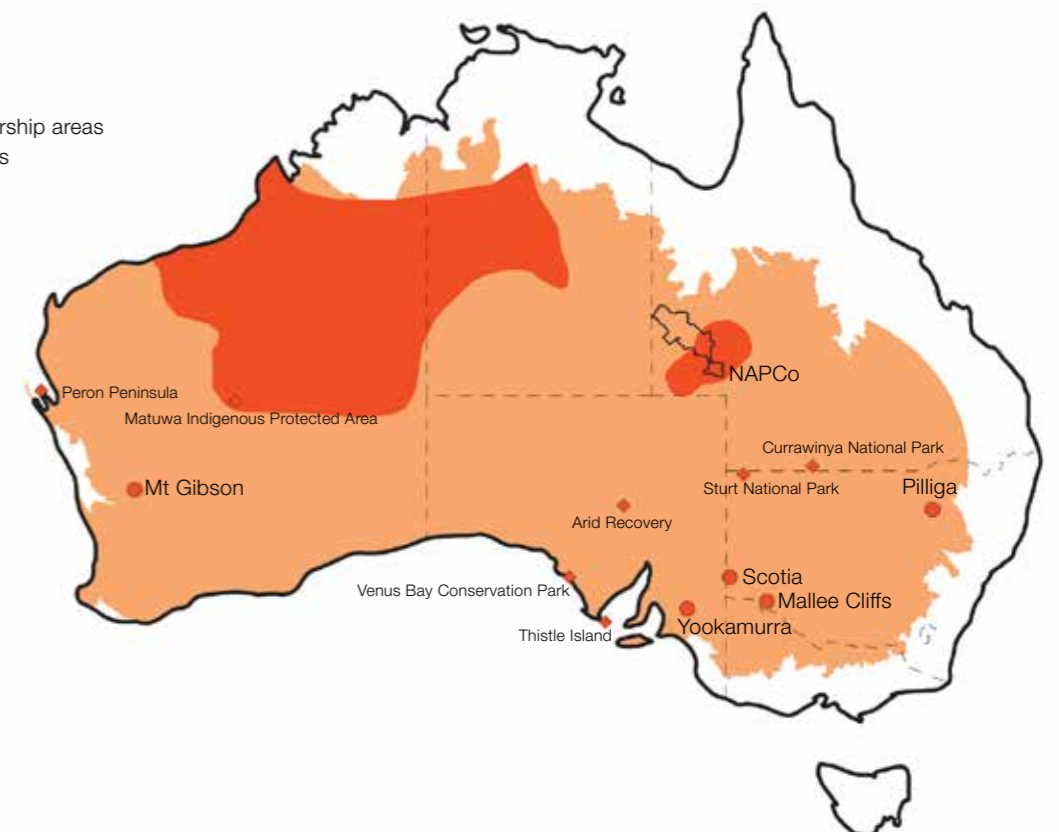
Improving our understanding of Queensland's Bilby population is fundamental to improving the ability of government and conservation groups, including AWC, to conserve the species. As such, AWC is assisting with efforts to determine the extent of the remaining Bilby population in western Queensland. In October 2021, AWC ecologists Richard Seaton, Andrew Howe and



Emily Rush, assisted by brilliant volunteers, undertook a Bilby survey on three of NAPCo's pastoral properties. A total of 66 sites were surveyed by AWC staff, complementing surveys of adjacent properties conducted by the Queensland Government and Save the Bilby Fund. The data and results are being compiled by the project partners and a report outlining results will be available soon.

Legend

- AWC sanctuaries and partnership areas
- ◆ Non-AWC reintroduction sites
- Current Bilby distribution
- Historical Bilby distribution



Map: Historical and current Bilby distribution. AWC has established reintroduced Bilby populations at five sanctuaries and partnership areas within the marsupial's former range. Historical distribution based on Southgate (1990) and Woinarski et al (2014) and current distribution based on Southgate (1990), Woinarski et al (2014) and Commonwealth Government (2022). Map created by Hannah Mullis/AWC

This page: AWC Senior Field Ecologist Andrew Howe, Senior Ecologist Richard Seaton and Field Ecologist Emily Rush inspect a Bilby burrow complex. Jane McDonald/AWC

Opposite page: NAPCo properties in south-west Queensland support some of the last remaining wild populations of Bilbies in the state. Brad Leue/AWC

**Species Spotlight.** The vast properties managed by NAPCo take in diverse habitats from the red dunes of the Munga-Thirri-Simpson Desert, through to gibber plains and rich alluvial soils of Channel Country, north to the Barkly Tableland and the Gulf of Carpentaria. These landscapes – deserts, grasslands and tropical savannas – are home to critical populations of some of Australia’s rarest animal species. The species in the spotlight here are 6 of the 31 predicted to occur on NAPCo properties that are not currently protected on AWC sanctuaries or partnership areas.  
EN = endangered, CR = critically endangered, VU = vulnerable.

**Maps**  
Potential historical and current species’ distributions. For mammals: potential historical distribution based on Burbidge et al (2008) and current distribution based on NatureServe and the International Union for Conservation of Nature (IUCN; 2008). For birds: published distribution data does not often separate historical and current distributions. Current distribution based on The Action Plan for Australian Birds 2020 (2021). For reptiles: historical distribution not included due to lack of evidence in the literature. Current distribution based on IUCN. *Maps created by Hannah Mullis/AWC*

**Legend** ■ Current distribution ■ Potential historical distribution 0 1,000 2,000 km

**Carpentarian Grasswren** **EN**  
*Amytornis dorotheae*



Australia’s 14 species of grasswren are the ultimate twitchers’ challenge! Charismatic and hard to spot, they have long lured birdwatchers into remote pockets of the arid zone. The Carpentarian Grasswren hunts for insects and seeds among spinifex in the rocky ranges and undulating hills of the Gulf Country, well

camouflaged by its tawny brown plumage with fine white streaks. The species has disappeared from many of its former strongholds due to a series of extensive, severe wildfires burning mature spinifex, and a lack of appropriate mosaic burning.



Geoff Jones

**Purple-necked Rock-wallaby**  
*Petrogale purpureicollis*



Australia’s rock-wallabies seem to defy gravity as they slip swiftly across vertical terrain, moving with ease along any axis of a rocky escarpment or outcrop. There are at least 17 species, scattered across the continent wherever rocky outcrops are exposed. Found from near Winton to Boodjamulla (Lawn Hill) National Park in the Gulf, the Purple-necked Rock-wallaby is unique, with a faint purple-mauve blush colouring its neck and head. Goats have been implicated in habitat degradation that has led to extinction of some populations, while inappropriate fire patterns, fuelled partly by invading buffel grass, are likely to compound the pervasive threat of feral cats.

Goats have been implicated in habitat degradation that has led to extinction of some populations, while inappropriate fire patterns, fuelled partly by invading buffel grass, are likely to compound the pervasive threat of feral cats.



Kym Nicolson

**Plains-wanderer** **CR**  
*Pedionomus torquatus*



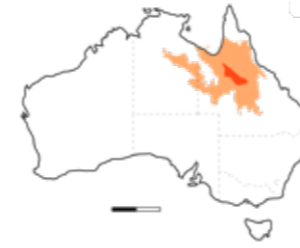
The Plains-wanderer is an avian oddball, a mysterious little grassland specialist with no close relatives. Elusive and shy, these birds are most often encountered spotlighting at night, startled from their roost on the ground. They crane up on tiptoe when alerted to danger then crouch down to make a dash for cover. The

fate of the Plains-wanderer is connected to its favoured sparse native grasslands, with records from the Victoria–New South Wales Riverina up through northern South Australia and into western Queensland. With an estimated population of just 250, this is one of Australia’s rarest birds.



Geoff Jones

**Julia Creek Dunnart** **VU**  
*Sminthopsis douglasi*



The Julia Creek Dunnart is Australia’s largest dunnart species (12 centimetres, with a tail that long again), but until 1992 it was known from just a handful of specimens. This little carnivorous marsupial has a distinctive dark stripe running down its nose and a dark facial stripe around its large eyes. It is nocturnal,

seeking shelter in the cracking clay soils of Mitchell Grass Downs and snacking on crickets, spiders and cockroaches. A high proportion of its range overlaps with land used for sheep and cattle grazing. Feral cats have been shown to prey heavily on these dunnarts, representing the greatest threat to the species’ survival.



University of Queensland

**Kowari** **VU**  
*Dasyuroides byrnei*



You would not wish to run into a Kowari on a dark desert night – at least not if you’re a hopping mouse. Built like a scaled-down Tasmanian Devil, this micro predator can take down prey as big as a rabbit, despite weighing less than your headtorch (75–175 grams). These hunters are integral to desert food webs. In dry times Kowari feed mostly on arthropods, but they shift

to larger prey including the native Long-haired Rat in times of plenty. The Kowari prowls the polished gibber plains of the Kati Thanda–Lake Eyre Basin, burrowing into softer sandy patches or taking shelter in Bilby burrows by day, and emerging to hunt under the stars.



Brad Leue/AWC

**Roma Earless Dragon**  
*Tympanocryptis wilsoni*



Australia is a land of dragons – more than 100 species are currently recognised in the family that includes such icons as the Frilled Lizard and Thorny Devil. A more discreet group are known as the Earless Dragons; small, squat lizards with keeled scales, found mostly in the arid zone. These dragons do their best to

blend in, with cryptic patterns of stripes and bars that perfectly match their grassy or rocky habitats. Of the 20 Australian snakes and lizards recently identified at greatest risk of extinction, 5 are Earless Dragons with extremely small ranges. A distinct species found near Roma in Queensland’s Darling Downs was only formally described in 2014.



Steve Wilson



## Yampi partnership extended with an expanded ecological audit

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*Pippa Kern, Wildlife Ecologist  
Dambimangari Aboriginal Corporation  
Joey Clarke, Senior Science Communicator*

Northern Quolls and goannas are among the animals being targeted in a significant expansion to the biodiversity survey program at Yampi Sound Training Area in the west Kimberley, getting underway this year. Yampi is part of the Traditional Lands of the Dambimangari People and, under a five-year partnership with the Australian Defence Force, Australian Wildlife Conservancy (AWC) has been working closely alongside Dambimangari Rangers to plan and deliver ecological and management programs (weeds, fire and feral animals are monitored and reported on annually) at the site since 2016. In a positive move for all, AWC's formal partnership with Defence has now been extended for an additional two years, along with a commitment to a major scaling up of the science program in 2022–2023.

Yampi is vast: at 568,000 hectares, it is Australia's second-largest military training area and larger than the world's 30 smallest countries. The landscape is dramatic and varied with towering quartzite escarpments and sweeping valleys of tropical savanna woodland and grasslands, and hundreds of kilometres of rugged coast. Waterfalls spout from cracks in the sandstone during the wet season, and the deeper gorges shelter significant patches of lush Kimberley rainforests, with fruit pigeons feeding in the canopy. The sheer scale of the task means that large tracts have been necessarily overlooked in biodiversity surveys conducted to date.





**Western Partridge Pigeon**  
*Geophaps smithii blaauwi*

Northern Australia's savannas are productive landscapes for birds, with intact grasslands and woodlands providing blossom and seed for noisy flocks of honeyeaters, parrots, finches, and pigeons. Seed-eating birds that feed on the ground are particularly susceptible to changes in grass and groundcover. One of the species that has been identified as vulnerable is the Western Partridge Pigeon. These squat, brown birds often forage in recently burnt patches, making the most of easy pickings on bare ground to feed on fallen grass seeds. Cattle grazing and disrupted fire regimes represent their main threats, while feral cats make an easy meal of them. Western Partridge Pigeons frequent the area close to the operations base at Yampi Sound Training Area, where hills of crumbled sandstone meet the flatter, savanna country. This species is subject to targeted monitoring by AWC and DAC, as part of annual waterhole surveys for threatened birds at Yampi.

Joey Clarke/AWC

Over 2022–2023, Defence has committed to expanding the science program with AWC and Dambimangari Aboriginal Corporation (DAC) to undertake the most comprehensive round of wildlife surveys ever at Yampi. By mapping the populations and abundance of species, these surveys will help inform conservation strategies being developed for the long-term management of the Training Area.

Inventory surveys carried out in the initial phase have already confirmed that the area is an important stronghold for threatened species, harbouring critical populations of mammals like the Kimberley Brush-tailed Phascogale, Golden Bandicoot, and Golden-backed Tree Rat.

The endangered Northern Quoll is a species that is disappearing across the north, but it has been recorded in abundance at Yampi. Known locally as 'Wijingadda', quolls have been recorded across almost all habitat types surveyed. Elsewhere, invading cane toads – which continue their westward hop into the region – have taken a heavy toll on Kimberley quoll populations. Surveillance of the quoll populations at Yampi over the next few years will be crucial to understanding what factors might help the species persist.

Other priorities for the expanded survey include:

- an array of camera traps in the lowland to target large reptile predators like goanna species (which are also susceptible to cane toads)
- a separate camera trap array to monitor quolls

- acoustic recorders deployed to detect bats and frogs
- a suite of 26 live-trapping sites, stratified to sample the range of different habitats across the property (up from 8 sites surveyed in previous years with teams camping out at each site for 3 nights to run surveys)
- bird surveys to run alongside mammal and reptile-trapping surveys
- condition monitoring of isolated rainforest patches
- camera trap arrays to monitor feral cats
- aerial surveys for feral herbivores.

Yampi Sound Training Area is of outstanding conservation value and an important area for Dambimangari Traditional Owners, rich in cultural sites. Over the next two years, the AWC field team and Dambimangari Traditional Owners and Rangers will be on the ground building a greater understanding of the biodiversity of the area. In addition, this collaboration enables young Indigenous Rangers to be trained in biodiversity monitoring techniques and feral management. The program provides a rare opportunity for Dambimangari Rangers, Elders and Young People to access remote, restricted areas of their Country, to visit important cultural sites, transfer traditional knowledge and engage in cultural activities alongside the biodiversity program. AWC is committed to scaling up conservation efforts to protect Australia's wildlife and habitats. This first large-scale wildlife survey at Yampi, and the extension of the partnership for a further two years, helps deliver on this commitment.



This page: The expanded survey effort will target goanna species like the Black-headed Monitor. This arboreal reptile is susceptible to predation by feral cats. Brad Leue/AWC

Opposite: Yampi Sound Training Area is located on the traditional lands of the Dambimangari People. AWC works closely with Dambimangari Aboriginal Corporation (DAC) at Yampi and this is central to the success of the partnership with Defence. From left to right: AWC Land Management Officer Amelia Quaife, DAC Ranger Coordinator Matthew Ellis and DAC Rangers Alan (A.J) Mungulu and Phillip Ngerdu on Dambimangari Country in 2021. Tim Woods/AWC



# Curramore Wildlife Sanctuary: expansion, collaboration, and discovery

*Andrew Howe, Senior Field Ecologist  
Tim White, Regional Operations Manager  
Alexander Watson, Regional Ecologist*

Although Curramore is one of Australian Wildlife Conservancy's (AWC) smallest sanctuaries, it is an incredibly important component of AWC's conservation program due to its astonishing biodiversity. Curramore is also regionally significant as the largest Land for Wildlife property – landholders who manage wildlife habitat for conservation – on the Sunshine Coast.

Located in south-east Queensland, a region which has been extensively cleared for agriculture and urban development, Curramore Wildlife Sanctuary contains important wet and dry sclerophyll forest, and rainforest refugia, that support an impressive 700 species of plants and animals. Some of these significant species include a bird of paradise (the Paradise Riflebird), regionally iconic species (such as the Bunya Pine) and threatened species (e.g., the Tusked Frog, Koala, Greater Glider and Powerful Owl). Many species are not currently protected on any other AWC sanctuary or partnership area. Curramore is ideally situated in the landscape, acting as part of a forested corridor that connects Maleny National Park to the north west and other nature refuges to the east.

In January 2022, through the generosity of supporters, AWC acquired 26 hectares of a neighbouring property.

This not only increased Curramore's overall size to 196 hectares but now allows AWC to access more of the sanctuary on formed tracks. This new slice of paradise is dominated by wet sclerophyll forest with patches of rainforest along damp gullies. This diverse patchwork of habitats has already demonstrated its importance as the field team have observed the vulnerable Richmond Birdwing Butterfly (one of Australia's largest) feeding from flowers and the ancient Maleny Spiny Crayfish burrowing holes in the creek banks. AWC is hopeful of detecting other significant threatened species here such as the stunning Yellow-bellied Glider, the Long-nosed Potoroo – a super-disperser of fungi and ecosystem engineer – and the elusive Black-breasted Button-quail.

Last year, ecologists undertook targeted fauna surveys over 10 days as part of AWC's Ecohealth program. The threatened Plumed Frogmouth was heard calling from several locations deep in the creeklines; Koalas, two species of brushtail possum and the tiny Broad-toed Feather-tail Glider were recorded in spotlight surveys; and the threatened Tusked Frog was detected in record numbers.



This page: The threatened Tusked Frog gets its name from the tusks found on its lower jaw. The species is rarely seen but record numbers were detected during Ecohealth surveys in November 2021. *Andrew Howe/AWC*

Opposite: Threatened species such as the Koala and Plumed Frogmouth (pictured) call Curramore Wildlife Sanctuary home. *James Watson*

Six new species for the sanctuary (3 mammals, 2 birds and one amphibian) were added to the inventory! To help survey bird fauna on the sanctuary, AWC has also developed a new community science collaboration with Birds Queensland, the Sunshine Coast branch, now undertaking monthly bird surveys.

Since AWC acquired Curramore in 2003, Sanctuary Manager Klaus Runde and his operations team have been working tirelessly to improve the health of the sanctuary by addressing key threatening processes. The majority of work has been focused on weeds, particularly lantana, managed through targeted spraying with a broad-spectrum herbicide, manual removal and the use of controlled fire. To date, Klaus and his team have removed nearly 50% of lantana and will use key learnings from the past decade to tackle lantana in the new acquisition. Although in relatively good condition, some of the deeper rainforest-clad gullies contain walls of lantana 3 metres high. In some areas the lantana has grown so tall and thick that mature trees have collapsed under its weight. Tackling the lantana will be challenging but Klaus and his team have the skills, knowledge, and support from incredible volunteers to apply AWC's weed management strategy and restore the condition of the forest.

Facilitated by Barung Landcare Education and Communications Officer Megan Lee, AWC and Barung Landcare – a community-led environmental organisation established in 1989 – are providing the community with ongoing opportunities to learn about the local environment and build conservation land management skills. In April 2022, Klaus led a guided walk at Curramore for landholders carrying out rainforest restoration as part of Barung Landcare's Rainforest Resilience project. This event was a great success and discussions are underway to continue this work.

'This is a really great opportunity for new and long-term landholders who are looking after rainforest and are looking for practical advice and inspiration for their own restoration projects' explains Megan. 'Many of our members are looking for guidance about how to do this on their own properties, so seeing the results of long-term action on AWC's Curramore Wildlife Sanctuary will be an incredibly valuable educational experience for all.'

With the new addition to Curramore, AWC aims to increase visitor interaction by establishing walking trails and interpretation signage to help members of the public learn about the forest and its importance to the health of the region. We look forward to the time when you are able to experience this stunning sanctuary for yourselves.

Curramore Wildlife Sanctuary is a showcase for lantana control in south-east Queensland. AWC Sanctuary Manager Klaus Runde and Land Management Officer Murray Wall, pictured in the new acquisition area, are dwarfed by the wall of lantana they are treating on the left and the treated dead lantana on the right. As the treated lantana deteriorates, native trees are able to germinate (as pictured in inset).  
*Andrew Howe/AWC*



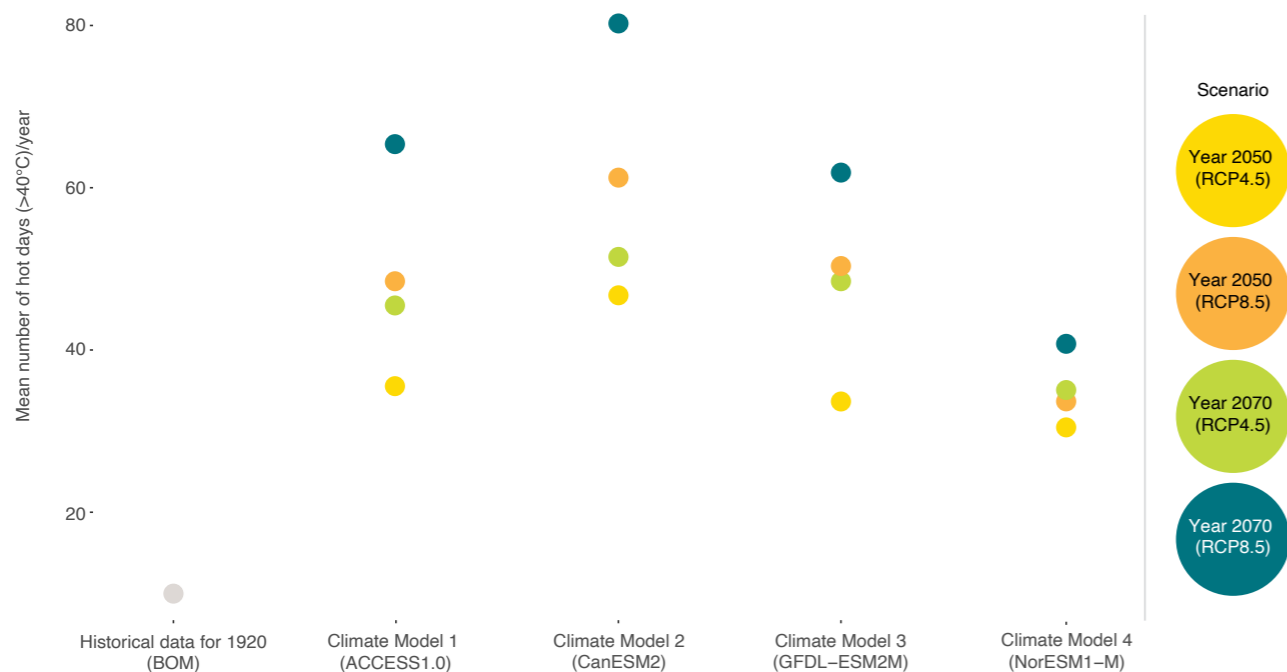


Figure 1. Historical and projected mean number of extremely hot days (>40°C) per year in Australia. The historical estimate for 1920 (average of 1910–29) is derived from BOM data. Projections are based on four Global Climate Models that represent a range of future conditions in Australia. Projections are based on two emissions scenarios, RCP4.5 a mid-range scenario, and RCP8.5, a more extreme scenario, for both 2050 (average of 2040–59) and 2070 (average of 2060–79).

Top: Effective management of threats such as wildfire could increase ecosystem resilience to climate change impacts. AWC's effective fire management program is the largest non-government program in Australia, delivered across more than 7 million hectares. This science-informed and landscape-specific program draws on strategic planning, mapping and the years of experience on the ground from AWC staff and our partners. *Lewis Marr/AWC*

## Climate change adaptation in action

*Dr Jennifer Pierson, Senior Ecologist  
Dr John Kanowski, Chief Science Officer*

The impacts of climate change can be felt across the globe. The average increase in temperature has already surpassed 1°C, and Australia has experienced an average increase of 1.4°C (IPCC 2021). While it can be hard to imagine what these changes in average temperature might mean for Australian wildlife, it is easy to understand how the associated increases in extreme events can threaten already imperilled species. The 2019–2020 bushfires stand out as a stark example of how an extreme event can impact millions of Australian animals.

Climate change will affect nearly every aspect of Australian Wildlife Conservancy's (AWC) efforts to achieve our mission. Incremental changes to climate variables will cause shifts in species distributions, which will have flow on effects for species interactions, such as food and shelter requirements. Extreme heat, more frequent droughts and variable and intense rainfall can all cause individual mortality and sharp population declines which threaten already small and fragmented populations. Fire, weeds, and feral animals will all be affected by these ranging impacts to climate change. When we consider this reality, it can be a bit overwhelming to know how to tackle such an omnipresent threat.

BUT THERE IS HOPE....

Fortunately, it is possible that some species can adapt, move, be moved, and/or be buffered from the impacts of climate change. AWC plans to use a range of scientific tools, and our expertise in conservation to help protect as many species as we can.

On the science side, predictive models continue to fine tune the range of potential future climate scenarios that may exist. These models incorporate weather patterns, global emissions scenarios, and past warming trends to spatially project future climate variables and extreme weather. Species distribution models use past and current information combined with climate models to project where climate may be suitable for species in the future. There are uncertainties that remain, particularly surrounding how humans will respond to the call to reduce emissions.

AWC ecologists are working to develop strategic frameworks to apply this knowledge, prioritising and planning for an uncertain future. The first step is to identify general principles for prioritising and planning actions, with input from AWC's Science Advisory Network and other experts. The next step is to apply these principles to operational programs and develop specific strategic frameworks for each one: reintroductions, acquisitions, and conservation and land management.

AWC will adopt guiding principles from climate change adaptation programs, including the IUCN and Climate Change in Australia, to conduct standard vulnerability assessments and use these to inform conservation management programs. Vulnerability will evaluate three factors: 1) *exposure* (the rate and magnitude of climate change projected to be experienced); 2) *sensitivity* (the degree to which a species or ecosystem is affected by climate change impacts); 3) *adaptive capacity* (the ability of a species or ecosystem to persist with climate change through redistribution and/or evolutionary responses).

Adaptation planning will be guided by the vulnerability assessments, considering multiple future scenarios. This 'ready for anything' approach ensures the necessary triggers, thresholds, and pre-planning are identified early and management can be proactive instead of reactive. Each program will have a bespoke strategic framework to ensure the outcomes are readily applicable in AWC's operational environment.

AWC's nationally leading reintroduction program is currently focused on reintroducing threatened mammals to former parts of their range across the country. The framework we develop will guide management actions to ameliorate threats on properties where species currently exist, as well as identifying properties that may be suitable in future climate scenarios. Managing adaptive capacity through active metapopulation management will be a key feature. In addition, translocations outside the pre-European range may have to be considered.

AWC's acquisition program is currently focused on adding projects in regions that will do most to increase the number of species we conserve. Given climate change, the framework must also take into account predicted species' distributions. Maximising representation into the future for imperilled species will be a key feature.

AWC's conservation and land management program is focused on delivering practical threat management on AWC sanctuaries and partnership areas. The framework we are developing must take into account how climate change will affect threat management, such as the risk of wildfire and the distribution of introduced plants and animals. Effective management of threats may increase the resilience of ecosystems to climate change impacts.

The impacts of climate change are expected to increase and persist over the long term. For this reason, climate change adaptation will be an ongoing and iterative process for AWC, one where key knowledge gaps are identified to feed into research priorities, the Ecohealth monitoring program and conservation management.

# Reintroductions crucial to the effective conservation of Australia's threatened mammals

Dr Jennifer Anson, Senior Ecologist

## Reintroduced species

- Banded Hare-wallaby ●●
- Bilby ●●●●●
- Black-footed Rock-wallaby ●
- Bridled Naitail Wallaby ●●
- Brown Antechinus ●
- Brush-tail Possum ○●
- Brush-tailed Bettong ○●●●●●
- Burrowing Bettong ●●●●
- Bush Rat ●
- Eastern Pygmy Possum ●
- Greater Stick-nest Rat ●●
- Mala ●
- Numbat ●●●●
- Quenda ○
- Red-tailed Phascogale ●●●●
- Shark Bay Mouse ●●
- Tammar Wallaby ○●
- Western Barred Bandicoot ●●●
- Western Ringtail Possum ○

## Extant species protected by a feral predator-proof fence

- Black-footed Rock-wallaby ●
- Kangaroo Island Dunnart ●



The global loss of wildlife has led many to suggest the earth is currently experiencing a sixth mass extinction event. Australia is no exception, with the impacts of feral cats and foxes, habitat loss and fragmentation, changed fire regimes and feral herbivores resulting in the world's worst mammal extinction rate. Thirty-three mammal species have become extinct in Australia since European colonisation and another 60 of the remaining species are highly or extremely susceptible to feral predators.

Australian Wildlife Conservancy's (AWC) reintroduction program is a proactive way to address the current conservation crisis facing threatened mammals. AWC has established feral predator-free exclosures at nine diverse locations across southern and central Australia to provide safe havens for species that have long been extirpated from these areas. For example, Faure Island, part of the Shark Bay World Heritage Area off the coast of Western Australia, has been completely free of feral predators and herbivores for 20 years. This has allowed reintroduced populations of Boodies (Burrowing Bettongs), Banded Hare-wallabies, Western Barred Bandicoots and Shark Bay Mice to thrive across the 5,200-hectare island, as well as helping the conservation of extant populations of 36 reptile and 127 bird species.

Reintroductions contribute to the conservation of species and ecosystems by:

- securing additional populations of threatened species
- maintaining long-term adaptive potential in threatened species by establishing populations in a range of environmental conditions
- mixing founders from isolated populations to rebuild genetic diversity
- once the population becomes established, providing an alternative to harvesting from remnant populations for future reintroductions
- contributing to the restoration of local fauna assemblages and improving species richness
- restoring ecological processes such as seed and spore dispersal, herbivory and soil turnover, thereby enhancing ecosystem functioning
- raising public awareness of Australia's unique and threatened fauna.



Map: AWC's reintroduction program spans 11 locations across Australia. This network of feral predator-free and feral predator-reduced areas has enabled the reintroduction of 19 threatened and locally extinct mammals to date. AWC

Image: AWC's reintroduction program not only helps to re-establish populations of threatened species such as the Greater Stick-nest Rat (pictured) but also contributes to the restoration of ecological processes at each site. David Sickerdick/AWC



Top: AWC Field Ecologist Raquel Parker releases a Boodie (Burrowing Bettong) at Faure Island in Western Australia during monitoring surveys. *Jane Palmer*  
 Bottom: AWC hopes to establish a population of the critically endangered Central Rock-rat at Newhaven Wildlife Sanctuary to help save the species from extinction. *Northern Territory Government*

AWC's reintroduction program has expanded dramatically since the first reintroductions to Karakamia Wildlife Sanctuary in 1994, to encompass 19 species, 9 feral predator-free areas and 2 feral predator-managed areas at the time of writing (additional species and another site are planned to be added in 2022). Our expertise in this space have meant we have been able to provide advice to several state governments and a number of private organisations. AWC aims to play a leading role in the national effort by the conservation sector to restore threatened mammals to parts of their former ranges, consistent with key actions in the Federal Government's *Threatened Species Strategy Action Plan*. AWC's work is significant to the plan: 6 of the 20 priority mammal species are part of AWC's reintroduction program and 10 are already protected on AWC sanctuaries and partnership areas. In 2022, AWC will be further developing its national reintroduction strategy to guide the extensive work being undertaken to re-establish populations of some of Australia's most threatened and iconic fauna.

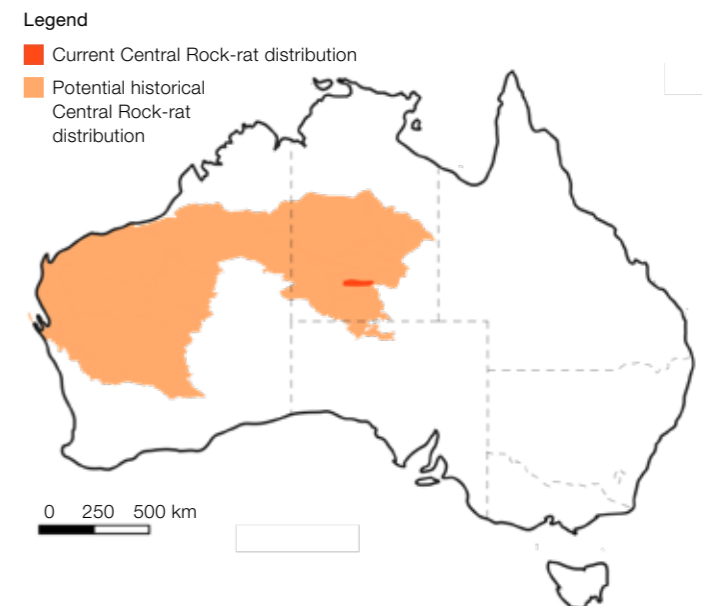
A good example of the success of AWC's reintroduction program is the Woylie (Brush-tailed Bettong). This species was the first to be reintroduced to AWC's first wildlife sanctuary – Karakamia. From 2015–18, AWC translocated over 160 Woylies from Karakamia and other founding populations to the 7,840-hectare feral predator-free area at Mt Gibson Wildlife Sanctuary in Western Australia. Since then, the genetically diverse population has expanded to over 1,800 individuals. In turn, Mt Gibson has now been used to establish new populations at Newhaven Wildlife Sanctuary in the Northern Territory and Mallee Cliffs National Park in south-western NSW. Plans are underway to translocate Woylies from Mt Gibson to two other locations in NSW in 2022.

AWC is embarking on some exciting new challenges in 2022. We have been working closely with the Northern Territory Government on a plan to establish a secure population of the critically endangered Central Rock-rat outside of its highly restricted remnant distribution. The species has suffered a 95% reduction in its range: once reported from scattered locations across much of the southern Northern Territory and (in the subfossil record) a large portion of arid Western Australia, it is now restricted to a few hundred hectares on mountain tops west of Alice Springs. If AWC can successfully establish a population within the 9,400-hectare feral predator-free area at Newhaven Wildlife Sanctuary, it will be a huge conservation gain for the species. Newhaven will also welcome Greater Bilbies back in 2022, restoring to the landscape a species of deep cultural significance, as well as of enormous ecological and conservation benefit.

Map: Potential historical and current Central Rock-rat distribution. Potential historical distribution based on Burbidge et al (2008) and current distribution based on NatureServe and the International Union for Conservation of Nature (2008). *Map created by Hannah Mullis/AWC*

Securing additional populations is crucial to many of Australia's unique mammals. The pervasive threat of feral predators will result in the continued loss of populations and species. In the existing program and over the coming years, AWC plans to secure the long-term protection of more than 25 threatened and locally extinct mammal species. The Northern Bettong, recognised as one of 20 Australian mammals most at risk of extinction, is one of these species. This endangered Potoroidae has an estimated global population size of less than 1,200 individuals. As a keystone species, responsible for the dispersal of a broad range of ectomycorrhizal fungi, they play an essential role in forest health. AWC scientists have been working closely with Queensland Parks and Wildlife Service and the Western Yalanji Aboriginal Corporation to monitor one of only two remaining populations and manage threats that are driving rapid declines in the area. In Far North Queensland AWC is constructing a feral predator-proof fence at Mount Zero–Taravale Wildlife Sanctuary, to conserve key habitat. This will provide critical protection to a new population to be established within the safe haven.

In recognition of AWC's leading role in the reintroduction of threatened mammals in Australia, AWC have been invited to participate in the first Global Meeting of Conservation Translocation Practitioners, to be held in Spain in 2022. Eight 'maestros' from different continents and conservation cultures will present in-depth overviews of their organisation's reintroduction programs. The meeting aims to promote the exchange of practical knowledge and build a global network of rewilding practitioners. AWC will be represented at the meeting by Chief Science Officer, Dr John Kanowski, who has overseen AWC's reintroduction program for most of the last decade.



## Listening to the natural world

*Dr Richard Seaton, Senior Ecologist (Pastoral Partnerships)*  
*Oli Ayles, Ecologist Guide and bat scientist*  
*Dr Eridani Mulder, Senior Wildlife Ecologist*

Conservation science is generally based on seeing, hearing or otherwise recording the natural world. The development of affordable, high-resolution camera traps revolutionised how scientists monitor Australia's wildlife. Camera traps provide a cost-effective means to survey at scale (both large numbers of species and over large areas), something not afforded by traditional methods. However, not all species can be effectively monitored using camera traps. For example, species that are highly mobile, cryptic or spend most of their time off the ground are hard to detect with cameras. Ecologists are now starting to 'listen' to the natural world and advances in acoustic recording technology are helping to fill the gap in Australian Wildlife Conservancy's (AWC) monitoring toolbox.

Whether it be a song, a croak, a buzz, or a click, most animals make some kind of noise and, often, the noise is unique to that species. Consequently, if these noises can be detected by placing recorders out in the environment, recordings can be used to monitor the presence of species. The challenge is building a recorder sensitive enough to record the call and store the huge amount of sound data that are created; and the *really* challenging part is developing an efficient way to find the calls in the recordings without listening to hours of sound files, manually searching for the call of a specific critter.

AWC is trialling the latest acoustic technologies and partnering with the leaders in the field, such as Queensland University of Technology, to explore the most efficient methods of analysing the data, including machine learning and artificial intelligence techniques.

Examples of this work include: the deployment of semi-permanent recorders on AWC properties as part of a continental-scale acoustic sensor network established by the Acoustic Observatory (A20; you can read more about this in *Wildlife Matters* 42); trialling the use of low-cost recorders such as AudioMoths to track broadscale changes in bird and bat populations; targeted deployment of sophisticated recorders to search for

elusive threatened bird species that are almost impossible to find using any other technique (e.g., Plains-wanderer); and deployment of recorders to capture the bellowing calls of Koalas and track their recovery after bushfire.

The field of bioacoustics has opened a new frontier in conservation biology, particularly for bats, the often overlooked but vital creatures of the night. The AudioMoth – created by two PhD students from the University of Southampton in the UK – took this field one step further by creating a low cost, open-source acoustic monitoring device about the size of a matchbox. The AudioMoth is highly versatile, 'hearing' up to 190 kHz, and the recordings improve detectability of many species that are very difficult to survey with standard methods. To date they have been incorporated into several AWC monitoring surveys, from Yookamurra Wildlife Sanctuary in South Australia to Curramore and Mount Zero–Taravale Wildlife Sanctuaries in Queensland.

The large amount of data each device records requires specific analysis to be useful to AWC's science team. A 'reference library' of regional animal dialects is needed to train machine learning to detect species automatically. For species heard by the human ear (<20 kHz) that don't fly, it's relatively straightforward, but for Australia's amazing microbats – with calls sometimes lasting only a few milliseconds at more than 100 kHz – it requires specialised equipment and methods. This work has already reconfirmed the threatened Large-eared Horseshoe Bat at Mount Zero–Taravale Wildlife Sanctuary and picked up species not previously recorded at Curramore Wildlife Sanctuary, with further acoustic monitoring methods in development.

AWC prides itself on its innovative approach and is at the forefront of developing the techniques necessary to see acoustics become a valuable part of the ecological monitoring program. Applying technology will continue to enable AWC to monitor more effectively and efficiently and deliver positive, high impact results for Australia's wildlife and habitats.



## Data informs fire management priorities in the Kimberley

*Dr Skye Cameron, Regional Ecologist  
Aled Hoggett, Regional Operations Manager*

Effective fire management is a primary focus of AWC's operations. AWC's approach to conservation in the Kimberley, in particular fire management, operates at a landscape scale, crosses many tenure boundaries, and involves numerous partners and stakeholders. However, unlike other areas of Australia, ecosystems in the Kimberley do not currently have ecologically mapped classifications. A lot is known about species diversity and ecological characteristics but there is no agreed and structured approach to mapping such attributes and how this can inform fire management.

Since 2016, the area in which AWC is involved in fire management in the Kimberley has expanded rapidly. AWC now operates the Ecofire program (early dry season (EDS) prescribed burning to promote a mosaic of vegetation of different ages and reduce the extent and intensity of late dry season (LDS) wildfires) across 6.1 million hectares, on AWC sanctuaries and in collaboration with Indigenous partners and neighbouring pastoral stations. Furthermore, AWC and our partners also respond to LDS wildfires in the Kimberley across 4.3 million hectares. AWC's fire management resources are finite and maximising the efficiency of their deployment is key to optimising conservation and ecological outcomes.

The challenge for AWC has been to develop and build a science-informed tool that:

- covers 4.3 million hectares of AWC's area of involvement
- incorporates available ecological information and survey data of threatened, endemic or fire-sensitive species relevant to fire management
- is conceptually simple and uncluttered
- most importantly, can be used as a transparent, communicable and structured decision-making framework, to prioritise the deployment of fire management resources across multiple tenures and ensure protection of high priority ecological assets.

To achieve this a framework was developed to map Ecological Priority Zones (EPZ) across sanctuaries and partnership areas as a tool to support fire management decision making. The objective of this framework was to score high (EPZ 1) to low (EPZ 5) priority zones across the management areas based on ecological values and assets, prioritising areas and species negatively

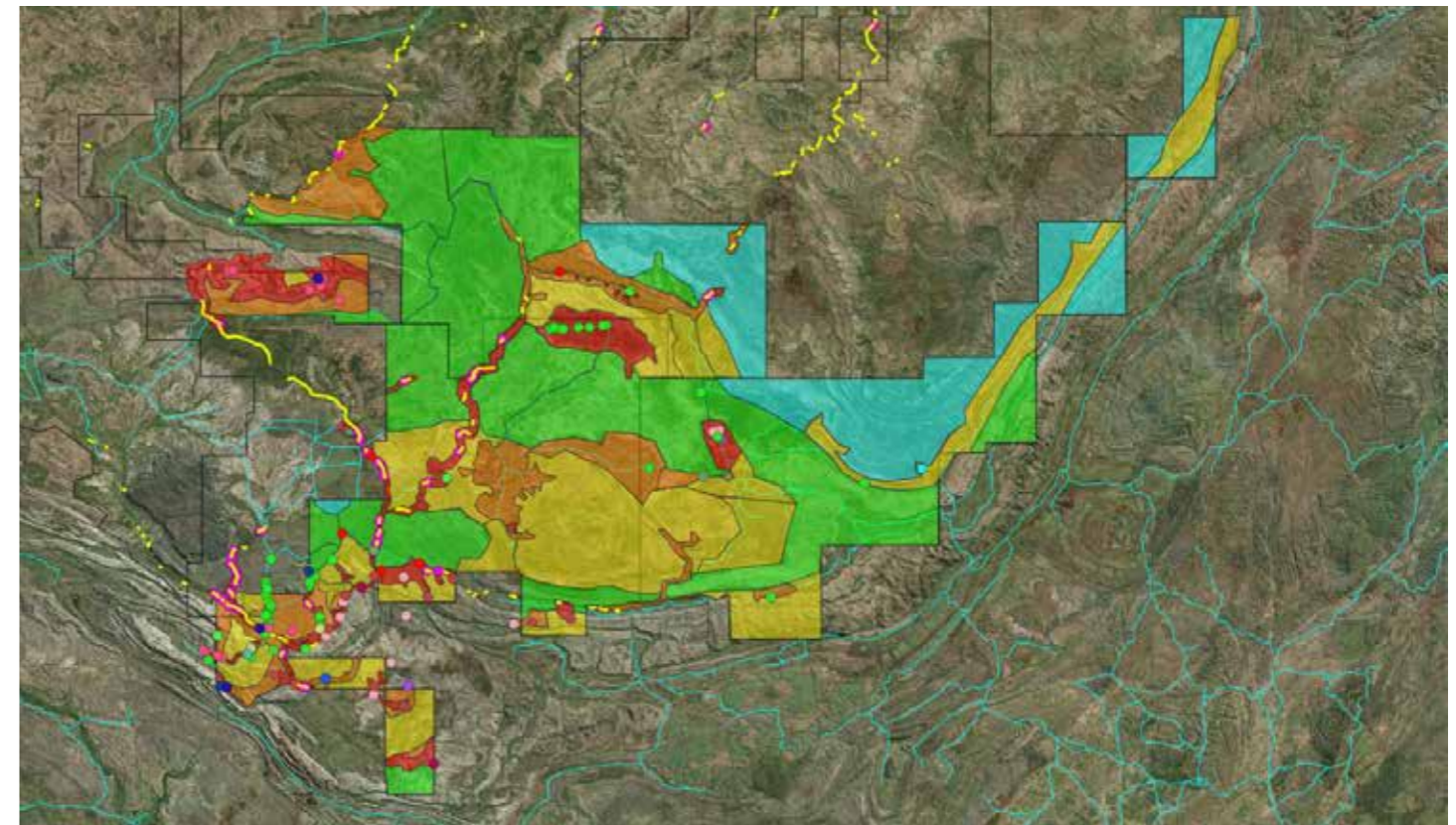
impacted by wildfires. This was achieved by breaking each management area into segments representing ecological features, vegetation and habitats relevant to fire management. Each segment was assessed against the EPZ Framework, consisting of two stages:

Stage 1 – an initial decision tree to assess key values.

Stage 2 – further evaluation through the EPZ categorisation assessment.

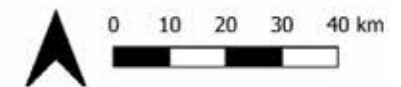
Reflecting AWC's mission to conserve all Australian animal species and the habitats in which they live, the first stage of the EPZ evaluation was to assess critical ecological values; specifically the presence of endangered species (EPBC, BCA, IUCN), threatened ecological communities, range restricted endemic species or rainforest. Rainforests were included in the initial assessment due to their importance as refuge sites for threatened species and sensitivity to impacts from fire. The presence of these critical ecological values resulted in segments with an EPZ score of one, the highest ranking. The absence of these values directed evaluation of a segment to Stage 2, an EPZ categorisation assessment. Categorisation is based on identifying other ecological values important to consider in relation to fire management – for example fire sensitivity of fauna and/or flora, vegetation age and complexity of vegetation age mosaics – and weighting values depending on relative importance. Ultimately, each segment gained an EPZ score between one and five.

The EPZ Framework has now become an integral part of fire operations in the Kimberley, with our partners' endorsement. AWC has used the EPZ Framework in 2020 and 2021 as a key decision-making tool to coordinate and guide both the EDS prescribed burning program and, importantly, LDS wildfire suppression activities. As an example, if there are multiple wildfires burning across the 4.3 million-hectare management area, the EPZ Framework identifies where and how AWC and our partners direct people and helicopters, and the level of investment made to prevent further spread of a destructive wildfire. The development of a transparent, communicable, and structured decision-making framework has enabled a more comprehensive and strategic approach to fire management in the region, ensuring that AWC directs resources and effort to conserve the Kimberley's high priority ecological assets.



Ecological Priority Zone

Priority 1	Priority 3
Priority 2	Priority 4
	Priority 5



Top: AWC's Ecological Priority Zone Framework incorporates critical ecological values, such as the presence and distribution of threatened species like the endangered Gouldian Finch, into the allocation of resources in fire management. *Martin Willis/AWC*

Map: Ecological Priority Zone mapping for Mornington-Marion Downs Wildlife Sanctuary and the Tableland Partnership Area. Coloured dots represent survey data collected across the region since 2004, used to inform the decision tree and categorisation assessment to determine priorities. *AWC*





## Using drones to track reintroduced species and estimate population size

*Mahalia Booth-Remmers, Field Ecologist*  
*Dr Laurence Berry, Senior Wildlife Ecologist*  
*Georgia Volck, Senior Field Ecologist*

Efficiently tracking reintroduced species and producing reliable estimates of population trends over time is fundamental to the planning, delivery and ongoing evaluation of AWC's ambitious reintroduction program. Threatened mammal species can be difficult to monitor due to low population densities, nocturnal and cryptic behaviour, and the remoteness of remnant populations. Common monitoring approaches such as live trapping, spotlighting and remote camera trapping can be limited by animal detectability, observer effects or analytical assumptions that are difficult to satisfy. Using drones can address these limitations and presents a potentially more cost and time-effective method for monitoring wildlife. Investment in technology to improve the quality and accuracy of monitoring programs is a high strategic priority for AWC.

### Thermal drones

In 2019, AWC hired a commercial drone company C4D to conduct night flights of a drone-mounted infrared thermal imaging camera (thermal drone) over Faure Island to investigate the potential to monitor populations of reintroduced mammals. The trial showed promise, but flight duration and camera resolution limited routine application.

In June 2021, following improvements in drone and camera technology, AWC implemented a further trial to evaluate the feasibility of a thermal drone to estimate the population size of Greater Bilbies within the 480-hectare breeding area at Mallee Cliffs National Park in south-western NSW. The availability of new, compact, high-resolution thermal cameras increased the capacity to identify small ground-dwelling mammals from the air. For this work, AWC engaged contractor Beau Ricketts.

On five occasions, the thermal drone was flown over the same 24.8 kilometres (11 transects, each 200 metres apart), covering a total area of 61.8 hectares. The footage was reviewed by AWC ecologists and Bilby observations marked with high, moderate, or low confidence. These results were compared with estimates derived from a cage-trapping survey conducted within the breeding area involving 100 traps checked over a 4-night period. The resulting population estimates were similar: the mean population estimate produced from the thermal drone data was 123 ( $\pm 32$ ) and from the live-trapping data 118 ( $\pm 28$ ). These results suggest thermal drones have

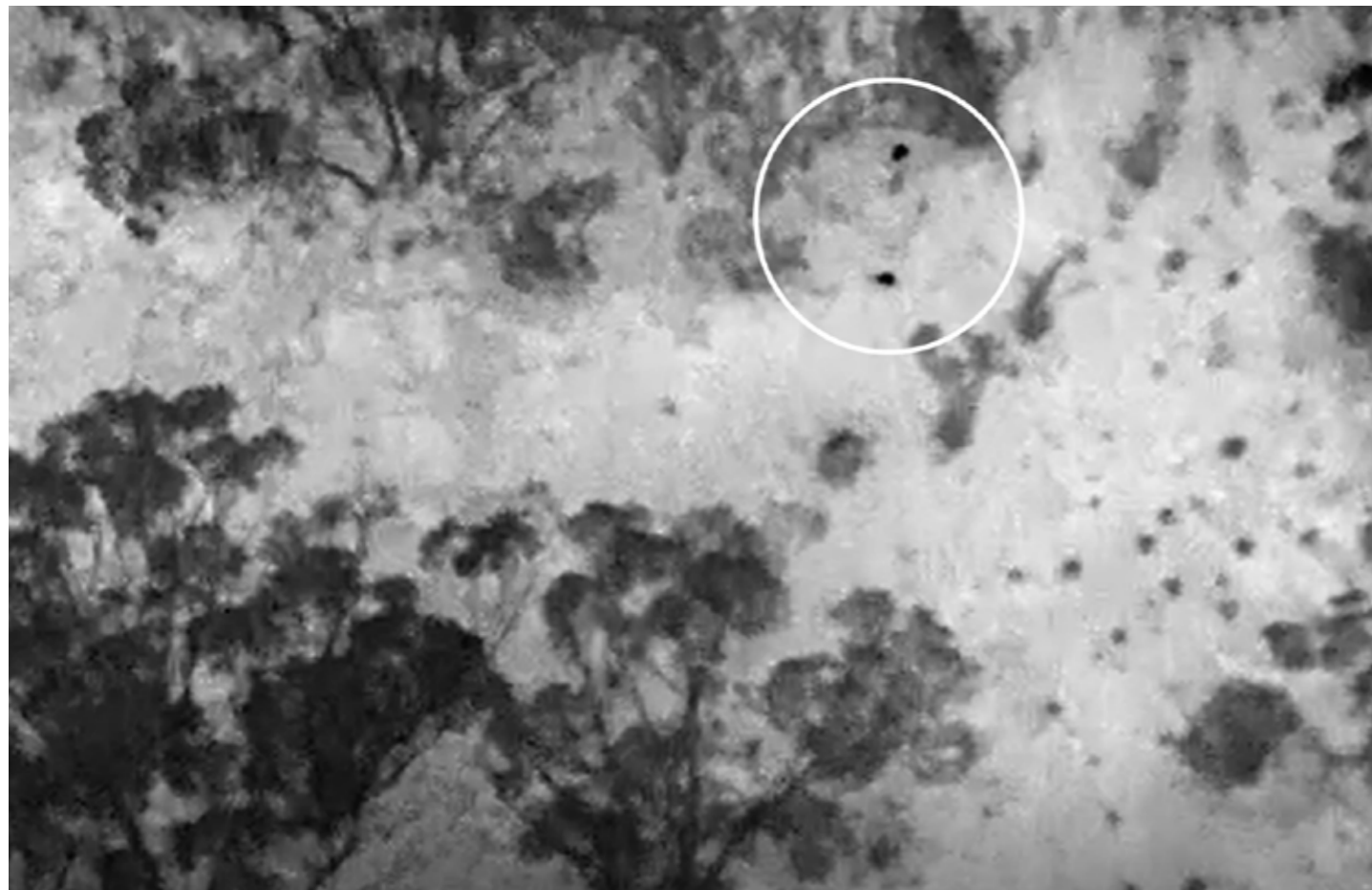
the potential to be an effective alternative method for surveying reintroduced mammals within fenced areas.

Future trials will repeat this work over larger areas with multiple reintroduced mammal species and compare the results against those derived from other common methods such as spotlighting. AWC has already undertaken a second trial at Scotia Wildlife Sanctuary in NSW over a much larger area and has plans to repeat this work on other AWC sanctuaries with reintroduction programs.

### Radio tracking drones

In May 2021, AWC reintroduced Brushtail Possums both inside and outside the feral predator-free fenced area at Mt Gibson Wildlife Sanctuary in Western Australia's Wheatbelt region. This was a landmark release, the first time a species was intentionally reintroduced outside the fenced area at Mt Gibson, in conjunction with a feral predator control program. The results from radio tracking demonstrated excellent survival of this species and several of the possums moved large distances – even up to 30 kilometres from their release sites. Tracking these animals with conventional handheld telemetry equipment was incredibly challenging, proving both labour and time-intensive. This year AWC plans to reintroduce the Chuditch (Western Quoll) to Mt Gibson, the tenth species for this reintroduction program that already sets the benchmark for rewilding efforts across the country. Chuditch will *only* be released outside the fenced safe haven and this species is expected to move even larger distances than the possums after release!

To assist with monitoring, AWC will use a radio tracking drone and software from the company Wildlife Drones to track collared Brushtail Possums and Chuditch across the sanctuary. Applying this novel technology will improve the field team's ability to regularly track animals to an accurate location across Mt Gibson's 132,000 hectares (large portions of which are inaccessible by track), reducing the time spent searching for missing animals and increasing the time spent recording important data on survival, dispersal and habitat use. This method of radio tracking involves sending the drone up to search a pre-determined area and recording a fix of the location for each animal/collar. This technology has the potential to significantly increase tracking efficiency across large areas and we look forward to reporting the results to you.



Top: At Mt Gibson Wildlife Sanctuary in Western Australia drones are helping AWC's field team track reintroduced animals across large areas. *Raquel Parker/AWC*  
 Bottom: A still from thermal drone footage taken at Mallee Cliffs National Park, with two Bilbies circled in the frame. *AWC*



Ross Ledger AM has been involved with AWC for over 30 years and holds the title of being one of the very few chartered accountants in the world who has been bitten by a small Australian mammal while releasing it into the wild. *Brad Leue/AWC*

## Biodiversity champions Ross Ledger AM and Ross Grant retire

*Dr Hannah Sheppard Brennand, Senior Editor*

In March 2022, two of Australian Wildlife Conservancy's (AWC) long-serving Board Directors and biodiversity champions, Ross Ledger AM and Ross Grant, retired. At the same time, Graeme Morgan passed the position of Board Chair to Nick Butcher and took on the role of Board Director. These men are legends of the finance and business sector and have guided AWC in its pragmatic approach to conservation, applying philanthropic funds to deliver high impact outcomes for Australia's biodiversity: delivering an 'ecological return on investment'. Between them, Graeme and the 'two Rosses' have 63 years of experience on AWC's Board.

### A heartfelt thank you to Ross Ledger AM

Ross Ledger AM has been involved with AWC for over 30 years, advising Martin Copley AM on the purchase of Karakamia Wildlife Sanctuary in Western Australia before AWC was even established as a charitable organisation. Since then, Ross has helped guide AWC on a remarkable journey, evolving from a single 278-hectare sanctuary in Western Australia to more than 12.5 million hectares of sanctuaries and partnership areas across the country. Ross is a Fellow of the Australian Institute of Company

Directors and the Taxation Institute of Australia and holds life membership with Chartered Accountants ANZ (life membership is rarely given and is the highest honour bestowed by the Council). In 2020 Ross' contributions to accounting, wildlife conservation and the community were recognised in his appointment as a Member of the Order of Australia.

AWC Chief Executive Tim Allard notes that Ross' 'kindness, generosity of spirit, financial stewardship and governance have been fundamental in the transformation of AWC.' These attributes are appreciated by everyone – from Ross' involvement and contribution to the Board, the Audit and Risk and Gift Fund Committees, the members of staff he has mentored and encouraged at head office and across the many sanctuaries he has visited. AWC Chief Financial Officer Andre van Boheemen greatly values the mentorship and friendship Ross has extended him. 'He'd never admit that he's been a mentor, but he really has, both to me and the rest of the finance team. Everyone who knows him thinks the world of him.'

When on sanctuary, Ross has always made the most of it, soaking in the information and meticulously noting the

name of every ecologist, cook, land manager and guide. Personalised thank you notes and photos would always follow each visit. Ross is proud of AWC and has a warm appreciation for everyone's work. In his own words, 'I pitch in when I can, and I'm very interested. I've been to just about every sanctuary over the years. I still wonder at how I ever got to go to places like the remote Pungalina–Seven Emu and Piccaninny Plains Wildlife Sanctuaries, and to see the floodwater running into Kati Thanda–Lake Eyre at Kalamurina Wildlife Sanctuary ... It's most uplifting'

### A heartfelt thank you to Ross Grant

Ross Grant represents the evolution of AWC beyond Western Australia. A highly respected corporate advisor, Ross established esteemed independent corporate finance advisory Grant Samuel in 1988. Ross' tenure with AWC stretches back to 2005, when the organisation began its transformation to operate on a national scale. Ross facilitated AWC's establishment in the Sydney philanthropic community, actively introducing AWC to his considerable professional and social network and generously providing a home for AWC with office space in the Grant Samuel building in Sydney's CBD. Ross has served on AWC's Executive and Audit Committees and has never been afraid to offer constructive criticism.

Bridget Grant, legal counsel to Grant Samuel and Ross' niece, notes that Ross 'is a strong, successful businessman and also someone who gets really emotional about watching a little furry Australian animal being released into the wild. Ross is incredibly passionate about the work AWC is doing and has loved sharing this

with others, along with his passion for rugby and fine wine.' These passions have sometimes pushed Ross to extremes, even to the extent of wiring up a TV set on Mt Zero at Mount Zero–Taravale Wildlife Sanctuary to watch the All Blacks play in the Rugby World Cup.

Grant Samuel Co-CEO Guy Fergusson adds to this, saying that Ross' passion for AWC's work helped to ignite the passion that he and wife Georgie now feel. 'At the start of every year Ross would tell me 'You've got to get on sanctuary! It will be the best thing you ever do.' Lo and behold, when we finally made it to Mornington Wildlife Sanctuary four years ago, it was.' Continuing the connection with Grant Samuel, Guy joined AWC's Board in 2021.

Guy describes Ross as 'the great connector. Honesty and integrity pervade everything we do at Grant Samuel, and these are values established by Ross and that are in keeping with AWC. The relationship between Grant Samuel and AWC has always been a good alignment as it combines Ross' passion for protecting wildlife with doing the right thing by the world we live in. AWC does that in a more tangible way than most.'

*From all corners of Australia, the entire AWC team would like to thank Ross Ledger AM and Ross Grant for their contributions to AWC. We wish them all the best in retirement. Graeme Morgan sums it up: 'It's a great privilege and honour to work for AWC, it gives you more than you give it. It's a very rewarding endeavour and organisation and that's how we all feel.'*



Ross Grant and his wife Jo have visited almost every AWC sanctuary, often taking a group of friends and connecting them to AWC's conservation work in the field. *Joey Clarke/AWC*

# GIVE HOPE TO AUSTRALIA'S THREATENED WILDLIFE



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- Supporting partnerships to unlock conservation at scale
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Account Holder Name:
Account Number: BSB:
Signature: Date:
Print Name:

DONATION

I would like to make a single tax deductible donation of: \$100 \$300 \$500 \$1,000 \$5,000
I wish to pay by: Credit card Cheque/Money Order

BEQUESTS

I am interested in making a bequest in my Will. Please send me some information.

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:

- 1. We will advise you, in writing, the details of your monthly donation to Australian Wildlife Conservancy...
2. Where the due date falls on a non-business day...
3. We will not change the amount or frequency of drawings arrangements...
4. We reserve the right to cancel your monthly donation...
5. We will keep all information pertaining to your nominated account...
6. We will promptly respond to any concerns...
7. We will send a receipt within 45 days...

Your Rights:

- 1. You may terminate your monthly donation to Australian Wildlife Conservancy at any time...
2. You may stop payment of a monthly donation...
3. You may request a change to the donation amount...
4. Where you consider that a drawing has been initiated incorrectly...

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.

Your commitment to us, Your responsibilities:

- 1. It is your responsibility to ensure that sufficient funds are available in the nominated account...
2. It is your responsibility to ensure that the authorisation given to draw on the nominated account...
3. It is your responsibility to advise us if the account nominated for transactions...
4. It is your responsibility to arrange a suitable alternative payment method...
5. Please enquire with your Financial Institution if you are uncertain whether direct debit functions are available...

NEWS43