



Summer 2012/2013

Foundation for National Parks & Wildlife

PAWS Newsletter for Parks & Wildlife Supporters

Connectivity throughout the Landscape

Caring for Australia's natural and cultural heritage since 1970

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Front cover: A forest of Spotted Gum-Blackbutt Association Forest along the Northern-Wool Road within Heritage Estates.

Back cover: A stunning Australian native plant, the Heath Kunzea *Kunzea capitata*, found within Heritage Estates.

Both photos taken by local resident: Chris Grounds.

Dear PAWS readers,

What a year it has been! This year, the Foundation has received a significant amount of funding for several projects to improve connectivity between important Australian habitats.

In 2012, the Foundation has also funded a number of projects that focus on improving connectivity across the landscape for the benefit of species.



Connectivity conservation must be a part of the 21st century's overarching strategy to preserve our amazing animals and plants, before it is too late.

You can read about it all here. This issue of PAWS is all about connectivity in different ways, its essential role in Australian conservation, and what the Foundation is doing to promote connectivity throughout the Australian landscape.

I hope you enjoy this issue of PAWS. It is for you and because of you, our supporters—we simply couldn't do it without you. So thank you!

Susanna Bradshaw
CEO, Foundation for National Parks & Wildlife

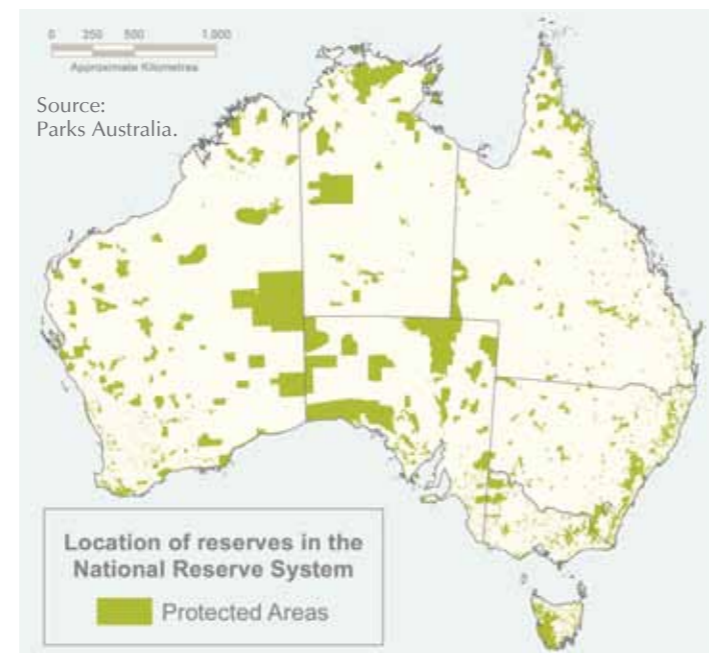
P.S. We are sending out a gorgeous 'Christmas Plants of Australia' postcard with our receipts this month, so don't miss out!

Connectivity Conservation in Australia

Australia's many national parks and protected areas make up the National Reserve System. This formal network includes more than 9,700 high conservation value sites and encompasses over 103 million hectares across the country.

This is a significant number of protected areas, and an achievement that Australians can be proud of. However, without connectivity and linkages between habitats, the task of protecting our native plants and animals is far from over.

The map of the National Reserve System below shows the distribution of protected areas nationwide.



The establishment of core protected areas is the first priority in Australia's systematic conservation plan. The next step is growing the linkages and buffer zones between protected sites to ensure their long term viability.

ENSURING SAFE MOVEMENT

There are many benefits to connecting protected sites, and these grow dramatically as greater numbers of appropriately managed sites are linked.

Simply maintaining islands of conservation in amongst degraded, modified or largely developed areas often does not work to ensure the survival of species over time.

For instance, after Cyclone Yasi hit northern Queensland in February 2011, endangered Southern Cassowaries who had survived the levelling of their habitat had no choice but to venture out of their territories in search of food.

Outside of their habitats, many Cassowaries were hit by cars or attacked by dogs. Since the cyclone, 19 have died. This is a significant number, as scientists estimate that only as few as 40 adult Cassowaries remain in Mission Beach.

Linking habitats through the creation of wildlife corridors is one of the ways we can improve the ability of species to safely move through the landscape. It is vital for their protection.



Important habitats and vegetation types at Heritage Estates. Photo: Chris Grounds.

The Foundation is supporting Rainforest Rescue in the creation of a Cassowary Corridor at Mission Beach to improve connectivity, and to help prevent tragic accidents from occurring in the future. Read about this project on page 10.

The Foundation is also working to purchase approximately 180 hectares of high conservation value land. We are voluntarily acquiring over 1,000 lots that make up Heritage Estates on the New South Wales South Coast, for the Reserve System.

Heritage Estates contains threatened species and acts as a wildlife corridor that facilitates the movement of species between Booderee and Jervis Bay National Parks. It is integral to maintaining healthy ecosystems within both of these protected areas. You can read about this project on pages 4-5.



Milkmaids and Yellow-tailed Black Cockatoos are just two of the hundreds of native species found at Heritage Estates. Photos: Chris Grounds.

CONNECTIVITY AT MANY LEVELS

Connectivity conservation aims to interconnect protected areas and create large-scale, healthy Australian ecosystems. Connectivity is needed at the following levels:

- **Landscape connectivity** – at the physical level, vegetation is required between habitats to allow the safe movement of animals and the transfer of seeds and pollen between sites.
- **Habitat connectivity** – particular species need different kinds of vegetation, such as dense shrubs, tall trees, or particular plants, to connect habitats and facilitate safe movement.
- **Ecological connectivity** – connected habitats help maintain the underlying processes that keep ecosystems healthy. For example, connected habitats are better able to maintain relationships between plants and their pollinators or seed distributors, water flows, species breeding activities, and the production of food resources such as nectar, fruits and so on.

- **Evolutionary connectivity** – allows populations of a species to interact naturally, share genes and adapt to changing environmental conditions over long periods of time.

Australia's plants and animals have had to adapt to climate change events in the past. Some of their survival strategies have included local adaptation, long range dispersal or range contraction to refuges.

These strategies today, however, are being interfered with by many human-caused processes. These include habitat loss, fragmentation and degradation, development and traffic, introduced animals and plants, and changed fire and hydrological regimes.

As they try to adapt to climate change now and in the future, many species will be driven into more dangerous landscapes, unless we can do something to help minimise these risks.

Well-managed, interconnected landscapes will increase the chance of species to adapt to changed conditions, and to survive in the future.

PREVENTING ISOLATION & INBREEDING

Without connectivity, populations of a species can become isolated, and risk losing resilience due to an inability to disperse to find mates. This is a serious threat to survival.

The Mountain Pygmy-possum is one such species that was thought to only remain in a habitat of less than 5 km². It is threatened by changing climate altering its habitat, feral predators, and a shrinking gene pool. The Foundation has been working with a number of partners to establish a captive breeding program for this species to combat these threats. Read about recent developments on page 12.



Mountain Pygmy-possum. Photo: Dr Linda Broome.

Retaining or restoring connectivity is crucial to securing healthy, resilient and sustainable ecosystems and species in Australia.

In this PAWS you will read about our connectivity conservation efforts—to create wildlife corridors, maintain ecosystem processes and health, to combat the isolation of species, and also to connect diverse government, business, not-for-profit and community groups together to work for conservation.



Keeping habitat connections viable through protecting Heritage Estates. Photo: Chris Grounds.



Safe movement between habitats helps to maintain species population viability. Photo: Chris Grounds.

Protecting wildlife corridors & threatened species in Heritage Estates



Left to right: A starfish at Stony Creek, Booderee National Park. Photo: Kate Bunker. An Eastern Yellow Robin, a White-stemmed Gum Moth, and a New Holland Honeyeater all found nearby to Heritage Estates. Photos: David Cook.

All three levels of government have come together with the Foundation for National Parks & Wildlife to protect a high conservation value area known as Heritage Estates.

Heritage Estates is located at Worroing Heights next to Vincentia and Errowal Bay, in the Shoalhaven City Council area on the South Coast of New South Wales.

Heritage Estates is a 180 hectare "paper" subdivision of approximately 1,200 lots. The lots were sold based on speculation that they might be rezoned for development. The rural zoning of Heritage Estates, which has been in place since 1964, generally prevents individual lots from being developed.

In 2009, a residential development proposal for Heritage Estates was rejected under the Federal Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

This was due to the land's significant biodiversity values, wildlife corridor function, and the significant negative impacts its development would have on Booderee National Park.

CONSERVATION VALUES

Heritage Estates contains approximately 246 native plant and 154 native animal species, including:

- Eastern Bristlebird *Dasyornis brachypterus* – endangered
- Eastern Pygmy-possum *Cercartetus nanus* – vulnerable
- Giant Burrowing Frog *Heleioporus australiacus* – vulnerable
- Eastern Ground Parrot *Pezoporus wallicus wallicus* – vulnerable
- Leafless Tongue-orchid *Cryptostylis hunteriana* – vulnerable
- Powerful Owl *Ninox strenua* – vulnerable
- Yellow-bellied Glider *Petaurus australis* – vulnerable

An endangered species is facing a very high risk of extinction in the wild in the near future. A vulnerable species is facing a high risk of extinction in the wild in the medium term future.

Heritage Estates is a wildlife corridor that allows species to move between Booderee National Park and other habitats.

Developing Heritage Estates would affect the species living within it and would isolate species within Booderee, making it a much less healthy habitat and ecosystem.

ABOUT THE PROJECT

The Voluntary Heritage Estates Land Project will provide a solution to the long term land tenure issue. It also aims to provide some closure for affected landowners.

In 2011-12, the Foundation in conjunction with Shoalhaven City Council and NSW Office of Environment & Heritage applied to the Australian Government's Caring for Our Country grant program and was awarded \$5.4 million in funding.



Left: An Eastern Bristlebird, which scientists believe would become locally extinct if Heritage Estates was developed. Photo: Chris Charles. Right: The vulnerable Giant Burrowing Frog, found in Heritage Estates. Photo: Doug Beckers.



Left to right: An Eastern Pygmy-possum, a Swamp Wallaby, the vulnerable Leafless Tongue-orchid and a Long-nosed Bandicoot all found at Heritage Estates. Photos: Janet Mayer, David Cook, Chris Grounds, and David Cook.

The Foundation is managing the project and has also provided \$60,000 to help fund it.

The project will see the voluntary purchase of as many lots within Heritage Estates as possible for inclusion into Jervis Bay National Park, for permanent protection. Protecting these lots will provide added security to the habitats of the 26 threatened species known to exist in the area.

Local and state governments are also playing critical roles in this project. Shoalhaven City Council is donating the land it owns within Heritage Estates to the New South Wales Office of Environment & Heritage for inclusion in Jervis Bay National Park.

At the appropriate point Shoalhaven City Council will also rezone all remaining privately-owned Heritage Estates lots to E2 Environmental Conservation.

The New South Wales Government will manage the purchased land as part of Jervis Bay National Park under the parks' Plan of Management.



Vulnerable species found in Heritage Estates. Left: A Yellow-bellied Glider. Photo: David Cook. Right: An Eastern Ground Parrot. Photo: Brent Barrett.

Together, these actions will help protect the plants and animals that call Heritage Estates home, and ensure its viability as a wildlife corridor remains strong.

PROJECT PROGRESS

Owners of Heritage Estates lots have until 3 June 2013 to sell their land for a fixed price of \$5,000 per lot. An early bird offer of \$5,500 is available to the first 800 landowners to take up the offer before 31 March 2013.

The offer price was determined by taking into account the market value of each lot, as ascertained through recent comparable sales and valuations.

Mr Rubens Delfino is the Foundation's project manager for the Voluntary Heritage Estates Land Project.

Mr Delfino said, "It is gratifying that we are bringing some genuine relief, and some much needed objective information, to a lot of the landowners."

Landowners can find out more information by visiting www.fnpw.org.au/heritage-estates. Or they can contact Mr Rubens Delfino directly by calling 1300 780 143.

As of late November 2012, there had been a large uptake with over 200 lots being offered by landholders for sale. This represents close to 20% of the total number of privately owned lots. Given that landowners had only received information about the sale opportunity less than a month prior, the project is off to a great start.



Great Eastern Ranges

Connecting habitats across QLD, NSW, ACT, VIC

By Rob Dunn, CEO of the Great Eastern Ranges Initiative.

THE GREAT EASTERN RANGES INITIATIVE

The Great Eastern Ranges Initiative is one of a growing number of internationally recognised connectivity conservation projects.

These projects are responding to the ongoing decline and mass extinction of species due to past and current land-use and climate change.

Connectivity conservation is a continental scale approach which aims to maintain and improve the health and resilience of ecosystems.

The Great Eastern Ranges Initiative focuses on eastern Australia from western Victoria through New South Wales and the Australian Capital Territory and extends for more than 3,600 kilometres up to far North Queensland.

The Great Eastern Ranges corridor includes the Great Dividing Range and Great Escarpment, as well as much of the area in between. This natural spine along the east coast of Australia includes an extensive network of protected areas and natural habitats.

The variety of climate and habitat, rugged topography, relatively high rainfall and ranges of altitude all support the amazing biodiversity found along the corridor.

WHY IS THIS IMPORTANT?

In the past it was thought that we could conserve nature adequately by just establishing national parks and reserves. However these reserves often become isolated islands of vegetation in a sea of developed lands managed for agriculture, industry, transport and housing.

If species do not have safe sanctuaries in which to persist or are unable to move between habitat fragments, competition for food is increased while opportunities to breed are reduced, leaving many vulnerable to extinction over time.

Plant and animal species do not adhere to human boundaries of protected areas alone. Small islands and protected parks are simply not large enough to provide some species with the freedom to roam that they require.

But it is because these protected areas exist that we have the opportunity to restore ecosystems over the larger scales that they require to function.



If these systems are maintained and functionally connected they not only give our biodiversity the best chance to survive in a changing climate, but they allow for the ecosystem services such as fresh drinking water for eastern Australia and clean air to be maintained.

HOW WILL WE MAKE THIS HAPPEN?



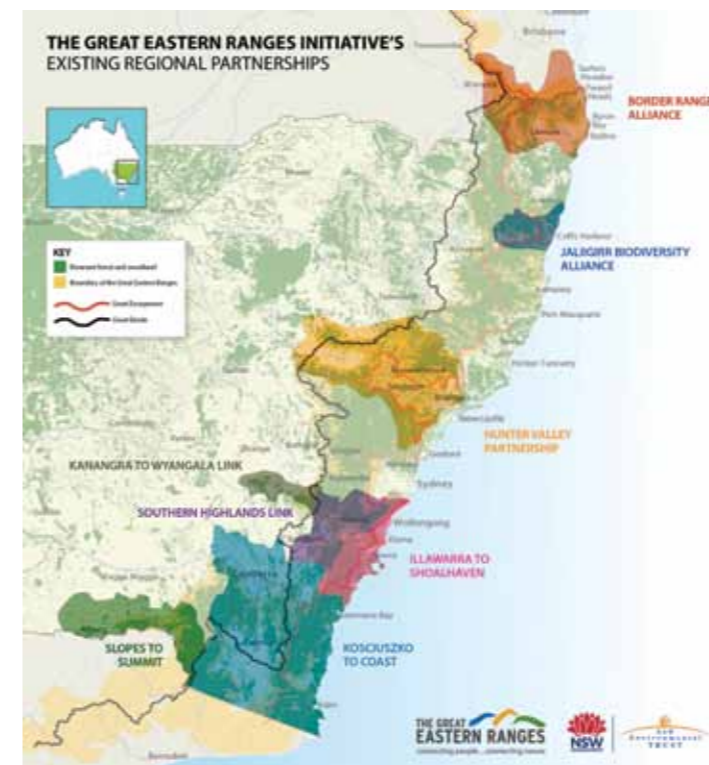
Dainer Gap, Main Range, Kosciuszko National Park. Photo: Stuart Cohen, Office of Environment and Heritage (OEH).

The Great Eastern Ranges Initiative is a holistic approach that uses science to identify where, why and how 'gaps' in native habitat can be restored to provide functional links in the landscape. It includes and integrates many stepping stones in the landscape including local wildlife corridors, habitat remnants and paddock trees.

As over two thirds of land within the corridor is privately owned the Initiative relies on a program of education, information and relationship building to deliver its aims.

To do this the Initiative works with communities and existing organisations to establish partnerships in priority areas. These partnerships have brought together local landowners and over 100 organisations of conservation groups, agencies, researchers, councils and industry to collectively plan and carry out local efforts on a voluntary basis.

This has resulted in a consolidation of local effort which is being directed to the areas that are most likely to give us the best returns.



WHERE ARE WE UP TO?

The Great Eastern Ranges Initiative began its journey as a NSW Government funded program in 2007, and has recently expanded into other States through project funding from the Australian government's Biodiversity Fund. The Government's on-going support has allowed for the development of the concept, its beginnings in NSW and a transition to a non-government based leadership.

An extraordinary amount has happened since its formation. The development of the science behind the approach, the spatial mapping, the community links, the establishment of eight regional partnerships and on-ground action have all been achieved in this short period.

The Initiative is now expanding its focus outside NSW through the support and operations of its partners. These are either conservation or natural resource management organisations or partnerships, which operate across the Great Eastern Ranges, at a State or regional level, share the vision and are able to contribute to its implementation in a meaningful way.

The success of the Initiative has also served to influence the national conservation agenda and its significance have been recognised by its inclusion in the Australian Government's National Wildlife Corridor Plan.

The Initiative provides a big picture context for local and regional action and a vision that continues to inspire individuals and groups across 3,600 km of eastern Australia to do more.



Fragmented landscape in the South West Slopes of NSW. Photo: GER.

THE FOUNDATION AND THE GREAT EASTERN RANGES

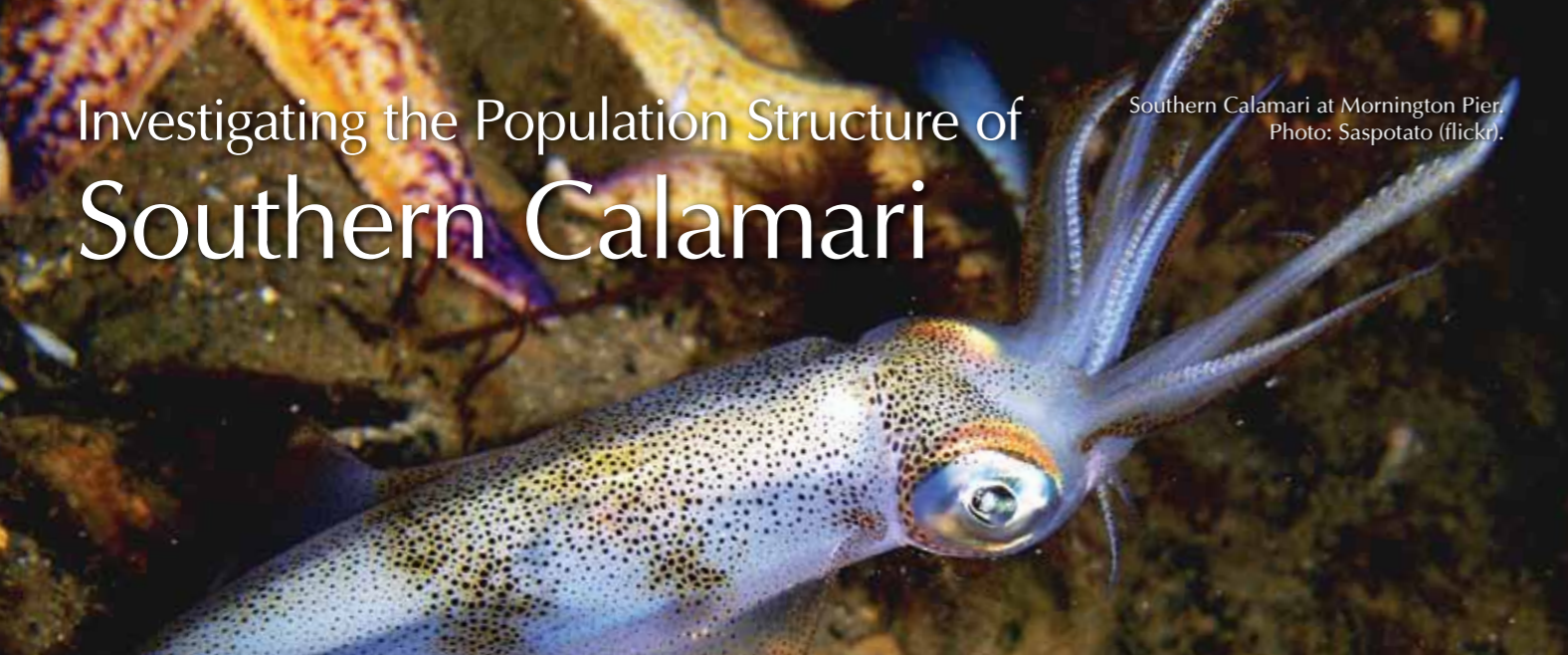
The Foundation supports connectivity in many ways. The Foundation encourages conservation on private land through its annual Private Land Conservation Grants program, which helps to increase the amount of high conservation value land in Australia and maintain connectivity across the landscape.

The Foundation also funds threatened species recovery actions to maintain populations and genetic diversity, funds degraded land rehabilitation works, provides environmental education throughout Australia, and strives to work with other not-for-profits, community groups, traditional owners, all levels of government, and corporate partners to achieve on ground, tangible outcomes for conservation.

The Foundation is incredibly supportive of landscape-scale connectivity conservation projects such as the Great Eastern Ranges Initiative, and aims to become even more closely involved in the future.

Investigating the Population Structure of Southern Calamari

Southern Calamari at Mornington Pier.
Photo: Saspotato (flickr).



VICTORIAN SCIENCE GRANT WINNER

Dr Timothy Smith, a Post-Doctoral Researcher at Deakin University, was recently announced as a recipient of one of the Foundation's two marine science grant winners for 2012.

This grant was awarded as part of the annual Paddy Pallin Science Grants program, co-funded by the Paddy Pallin Foundation, the Foundation for National Parks & Wildlife, and Humane Society International. The grants are administered by the Royal Zoological Society of New South Wales.

Dr Smith will receive \$7,000 towards his research into the population structure of the Southern Calamari Squid. A greater understanding of the population dynamics of this species will assist management strategies to ensure that the Victorian populations of Southern Calamari remain viable.



Post-Doctoral Researcher Dr Smith (pictured above) will investigate the population structure of Southern Calamari Squid, to provide management recommendations. Photos courtesy of Dr Smith.

Dr Smith's research will seek to find out if there is one single large population of Southern Calamari Squid or if there are distinct populations of this species within Victorian waters.

If populations are not closely connected geographically or genetically, individual management strategies could be developed for distinct populations to ensure sustainable fishing practices are applied to each population, and ensure their survival in the future.

Dr Smith will collect squid samples from Port Phillip Bay, Western Port and Corner Inlet, and perform DNA testing to assess genetic differentiation.

"Understanding the Southern Calamari's population structure in Victoria will contribute to better management of the fishery. The fishery's aim is to ensure sustainable catches are maintained—so it is in their interest. It will also contribute to management strategies in order to ensure that increased fishing does not endanger the population," said Dr Smith.

"Population numbers could also be increased by pursuing a range of management options that will ensure a healthy ecosystem and provide fishing opportunities for both commercial and recreational fishermen," said Dr Smith.

Dr Smith's research will lead to tangible outcomes for conservation in Australian marine environments.



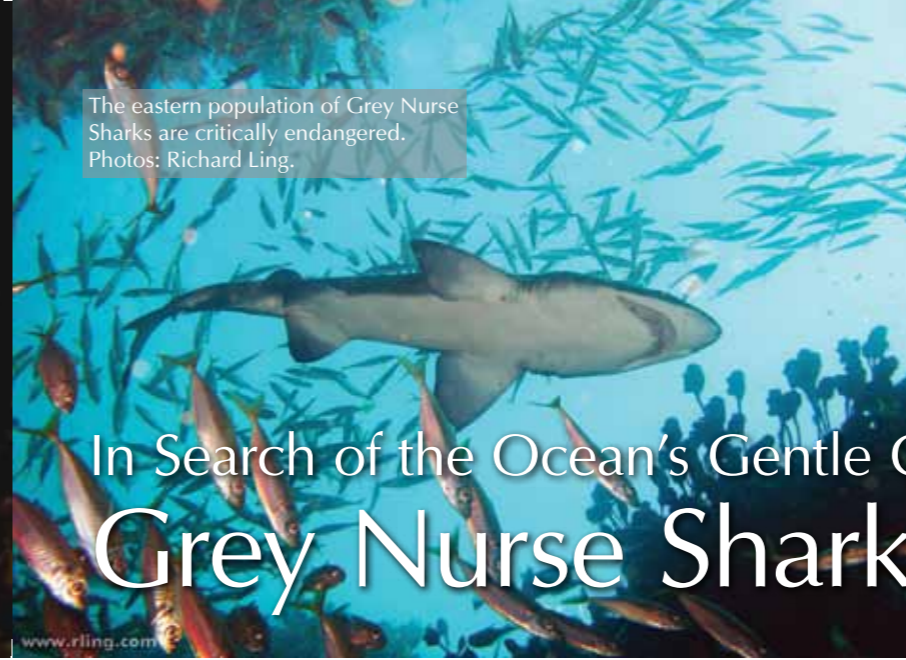
Southern Calamari Squid.
Photo: Richard Ling.

The Southern Calamari Squid is found only in southern Australia and New Zealand, and is a popular seafood for people. Consumer demand for calamari has gone up over the last decade, as have the prices, and so this species has been increasingly targeted by commercial and recreational fishers.

The Southern Calamari Squid plays an important underwater role. Not only is it a predator, but it is also a favourite food of large fish, Little Penguins and marine mammals such as the endangered Australian Sea Lion.

The removal of too many adult squid before they are able to spawn could affect the overall population, and have 'knock on effects' for underwater predators that rely on them for food.

The eastern population of Grey Nurse Sharks are critically endangered.
Photos: Richard Ling.



In Search of the Ocean's Gentle Giants Grey Nurse Sharks

QUEENSLAND SCIENCE GRANT WINNER

PhD candidate Deborah Bowden of the University of Queensland received a marine science grant of \$7,000 from the Foundation in 2012.

Miss Bowden is conducting research into the gestation sites used by the critically endangered east coast population of Grey Nurse Sharks.

With only an estimated 1,000 Grey Nurses left on Australia's east coast, this is one of our most threatened marine species.

Research published in 2009 by two other UQ scientists, Dr Bansemer and Professor Bennett, identified that approximately half the pregnant east-coast Grey Nurses aggregate at Wolf Rock, north of Noosa, but where the others go is still a mystery.

Miss Bowden aims to discover other gestation sites which may lie further north.

Miss Bowden said, "Discovering the 'missing' gestation sites will allow for a much more robust assessment of the size of the breeding population. This is crucial in our understanding of whether this species' population is stable, declining or increasing. Locating the missing gestation sites is also critical to ensure that the breeding population is not exposed to activities that may threaten the population's recovery."

The grant and in-kind support from Australia Zoo will provide Miss Bowden with up to five days on board the purpose-built research vessel called Croc One.

Aboard Australia Zoo's vessel, Miss Bowden and a team of volunteers will travel to potential Grey Nurse gestation sites, scuba dive to photograph the sharks and habitats, and set baited remote underwater video cameras.



Croc One, the dedicated research vessel supplied by Australia Zoo in support of Miss Bowden's research. Photo courtesy of Deborah Bowden.



Deborah Bowden is studying the aggregation sites of the eastern Australian population of the Grey Nurse Shark. Photos courtesy of Deborah Bowden.

"We aim to provide critical information to management agencies, to assist with the protection of Grey Nurse Sharks and the sites that the females use during their 9 to 12 month gestation period," said Miss Bowden.

Divers often see small groups of Grey Nurse Sharks in or around sandy-bottomed gutters, rocky caves, and around inshore rocky reefs and islands.

Miss Bowden is asking divers who have seen or photographed Grey Nurse Sharks along the east coast to share their information with her via the Grey Nurse Shark Watch website (www.reefcheckaustralia.org/grey-nurse-shark-watch.html). Anyone who has seen Grey Nurse at an unusual or little known location should contact Miss Bowden the website listed above.

Due to their fierce appearance, Grey Nurse Sharks are often mistaken for other species which pose a danger to humans. However, Miss Bowden calls Grey Nurse Sharks the 'gentle giants' of the sea. Grey Nurses feed on fish such as pilchards, flathead, sea mullet, in addition to squid, and crustaceans.

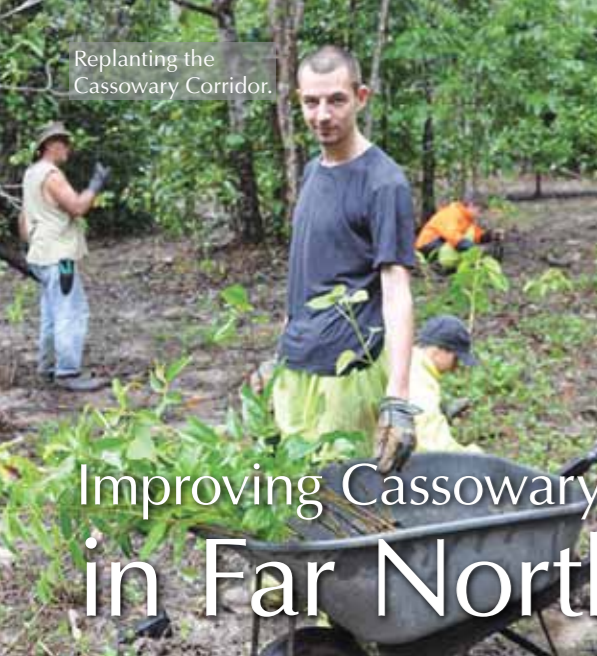
Ms Bowden's research will lead to tangible outcomes for the conservation and management of Grey Nurse Sharks and their important habitats along Australia's east coast.

INDIVIDUAL SPECIES AND CONNECTIVITY

Maintaining species and population health is central to connectivity conservation, as it supports ecosystem health. Locating and protecting important habitats, such as gestation sites, gives species a better chance of survival.

This is because if one species declines, its disappearance can have dramatic flow-on effects to other species. For instance, the balance of predators and prey may change. These kinds of changes can undermine the overall resilience of a system.

Replanting the Cassowary Corridor.



There may only be as few as 1,000 Southern Cassowaries remaining in the wild. Photo: Liz Gallie.

Improving Cassowary Habitat Linkages in Far North Queensland

In 2011, the Foundation and Action Campaign for Endangered Species (ACES) granted \$4,400 towards Rainforest Rescue's Cyclone Yasi Cassowary Recovery Program. It was used to plant 600 trees on private property to connect critical habitats and form a Cassowary Corridor. A further 800 trees remained to be planted.

The program was instigated following the devastating impact of Cyclone Yasi in February 2011 which destroyed 10% of the remaining prime Cassowary habitat in Australia.

Residential development has also caused a drop in numbers with as few as 40-50 adult birds remaining at Mission Beach.

Development has led to increased deaths caused by car collisions and attacks from domestic dogs. Development has also led to fragmentation of rainforest habitat which has made it more susceptible to cyclonic impact and degradation.

IMPROVING CASSOWARY HABITAT



This project will restore and expand Cassowary habitat. Once the tree plantings have been completed, the area will become prime Cassowary habitat once more. The plantings will connect habitats in coastal areas of lowland rainforest and World Heritage areas.

Mission Beach is home to Australia's largest density of Southern Cassowaries. In restoring and expanding habitat the project aims to provide a safe passage for Cassowaries that will lead to increased numbers.

New 2012 Foundation and AGA Germany funding will purchase more trees, mulch, fertiliser and herbicide to maintain the plantings. Until April 2013, Rainforest Rescue will continue working to plant 1,400 trees on primary planting sites.

Plantings will be maintained for two years to ensure weed control and canopy closure. The Giringun Aboriginal Rangers are providing their services at half cost as an in-kind contribution to this project. Restoration of Cassowary habitat at Mission Beach will achieve significant conservation outcomes.

As few as 1,000 Cassowaries remain in the wild. Their survival is dependent on the protection of important habitat refuges and rehabilitation of previously cleared rainforest areas.

More than 80% of lowland rainforest habitat has been cleared for development with 40% of remaining habitat still unprotected. Protection and restoration of habitat is critical to increased Cassowary survival rates and population vitality.

The Wet Tropics region is of national and international biodiversity significance. The protection and restoration of Cassowary habitat will ensure the protection of other significant flora and fauna that are co-dependent on the rainforest.

The Southern Cassowary is only found in lowland rainforest of Australia. The loss of this important rainforest species would not only be catastrophic to the future viability of Australia's rainforests but would have a profound impact on a global scale.

The success of the project will be measured by:

- The number of trees that are planted and facilitated by natural regeneration;
- The survival rate of trees (usually 98% due to high level of care provided);
- Reported sightings of Cassowaries in revegetated areas;
- Increase in Cassowary numbers; and
- Level of consultation and engagement with local community and stakeholders in the project.

The extent of implementation of this project is dependent on Rainforest Rescue's ability to secure funding, and the level of community involvement of voluntary conservation initiatives by landholders.



Mr Kelvin Davies, CEO of Rainforest Rescue inspecting thousands of tree plantings in the Cassowary Corridor. Photos courtesy of Rainforest Rescue.

A spectacular shot of a Humpback Whale breaching. Photo: Wayne Reynolds.



Keeping connected with migratory Humpback Whales

In 2012, the Foundation is supporting a project that demonstrates just how a partnership of government, not-for-profit, community volunteer group, and the public can work to help conserve one of our most majestic species—the Humpback Whale.

WORKING TOGETHER FOR WHALES

On Sunday 19th June 2011, a group of New South Wales National Parks & Wildlife Service (NPWS) staff volunteered their time to host a fundraising barbecue at Cape Solander, Kurnell to Sydney's south.

The event was held to raise funds for a dedicated team of volunteers undertaking the Cape Solander Whale Migration Study in Kamay Botany Bay National Park during the annual northern migration of Humpback Whales.

Thanks to a great event with plenty of supporters, the NPWS staff managed to raise \$1,345.90 to support the Whale Study volunteers to conduct their research.

The Foundation is proud to match the amount raised, so that a total of \$2,700 will go towards supporting the volunteers.

Many of the volunteers involved in the Whale Migration study have watched and recorded Humpback Whale sightings off Cape Solander over the past 15 years. They have braved cold, wet and windy weather to monitor these spectacular creatures.

These volunteers provide an invaluable service by contributing information to close the gaps in the scientific knowledge about Humpback migration off Australia's east coast. They are also an excellent source of information about all things whale to more casual whale watchers at Cape Solander.

The funds raised by this partnership will allow the Whale Migration Study volunteers to purchase important computer equipment. The volunteers will be able to quickly record whale data, instantly update the NPWS 'Wild About Whales' website to let others know where the whales are, and enable access to weather and other essential information.

In addition, other vital equipment will be purchased such as binoculars and weatherproof clothing to keep the volunteers warm as they spend many hours outdoors in the wind watching the whales migrate during winter.

In September 2012, Foundation CEO Susanna Bradshaw, and Foundation Director Angus M Robinson and wife Jeanette, along with the NSW Minister for the Environment and Minister

for Heritage, the Hon. Robyn Parker, visited Kamay Botany Bay National Park to thank the volunteers for their service, and to present them with the new equipment.



Volunteers from the Cape Solander Whale Migration Study group with the Hon. Robyn Parker, receiving a certificate of thanks, equipment and supplies in September 2012. Photo: Sue Ashton, NPWS.

The Minister presented the longest serving of the group with 10-year volunteer service medallions.

The Minister recognised the dedication of the less than 60 volunteers, and said that as well as contributing to scientific understanding of whale migration and the population's recovery, the volunteers had "helped awaken Sydneysiders', along with the rest of New South Wales', interest in whales."

CONNECTING PEOPLE AS WELL AS HABITATS

Connectivity conservation recognises that governments working alone to protect pockets of land in reserves is not enough to save our plant and animal species. Species need to move through the landscape and may not thrive over the long term in isolated locations.

Instead, connectivity conservation encourages management measures on private land surrounding and between reserves so that they are linked by corridors or 'stepping stone' patches of natural bush in semi-modified areas.

Connectivity conservation, therefore, is socially inclusive and invites cooperation from many different groups. By working together and integrating our efforts, a cooperative group of members of the public, private landholders, volunteers, community groups, traditional owners, not-for-profit organisations, farmers, industry, the corporate sector, and governments can achieve better conservation outcomes.

New Hope for the Mountain Pygmy-possum



Dr Linda Broome and PhD student Chris Turner monitored Mountain Pygmy-possums at Charlotte Pass in March 2012 and found many positive signs. Photos: Lucy Morrell.

In 2010, the Foundation became the lead fundraiser for a project to establish a captive breeding program for the endangered Mountain Pygmy-possum *Burramys parvus*.

The captive breeding program has the guidance of Dr Linda Broome Senior Threatened Species Officer, Biodiversity Conservation Section, Office of Environment and Heritage, Professor Mike Archer of the University of New South Wales, and other conservation and research institutions such as the University of Sydney, the University of New England, and the Australian Ecosystems Foundation.



Mountain Pygmy-possums found during recent monitoring. Photo: Lucy Morrell.

Dr Broome has monitored Mountain Pygmy-possums for over 25 years, and the Foundation has supported her for many of them.

Each year, Dr Broome and her dedicated volunteers and research students trek into the rocky boulder fields of Kosciuszko National Park to monitor the numbers of this unique species—the world's only hibernating marsupial.

In 2008, the future of the Mountain Pygmy-possum was hanging in the balance. At Charlotte Pass, numbers of Mountain Pygmy-possums had dropped by 30% and at Mt Blue Cow, only one female possum was found.

Fast forward to 2012, and following two years of rain, there is now much to celebrate. Mountain Pygmy-possums were found on three new sites and numbers had increased. "But it just goes to show," said Dr Broome, "how particularly susceptible these possums are to drought and prolonged dry periods."

Mountain Pygmy-possums aren't out of the woods yet, but the new discoveries provide much hope. "The new sites show that this species may be able to live at lower altitudes and in different locations which don't necessarily tick all of their prerequisite niche boxes," said Dr Broome.

"I've been surveying and trapping these animals every year for years and to suddenly find such an apparently robust population well outside the area we have focused on for all that time, and especially at altitudes down to 1,200 m is very exciting," said Dr Broome.

"It means that it's possible that the Mountain Pygmy-possum is living in other parts of the park and even in areas where there is less snow and for much shorter periods."

The new discoveries also support theories put forward by Professor Archer and others that will be tested in the captive breeding program—that this species can be adapted for release into lower altitude protected habitats, where the fossil record shows this species once thrived.

As temperatures have increased over thousands of years Mountain Pygmy-possums have been moving slowly up mountain. If temperatures increase further, they will simply have nowhere else to go and will become extinct. The breeding program will explore the possibility of adapting this species to locations other than their threatened alpine habitat.

Despite the good news, there is still plenty of work for Dr Broome to do. "The densities of possums at the new sites so far appear quite low, so we need to figure out what it is that is restricting their numbers," said Dr Broome.



"Our working hypothesis—and the focus of three current PhD projects—is that an interaction between climate extremes, food supply and predation from cats and foxes is affecting the population numbers," Dr Broome said.

"We have always held fears that this species was at real risk of disappearing completely with a receding snowline, but finding them at much lower altitudes give us cause to believe that the Mountain Pygmy-possum may be more resilient to climate change than we had first thought," said Dr Broome.

"This is positive news. Population numbers may be greater than previously thought, snow cover may in fact play less of a role than had been thought, and there is now an opportunity for animals to live in wild or managed captive-bred release colonies at lower altitudes," Dr Broome said.

The captive breeding program which the Foundation is fundraising for also aims to bolster Mountain Pygmy-possum numbers, and encourage connectivity by maintaining the genetic diversity of this species, which currently exists in populations geographically isolated from each other.



Saving the Macquarie Island Cushion Plant



Cushion Plant communities near pyramid peak on Macquarie Island. This area is currently free of dieback and is part of a Special Management Zone. Photo: Micah Visoiu (DPIPWE).

Cushion Plant is considered to be a keystone species of the feldmark, a plant community on the plateau uplands covering 45% of the island.

The Cushion Plant is critically endangered, after suffering declines since 2008 due to dieback currently being investigated.

CONSERVATION MEASURES TO DATE

The RTBG has held collections of the Cushion Plant and related species since 1966 and undertook the care of a small emergency ex-situ collection in 2009.

Unfortunately this species has proved difficult to maintain in the long term due to the inability to replicate the extreme environmental conditions required.

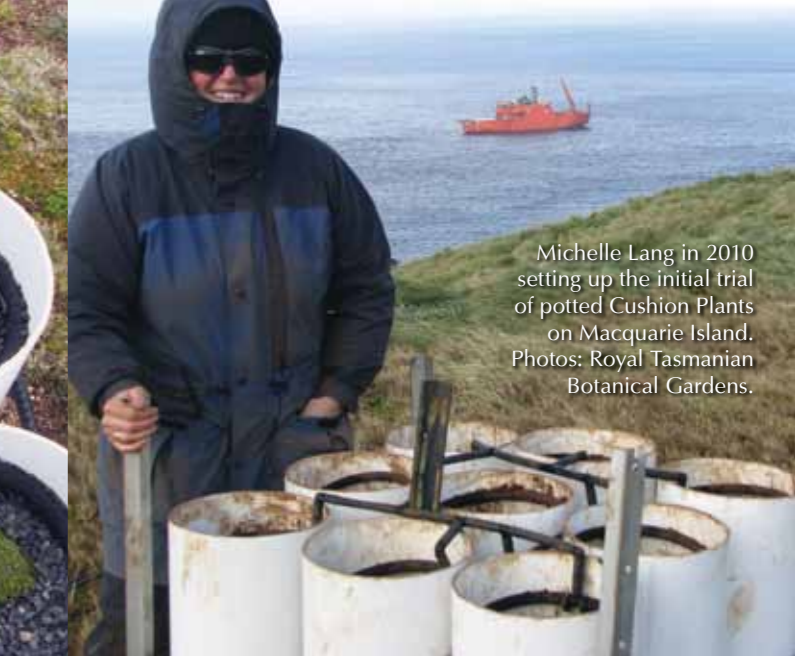
In April 2010 a small experimental trial of 9 potted specimens (pictured above) with supplementary watering, was set up by the RTBG on Macquarie Island. It has been monitored monthly via photographs taken by Tasmanian Parks & Wildlife Service field station staff.



Macquarie Cushion plant suffering dieback in the northern quarter of Macquarie Island. Photo: Micah Visoiu (DPIPWE).

In 2012, the Foundation is providing \$11,000 to the Royal Tasmanian Botanical Gardens (RTBG) to help conserve an endemic Macquarie Island plant species currently suffering an unexplained dieback.

The Macquarie Island Cushion Plant *Azorella macquariensis* is unique to the island, which is a World Heritage Listed Australian Subantarctic Territory.



Michelle Lang in 2010 setting up the initial trial of potted Cushion Plants on Macquarie Island. Photos: Royal Tasmanian Botanical Gardens.

The plants have grown successfully and this is now considered the most cost-effective conservation method, until quantities of seed can be harvested. Seed collection has proved difficult on Macquarie Island due to the extreme weather conditions and limited range of healthy populations across the island.

WORKING TOGETHER TO SAVE SPECIES



Horticultural Botanist Natalie Tapson collecting Macquarie Cushion Plant on Macquarie Island. Photo: Royal Tasmanian Botanical Gardens.

The RTBG is partnering with the Australian Antarctic Division, the Tasmanian Parks and Wildlife Service, the Biodiversity Conservation Branch of the Tasmanian state government, and now the Foundation as well to conduct this project.

Funding from the Foundation will enable the trial of potted specimens on the island to increase 6-fold to achieve a genetically diverse collection, provide plants for research into the possible causes of the species' decline, and to increase seed yields for harvest. Some seed will be stored for future use, but some will be tested by the Tasmanian Seed Conservation Centre at RTBG to help determine the Cushion Plant's germination requirements.

Foundation funding will also allow a horticulturist to be based on Macquarie Island for three months over the 2013-14 summer. The horticulturist will establish the expanded potted collection of plants and monitor the wild Cushion Plant populations.

Overall, this project aims to provide scientists and conservation managers with the knowledge they need to help save this species from extinction in the future.

This project shows how integral conservation work is to isolated and endemic species, in order to maintain landscape connectivity and balance in this vulnerable ecosystem.



The tranquil Cecil Hoskins Nature Reserve.
Photo: Chris Roubis.
Inset: Kenneth Hoskins.
Photo courtesy of the Hoskins family.

Family Connections Maintaining Cecil Hoskins Nature Reserve

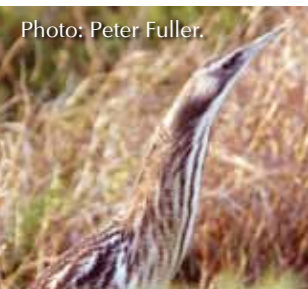
On 1st December 2011, the Foundation received a letter advising that a \$30,000 bequest had been left by the late Kenneth Charles Hoskins for the benefit of the Cecil Hoskins Nature Reserve, at Moss Vale in the NSW Southern Highlands.

When this reserve was gazetted in 1975, it was named after Sir Cecil Hoskins, a relative of Kenneth. Sir Cecil was a local resident for 40 years who had a keen interest in creating parks and gardens. Sir Cecil contributed to the purchase of the land for the reserve, through the Foundation.

Mr Kenneth Hoskins' bequest continues an admirable family legacy of directly contributing to conservation in Australia.

MAINTAINING A HEALTHY RESERVE

Upon notification of Mr Kenneth Hoskins' bequest, the Foundation advised the New South Wales National Parks & Wildlife Service, who agreed to undertake conservation works in Cecil Hoskins Nature Reserve to fulfil Mr Hoskins' wishes.



This reserve provides extensive habitat for a range of resident and migratory waterbirds. It is an important regional resting and feeding area located between coast and inland areas that maintains habitat connectivity across the globe. More than 90 bird species have been recorded, including endangered species such as the Australasian Bittern (left).

The reserve is also home to threatened ecological communities, and vulnerable and endangered frogs, mammals and plants.

Endangered mammals have been seen here such as the Spotted-tailed Quoll and eastern Southern Brown Bandicoot, endangered plants such as the Wingecarribee Gentian, Wingecarribee Leek Orchid, Dwaf Kerrang and the critically endangered Kangaloon Sun Orchid are also found in the reserve.

Visitors to the reserve include bird watchers, school groups, students, locals and tourists enjoying the tranquillity and peace whilst picnicking alongside the water.

The funding left by Kenneth Hoskins' bequest will be used to construct a bird viewing platform with seating, interpretive panels with bird lists, and information on the bird species to be seen, seasonal arrival, habits and country of origin. There will also be information on the history of the reserve. The Hoskins family do not want any funds spent on recognition.



Some of the many waterbirds that visit Cecil Hoskins Nature Reserve. Left: A nesting Little Grebe. Right: A snipe. Photos: Ralph Green, and Kevin Lin.

With the funding, tracks will also be upgraded, as will directional and management signs. There will also be extensive revegetation with local native plant species.

The plantings will be carried out by indigenous students from Moss Vale TAFE undertaking the Indigenous Conservation Land Management Course Certificate 2. The students will be supervised by members of the Moyengully Aboriginal Land Conservation Management Group.

These activities will increase knowledge and understanding of the protection of wildlife species, natural environments and the value of the reserve. They will also maintain the reserve's value as a wetland habitat for a wide range of waterbird species, and will encourage regeneration of a natural vegetation cover. This project will involve the community in conservation work, and will attract further visitors, tourists, locals, and education groups to visit the reserve.

Pat Hall of NPWS said, "Because of the opportunity provided by the Hoskins family to improve facilities at the reserve, we have taken the opportunity to apply for additional funding to extend the project from two sources, Wingecarribee Council and Catchment Management Authority."

"If we are successful we will include in the project a walking track connecting Wingecarribee Council Land to the Reserve. There are parklands and a cycle track on the Council land with only 300 m separating the two sites. With the CMA money (if successful) we will interpret the significance of the land to the early inhabitants the Gundungurra people."



Sign interpreting the area's indigenous heritage.

Thank You For Your Support!

Thank you for your generosity in 2012. It achieved so much.

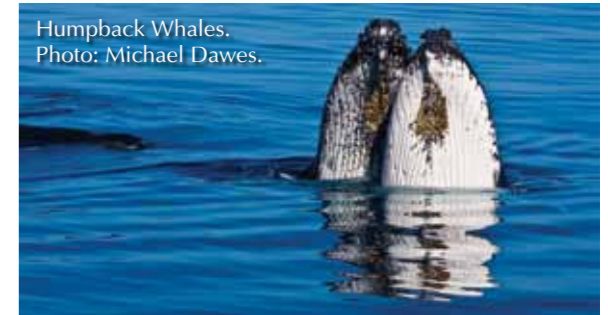
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From all your friends at the Foundation, we wish you and your family all the best in 2013!

With supporters like you, we know that the future is looking even brighter and better for our incredible species. **Thank you so much.**



Humpback Whales.
Photo: Michael Dawes.



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Foundation for National Parks & Wildlife

The Foundation for National Parks & Wildlife is a private, national, not-for-profit organisation constituted to grow appreciation of and raise funds for the benefit of the natural and cultural environment and heritage of Australia.

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