AUSTRALIAN Wildlife

WINTER Vol: 3/2019
$10 (non-members)

Celebrating a new century of wildlife preservation in Australia

Journal of the Wildlife Preservation Society of Australia Limited
(Founded 1909)

FRIENDS OF THE KOALA

Contributing to koala conservation in the Northern Rivers Region of New South Wales

For more information:
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Due to hip dysplasia Charlotte's home is Friends of the Koala.

Pearl's tiny back-young Oyster, not long out of the pouch.

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Suzanne Medway AM
Editor, Australian Wildlife

Sabine Borgis
Sub-Editor, Australian Wildlife

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Front Cover: Echidnas, together with the platypus, are the world's only monotremes, or egg-laying mammals.

Back Cover Top: The purple swamphen is a large rail. It is mainly dusky black above, with a broad dark blue collar, and dark blue to purple below. Photo: Brendon Carrick

Back Cover Bottom: The noisy miner is a bird in the honeyeater family, Meliphagidae, and is endemic to eastern and south-eastern Australia. This miner is a grey bird, with a black head, orange-yellow beak and feet, a distinctive yellow patch behind the eye and white tips on the tail feathers. Photo: Brendon Carrick

Australian Wildlife Society

Conserving Australia's Wildlife since 1909

Australian Wildlife

is the official journal of the Australian Wildlife Society
(Wildlife Preservation Society of Australia Limited).

Founded in 1909, the Society is dedicated to the conservation of our unique Australian wildlife in all its forms.

Print Post Approval No: PP 100024559

ISSN 0155-266X

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Directors 2019

Notice to our members

The Australian Wildlife Society (Wildlife Preservation Society of Australia Limited) is managed and controlled by an elected board of ten volunteer directors. The Society is a registered company limited by guarantee with ASIC and is responsible for complying with all its regulations.

Any member who might like to consider serving as a director of the Society is invited to contact the national office for more details. The most important qualification to serving as a director is 'a commitment to and love of Australian wildlife'.

The Society holds regular monthly meetings on the first Wednesday of each month in Sydney.

The Editor would like to feature a member's profile in the fortnightly email newsletter and occasionally in our quarterly magazine. Members are invited to consider submitting a short article with a photograph for possible publication.

Our Mission

The Australian Wildlife Society (Wildlife Preservation Society of Australia Limited) is an independent, voluntary, non-profit conservation organisation, formed in 1909, and is committed to the preservation of Australia's precious flora and fauna. We act as a watchdog and provide advice to government agencies and institutions regarding environmental and conservation issues concerning all aspects of wildlife preservation. Our mission is to conserve Australia's fauna and flora through education and involvement of the community. We are dedicated to the conservation of our unique Australian wildlife in all its forms through national environmental education programs, political lobbying, advocacy and hands on conservation work.

Our Society has always known that a conservation battle is never really won until the victory is enshrined in legislation. We have always tried to convince politicians of the necessity to include the preservation of Australia's precious wildlife and its vital conservation habitat in all their planning and environmental issues and discussions.

From the President's desk

Suzanne Medway AM - President

When the Society was first formed in 1909, I wonder whether the members imagined that 110 years later the Society would still be in existence and still fighting most of the same battles to save our precious native fauna and flora.

Since European settlement and introduced predators, hundreds of species have become extinct in Australia. Today, nearly one in three of our unique mammals are at risk of extinction! In addressing this threat, I am sure the founders of the Society never imagined dealing with some of the problems we are dealing with today:

Land clearing – loss of natural habitat through land clearing for pastoral purposes, urban development and agriculture can threaten native wildlife and their habitat.

Invasive plants and animals – the global movement of goods and people are directly contributing to the introduction of plants and animals to areas where they do not naturally occur. These species exposed to new environments may fail to survive, but some thrive and become invasive. This process, together with habitat destruction, has been a major cause of extinction of Australia's native species in the past few hundred years. Invasive species such as foxes and feral cats prey on native fauna and have contributed towards the decline or extinction of at least 17 native species.

Climate change – native Australian animals, are at increased risk of extinction due to climate change, according to recent reports that found invasive species could benefit from rising temperatures. Species at risk from higher temperatures and lower rainfall include albatross, bilby, rock wallaby, quoll, fruit bats and tree kangaroo. These animals are already battling bushfires, loss of habitat and introduced predators such as the cane toad and European fox and threats are likely to be exacerbated by climate change.

In the 1900s there we only two organisations in Australia actively fighting for the conservation of Australia's native wildlife – our Society (Wild Life Preservation Society of Australia Inc. now named Australian Wildlife Society) and the Royal Australian Ornithology Union (now Birds Australia). I wonder whether our forefathers could have ever predicted that 110 years later there would be hundreds of conservation groups in existence.

With so many organisations fighting for members, donations and funds to operate, it is becoming harder to survive in such a competitive environment, although we often have the same purpose.

What makes it even harder for these organisations to keep going is the increased cost of 'doing business', particularly regarding technology, and certainly with all the corporate governance that is required to maintain not-for-profit status, tax deductibility status and licenses required to rescue and treat native animals. These organisations are finding it even harder to maintain themselves with only volunteers – and when paid staff are required, this requires even more funds, donations and resources.

One aspect I have found that has changed since I started my volunteer role with the Society, is the collaboration and coalitions that now occur between the numerous conservation groups. When groups join together and share their resources to lobby government or other commercial organisations, we are much more likely

Members of the Queensland Platypus Alliance meeting in Brisbane. L to R: Suzanne Medway, Tamielle Brunt and Kate Dutton-Regester.

Meeting with the University Technology Sydney's Communications Faculty students. L to R: Rosie Wylie, Megan Fabian, Holly Ladmore, Suzanne Medway, Emily Borghi and Catherine Smith.

Back row L to R: Rosie Wylie, Megan Fabian, Suzanne Medway and Emily Borghi
Front row L to R: Holly Ladmore and head teacher Catherine Smith

Megan Fabian, National Office Manager, being interviewed for the TAFE video.

to succeed! At present we are part of the coalition to save dugongs and sea turtles, particularly through native hunting; Victorian Platypus Alliance to stop the use of Opera House nets that kill platypus; we supplied seeding funds to start the Queensland Platypus Alliance and will shortly be starting the NSW Platypus Alliance; and a decade ago joined with Cairns Turtle Rehab Centre to highlight the danger to Australia's marine life from plastic.

In 2013 we undertook a new type of collaboration with University Technology Sydney's Communications Faculty. The students were given the brief 'How the Society can appeal to a younger generation of Australians.' Over the three-month collaboration, we met regularly with the students and accepted their final report, the major suggestion being to change our name from Wildlife Preservation Society of Australia Limited to Australian Wildlife Society and to focus more on social media. We also took their recommendation to update our echidna logo.

Australian Wildlife Society

Conserving Australia's Wildlife since 1909

The new logo for AWS adopted in 2013.

This year we are collaborating with a group of students at the TAFE Design Centre Enmore who are working with us on something special to celebrate the 110th Anniversary of AWS that is being celebrated this year. We decided on a presentation that illustrates how AWS stands out, what it has achieved to date and what its hopes are for the future in terms of wildlife conservation, research support and enacting positive legislative change. Part of the presentation will be a compilation of short video clips of recent award/scholarship recipients and other successful advocates of AWS. The video will be used on our website, on social media and launched at our Annual Gala Ball to be held on Saturday 27 July 2019.

Threatened Australian wildlife

Australia's vast continent is home to some of the most magnificent plants and animals on Earth. Many have evolved in splendid geographical isolation and are found nowhere else.

Although Australia is a vast country, it remains amongst the most undeveloped in the world. A large percentage of its natural grasslands and forests remain unaffected by human activities, and new species are discovered every year as scientists explore the depths of the outback, with the exception of temperate native grasslands that are seriously threatened. However, it's not all good news for Australian animals, with some of them amongst the most endangered in the world. According to the IUCN Red List of endangered species, 86 of Australia's animal species are considered critically endangered.

What is The IUCN Red List?

Established in 1964, The International Union for Conservation of Nature's Red List of Threatened Species has evolved to become the world's most comprehensive information source on the global conservation status of animal, fungi and plant species.

The IUCN Red List is a critical indicator of the health of the world's biodiversity. Far more than a list of species and their status, it is a powerful tool to inform and catalyse action for biodiversity conservation and policy change, critical to protecting the natural resources we need to survive. It provides information about range, population size, habitat and ecology, use and/or trade, threats, and conservation actions that will help inform necessary conservation decisions.














Australian wildlife at risk of extinction

The black-flanked rock-wallaby is a rather wary animal, with black and grey colouration to blend in with its rocky surroundings, later to lighten in colour during summer. It has short, thick, woolly fur that is particularly dense around the base of the tail, rump and flanks. Its long, bushy tail is quite useful for retaining balance as it hops from one rock to another, and the soles of its feet are highly textured to prevent slipping.

Black-flanked rock-wallaby

Status: Endangered

Known in the Western Desert as Warru or black-footed rock-wallaby, this endangered marsupial was once widespread across many parts of Western Australia, South Australia and the Northern Territory. It lives in rugged rocky areas where it shelters during the day in caves, cliffs, screes and rock piles. It emerges at dusk to feed on grasses, forbs, shrubs, and occasionally on seeds and fruits. Feeding occurs as near shelter as possible, especially where exotic predators are present. The clearing of its habitat, changes to fire patterns and introduced foxes and wild cats, all threaten its existence. The black-flanked rock-wallaby only survives today in small isolated populations. It is one of 20 mammal species for which the Australian Government has prioritised resources to support recovery.

This large native rodent can weigh almost a kilogram and stands up to 31 centimetres tall. It is known to Aboriginal people as the Djintamoonga or Manbul.

Black-footed tree-rat

Status: Endangered

Also known to Aboriginal people as the Djintamoonga or Manbul, the black-footed tree-rat can weigh almost a kilogram and stands up to 31 cm tall. Populations have declined by an estimated 30–50 percent in the past decade.

Its threats include changes to fire regimes and predation by feral cats. Intense wildfires reduce the abundance of fleshy-fruited shrubs favoured by the black-footed tree-rat, as well as the availability of hollow trees. Clearing for agriculture has reduced the extent of its available habitat in local areas, including north-east Queensland and parts of the Northern Territory.

The northern hairy-nosed wombat is one of the largest land mammals in the world. It is also the world's largest burrowing herbivore.

Northern hairy-nosed wombat

Status: Critically Endangered

One of three species of wombat – a short, fat, ground-dwelling marsupial that shares its ancestors with the koala and kangaroo – the northern hairy-nosed wombat is critically endangered. Once found across eastern Australia, this wombat has been reduced to two tiny populations residing within the Epping Forest National Park and the Richard Underwood Nature Refuge, both in Queensland. Its near-extinction is attributed to the clearing by grazers of the coarse native roots and grasses it likes to eat, and predation by dingos. The Northern Hairy-Nosed Wombat Recovery Plan has seen the building of a dingo-proof fence by volunteer caretakers at Epping and the Richard Underwood Nature Refuge, as well as round-the-clock weed-clearing. And it seems to be working.

Eastern curlew

Status: Critically Endangered

The eastern curlew is the largest of all the world's shorebirds. Its impressive bill is used to probe mud and dig up crabs and molluscs, which are its primary food source in Australia. Sadly, it is critically endangered and its population has declined by more than 80 percent in the past 50 years.

The eastern curlew takes an annual migratory flight to Russia and north-eastern China to breed, arriving back home in Australia to fatten up before the long journey up north again to breed. Eastern curlews can be spotted in coastal regions of north-eastern and southern Australia and can also be found at the Adelaide International Bird Sanctuary, where their habitat is protected.

The eastern curlew population is declining as a result of habitat destruction and alteration to the chain of coastal wetlands along its migratory path. The loss of even small areas of wetland

The eastern curlew spends its breeding season in northeastern Asia, including Siberia to Kamchatka, and Mongolia. Its breeding habitat is composed of marshy and swampy wetlands and lakeshores. Most individuals winter in coastal Australia.

can be devastating. Many of these wetlands are being damaged by urban development, flood mitigation measures, agriculture and pollution. Direct disturbance on beaches by humans, domestic dogs and vehicles can cause stress to birds. The eastern curlew is one of 20 bird species for which the Australian Government has prioritised resource allocation to support the species' recovery effort.

Gouldian finch

Status: Endangered

The Gouldian finch is perhaps the most beautiful small bird in the world. The striking colour of its plumage appealed to bird enthusiasts, and hence a large number of Gouldian finches were trapped in the wild for the local and international bird trade until the early 1980s. This, along with a parasitic air-sac mite and habitat changes as a result of land clearing and fire, are the leading causes of the species' decline. Fire plays a significant role in the finches' survival. In the dry season, they are dependent on controlled fires that burn the undergrowth so that they can find seeds on the ground to feed on. In the wet season, they prefer to live in areas which have been burned in the previous dry season. This produces lush new growth with plenty of seeds for food. Improved burning practices are helping them make a comeback.

The Gouldian finch is perhaps the most beautiful small bird in the world. The impressive colour of its plumage appealed to bird enthusiasts. Because of their beautiful colours, Gouldian finches are easily caught by predators.

Northern quoll

Status: Endangered

These spotted marsupials of the north are carnivorous predators. They are susceptible to cane toad toxins, fire and introduced predators such as foxes and cats. The primary cause of their decline is ingesting poisonous cane toads as they often mistake cane toads for native frogs and then die from the poison. In areas not colonised by cane toads, , northern quoll declines can be related to predation by feral cats. The impacts of cats are exacerbated by extensive wildfires, habitat degradation through overgrazing and urban development, which all reduce ground cover, and hence shelter, for these small mammals. To help stem the tide of extinction, a University of Sydney project is trying to teach quolls to avoid eating cane toads.

Highly adaptable, northern quolls are finding refuge on some offshore, toad-free islands and thriving on Fish River Station, Northern Territory. They will also benefit from better land management practices in the Kimberley.

Vulnerable Australian wildlife

Koalas typically inhabit open eucalypt woodlands, and the leaves of these trees make up most of their diet. Because this eucalypt diet has limited nutritional and caloric content, koalas are primarily sedentary and sleep up to 20 hours a day.

Koala

Status: Vulnerable

Experts are now warning that the koala is not safe. Except for the kangaroo, there is no more iconic an Antipodean than the tree-dwelling koala. The koala was hunted to near-extinction in the early 1900s, with more than a million killed for the fur trade. Our Society's lobbying and public outcry over the koala slaughter gave birth to Australia's powerful conservation movement, though it was too little too late to save South Australia's koala population. But in recent years, many koalas have been migrated to colonies such as the one on Kangaroo Island, and then re-migrated to the mainland. In NSW and south-east Queensland, the koala is vulnerable in some areas, with habitat destruction through logging identified as the primary culprit.

The platypus is a unique Australian species. Along with the echidna, the platypus is part of a separate order of mammals known as monotremes, which are distinguished from all other mammals by the fact they lay eggs. When first discovered, the unusual look of a platypus caused considerable confusion and doubt amongst European naturalists and scientists, many of whom believed that the animal was a fake.

Platypus

Status: Near Threatened

This semi-aquatic egg-laying mammal is endemic to Australia, where it is dependent on rivers, streams and freshwater bodies. One of the world's most unusual-looking mammals, the duck-billed platypus was uplisted from Least Concern (LC) to Near Threatened (NT) in 2016. Recent droughts, stream regulation, water extraction, habitat modification, degradation in water quality, predation by invasive species, and effects of climate change are all putting pressure on this species. Overall, its population has declined by nearly 30 percent over the last 27 to 36 years. The Australian Wildlife Society is supporting and funding a project to ban the use of Opera House yabby traps, which are a significant contributor to platypus deaths.

The green and golden bell frog, also named the green bell frog, green and golden swamp frog and green frog, is a ground-dwelling tree frog native to eastern Australia. Despite its classification and climbing abilities, it does not live in trees and spends almost all of its time close to ground level.

Green and golden bell frog

Status: Endangered under the New South Wales *Threatened Species Act* and classified as Vulnerable nationally

The green and golden bell frog has smooth skin, usually green, with a variable pattern of golden-brown blotches. It has a creamy-gold stripe along the side of the body, from the eye to the hind legs. The inside of the thighs is distinctly turquoise-blue. The tadpoles are dark grey-brown with a pinkish tinge to the underside. Females grow to an adult size of approximately 10 centrimetres in length; males are smaller, rarely exceeding 8 centimetres. The green and golden bell frog is found in the eastern half of New South Wales and Victoria and the ACT. It is usually found around dams, creeks and lakes, often in sites that have been disturbed by human activity, such as disused quarries. Its preferred habitats always have ample vegetation, both in and around the water.

Greater gliding possum

Status: Vulnerable

The greater glider is the largest of the glider species in Australia. This species is also the most variable in its colouration. The scientific name for the greater glider means 'flying Petaurus-like animal'. The greater glider has adapted to feed almost exclusively on eucalyptus leaves, leading to an enlarged caecum that assists in breaking down the cellulose – much like the koala. Greater gliders can glide up to 100 metres and change direction up to 90 degrees as well. They are known to use a large number of hollows within the home range, and may use 2–18 different hollows. They do not appear to build nests as such; however, occasionally the hollow contains a lining of leaves. Endemic to eastern Australia, the greater gliding possum was uplisted from Least Concern to Vulnerable in 2016. Land-clearing for agriculture, logging and bushfires have had a severe effect on this species, and recent monitoring results show that the population is declining. It is suspected that the population has declined by more than 30 percent over the past 22 years.

This arboreal marsupial is primarily restricted to eucalypt forests and woodlands. It needs large, older trees with hollows for shelter.

Whale shark

Status: Endangered

The whale shark is famous for being a slow-moving giant of the Atlantic and Indo-Pacific oceans. The largest confirmed individual had a length of 12.65 metres and a weight of about 21.5 tonnes. The whale shark is found in open waters of the tropical oceans and is rarely found in water below 21°C. It is believed to have a lifespan of about 70 years. Whale sharks have very large mouths and are filter feeders, feeding almost exclusively on plankton and small fishes. They pose no threat to humans. The update of the whale shark's status from Vulnerable to Endangered highlights the ongoing plight of this charismatic shark. There are very few known predators of the whale shark, although blue marlin and blue sharks sometimes prey upon small individuals. The most significant threat to this species appears to be humans. Whale sharks' large size, slow speed and habit of swimming at the surface (although they dive to depths of over 1,500 metres), makes them easy to kill. Although their skin can be up to 14 centimetres thick, they are still vulnerable to fishing and injury from boats. Even floating plastic rubbish they may swallow can cause injury or lead to death. Unfortunately this species is hunted in some parts of its range for its flesh, liver oil, cartilage and fins, which have become increasingly popular for use in shark-fin soup. Due to their relatively large size, whale sharks' fins are sold for very high prices. Whale shark ecotourism is well managed in Western Australia via a collaborative approach between industry and the Department of Environment and

Whale shark in Ningaloo Reef in Western Australia. Despite their huge size, whale sharks are docile filter feeders that cruise the world's oceans looking for plankton.

Conservation. Professional charter boat operators in places such as Coral Bay and Exmouth offer day tours and will inform tourists about the best way to observe these animals with minimal disturbance. Whale sharks have been observed to react to SCUBA bubbles, touching and flash photography so these activities are not permitted when swimming with whale sharks in Western Australia. When these guidelines are adhered to, whale sharks do not seem to be affected by the presence of humans. The WA codes of conduct are ensuring the whale sharks are protected but can still be admired in a non-detrimental way – and are now being adopted in other parts of the world as an example of 'best practice' management. The ecotourism industry's interaction with whale sharks provides useful information that is passed on to scientists so they can better understand these gentle giants, and further educate people about them. Whale sharks are still hunted in some countries as there is still a market for whale shark meat in several countries, including China and Taiwan. Exploitation and death through ship strikes have caused a more than 50 percent population decline in the past 75 years, and this is likely to continue.

Before their extinction from the mainland, our native stick-nest rats decorated the desert plains of outback Australia with giant stick constructions, often larger than a wedge-tailed eagle's nest. Now, the stick-nest rat only survives on the North and South Franklin Islands, off the coast of South Australia, where it is safe from predation.

Greater stick-nest rat

Status: Near Threatened

This unique nest-building rodent is the last of its kind, its smaller relative the lesser stick-nest rat having died out in the twentieth century. The resin created by the rat to build their nests is so strong that they can last for thousands of years if they are not exposed to water. Like many Australian rodents, the rats have adapted to Australia's harsh environment, developing impressive skills to stay cool, avoid the sun and conserve water. Much larger than your average rodent, stick-nest rats are the perfect meal for feral cats and foxes, whose insatiable appetites have resulted in the rats' extinction on the mainland. The change in status from Vulnerable to Near Threatened is due to a successful species recovery plan, which has involved reintroductions and introductions to predator-free areas.

The Tasmanian devil was once native to mainland Australia and is now found in the wild only in the island state of Tasmania, including tiny east-coast Maria Island, where there is a conservation project with disease-free animals.

Tasmanian devil

Status: Endangered

The Tasmanian devil is a carnivorous marsupial the size of a small dog but with an enlarged head and neck that give it the most powerful bite per unit of body mass of any living mammal. The Tasmanian devil has been endangered for many decades, but resurrection attempts are gaining ground. Protected from hunters since 1941, its nemesis lies in its genes – a fatal cancer known as devil facial tumour disease (DFTF) characterised by the appearance of gruesome tumours that build up around the mouth, prevent feeding and, over time, cause devils to starve to death. One of only three known transmissible cancers, DFTP has laid waste to between 50 and 90 percent of the adult Tasmanian devil populations. Conservation efforts include removing and culling diseased devils from wild populations, and also, the creation of an 'insurance population' by the Save the Tasmanian Devil Program. Initially kept in quarantine enclosures in the island state, disease-free devils have now been dispatched to zoos and wildlife parks in mainland Australia to ensure a healthy population of devils remains free of the risk of infection.

The yellow-bellied glider is a marsupial about the size of a rabbit. It is also known as a fluffy glider. It typically has grey-brown fur on its back and has an off-white to orange or yellow belly. It has large pointed ears and a long tail that can grow to 48 centimetres in length. Its body length is smaller, to about 30 centimetres. The marsupial weighs a total of 700 grams. The males are usually bigger than the females.

Yellow-bellied glider

Status: Near Threatened

The yellow-bellied glider is an arboreal and nocturnal gliding possum whose habitat is eucalypt-dominated forests and woodlands in eastern Australia, from northern Queensland to Victoria. Often found soaring between the trees of tall eucalypt forests, the yellow-bellied glider is a medium-sized nocturnal marsupial with a distinctive buttermilk-coloured belly. Of the six gliding marsupials found in Australia, the yellow-bellied glider is the most vocal, its calls consisting of loud shrieks, whirring moans, gurgles, chirps and clicks. These distinctive, piercing noises, which can be heard from up to 500 metres away, are not distress calls, but simply gliders communicating with their mates. This charismatic gliding possum was uplisted from Least Concern to Near Threatened in 2016, based on a population decline approaching 30 percent over 14 years. This decline has been caused by recent increases in land-clearing in Queensland, and continuing decline in habitat quality through inappropriate fire regimes and logging.

KANYANA WILDLIFE REHABILITATION CENTRE

HELEN RILEY

Kanyana was honoured to receive the Australian Wildlife Society 2018 Community Conservation Award at the Society's annual luncheon in March 2019.

Kanyana was established in 1986 in Lesmurdie Western Australia by June and Lloyd Butcher. During the first year, 70 animals were admitted, and it was mainly family and a few friends helping to care for the animals. Now, over 350 volunteers are dedicated to caring for Kanyana's wildlife. Since commencing, a total of 150 different species have been treated, with admissions numbering over 3,000 in the last year. Critically endangered woylie and bilby breeding programs contribute successfully in a bid to save them from extinction.

Kanyana is a not-for-profit organisation dedicated to protecting and caring for some of Western Australia's most threatened native wildlife. At our Lesmurdie facility, we rehabilitate sick, injured, orphaned and displaced wildlife and undertake broad-based training and education for volunteers, the community and corporate groups, as well as working with universities. The core business areas of rehabilitation, breeding, education and research are closely connected.

Rehabilitation of wildlife

Kanyana admits over 3,000 animals annually, with 30 admissions on a busy day. Orphaned wildlife is cared for until they are of an age to be fully self-sufficient in the wild. Injured animals requiring treatment are cared for until they fully recover, under the guidance of Wattle Grove Veterinary Hospital and Kalamunda Veterinary Hospital. Training volunteers and given the skills to treat and rehabilitate wildlife to allow the animals to recover fully and have a successful release back into the wild.

Breeding endangered species

Currently, Kanyana has two breeding programs, bilbies and woylies.

Bilby - Kanyana plays an important part in the National Bilby Breeding Program and has successfully bred over 100 animals since our initial involvement. The program is a nation-wide gene exchange resulting in bilbies being sent around Australia for release or to other facilities to diversify the breeding population. The most recent release was at Australian Wildlife Conservancy's Mt. Gibson Sanctuary.

Woylie - Conservation efforts were successfully undertaken to recover the species, which led to its removal from Western Australia's Threatened

Above: The team at Kanyana Kanyana Wildlife Rehabilitation Centre admiring the Australian Wildlife Society Community Conservation Award for 2018.

Tara Jenkins (volunteer woylie coordinator) and Hayley Gamble (enrichment volunteer) proudly displaying the Australian Wildlife Society Community Conservation Award for 2018. Tara Jenkins is nursing a woylie named Noba.

Species List in 1996, however, the woylie was put back on Western Australia's Threatened Species List as Endangered in 2008, with Kanyana being part of the Woylie Recovery Breeding Program. Kanyana had the privilege of housing the last remaining five woylies from Tutanning as part of the breeding program. Translocation programs with other organisations are in place to secure 'a safe haven' and future for the woylie, to diversify the breeding populations of threatened species and increase their numbers.

Education

Through outreach visits, tours, interactive displays and training, Kanyana strives to further the public's knowledge and appreciation of wildlife and increase understanding about the need to conserve native habitats. Over 20,000 people have

Diggings sighted after bilbies were released at Mt Gibson confirms bilby activity.

been reached annually by various interactions/engagements. Our resident animals are always a great attraction.

Kanyana works with Murdoch University by training second and fifth year Murdoch Veterinary students as part of their curriculum and provides Murdoch's Conservation Medicine students one of only eight places worldwide to practice their learning skills.

Wildlife first aid training for mine site environmental staff has proven positive, giving them an understanding of caring for wildlife and the environment not achieved normally in their line of work. We also aim to help community groups and local governments, as well as assisting other wildlife organisations with knowledge and training opportunities to better the outcome for Australian wildlife.

Research

Kanyana is very involved with research and Murdoch University regarding 'Bobtail Flu'. This is an ongoing study monitoring sizes of incoming bobtails affected with the flu, outcomes and effectiveness of the treatment provided. They are all treated in an isolation building with a set regime of treatment before reaching good health and finally release.

A mass rescue by Department of Biodiversity Conservation and Attractions (formerly DPaW) resulted in Kanyana being involved with assessing 100 bobtails. Some were released, others were euthanised, and the 55 remaining bobtails ended up requiring our care. This was a very intense time, with many hours of dedication from all the volunteers.

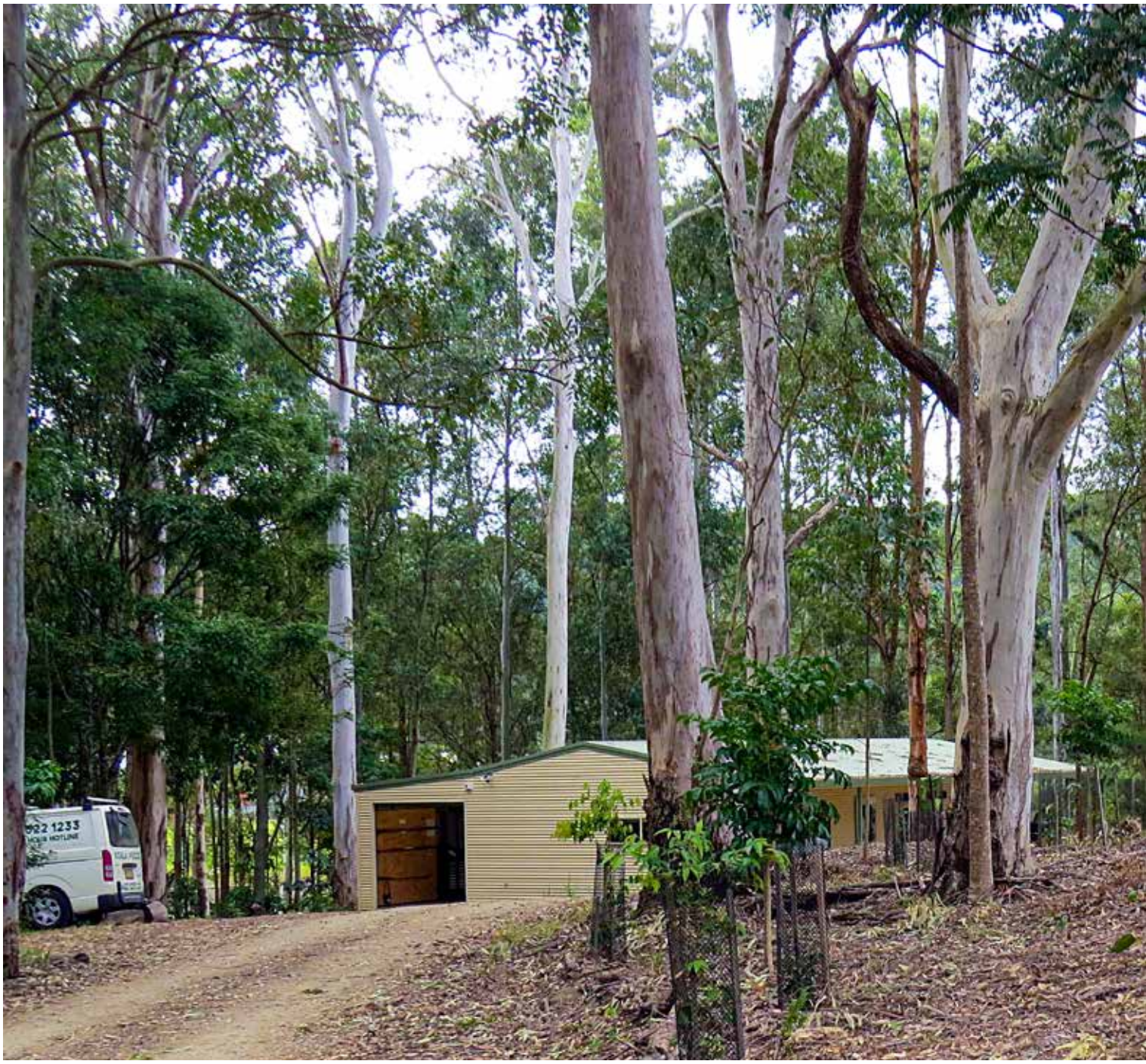
We are fortunate to have wonderful microbiologists as volunteers. As part of our routine faecal examinations, they have discovered new parasites which can be included in further research projects.

Kanyana is proud to be caring for its wildlife and the environment for future generations.

Steve, a bilby that was rescued, spent transition time at Kanyana before his release at Mt Gibson.

Tanjin, a bilby born at Kanyana being released at Mt Gibson Station near an artificial burrow.

Claire, a woylie, born in 2007 at Kanyana, part of the breeding program. She is now retired from the program but remains at Kanyana.



Reflections on **Friends of the Koala's** Contribution Northern Rivers Region of New South Wales

Lorraine Vass, Patron and Past President (2002-2017), Friends of the Koala, Inc.

Concern for the survival of koalas in the wild has increased in recent years. Public opinion is driving governments to come up with laws to effectively protect koalas and their habitat and to initiate activities which will mitigate declining koala numbers. While legal protection for the koala has been unachievable, investing tax-payers' money on partnerships with those communities that have become responsive to the plight of their koala populations is occurring. It is pleasing to see koala recovery becoming everyone's business; however, the probability of local and even regional extinctions remains, sadly, very real.

The Northern Rivers region of New South Wales is renowned for its rich biodiversity. Many rare and endangered flora and fauna species are found here. Wildlife abounds. Koalas are widely distributed although often in low densities. Remnant populations move through a large area of urban Lismore and several of the region's towns and villages. It should be difficult not to be koala-aware because so many of us are privileged to share our lives with them, but of course, that's not the case.

While healthy koala populations are known to exist in more remote localities, habitat loss and fragmentation, disease, vehicle strikes, dog attacks, wild-fire, climate change and other human-related threats are

to Koala Conservation in the

inflicting a heavy toll. In 2016 the NSW Scientific Committee declared the Tweed-Byron Coast koalas between the Tweed and Brunswick Rivers, east of the Pacific Highway, to be Endangered.

Friends of the Koala (FOK), is the Northern Rivers' peak koala conservation organisation. Formed in 1986, in response to habitat loss in the Lismore area, Chapters of FOK also sprang up in the Tweed and on the Lower Richmond. In 1989 the group commenced rescuing and rehabilitating koalas under the guidance of the Lismore District Office of the National Parks & Wildlife Service, becoming licensed in January 1993. Those early days set the group's core business of licensed koala rescue, rehabilitation and release; habitat protection and enhancement; community education; and advocacy and policy reform; to which research assistance and an active and expanded membership were added at a later stage.

FOK's operations extend over an area of over 10,500 square kilometres. It includes the local government areas of Tweed, Kyogle, Byron, Ballina, Lismore and Richmond Valley and small parts of Clarence and Tenterfield. Our 'backyard' is large, varied and challenging. Trained volunteers operate a 24/7 rescue service from a central facility in East Lismore. From 1 July 2017 to 30 June 2018, 368 koalas were admitted into the FOK facility in Lismore, half of all koala admissions in New South Wales; 676 sightings of koalas were also reported to FOK from across the region.

While the Northern Rivers does not yet have a wildlife hospital, FOK can ensure that koalas admitted into care receive cutting edge treatments and rehabilitation care. It is through FOK's close relationship with the Keen Street Veterinary Clinic in Lismore, the Currumbin Wildlife Hospital on Queensland's Gold Coast, the Australia Zoo Wildlife Hospital on the Sunshine Coast, the University of Sydney's Koala Health Hub and of course, FOK's trained rescuers and carers, that the koalas are able to receive such treatment.

Koalas brought into care are rehabilitated in the group's Koala Care Centre or in homecare. Many koalas are found very near to death or are dead on arrival. The 20 percent that do survive can take a very long time to reach full recovery and be released back into the wild. Appropriate medication and leaf selection (harvested daily) for each animal are integral to successful rehabilitation as is physiotherapy and, in the case of orphans, socialisation.

As well as its licensed rehabilitation and release activities, FOK works with state agencies, local councils, non-government organisations, community groups and individual landholders to protect and extend koala habitat. Its plant nursery has propagated around 170,000 koala food trees from locally collected seed which have been planted across the Northern Rivers. FOK applies for project funding under a range of grant programs including the NSW Environmental Trust and partners or

Above: Friends of the Koala's Care and Research Centre in East Lismore comprises an administration and education centre, a triage, treatment and pathology clinic, a native plant nursery, outdoor enclosures for koala rehabilitation and garaging for two koala rescue vans.

One of two rescue vans, used to retrieve injured and orphaned koalas.

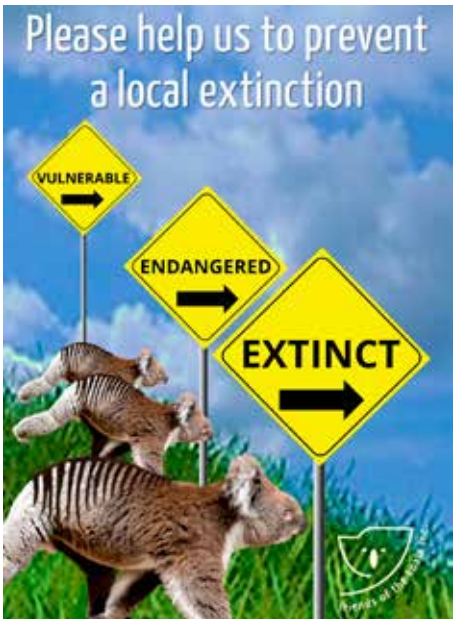

Kim's birds-eye view of the world.


Lorraine Vass, Patron, Past President (2002-2017) and Hon. Life Member, Friends of the Koala, Inc.

supports others in their applications. It writes submissions on rezoning and development applications large and small, planning instruments and policy issues impacting koalas. It participates in community consultation processes, actively campaigns on some matters and has expanded its community education capacity. Increasingly FOK is sought after to partner in koala research projects.

Koala conservation is a complex and often politically-charged undertaking, and this is especially true in the Northern Rivers where our already highly-modified landscapes are under pressure from more people, whether they are relocating or merely visiting our beautiful part of the world, as well as from agricultural and forestry enterprises.

FOK hears a lot about the 50 percent decline in koala numbers and distribution in New South Wales's north east over the past 20 years; however, the trend is not uniform. Lismore's koalas, for example, may be benefitting from planted windbreaks which are enabling their expansion into previously unoccupied areas in the north of the local government area. Of course, ensuring the protection of those planted windbreaks is no easy task because they fall outside native vegetation legislation. The region's highest koala density persists in Lismore's south east with an estimated population of 1,800 occupying 70 percent of available habitat.



Friends of the Koala has a long history of campaigning on koala issues. The "Prevent Extinction' campaign was launched in 2018 to engage the Northern Rivers community in koala protection across the region.

Without the voice FOK has given koalas for more than three decades, I doubt our native koalas would be hanging on at all in some areas. While supporters may delight in the privilege of living with koalas and willingly take on some degree of responsibility for their survival, most people have other priorities. Fierce competition for land occupancy between humans and koalas means that time is running out.

I am not suggesting that koala recovery is achievable throughout the Northern Rivers, but I believe it will succeed in some parts if effective conservation strategies are identified and supported; if the community exerts its political will; and if people accept integrating the agreed strategy into their everyday lives. Obviously, these are very big 'ifs'. Changing people's attitudes and behaviours take persistence, passion and expertise. FOK continues to demonstrate that it is up for the challenge.

For more information on Friends of the Koala Inc. and koalas in the Northern Rivers, please visit: www.friendsofthekoala.org or email info@friendsofthekoala.org and follow us on Facebook.

Orphans Jemma and Jade cuddle up to Dragan.

Teddy (top), Opi and Tex at play in the Koala Kindy.

Lorraine and her husband Rick celebrating the Society's conferral of the Serventy Conservation Award in March.

THE ECHIDNA

Andrea Devos

The echidna is an extremely secretive animal, and it is extremely sensitive to vibrations on the ground. Echidnas have a domed-shaped back with short stubby tail, no obvious neck, and a flat belly. Back and sides are covered with spines of varying sizes and lengths.

The echidna is easily recognisable by the covering of spines across its body which is a safety mechanism for the animal. These spines are yellow to golden with a black to brown tip. Between the spines is soft hair, longer in cooler climates and shorter in warmer areas. (In Tasmania the fur sometimes obscures the spines.) Echidnas have five toes on both the front and hind limbs, on the hind limbs they have two to three grooming claws (depending on the species). The pads of the front feet are full and firm in healthy animals. They contain mechanoreceptors that pick up vibrations from crunching feet, breaking vegetation and probably food sources.

The echidna's snout is between seven and eight centimetres long and is stiffened to enable the animal to break up logs and termite mounds when searching for food. They are key cultivators that enhance soil aeration, moisture penetration, nutrient mixing, seed dispersal and spread of mycorrhizae. Adult echidnas vary in size from 30-53 centimetres, with males weighing six kilograms and females 4.5 kilograms. Echidnas can live for more than 50 years.

You cannot sex an echidna simply by looking at the animal. There are no external genitals. Both males and females can form a pouch. Both males and females can retain or lose the spur on the hind foot. Size and weight of an animal is not an indication of gender. The male echidna does not use the penis for urination. It is located internally and is only outside of the body when used for copulation. Until a male echidna has reached sexual maturity, it can be extremely difficult to find evidence of the penis. However, it is not impossible because a mature echidna can be palpated, especially during the courtship and breeding season.

The echidna has small external eyes, but sense of sight is highly developed. They quickly recognise human shape so it is best to sit or kneel in order to break up the normal towering human silhouette.

When threatened, the echidna can dig very quickly and bury itself in the soil, or curl into a tight ball with its snout and legs tucked beneath it and raise its spines, or quills so that it cannot be handled easily. The echidna can be found throughout all of Australia wherever there are ants or termites present, as this is its main diet source. The echidna has no teeth, but a very long tongue, which extends into ant mounds. Its tongue is around 18 centimetres long and coated with a sticky saliva substance which the ants stick to. Dirt and ant nest material is also ingested.

The echidna is a solitary animal, not territorial, but occupying overlapping ranges. Iits home range can be in excess of 250 hectares, depending on food availability and habitat. Echidnas do not have fixed nest sites. Nests are only used for incubating and suckling the young, which are called puggles. Normal shelter is under thick bushes, hollow logs and other debris, and the echidna will often use rabbit and wombat burrows as well. During extreme weather such as intense heat, the echidna will shelter for most of the day, and will forage at night. In cold weather, as seen in the Snowy Mountain region of NSW, the echidna will hibernate. The echidna can be found throughout all of mainland Australia and Tasmania.

The echidna and platypus are the only Australian marsupials that lay eggs and do not bear live young.

Egg-laying mammals are called monotremes. There are only three kinds of monotremes in the world: the long-beaked echidna (three species – all residing in New Guinea), short-beaked echidna (found throughout Australia in all climatic conditions and ecosystems within the Australian bioregion), and the duck-billed platypus (found only in certain places in Australia).

Above: The taxonomic family name for echidna – *Tachyglossidae* – means "fast tongue".

Normally a solitary animal, sexual maturity for the male is reached between seven to twelve years of age. For a female it is earlier and she can produce her first young at five or seven years of age. During mating times it is not unusual to see a female echidna have a train of males, head to toe, following her – up to eleven males have been seen making this train. Courtship trains can last between two and 60 days.

Echidna breeding period is between late June and early September. Echidna copulation lasts between thirty minutes and two hours.

There are no verified methods of ageing adult echidnas. However, there are two distinct stages in the life of an echidna puggle from its hatching to weaning:

Pouch life: For approximately the first 50 days the puggle lives in the mother's pouch. Pouch young can be divided into two further stages - from hatching up to approximately 12 days of age when the young is moist, shiny and lives in a humid pouch. From 12 days onward the pouch is dry.

Burrow life: From about 50 to 120 days of age (about 30 weeks) the young lives in a burrow. After weaning the young is independent. There is no parental guidance or contact with other echidnas after weaning until sexual maturity is reached.

Pouch life

The female echidna lays a single, leathery egg the size of a grape every breeding cycle and their breeding cycle is individualistic – it can be as infrequent as once every five years where a male echidna can be sexually active each year. The mother echidna then rolls the newly laid egg into a deep pocket or pouch located on her belly to keep the egg safe, which is then incubated. The pocket or pouch is really more like a fold of skin over the abdomen area which is closed with contracting muscles.

The newborn is called a puggle, it is hatched around ten to eleven days later and is less than 1.3 centrimetres long and around 0.3 of a gram, smaller than the size of a jellybean! Luckily for the mother the puggle is not born with spines, instead it is a tiny mass of pink flesh. The puggle uses its tiny,

Puggles will stay within their mother's den for up to a year before leaving.

The front foot has five toes the same as the hind foot but is without the grooming claws. This echidna is healthy because of its fat pads under its feet.

This skeleton was most likely put together in a museum, the tibia and foot of the hind leg are rotated in the incorrect position (thanks to Peggy Rismiller for seeing this). Photo credit Wikipedia

In the Wild

with Harry Butler

There's something else that's not a bird, though it does lay eggs. It's something special – probably the most primitive mammal in the world, except for the platypus. It's the Echidna or Spiny Anteater. As soon as it sees me he goes into his defensive position – but the poor fellow's got one problem: his hind claws are so well developed for digging that one has to stick out. If you touch one it retreats, but the other one has to poke out, so you can get a grip on him. It's the one weakness in his protection against foxes and dingoes and other predators.

He has a lovely long nose and seven inches of tongue. He's out hunting for termites: most mammals here come out at night, but this one's an exception. He comes out in the afternoon and goes termite-hunting, scuffling around in the bushes looking for termites which live just under the surface. He digs with his powerful claws and then ... slurp! Seven inches of instant death goes up the tunnel and zaps the termites. He eats about three or four thousand of them in a day.

His back claw is very long for obvious reasons: how do you scratch yourself if you get an itch under all those prickles? That long claw is for getting in among the spines and having a good old scratch, because he gets ticks and lice the same as other things do in the bush.

He's threatened by one of our introduced animals, the fox, who's learned a way to handle Echidnas. The fox comes along, the Echidna sees him and rolls up in a tight ball. The fox will roll him with his nose to a pool of water, if there's one handy, and as soon as he hits the water the Echidna unrolls to start swimming and – zap! The fox has got him, because the belly underneath is soft and unprotected.

see-through claws to grip the special hairs within the mother's pouch. The mother does not have nipples the way other mammals do. Instead, the little puggle will suck at milk that is excreted from special glands on the skin in her mother's pouch. The puggle is carried in the pouch for about 53 days when its spines begin to break through. At this stage the mother leaves it in a nursery burrow and the puggle is left alone. The mother blocks up the entrance to the burrow to stop the puggle crawling out. Temperature in the burrow is 15–21°C. The mother returns every five to six days and feeds 40 percent of the baby's bodyweight in one feed, so a new baby in care may not need feeding immediately. All echidnas, and especially immature puggles, suffer heat stress and overheat rapidly, so they should be kept in a semi-torpid state.

The young echidna leaves the burrow at around six to seven months of age weighing approximately one to two kilograms and is weaned approximately four weeks later.

If you see an echidna and it is not injured or in danger, then leave it alone. Remember: echidnas are a protected species in all states and territories. If the echidna is in danger, i.e. on a road or being threatened by a predator, move it away. Only authorised wildlife carers

Nestling echidnas only require milk once every 48 hours. A puggle fat from a good feed. Source: perthzoo.wa.gov.au / via: zooborns.com

or researchers with permits are allowed to pick up an echidna for transport or rescue.

When echidnas wake from hibernation they often become disorientated. Many have been found under carports with a brick wall and concrete. All they need is to be turned around and headed back in the right direction. Most have wandered in from local parks or scrub.

Never remove a healthy echidna from the area in which it is found. It could be a female echidna with a puggle in a burrow nearby. If you take the mother away to relocate in another area, her baby will starve to death. Echidnas have also been known to try to find their way back home. They then face the risk of having to cross roads and being hit by cars.

An echidna does not have ear flaps like we do. Its ears are large, vertical slits just behind its eyes. It has an amazing sense of smell, therefore if needing to capture an echidna you must approach it from downwind so that it cannot smell you. It was once believed that echidnas had extremely poor eyesight, however, latest findings show the exact opposite is true.

Many thanks to everyone who provided photos and to Fourth Crossing Wildlife for photos and information.

The majority of this article came from the book by Dr Peggy Resmiller "*Biology Rescue and Rehabilitation of Short-Beaked Echidnas*".

Thank you Dr Peggy Resmiller for allowing us to utilise this great source.

Echidna baby just born from the egg. Pink, blind and totally reliant on its mother.
Credit: www.arkive.org

2019 University Student Grants Scheme - Winners

The Australian Wildlife Society's University Research Grants are scholarships offered to honours or postgraduate students at Australian universities. Each year, ten grants of $1,500 are awarded. Grants are available for research projects of direct relevance to the conservation of Australian wildlife; plant or animal. Grants may be used for the purchase of equipment and consumables, travel expenses related to field research, or attendance at conferences at which you are presenting your work.

The Australian Wildlife Society is delighted to announce the winners of the ten grants of $1,500 each to honours or postgraduate students conducting research that will contribute to the conservation of Australian wildlife. The winners for 2019 are:

AMY ROWLES
Hawkesbury Institute of the Environment,
Western Sydney University

Project Title:
Seasonal importance of high elevation habitat for Australian bats

BRYONY PALMER
School of Biological Sciences,
The University of Western Australia

Project Title:
Assessing the impact of reintroducing Australian digging mammals

JAMES PEYLA
Future Industries Institute,
University of South Australia

Project Title:
Investigating the Long-Term Effects of Ocean Acidification on the Giant Australian Cuttlefish

JINGYI DING
School of Biological, Earth and Environmental Sciences, University of New South Wales

Project Title:
How does the structure of Eucalyptus and Acacia forests vary along a rainfall gradient?: implications of changes in climate

KATE CORNELSEN
Centre for Ecosystem Science,
University of New South Wales

Project Title:
Conserving the greater bilby (Macrotis lagotis): breeding bilbies fit-for-release to safeguard their future

KIARRAH SMITH
Fenner School of Environment and Society,
Australian National University

Project Title:
Reintroduction of the yellow-footed antechinus (Antechinus flavipes) to its historic habitat

LACHLAN PETTIT
School of Life and Environmental Sciences,
University of Sydney

Project Title:
How have Australia's large reptile predators adjusted to a toxic invader through time?

ROSALIE HARRIS
Research School of Biology,
Australian National University

Project Title:
Does sediment shape biodiversity in tropical macroalgal forests?

SEAN KRISANSKI
School of Technology, Environments and Design,
University of Tasmania

Project Title:
Understanding Spotted Tail Quoll Behaviour in relation to Habitat Structure using UAV Remote-Sensing Techniques

VANESSA BROWN
School of Biological Sciences,
University of Western Australia

Project Title:
Novel seed enhancement technologies to improve restoration success.

Book Reviews

World of Reptiles

World of Reptiles explores the nature of terrestrial lizards living in their natural habitats, ranging from deserts to rainforests and underground burrows to treetops. The remarkable images highlight the diversity and uniqueness of these wonderful creatures. Reptiles come in all shapes and sizes; they include crocodiles, snakes, lizards, turtles, and tortoises. You will be amazed by the array and complexion of these species.
Publisher: New Holland Publishers | RRP: $24.99

World of Birds

For all those enthusiastic ornithologists, this is a stunning photographic celebration of the planet's birdlife. Covering the very common to the extremely rare, from tiny hovering jewel-like hummingbirds to plunge-diving gannets. The 300 images illustrate more than 200 of the world's 230 bird families and show the avians hunting, feeding, displaying, fighting, flocking, roosting, rearing young and much more.
Publisher: New Holland Publishers | RRP: $24.99

Choked by Beth Gardiner

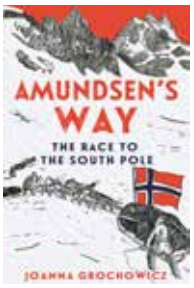
Nothing is as elemental, as essential to human life, like the air we breathe. Around the world, in both rich and undeveloped countries, the air we breathe is quietly poisoning us. The author, Beth Gardener, travels to air pollution hotspots around the world to meet the scientists who have transformed our understanding of air pollution. Beth traces the commercial pressures and political decisions that have allowed the air we breathe to remain at life-threatening levels. This book is eye-opening and will have you second-guessing every breath that you take.
Publisher: Allen & Unwin | RRP $32.99

Saved!!! by Lydia Williams

An engaging and charismatic book by Lydia Williams, an Indigenous Australian soccer player for the Matildas, illustrated by Lucinda Gifford, an author and illustrator of many well-loved children's books. Lydia grew up in Western Australia, and during her childhood, she travelled with to many Aboriginal communities where she learnt how to play sport with bare feet. Her family taught her how to live off the land and the values of Indigenous culture; they even had two pet kangaroos. When her family moved to Canberra, Lydia started playing soccer competitively. You won't be able to refrain from reading this book over and over again as the adventure and illustrations will have you hooked.
Publisher: Allen & Unwin | RRP: $19.99

Working with Nature by Jeremy Purseglove

How do we work with nature rather than against it, both harvesting and conserving? Jeremy Purseglove, an environmentalist, shares a lifetime of experience. *Working with Nature* is the story of a lifetime of work to harvest nature and protect it. It is also a memoir of encounters with people such as William Bunting, to examine their individual approach to conservation. Jeremy explains why it is not a good idea to extract as many resources as possible and offers fresh insights and solutions to sustaining the landscape. For our own sakes we must protect and restore nature.
Publisher: Profile Books Ltd | RRP: $24.99



Amundsen's Way: The Race to the South Pole by Joanna Grochowicz

This book is a good read, full of life-threatening challenges, deception, disappointments, and triumph. *Amundsen's Way* is an adventure story in the purest sense. Roald Amundsen – hero or villain? Amundsen's South Polar conquest is an extraordinary tale that combines risk, intrigue and personal conflict. A man of striking intelligence and a single-minded thirst for world records, Amundsen's astute planning and shrewd strategy propelled him into first place. Such a man, with everything to lose, will stop at nothing to secure his goal. His story is a testament to utter brilliance and ruthlessness.
Publisher: Allen & Unwin | RRP: $16.99

Australian Wildlife on Your Doorstep by Stephanie Jackson

Stephanie Jackson, a freelance travel writer, and photographer, brings the reader a collection of images and descriptions on almost 100 species of Australia's native wildlife. The many beautiful images are taken from the author's collection and capture the wildlife in their natural habitats. This unique guide offers insightful information on each species and tips on how to locate wildlife that might be in your region. An inspiring book that encourages animal enthusiasts, of all levels, to step outside their front door in search of some of Australia's amazing fauna.
Publisher: New Holland Publishers | RRP: $39.99

Rainforests of Australia's East Coast by Peter Krisch

From mosses to mushrooms, this book demonstrates that rainforests are self-sustaining ecosystems that rely on a multitude of associations to reproduce and survive. Peter Krisch, an expert on Australia's trees and shrubs, highlights through his text and self-collection of images the diversity, primal origins, and uniqueness of Australia's rainforests. Flora identification is a common topic and easy to use identification keys, of major plant groups and fungi, are provided. This book contains valuable information for bushwalkers, gardeners or anyone with a keen interest in the native flora of Australia's rainforests.
Publisher: New Holland Publishers | RRP: $39.99

The Best Australian Bush Stories by Jim Haynes

Jim Haynes brings us an entertaining, thought-provoking and sentimental collection of stories, by Henry Lawson, Marcus Clarke, Banjo Paterson and more, about the lasting appeal of the Australian bush. Jim Haynes has travelled far and wide to meet and interview the people whose stories make up this book, from the remote outback, cattle station, wheat farm, and rural town. The bush is where our iconic characters are found living in, taking refuge or exploring, whether an Aborigine, explorer, squatter, bushranger or stockman. This book is bound to re-ignite your passion for the Australian outback.
Publisher: Allen & Unwin | RRP: $29.99

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- ☐ Corporate: $340

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Another way which you can support the work of the Australian Wildlife Society is to remember us in your will.

If you would like to make a bequest, add the following codicil to your Will:

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"The challenge to the present adult generation is to reduce the increasing pressures on the Earth and its resources - and to provide youth with an education that will prepare them emotionally and intellectually for the task ahead.

Visit the Australian Wildlife Society website at www.aws.org.au to find out the latest on what is happening in our fight to preserve Australia's unique wildlife