AUSTRALIAN Wildlife

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Celebrating a new century of wildlife preservation in Australia

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

2019 ANNUAL PRESIDENT'S LUNCHEON

Contents

features

regulars

Suzanne Medway AM
Editor, Australian Wildlife

Sabine Borgis
Sub-Editor, Australian Wildlife

On the cover:

Front and Back Cover:
Lauging kookaburra. Photo: Squirrel_photos

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.

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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

Australia is one of the most important nations on Earth for biodiversity. In fact, Australia is one of only 17 "mega-diverse" nations and is home to more species than any other developed country.

What an honour and privilege it was to chair the 110th Annual General Meeting on Wednesday 6 March 2019.

I pondered over whether the original founders could have imagined that the Society trading now as Australian Wildlife Society would still be fighting the conservation battles 110 years later.

Following the canvassing of the idea of the new preservation body among a number of naturalists, nature lovers and some interested public figures, a preliminary discussion meeting was held at the offices of the Royal Swedish Consulate on May 11, 1909. As an outcome of this, it was decided to call a public meeting for the formation of the Society. Held in the Royal Society's Hall, 5 Elizabeth Street, Sydney, on the night of May 19, 1909, it is worthy of mention as showing initial enthusiasm, that despite the fact that the weather was extremely unfavourable, about fifty people attended. Fifty members were enrolled that evening, and within a week, this number had been raised to over one hundred. The Wild Life Preservation Society of Australia was launched, with the Honorable F.E. Winchcombe, MLC, presiding, and a committee appointed to draw up a draft constitution for submission to members.

From *Conserving Australia's Wildlife The History of the Wild Life Preservation Society of Australia Inc.*

The Wild Life Preservation Society has been formed for the purpose of preserving intact the typical fauna of Australia.

Many birds and animals of great scientific interest and national value are in danger of extinction, and the present generation of Australians must not incur the reproach of allowing even a single species to perish.

From a leaflet issued in 1909

The critically endangered Swift parrot (*Lathamus discolor*). Photo: JJ Harrison. https://www.jjharrison.com.au

In July 1909, *The Australian Naturalist*, journal and magazine of the NSW Naturalists' Society, carried this announcement:

> **Wild Life Preservation Society**
> A society which should commend itself to all naturalists has been established, and promises to be highly successful. The name of this organisation is 'The Wild Life Preservation Society of Australia.' Its objects are the preservation of all forms of wildlife in Australia, by the development of public interest in its beauties, economic uses, and scientific value, by discouraging the wanton or promiscuous destruction of any form of mammal or bird, by accepting affiliation from any society or corporation in Australasia for the furtherance of the fore-going objects, and by any other means incidental or conducive to those objects.

In reading these historic documents it is distressing to note that since 1909 one in three of our unique mammals is at risk of extinction. It is also interesting to note that the present-day ideals of the Australian Wildlife Society are still relevant to the reason the Society was formed in the first place:

Mission statement

The Wildlife Preservation Society of Australia (trading as the Australian Wildlife Society) is an independent, voluntary, non-profit 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.

Australia is one of the most important nations on Earth for biodiversity. In fact, Australia is one of only 17 "mega-diverse" nations and is home to more species than any other developed country.

Most of Australia's wildlife is found nowhere else in the world, making its conservation even more important – 87 percent of our mammal species, 93 percent of reptiles, 94 percent of frogs and 45 percent of our bird species are found only in Australia.

Sadly, despite the efforts of the Australian Wildlife Society and numerous other conservation groups that have come into existence since 1909, Australia is facing an extinction crisis. Australia has the worst mammal extinction rate in the world: 30 native mammals have become extinct since European settlement. To put this in a global context, 1 out of 3 mammal extinctions in the last 400 years have occurred in Australia.

More than 1,700 species of animals and plants are listed by the Australian Government as being at risk of extinction. Around 30 percent of our surviving (non-bat) mammal species are threatened with extinction.

The primary factors causing this loss of wildlife include:

- Feral cats and foxes. For example, feral cats kill an estimated 75 million native animals every night across Australia.
- Feral herbivores including pigs, goats, rabbits, donkeys, horses, camels, buffalo and feral cattle compete for food against native wildlife.
- Changes in fire regimes, especially an increase in the extent and severity of wildfires.
- Clearing native vegetation continues to destroy the habitat of wildlife.
- Invasive weeds compete with native plants for survival.

The journey forward for the Society has become even more critical than it was in 1909 and one of our biggest challenges is **gaining new membership to help in the fight to conserve Australia's precious wildlife** and to identify and recruit members to carry the Society into the future.

We are now keen to launch an appeal for more members to keep the Society moving forward. Join us now by telling your family, friends and acquaintances about the Society and encourage them to become members to help save our native wildlife in all its wonderful forms and keep the tradition of 110 years of wildlife conservation moving forward.

Woylie joey (*Bettongia penicillata*), also on the critically endangered list. Photo: S J Bennett

110th Annual General Meeting

The 110th Annual General Meeting of the Wildlife Preservation Society of Australia Limited, trading as the Australian Wildlife Society, was held on Wednesday 6 March in Sydney. The membership of the Society was well represented, with 20 members attending.

Suzanne Medway, President, tabled the Annual Report for 2018 and highlighted the Society's achievements in wildlife conservation over the past year. The full report is featured in this magazine.

The audited Treasurer's Report for 2018 showing a strong financial balance was tabled and adopted by the meeting.

Peter J Varley, Chartered Accountant, CA Registered Company Auditor, was confirmed as the Society's auditor for 2019.

The election of the directors to sit on the board for the coming year took place, and the following were elected to join the other seven directors remaining on the board:

Stephen Grabowski
Julie Old

Amendment to the Constitution

Amendment to the Constitution – 9.16 Right to appoint proxy – was moved by Suzanne Medway and voted on in two parts:

1. Subject to the **Australian Charities and Not-for-profits Commission (ACNC).** **CARRIED**
2. a Member entitled to attend at a meeting of the Company is entitled to appoint another **Current Member** as proxy to attend in the Member's place at the meeting. A proxy has the same right as the Member to speak and vote at the meeting and may be appointed in respect of more than one meeting. **CARRIED**:

Annual President's Luncheon

The Annual Luncheon was held after the Annual General Meeting in Cellos Restaurant at the Castlereagh Inn in Sydney and attended by an enthusiastic group of supporters.

Suzanne Medway, President, welcomed the guests and proposed the toast to 110 years of wildlife conservation by the Society.

Members attending the 110th AGM.

2018 Serventy Conservation Award

The award for 2018 was presented to Lorraine Vass of Lismore, New South Wales. Lorraine has been, for 19 years, the driving force behind Friends of the Koala, a Lismore-based group. Her efforts have made the whole Lismore region more koala conscious and helped stabilise, and possibly increase, the koala population in the region. Lorraine has overseen an active education program and has forged a close association with local schools. She also has established a close relationship with universities, particularly the University of Queensland, Queensland University of Technology and Southern Cross University. Lorraine is a member of the Office of Environment and Heritage's Saving our Species Koala Expert Panel.

Lorraine is a committed koala advocate and campaigner of nearly 20 years' standing, 15 of them as president of Friends of the Koala, the Northern Rivers region's peak koala conservation organisation and a respected stakeholder in koala recovery across New South Wales.

Under Lorraine's leadership Friends of the Koala developed and then strengthened a strategic and holistic approach to its conservation mission encompassing licensed koala rescue, rehabilitation and release, habitat protection and enhancement, advocacy, and policy reform and community education, adding value to its licensed work by partnering various academic institutions and unaffiliated scientists in research on koala-related issues.

Lorraine Vass accepting her 2018 Serventy Conservation Award from Clive Williams.

L to R: Robin Crisman, Tehree Gordon, Roz Holme, Suzanne Medway, Lorraine Vass and Helen Riley.

Since stepping down as president in mid-2017, she continues to petition government, pursues her research interests and remains active in a number of organisations. As Friends of the Koala's past president and patron, she mentors the current leadership when called upon, maintains a hand in setting the group's strategic direction, represents the group in several forums and champions its achievements on social media and elsewhere.

Acceptance speech from Lorraine Vass

Thank you to the Australian Wildlife Society for this Award. I congratulate the Society for 110 years of exceptional conservation work to save Australia's unique and precious wildlife and the various habitats that support it.

I came to koala conservation quite late in life – post-retirement. We relocated from Darwin to the Northern Rivers and purchased a small rural property through which koalas passed. Soon after, in 2000, we joined Friends of the Koala, which operates out of Lismore and the rest, as they say, is history.

It is humbling to receive such a prestigious award, and when I made the time to look back over past recipients, I was more humbled. I share the Award with the wonderful teams of people who have also volunteered their passion, time and commitment to strengthening and expanding Friends of the Koala's koala conservation mission over these past 19 years.

The koala holds a special place in the Australian Wildlife Society, the tremendous effort to end the fur trade in the '20s and '30s attracting widespread public attention to the Society's work.

Koala survival is still in the balance. More than ever, koala conservation remains highly political because in so much of the koala's remaining range we humans are competing for space. The impacts of climate change on the species are already becoming apparent.

I sincerely believe that the koala's future is in our hands and that we can succeed in preserving these much-loved animals for the enjoyment of future generations. Thank you for the recognition of the koala's plight implicit in the Serventy Conservation Award. Let us all continue to fight for the koala in any way we can.

Thoughts on receiving the Award

Following the initial surprise of Suzanne's email and its accompanying letter, my fluttering stomach settled to quiet excitement, gratitude for the Society's recognition and, most of all, reflection. Yes, it does seem that I have done little else but live and breathe Friends of the Koala and koala conservation since retirement, but the rewards have been many: opportunities to continue learning in diverse disciplines, to meet interesting and inspirational people, and to give back to our 'common wealth'. My contribution hardly seemed to measure up to that of the lifelong efforts characteristic of so many of the Award's recipients.

But then some of the encouraging feedback I'd received through the years came to mind and Friends of the Koala's journey to where it is today: a passage that was recognised by the Society in 2006 when Friends of the Koala won the Community Conservation Award.

Outright victories are few and far between in koala conservation, where legislation that purports to protect the species, in fact, enables development. More often than not, success is measured in delay and modification – 12 years of campaigning against the route of Section 10 of the Pacific Highway Upgrade did not see the route changed but it substantially improved mitigation conditions. Our koalas will be in even more dire circumstances if no-one speaks for them.

It is far more satisfying to dwell on the part one has played in the koalas that have been successfully returned to the wild, 'switching on' the Northern Rivers community and its leaders to the species' needs and fragility, the encouraging progression in landscape-scale, regional koala recovery and knowing Friends of the Koala is positioned and resourced to expand its koala conservation mission further.

2018 Community Conservation Award

The award for 2018 was presented to Kanyana Wildlife Refuge, near Perth, Western Australia. This organisation has operated for over 40 years with the aid of a strong band of volunteers. The refuge rehabilitates many animals each year and conducts research into factors affecting local wildlife. It now has added a captive breeding program to its services. Kanyana has a strong school holiday program and works in collaboration with local universities to conduct research into factors affecting local wildlife. In recent years it has focused on research into parasites affecting wildlife and has been responsible for discovering previously unidentified parasites.

The President of the Board of the NSW Masonic Club, Stephen Bates, and General Manager, Paul Brasch, presented a special certificate congratulating the Society on 110 years of wildlife conservation.

Presentation of the Community Wildlife Conservation Award by Clive Williams to Helen Riley on Kanyana Wildlife Refuge.

Suzanne Medway and Noel Cislowski toast 110 years of wildlife conservation by the Australian Wildlife Society.

Acceptance speech from Helen Riley of Kanyana Wildlife Refuge

Thank you for inviting me to join you today. Congratulations on your 110th anniversary. I am honoured to accept the Community Conservation Award for 2018 on behalf of Kanyana Wildlife Rehabilitation Centre Inc. Our vision of Caring, Conserving and Connecting encompasses our aims of Wildlife Rehabilitation, Education, Endangered Species Breeding, and Research. This could not be achieved without the dedication of all our volunteers, both past and present. Currently, we have 380 volunteers and one paid Hospital Manager. We received 3,000 wildlife admissions last year, and on our busy days it has reached 30 admissions. Our volunteers range from 16 years old to 90 years old, all with different backgrounds and abilities. They volunteer through school via work experience, as individuals or different groups, e.g. Alzheimer's Association.

Presentation of the Rehabilitation Award to Tehree Gordon by Suzanne Medway.

Kanyana is proud to be part of the National Bilby Breeding Program, and our success is contributing to the genetic diversity of the species. In November 2017, two of our male greater bilbies joined two bilbies from Alice Springs in a translocation to Australian Wildlife Conservancy's (AWC) Mt Gibson property. They were released into this enclosure to acclimatise before being released into a 7,800-hectare feral and predator-free fenced area. Updated information from monitoring is positive, with the bilbies being observed digging and foraging for food. The two Alice Springs females spent some time at Kanyana before their transfer to AWC.

Kanyana is also part of a breeding program for woylies (also known as brush-tailed bettongs); however, it is in the process of winding down. Once again, we have been very successful in our results. The genetics and breeding program is controlled by the Western Australian Department of Biodiversity, Conservation and Attractions. Successful breeding programs are limited to finding suitable release sites.

Education is important as conservation of wildlife is dependent on conservation of the environment.

2018 Community Rehabilitation Award

The award for 2018 was presented to Tehree Gordon OAM of Barwon Heads, Victoria. Tehree has been involved in animal rescue since the age of 15; however, she has been registered in wildlife rescue and rehabilitation for over 40 years. Tehree and Hamish opened Jirrahlinga Koala and Wildlife Sanctuary over 40 years ago to rescue and rehabilitate injured, distressed and orphaned wildlife while at the same time providing a haven for disadvantaged people of all ages. Tehree also established a special animal welfare

program for the elderly, people with special needs and school children.

Acceptance speech from Tehree Gordon

Thank you for this amazing award. But firstly, I wish to congratulate you for your incredible achievement on being 110 years old. So many personalities over the years but with professionalism you have survived. Many great groups have come together over the years only to disintegrate due to personalities – but not the Australian Wildlife Society. CONGRATULATIONS!

I have only been able to do this work because of the commitment, dedication and support of my amazing husband, Hamish, who commits a large part of his salary monthly to help finance Jirrahlinga. I also thank the staff and volunteers who work with me and believe in me and what we do. I believe the greatest thing we can do for the environment is to bring back respect. It should start in the home, flow on to schools, our next generation, our society; and who knows, maybe even our politicians will try it too. Respect demands acknowledging people have the right to be and think differently. Respect should also be given to land, waterways, animals, etc., and treated properly by all. This should include climate change and all aspects to deliver this amazing country to greater heights. This is my belief and challenge for a better future.

Kinder Natoons Sponsorship to save endangered native wildlife

Vice Presidents, Stephen Grabowski and Ken Mason, introduced Lea Heude of Ferrero Australia to launch the Society's newest project – Natoons by Kinder Surprise.

The Society has accepted a significant sponsorship from Ferrero Australia, in partnership with the launch of the new Kinder Surprise Natoons campaign, to help save endangered wildlife across Australia and New Zealand.

Kinder Surprise Natoons features a new native Australasian animal toy range, plus a commitment to helping save native Australian and Kiwi animals, and to provide parents with the tools to educate their children about the importance of native wildlife.

Rehabilitation Award winners. L to R: Robin Crisman (2017), Tehree Gordon (2018) and Roz Holme (2016).

The Society has selected a number of wildlife conservation programs in each state of Australia and one in New Zealand for consideration of receiving conservation funding under this new program.

In **New South Wales** we have selected the **Friends of the Koala** based at Lismore to received assistance under this program. We have had a long-term association with this very committed koala conservation group and much

Presentation of the lucky door prize to Wayne Greenwood by Lea Heude of Kinder and Suzanne Medway.

Presentation by the NSW Masonic Club. L to R: Patrick Medway, Noel Cislowski, Suzanne Medway, Stephen Bates and Paul Brasch.

admire their dedication and hard work to save and rehabilitate injured koalas on the north coast of New South Wales.

In **South Australia**, we are working with **Wombats SA**, who look after the Moorunde Nature Reserve just north of Adelaide as a habitat for the southern hairy-nosed wombat.

In **Victoria**, we are teaming with the **Platypus Education Group**, whose aim is to educate, engage and excite children and the community about the platypus that live in the local creeks.

In the **Northern Territory**, we are keen to help save the endangered great bilby.

In **Western Australia** we are helping **Native Animal Rescue (NAR)**, a group dedicated to the rehabilitation and release of sick, injured, orphaned and displaced wildlife, particularly the black cockatoo. With additional facilities located in Broome and the tireless commitment of volunteers every day of the year, NAR substantially contributes to helping rehabilitate wildlife from across Western Australia with the aim of returning such native fauna back into the wild.

In **Queensland**, our contribution will be to an organisation that is helping to save Lumholtz's tree-kangaroo, the **Tree Kangaroo and Mammal Group Inc** at Atherton, who rehabilitates orphaned, injured or displaced tree kangaroos for release back into the wild. They educate the public and increase awareness of Australian tree-kangaroo conservation and the threats that bring them into care, such as dogs

Presentation of the sponsorship cheque by representatives of Kinder and Kinetic Agency.

and cars. Their vision is to assist in the prevention of the extinction of tree-kangaroos.

In **Tasmania**, we are teaming up with Trowunna Wildlife Sanctuary to educate the wider community of the plight of the Tasmania devil through a range of programs.

In **New Zealand**, we are funding conservation programs for the kiwi through **Massey University** (Palmerston North and Albany), **NZ Department of Conservation**, and **Manaaki Whenua Landcare Research**. The kiwi is an iconic bird, usually nocturnal. Adults live for decades, but chicks are very vulnerable to predators.

We acknowledge the generous support of Ferrero Australia in their Natoons program to help us raise awareness of all our endangered wildlife species through this new wildlife conservation program.

Launch of New Scholarship at Western Sydney University

Patrick Medway, CEO, announced the launch of the Society's third university ecology research scholarship that will be made available to students studying at the Western Sydney University.

The Australian Wildlife Society Wildlife Ecology Research Scholarship is open to postgraduate research students from any university in Australia undertaking a research project at Western Sydney University that is of direct relevance to the conservation of Australian native wildlife (flora or fauna).

Scholarship details: Scholarship valued at $5,000 for one year – payment of $2,500 each semester.

The Society also offers scholarships at University of Technology Sydney and University of New South Wales. Sydney. The Society also offers ten Wildlife University Research Grants of $1,500 each for honours/postgraduate students currently studying at any university in Australia.

Ross Newton of Western Sydney University responded on behalf of the University and thanked AWS for their generous contribution.

Trevor Evans and Patrick Medway


Announcement of the new scholarship at Western Sydney. L to R: Ross Newton and Patrick Medway.

AUSTRALIAN WILDLIFE SOCIETY

Cordially invites you, your family and friends to attend the

2019 Gala Ball

SATURDAY 27TH JULY 2019

Arrival 6 for 6.30pm

$85 per Adult (3-course meal, drinks and entertainment)
$30 per Child 3-12 years (2-course, drinks)

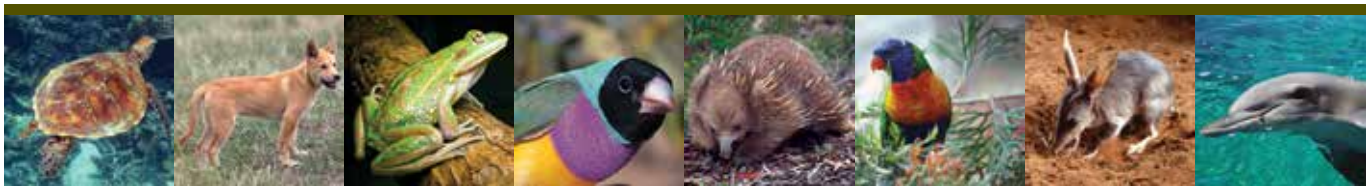
Western Suburbs Leagues Club Campbelltown
10 Old Leumeah Road, Leumeah

Book online and pre-payment essential: www.aws.org.au
by 12th July 2019 to info@aws.org.au | Tel: 0425 309 888

LET'S SAVE THE WATER TOGETHER

Australian Wildlife Society
Conserving Australia's Wildlife since 1909

Every drop counts!



SMALL CITIES CAN HAVE BIG IMPACTS

Bird diversity responses to urbanisation in the Blue Mountains, NSW

Corey Callaghan

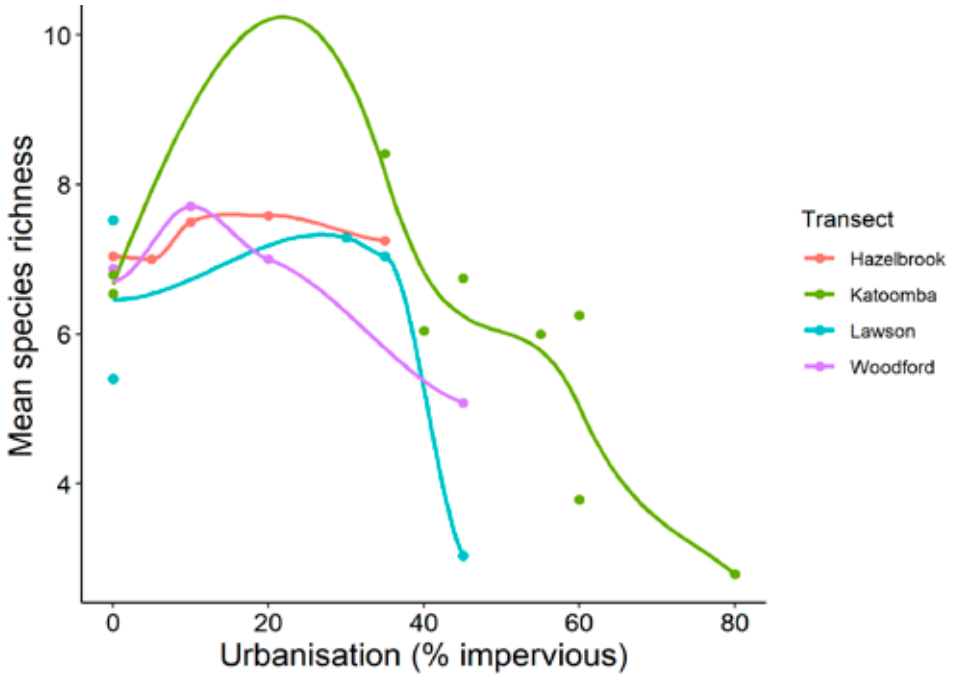
Where do most outdoor enthusiasts in Australia find themselves on a Saturday morning? Probably on a gorgeous bushwalk, enjoying the scenery of a local natural area. Even those who don't consider themselves twitchers – who are missing out – will likely be intimately familiar with a handful of birds from their weekend bushwalks: the familiar call of the eastern whipbird, as it 'cracks its whip'; the crimson rosella that darts across the path, flashing its crimson colours; or the iconic laughing kookaburra which calls out above the track. What to do after a bushwalk? Well, in my limited experience, many of us end up at the local café – ordering a flat white and vanilla slice. But what about the birds at the café? Are there different species? The eastern whipbirds' loud and intrusive calls are no longer evident: they've been replaced with noisy miners and common mynas. Crimson rosellas don't dart in front of you, but rainbow lorikeets fly overhead. There is *still* a laughing kookaburra within sight, but the overhanging branch previously used as a perch, as seen on the bushwalk, has been replaced with a telephone pole!

In a nutshell, this was the topic of my research project supported by the Australian Wildlife Society. Not 'what birds hang out at cafés?' *per se*, but rather, how does the bird community differ between the 'bush' and 'urban areas'? Although I give a dichotomous example above – the 'bush' compared to the 'café' – I was mostly interested in how the bird community changes along an urbanisation gradient: a measure of the amount of urbanisation at each site, from the CBD to pristine natural areas, and all the levels of urbanisation between these.

Understanding how birds respond to urbanisation is becoming increasingly important, especially given that by 2030, it is estimated that 60 percent of the human population will live in cities. Previous research has demonstrated the generally negative impacts of urbanisation on birds: there are fewer birds at the café than there are in the bush, unsurprisingly. Cities and urban areas are often dominated by a few species, sometimes large-bodied, particularly well-suited for living in urban areas. Still, this isn't necessarily a linear pattern. Some studies have found that places with intermediate levels of urbanisation – a mix of habitats – have the highest levels of species richness (i.e., the number of bird species). However, most of the research investigating the impacts of urbanisation on birds has been conducted in relatively large, global cities – cities such as Sydney, New York City, San Diego, London or Berlin. While the patterns in big cities are important to understand, many cafés are found in smaller urban areas.

My research project aimed to investigate bird responses to urbanisation within small cities – ranging from populations of 2,000 to 8,000 – located in the Greater Blue Mountains World Heritage Area.

Above: One possible explanation for a number of species which are not found within high levels of urbanisation is that they have a hard time foraging for food, like this white-browed scrubwren.

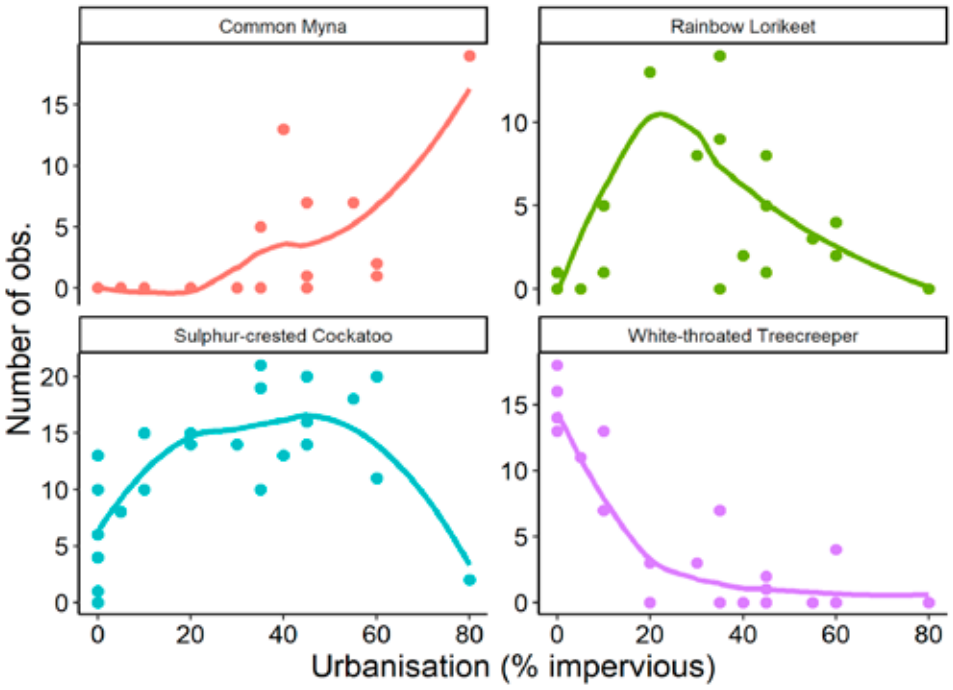


The four study sites, located within the Greater Blue Mountains World Heritage Area: Katoomba, Lawson, Hazelbrook and Woodford. Each red triangle represents a survey point.

Thanks to a grant awarded by the Australian Wildlife Society, a small team of volunteers have conducted bird surveys with me between August 2017 and August 2018. There are four transects: one each in Katoomba, Woodford, Hazelbrook and Lawson.

Woodford, Hazelbrook and Lawson each has five dedicated survey points that are surveyed on each visit, while Katoomba has nine. The points, separated by about 500 metres, lie along a generally straight transect which is aimed to cut across both the most urbanised area of the city and also traverse a portion of the bush. There were two visits per month to survey all of the transects and their associated points. Five-minute point counts were conducted at each point, where the observer recorded all birds seen and/or heard. For each point, I estimated the amount of urbanisation within a 250-metre buffer around the point, and this was used to assess how birds responded to urbanisation.

A total of 576 point-counts were conducted throughout the year, totalling 2,880 minutes of surveying. All told, 94 species were recorded, with eastern spinebill being the most commonly recorded species, followed by sulphur-crested cockatoo, red wattlebird, crimson rosella and pied currawong. The table below shows the top 15 most commonly recorded species and the percentage of point counts on which each was recorded.



A table of the 15 most commonly recorded species across the four transects in the study.

Overall, birds responded negatively to urbanisation. For each transect, the species richness decreased in response to urbanisation. There were more points at the Katoomba transect, and thus, the steepest increase is seen for Katoomba. But these trends are complex: they are not always linear. For instance, notice the peak for each of Katoomba, Woodford, and Lawson: the highest species richness actually occurs in intermediate levels of urbanisation.

I then investigated these trends separately for both native and exotic species. Exotic species in this study include the following introduced species: European starling, house sparrow, rock pigeon, common myna and red-whiskered bulbul. I found that native species showed an overall decrease in response to urbanisation, but that exotic species showed an increase in response to increasing urbanisation.

Of course, these are just broad trends, and these trends differed among species. For instance, some species like rainbow lorikeet and sulphur-crested cockatoo had the highest number of observations within intermediate levels of urbanisation. Others, such as the white-throated treecreeper showed a marked decrease in numbers of observations in response to urbanisation. And others, such as the common myna – an exotic species – actually showed an increase in numbers of observations in response to an urbanisation gradient.

Most studies which have documented the adverse impacts of urbanisation on bird diversity have been restricted to large cities. But I showed that even small cities – within the middle of a world heritage area – can have negative impacts on bird diversity. Even more important is to understand the precise patterns that bird diversity shows. My results suggest that places with intermediate levels of urbanisation provide a number of different habitats and thus are associated with the highest levels of bird diversity.

This project also found that there is wide variation in how species respond to urbanisation, suggesting that some species are more adapted to survive in urban environments. Other research from my PhD work has shown that species-specific traits can explain the difference in how bird species respond to urbanisation. For example, species which have large clutch sizes (i.e., number of offspring) and are generalists (e.g., eat many foods, have many different nesting habitats) were most likely to be found in urban environments. Together, these results suggest that some species fail to find the appropriate resources within urban environments; thus they show avoidance of urban areas.

These results suggest that further development within these expanding, small cities should be carefully planned. Some species rely heavily on the natural 'bush', and thus the natural area should continue to be protected, while at the same time, other species are thriving in the human-dominated areas, but they are mostly exotic species. The majority of species diversity is observed in intermediate levels of urbanisation, suggesting that we should learn to appreciate the value of green areas within small cities and the remnant vegetation that exists within small cities. Ultimately, residents of small cities should shift their preference to preserving as much remnant vegetation as possible on their properties, allowing for a suite of species to be found. Next time you go for a bushwalk, I encourage you to note the species which are seen only in the bush and how the birds change when you are at the café or back at home.

About me

I grew up in rural Western New York State, near Niagara Falls. Since I was a small kid, I've had a strong passion for the outdoors, but in my first year of university, I became mildly obsessed with birds. This obsession quickly translated into a passion for research relating to birds. I received my B.Sc. in Environmental Science from Canisius College in Buffalo, NY, and then completed a Masters in Environmental Science at Florida Atlantic University in Boca Raton, FL. I started my PhD at UNSW Sydney in August 2016. This project is one facet of my overall PhD project which is focused on identifying urban ecological patterns in birds. In my free time, one can usually find me camping/birding with my wife Diane and our dog Vader.

The iconic laughing kookaburras, familiar to anyone who has spent some time in the bush.

Species like the rainbow lorikeet and sulphur-crested cockatoo were most common within intermediate levels of urbanisation.

Rainbow lorikeet

FERALS

ALEXANDER HABILAY

Feral animals and Australian culture have an odd relationship. We are a nation proud of our natural legacy, yet our sports teams bear invasive species as their mascot and our culture praises pests under a veil of romanticism.

50,000 years ago the first indigenous people arrived in Australia from Africa. This migration triggered a dramatic change in Australia's landscape. Massive fires brought forth by humanity transformed the once drought-hardy landscape into the fire-resistant land we know today. These man-made fires roared through the landscape, clearing land and flushing out game animals for hunting, resulting in the extinction of approximately 60 species of fauna. Early human arrival in Australia marked a new era in this continent's story.

In 1788 the arrival of the First Fleet marked yet another development in Australia's legacy. Much like with the first great migration, the land and its denizens forever changed, but rather than roaring hot fires consuming the land, it was pale-white hands and cold steel that brought forth change. Aboard the European ships was a new disease, ideologies and beasts. Of this new array of beasts was the humble pig, soon to be known as the feral pig.

Feral pigs (*Sus scrofa*) were once imported as livestock, but if *Animal Farm* taught you anything it was that pigs are clever, clever enough to escape. Once free, these pigs established wild populations and over time have expanded to approximately 24 million feral pigs – that's essentially one pig for each Australian citizen (as of the 2016 census). Feral pigs have spread to every state and territory in the continent and caused a world of damage. They are omnivorous and will consume bird chicks, reptiles, eggs, frogs, insects and all manner of plants. The pest has pushed three species into the Vulnerable classification, including the hawksbill turtle (*Eretmochelys imbricata*), and 13 species into the Endangered classification, including the southern cassowary (*Casuarius casuarius johnsonii*).

Threatening fauna isn't just what the feral pig has on its billet; it can also severely alter a habitat through the destruction of plants, reduced regeneration, soil erosion, and spreading opportunistic weeds and endemic diseases like root-rot fungus (*Phytophthora cinnamomi*). This impact on an environment increases the access to prey for other predatory species – effectively shifting an already delicate balance – sully the quality of water and produce vectors for disease. The presence of

Brumbies in Mt Kosciuszko National Park.

the hog has sparked resistance from government departments in the form of management plans; however, these departments recognise that the total eradication of the feral pig is impossible to achieve with the current techniques and resources available. In light of this impossible task, a splinter faction known as 'piggers' has emerged in Australia's culture.

Pigging is a hot topic amongst Australians, and like most issues, every man and his dog has a strong opinion about it. The general method behind pigging involves a dog, a blade and a dose of bloodlust. Some claim it to be an avenue to reignite the primal caveman inside all of us, others just say it's a good weekend away. For the purposes of feral animal control, piggers may have good intentions, but their execution is way off. Pigging tends to be ad hoc with no specific environmental goals, planning or monitoring in place. Hunters often prefer to tackle large trophy males. This target makes little contribution to the overall control of the animal population due to the remaining females and infants guaranteeing the survival of the species, but it sure does contribute to a hunter's ego. Caley and Ottley (1995) published that a small team of hunting dogs was 88 percent successful when catching solitary pigs; however, this success rate rapidly declined as the number of pigs in the group increased. Therefore after their densities have been heavily reduced hunting with dogs is effective for removing residual pig populations. Even though pigging is ineffective for meaningful wide-scale pest control, the subculture has peaked at over 100,000 hits on social media. There are also several publications growing the craze - like Babes & Boars and Bacon Busters - and has, of course, birthed the iconic saying, 'Gon' Piggin.' While piggers may not worship the swine, they certainly worship the hunt. Without the pigs, this facet of Australian culture would die, but then Australia's natural legacy might just prevail.

Two centuries have passed since European colonisation; in this time at least 73 species of vertebrates have been introduced and have established wild populations in Australia. The exotic 73 may vary in size, taxon and attitude but they are in unison when it comes to the deprivation of Australia's natural legacy. The hogs aren't the only beast devouring Australia's biodiverse future. The most majestic of Australia's feral animals, the brumby, stands tall, reinforced by the timeless words of Banjo Patterson, and is trampling the life out of the Australian Alps.

It is impossible to deny the damage the feral horse – or brumby (*Equus caballus*), no matter what name you subscribe to – inflicts on the environment. This creature was once safeguarded by a romanticised veil of Australian history, but now carries protection in Kosciuszko National Park thanks to insane government action. Undoubtedly most famous for their appearance in *The Man From Snowy River*, the brumby has transcended pest status and been turned into an outback icon. Wild horses pose a significant threat to the future of the Australian Alps National Parks. These horses have spread noxious weeds through grazing, caused severe soil erosion or trampled the soil into a squashed slab incapable of supporting plant growth. Their impact on the environment has resulted in the reduction of populations and species diversity of ants, reptiles, fish, small mammals and native herbivores while promoting weed growth, increasing tree deaths and degrading sphagnum bogs. In light of the animal's contribution to the ecosystem, the *Kosciuszko Wild Horse Heritage Act 2018* exists to "recognise the heritage value of sustainable wild horse populations within parts of Kosciuszko National Park and protect that heritage." This quote from the act throws around the word 'sustainable' with complete disregard of its definition.

The Wild Horse Management Plan drafted in 2016 aimed to selectively cull the brumby numbers from 6,000 to 600 over a 20-year period. This proposal decided against the inclusion of aerial culling, regardless of how cost-effective, humane and applicable to inaccessible areas the strategy was. The proposal instead opted for the classic approach of mustering and trapping the horses – because we just love our heritage. In a shift of beautiful irony, the habitat destroyed by these animals is no longer able to support them and the act protecting them has resulted in deaths through dehydration and malnourishment. Aerial selective culling may be a cruel action, but such an action would have prevented the drawn-out demise the brumbies are now suffering through. Research at the Australian National University has projected that between 7,000 and 11,000 horses will die of starvation and dehydration if aerial culling isn't included in the management plans. The situation has gotten so dire that there are reports of starving horses scavenging nutrients from the digestive tracts of their fallen comrades. The place "Where the mountain ash and kurrajong grew wide", and the "wild hop scrub grew thickly and the hidden ground was full of wombat holes" is remembered in Banjo Patterson's words of 1896 but lost to the hooves of his muse.

As a nation, we have never been good at assigning priorities. Celebrities are paid more than teachers, conservationists are forgotten, but athletes are worshipped, and politicians are heard while scientists are silenced. This isn't the medium to discuss the skewed fundamentals of Australia, but it is a medium to look at the mascots of one

Feral pigs fighting. Photo: Invasive Animals Co-operative Research Centre.

Pig hunting dogs. Photo: Natalie Habilay

Dead brumby in Mt Kosciuszko National Park. Photo: Sam Banks

of the biggest sporting events of the year, the State of Origin. While it would be impossible to change the sporting culture that has cemented itself in Australia, the mighty cane toads may be unexpectedly useful for the environment.

The cane toad (*Bufo marinus*) is native to South and Central America. The toad was introduced to Australia in 1935 to control pest beetles devouring Queensland's sugar cane industry. Generally speaking, implementing biological controls rather than agricultural chemicals is fantastic, but the introduction of the cane toad was disastrous for the biosecurity of Australia.

The cane toad spread at an estimated rate of 40 to 60 kilometres per year. As of February 2009, it took the cane toad 74 years to spread over 2,000 kilometres from the initial distribution point. The cane toad is poisonous to varying degrees throughout all of its life stages. This toxicity can result in a rapid death after ingesting the full-grown toad. As such, the arrival of the cane toad in Kakadu National Park has been linked to the worrying decline of the northern quoll (*Dasyurus hallucatus*) and many large goanna species. While the cane toad primarily affects larger predatory species, many Australian animals have learned to avoid outright eating the toads, but if Australia is anything, it is adaptable. A handful of natives have adapted to eat the cane toad and aligned themselves with the humble golf club to control the toxic toad, and they include: the snapping turtle (*Wollumbinia latisternum*), the freshwater snake or keelback (*Tropidonophis mairii*), the saltwater crocodile (*Crocodylus porosus*), the water rat (*Hydromys chrysogaster*) and some birds such as ibises and the Torresian crow (*Corrus orru*).

Perhaps the weirdest impact the cane toad has had on Australia is its adoption into Australian Rugby League. The reason why the cane toad became the sporting icon of Queensland rugby is highly debated; however, given the speed with which the species has spread and its inherent toxicity, a connection between toad and athlete could be made.

The question is why the New South Wales 'Blues' or the less flattering 'Cockroaches', haven't taken one of the species mentioned above as their

namesake. Not only would this provide an interesting bit of pub trivia, but it would also be a holistic and subtle way to advertise the protection of native animals, the importance of biodiversity and promote the food chain through belligerent maroon- and blue-clad screaming fans. Surely the New South Wales Water Rats or Keelbacks would be better than the Cockroaches.

A recent analysis, sourced by the Australian Bureau of Statistics and the Australian Trade and Investment Commission, revealed that tourism is Australia's largest services export industry with a large portion of this being owed to our country's natural assets. In a tourist's snapshot of Australia, we may be proud of our natural heritage, but a long-exposure photo of our country, culture and internal politics reveals that Australia's relationship with the environment is just a marketing ploy.

The cane toads and the cockroaches, the *Kosciuszko Wild Horse Heritage Act 2018* and the pigging culture are just a few demonstrations of where Australia's relationship with feral animals has gone astray. It's quintessentially Australian to mock politicians when they sport hard hats and carry giant scissors as if to suggest they're something that they are not. As a nation, we market ourselves as fair dinkum nature lovers, but in reality we are just a nation of people who don the khaki for the photo opportunity, rather than to embody the symbol and legacy left by the late Steve Irwin.

About Alexander Habilay
I am a twenty-something Quandamooka man caught between writing, conservation and the next paycheck. I was born and bred in Brisbane, but I'm constantly mistaken for a tourist – it must be because the locals have never heard of a blackfella with my kind of vocabulary.

Cane toads. Photo: Australian Photography Association

Keelback eating cane toad. Photo: ABC picture of the week

Crow eating cane toad. Photo Bajan Alan

Amazing Animal Ability #2

Kangaroos can 'pause' their pregnancy

Family planning through embryonic diapause

Dr Jai Green-Barber

Australia can be very hot and dry, which makes it difficult for large herbivores like kangaroos to find enough food and water. When a female kangaroo is pregnant or lactating, she requires even more food and water to meet her own nutritional demands, as well as the needs of the offspring. So how can female kangaroos manage all this without any method of family planning? Well, it turns out that some kangaroo species do in fact have a mechanism to delay or time their pregnancies. The way they do this is by using a reproductive strategy called embryonic diapause, which temporarily 'pauses' an embryo's development, delaying the gestation and eventual birth until a more suitable time.

Female kangaroos often support multiple offspring at three different stages of development. The first stage is an embryo that gestates for approximately one month. When the joey is born, it is blind and furless, and only about the size of a jellybean. It crawls up to the pouch and latches to a nipple to start the second stage of development. After 6–8 months the joey will begin the third stage of

Above: An eastern grey kangaroo with an older joey drinking milk from a nipple inside its mother's pouch.

development where they periodically leave the pouch and return to suckle. Joeys permanently leave the pouch at around 8–10 months old, but they won't be fully weaned until they are around one year of age. Throughout all of this, the mother produces milk with different nutritional compositions to suit each of these developmental stages.

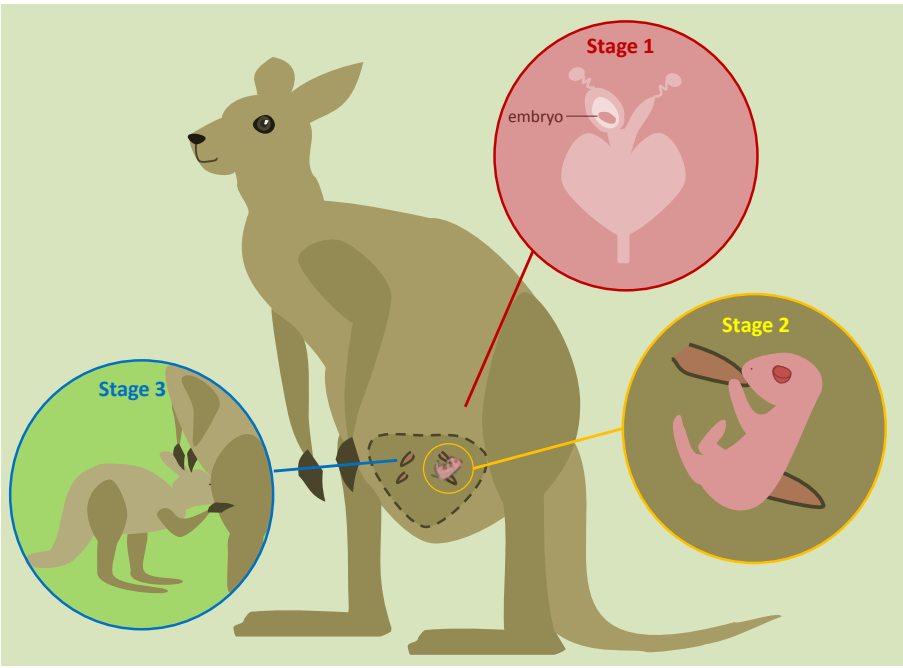
Caring for multiple joeys at once can be very demanding for the mother, and it is sometimes impossible for female kangaroos to find enough food to meet all these demands during extreme conditions such as drought. To overcome this, kangaroos have evolved a strategy known as embryonic diapause, where the development of an embryo is 'paused' in a dormant state until the older joey has left the pouch permanently. This allows the mother kangaroo to use the nutritional resources available to feed herself and produce enough milk for her joeys by extending the interval between births.

Embryonic diapause occurs in the very early stages of pregnancy. After an egg is fertilised, it begins to divide as it travels towards the uterus. However, it cannot progress beyond this stage until a specific signal occurs – a short pulse of the hormone progesterone. If there is a joey attached to the nipple and suckling in the pouch, then the lactation and associated prolactin prevent the pulse of progesterone from being released. Without the pulse of progesterone, the embryo remains in diapause where further development and implantation in the uterus is delayed. Once the joey is weaned and leaves the pouch, then lactation declines and the pulse of progesterone is released signalling for the embryo to continue development.

Environmental cues such as day length or temperature also play a role in regulating diapause by affecting melatonin levels. Melatonin inhibits prolactin production, which allows the pulse of progesterone to be released and end the diapause when conditions are favourable. Embryonic diapause is commonly associated with red kangaroos but has also been documented in the majority of kangaroo and wallaby species. Additionally, this strategy is displayed in some placental mammals such as roe deer and nine-banded armadillos. However, the biological mechanisms involved are different for each species.

The red kangaroo is the largest of all kangaroos, the largest terrestrial mammal native to Australia, and the largest extant marsupial. It is found across mainland Australia, avoiding only the more fertile areas in the south, the east coast, and the northern rainforests.

Three stages of kangaroo joey development



Stage 1 - An embryo either developing or in diapause in the uterus.

Stage 2 - An early-stage joey attached to the nipple inside the pouch.

Stage 3 - An older joey that has emerged from the pouch but still requires milk.

Wombats through time and space
2018 Conference

Linda Dennis

"A room full of wombat nutters, what fun!" I thought when I discovered that the 2018 wombat conference was going to be held in Adelaide. A fantastic chance for me to learn so much more about wombats from Australia's leading wombatters – also known as "wombatanaughts"! – on all things wombat – bare-nosed, southern and northern.

Perusing the program I saw that there was indeed a wide variety of subjects to be covered, including 'Mange and other threats to wombats' by Katja Gutwein and Nick Bean from the Wombat Mange Management Organisation; 'Urine as a tool to identify and monitor oestrous in captive female southern hairy-nosed wombats' by Alyce Swinbourne of the University of Adelaide; 'The release of wombats after care' by Jenny Mattingley from Maryknoll Wildlife Shelter; and 'The sex ratio of young and adult hairy-nosed wombats' by Matt Gaughwin of the University of Adelaide, just to name a few.

Professor Rod Wells from Flinders University gave the opening address, 'Wombats, the past, present and future' and presented a large array of wombat information. I always knew that wombats have continually growing teeth, but Professor Rod taught me the word for that is 'hypselodonty'. Further research taught me that the teeth are called hypsodont teeth, sometimes referred to as an elodont dentition, meaning ever-growing. Professor Wells also discussed diversity through time, digestive physiology, energy requirements, disease and other threats.

David Taggart from the University of Adelaide, is well-known in the wombat field. David presented 'Southern hairy-nosed wombats: tough as boot leather – or are they?' Studies on the biology and ecology of the southern hairy-nosed wombat in the Murraylands of South Australia paint a picture of an iconic Australian marsupial superbly adapted to the semi-arid environment in which it occurs. This would suggest that the species is as tough as leather... but is it really? David's paper examined this idea and also discussed recent research and gaps in knowledge that suggest the future of the wombat may not be as bright as it initially appeared. For example, new threats have emerged, such as climate change, meaning less

Above: How not to house a wombat. Photo: Linda Dennis

rain and more strain on the species.

Mange Management Organisation (MMO) – who are at the forefront of mange research in Australia – presented a fascinating paper on the threats to wombats. Sarcoptic mange is the greatest factor contributing to wombat decline, but there is also roadkill, dog attack, loss of habitat and illegal/legal culling. MMO research has found that females have four to six joeys in a lifetime; more males are killed by car strike then females; and that burrow-sharing and crèche activity does occur within the species.

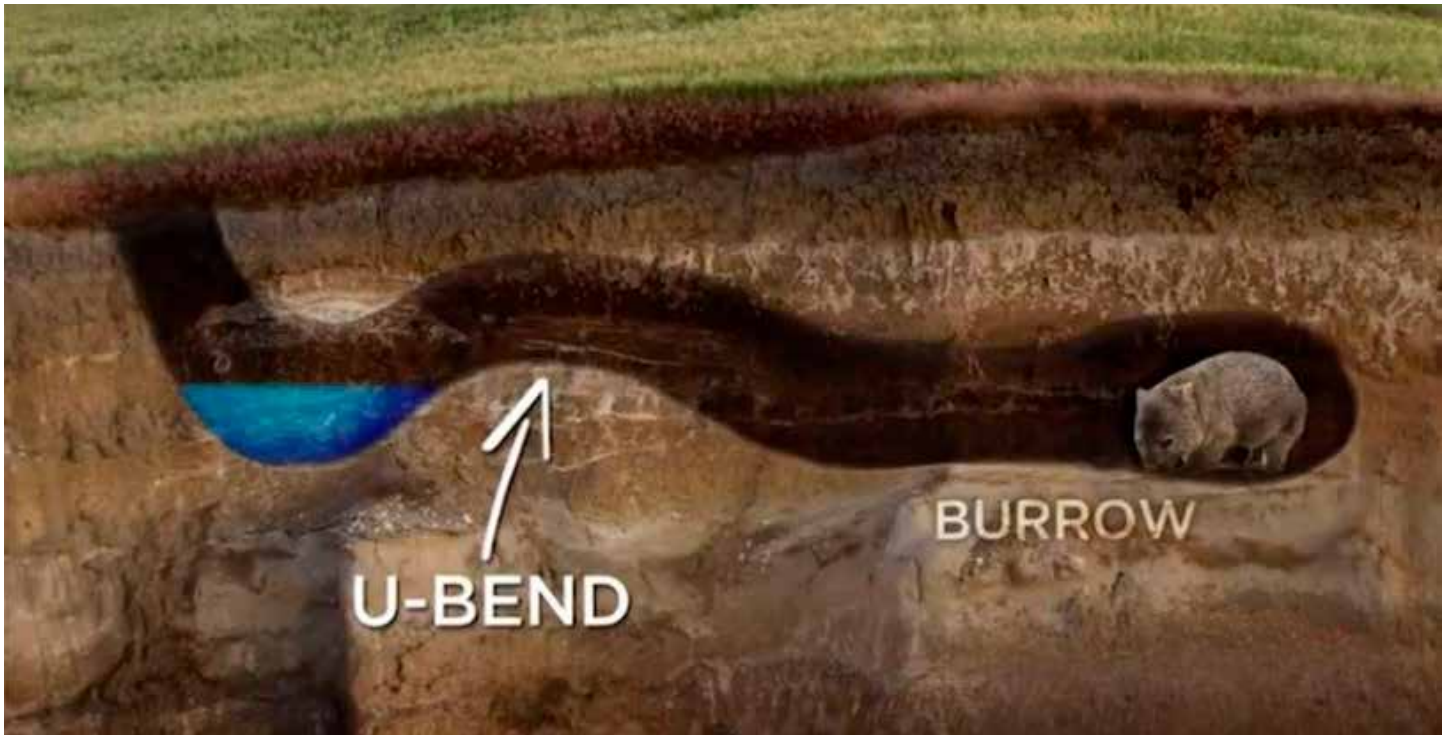
MMO covered infield mange treatment experiences, methods and also observations of wombats, with cameras and first-hand. A short MMO video showed us a previously unseen activity of a female wombat stripping bark off a nearby tree and then shovelling the bark strands into her nearby burrow, presumably to line the den with soft padding.

Glen Taylor from Wombats SA took us back in time with his paper 'A long-term population study of the southern hairy-nosed wombat at Moorunde Wildlife Reserve'. From his research in 1977 Gary found that the wombat network of trails and interconnecting wombat burrows is not unlike the organisation of human populations into towns and cities connected by road systems.

Students plunge head first into their research! Photo: Blackwood High School

The Wombat Foundation (TWF) – a key sponsor of the conference – was represented by Suzy Nethercott-Watson and Josey Sharrard, who presented 'The story of the northern hairy-nosed wombat'.

Good news for the species – one of Australia's most endangered animals – is that the 2017 wombat hair census count sits at 250 at Epping Forest Scientific Reserve in Queensland, and the female bias increased to 53 percent,



Blackwood High students have made an exciting discovery. In each investigated burrow they found a U-bend at the entrance, presumably to keep water from entering the burrow.

up from 33 percent in 2001. Not-so-good news is that Epping Forest will run out of space (suitable wombat habitat) in 2025 and the same will occur even sooner at the Richard Underwood Nature Reserve (translocation site) in 2023. As a result, a large focus of TWF will be to assist locating a third site. Land owners within northern hairy-nosed wombat historic range are being called to donate 1,000 hectares for wombat recovery.

My favourite talk at the conference was by Yvette Fenning from Rockhampton Zoo with her brave and frank paper 'Wombats in captivity – we can do better'. Modern animal welfare standards demand a deep understanding of the five domains of animal welfare – nutrition, environment, health, behaviour and mental state – and zoos must demonstrate their commitment to the five domains. Animals must be able to exhibit species-specific behaviours. The very nature of the wombat – a large burrowing, grazing herbivore – makes providing an environment conducive to its lifestyle habits a challenge. While many zoos are genuinely making a good attempt to provide adequately for their wombat species, Yvonne noted that zoos still have a long way to go towards achieving positive welfare standards for all captive wombats.

An example of this is inadequate burrows. Too many zoos offer hollow logs for wombats to sleep in. Has anybody witnessed a wild wombat living in a hollow log out in the wild? No. Why then do some zoos still offer this substandard housing? Sleeping dens positioned above ground then raise the concern of inappropriate temperature control. Wombats cannot tolerate high heat and without a proper underground burrow, wombats are exposed to temperatures that their bodies simply cannot cope with. Zoos that strive to achieve the five domains have provided underground, temperature-controlled dens with viewing windows so visitors can watch the wombats living as they would in the wild – which is normally sleeping during the day!

If I were to present an Australian Wildlife Society Exemplary Ingenuity Award at the Wombat Conference, it would have been to the students from Blackwood High School. I was so very impressed with their project, 'Developing a mobile burrow-camera'.

For the last few years students from the school have designed and improved a 'wombot' – a vehicle capable of exploring underground warrens up to 30 metres long and branching in dozens of directions. Guided by scientists at the University of Adelaide, their research will help better understand the three remaining wombat species in Australia. Much of the research is being carried out using the southern hairy-nosed wombat but these discoveries are hoped to help better understand the northern hairy-nosed wombat.

Their initial camera, using commercial remote-controlled technology, was hampered by inadequate signal strength and inappropriate wheels that became clogged and bogged underground,so the students designed their own camera vehicle using examples from the University of South Florida. So far so good!

The students made an exciting discovery: in every burrow they investigated they found that the resident wombat had made a U-bend at the burrow entrance, which is thought to stop water from entering the burrow and reaching the wombat's warm den. This is a significant finding and one that will be followed up with more research.

The project has given students real-life experience in science and conservation. Blackwood High teacher Matthew Loan stated, "It's maths and science and engineering and literacy and numeracy all blended together to create or solve a problem".

There were many more presentations, including my own well-received 'A guide to the care of bare-nosed wombats', only one of two rescue/rehabilitation talks at the conference. I also presented a short talk on the Australian Wildlife Society and our work with wombats.

Adelaide University intend to publish the papers from the conference in what has been dubbed *The Wombat Bible*. AWS will be notified when the publication becomes available to purchase or download.

The purpose-built 'wombot' that was designed by students. Photo: Blackwood High School

TREE-KANGAROOS

Tree-kangaroos and the kangaroos we associate with Australia both fall under the umbrella of macropods – the family of plant-eating marsupials that includes kangaroos and wallabies. Macropods used to dwell in trees, but millions of years ago they came down to live on the ground. Ancestors of tree-kangaroos eventually went back up the trees, becoming the largest tree-dwelling mammals in Australia.

Scientists believe there are 13 species of tree-kangaroos or 15 species if sub-species are included. Two species are found in Australia, but only in Queensland. The Bennett's tree-kangaroo is found north of the Daintree River, and the Lumholtz's tree-kangaroo is found further south. The remaining species are found in Papua New Guinea. Tree-kangaroos have adapted better to regions of high altitudes and therefore are found in mountainous areas.

Tree-kangaroos have several adaptations to an arboreal lifestyle. Because much of their lifestyle involves climbing and jumping between trees, they have evolved an appropriate method of locomotion. Compared to terrestrial kangaroos, tree-kangaroos have longer and broader hind feet with longer, curved nails. They also have a sponge-like grip on their paws and soles of their feet. Tree-kangaroos have a much larger and pendulous tail than terrestrial kangaroos, giving them enhanced balance while moving about the trees. Locomotion on the ground is by hopping, as with true kangaroos.

Tree-kangaroos can leap to the ground from 18 metres up without injury. They are active in the morning and afternoon, but in areas near human settlements they are mostly nocturnal. Like terrestrial kangaroos, tree-kangaroos do not sweat to cool their bodies; rather, they lick their forearms and allow the moisture to evaporate in an adaptive form of behavioural thermoregulation.

Tree-kangaroos must find places comfortable and well adapted for breeding, as they only give birth to one joey per year. They are known to have one of the most relaxed and leisurely birthing seasons. They breed cautiously in treetops during monsoon season. This habitat leaves the joeys vulnerable as they can easily fall prey to their natural predators, amethystine pythons, which also climb and live in the forest treetops.

In many places around the world, deforestation impacts wildlife habitat. It's the same where tree-kangaroos live. Many tree-kangaroo species already exist in low numbers and most populations are decreasing. Once common throughout the Atherton Tablelands and Daintree Rainforest, the Bennett's tree-kangaroo is now in danger due to large-scale habitat loss from agriculture and urban development, resulting in fragmented landscapes. The need for tree-kangaroos to travel across the ground means they can fall prey to dogs and cars. In addition, scientists believe that this species is under threat from predicted climatic changes that will affect important tree-kangaroo habitat.

Lumholtz's Tree-kangaroo

The Lumholtz's tree-kangaroo is named after the Norwegian explorer Carl Sofus Lumholtz (1851–1922), who discovered the first specimen in 1883.

The Lumholtz's tree-kangaroo is a distinctive kangaroo with a short, broad head, small ears, heavily muscled arms and a very long, black tail. Animals are blackish-brown with a black face and a pale band across the forehead and sides of the face; some animals have a rufous (reddish) tinge to the fur. It is the smallest of

Above: Lumholtzs Tree-kangaroo

all tree-kangaroos. Its body and head length ranges about 48–65 cm, and its tail, 60–74 m, with males weighing an average of 7.2 kg and females 5.9 kg.

Lumholtz's tree-kangaroos are restricted to rainforests between the Cardwell Range and Mount Carbine Tablelands, north Queensland. It is largely restricted to upland rainforest; animals are regularly encountered in fragmented rainforest on the basalt soils of the Atherton Tablelands. Dispersing juveniles sometimes turn up in farmland, urban areas or eucalypt forest adjacent to rainforest.

The Lumholtz's tree-kangaroo is largely arboreal – it has strong forearms and claws for climbing trees and a long tail for balance. It is also well adapted for travel across the ground, where it can hop like other kangaroos, although rather heavily. It feeds primarily on the leaves of rainforest trees and vines and often descends to the ground to move between food trees.

Females are sexually mature at around two years of age and carry their young in a pouch for around nine months. The young take another three to eight months to be weaned, after which they accompany their mother for another year or more. Juvenile males are chased away from their mothers by adult males intent on mating.

A major threat to this species in the past has been the large-scale clearing of its favoured rainforest habitat on the fertile basalt soils of the Atherton Tablelands. Many animals still survive and breed in the tiny regrowth fragments there; however, these are threatened by domestic dog attacks and are frequently killed on roads. In the longer term, global warming poses a threat to this species. Like other leaf-eating marsupials in the wet tropics of north Queensland, Lumholtz's tree-kangaroo is a high-altitude, cool rainforest specialist.

Bennett's Tree-kangaroo

Bennett's tree-kangaroo is a larger tree-kangaroo than the Lumholtz tree-kangaroo. It is thought to be the closest tree-kangaroo to the ancestral form. Males can weigh from 11.5 kg up to almost 14 kg, while the females range between 8 and 10.6 kg. They are very agile and are able to leap nine metres down to another branch and have been known to drop as far as 18 metres to the ground without injury. Like other tree-kangaroos it has longer forelimbs and shorter hindlimbs than terrestrial kangaroos and a long bushy tail. It is mostly dark brown above and lighter fawn on chin, throat and lower abdomen. The forehead and muzzle are greyish. The feet and hands are black. The tail has a black patch at the base and a light patch on the upper part. The ears are short and rounded.

The Bennett's tree-kangaroo is a herbivore. It lives almost completely on the leaves of a wide range of rainforest trees, notably the umbrella tree, vines, ferns and various wild fruits, in all 33 different plant species.

This very elusive (or "cryptic") tree-kangaroo is found in both mountain and lowland tropical rainforests south of Cooktown, Queensland, to just north of the Daintree River, in an area of only about 70 km by 50 km. It is also occasionally found in sclerophyll woodlands.

The Lumholtz's tree-kangaroo is primarily a solitary marsupial. During breeding when the female is in oestrus cycle, males will approach the females to breed. The Lumholtz's tree-kangaroo has a gestation period of 42-48 days. Pouch life is around nine months and weaning generally occurs between three to eight months. The joey will then make short excursions from the pouch with the mother usually following close by.

Now that it is rarely hunted by Aborigines, its main predators are pythons and the dingo.

Although the IUCN still rates the status of Bennett's tree-kangaroo as Near Threatened, its numbers seem to be increasing and its range expanding. Sightings have become far more common in recent years. The increases in numbers and range are likely because most of its range is now protected under World Heritage legislation.

Bennetts Tree-kangaroo

Epidemiology of *Ranavirus* in Australian freshwater turtles

Wytamma Wirth Editor's note: Wytamma was one of the ten University Grant recipients last year

My name is Wytamma Wirth and I am a PhD student at James Cook University. My project is focused on ranaviruses and Australian freshwater turtles. At James Cook University we have an excellent Turtle Health Research team that works many aspects of turtle health.

Infectious diseases, such as ranaviruses, pose a risk to Australian freshwater turtle species. A general lack of understanding of the health and disease of Australian turtles limits our ability to predict and control disease outbreaks.

Ranaviruses are emerging and highly lethal pathogens that infect fish, amphibians and reptiles. First discovered in 1965, ranaviruses were initially studied for their interesting molecular biology but rose to reportable pathogen status as they increasingly caused disease in wild animal populations. Ranaviruses are now found all over the world and scientists are working to understand what drives their expansion. Wild species of Australian fish and amphibians have been found with ranavirus infections.

Wytamma releasing freshwater turtle hatchling (*Emydura macquarii krefftii)* in the Ross River, Townsville. Photo: Matt Curnock

These same viruses infecting amphibians in the wild are able to infect Australian freshwater turtle species but we don't know what ranaviruses are doing to our wild freshwater turtle populations. Through my project we aim to learn about these viruses in wild freshwater turtles and improve our overall understanding of freshwater turtle health. We will be conducting a survey of freshwater turtles looking for ranaviruses. Using DNA sequencing, we will categorise and describe the distribution of these turtle ranaviruses. The results of the project will help to improve freshwater turtle health and conservation.

Wytamma Wirth with adult freshwater turtle (*Elseya irwini,* Johnstone).

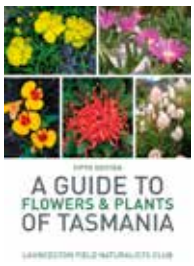
Juvenile freshwater turtles (*Myuchelys latisternum* and *Emydura macquarii krefftii*).

Book Reviews

***Habitat: A Practical Guide to creating a wildlife-friendly Australian garden* by AB Bishop**

In a world where suburban nature is declining and diversity is shrinking, *Habitat* is a practical guide for those of us who want to encourage insects, reptiles, frogs, birds and animals into our garden. Not only for our own enjoyment, but as a direct contribution to the health and sustainability of our local environment and wildlife. AB Bishop shows how to design, plant and maintain fauna-friendly landscapes, stressing the importance of understanding how all aspects of the backyard ecosystem are interlinked in order to create a truly authentic and effective habitat. This information-packed resource includes a detailed plant directory; information on what plants (native and exotic) suit what creatures and why; and advice on how to factor in the shelter, nesting, food and water requirements of different types of wildlife. A practical projects chapter features step-by-step instructions for soil testing; making compost tea; building and planting a frog pond; and constructing nesting boxes and insect hotels.

Publisher: Murdoch Books | RRP: $39.99



***A Guide to Flowers & Plants of Tasmania* by Launceston Field Naturalists Club**

An invaluable companion and reference for bushwalkers, tourists and all those interested in the Tasmanian countryside. Now in its fourth edition, *A Guide to Flowers and Plants of Tasmania* has been extensively revised.

Publisher: New Holland Publishers
RRP: $32.99

***Field Guide to Birds of North Queensland* by Phil Gregory and Jun Matsui**

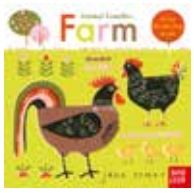
North Queensland is the premier destination for wildlife tourism in Australia, and birdwatchers travel there from all over the world in search of the 'must-see' birds. This comprehensive field guide to the birds of the region covers more than 400 species found in the rainforests and other key habitats which are at the epicentre of Australia's avian biodiversity. Each species is illustrated with usually three or four of Jun Matsui's stunning photographs, showing different plumages according to age, sex or season. Phil Gregory's text – approximately 150 words per species – describes key identification features, habitat, distribution, voice and conservation status.

Publisher: New Holland Publishers | RRP: $49.99

***Animal Families: Jungle* by Jane Ormes**

This is the first of an exciting new series of lift-the-flap board books introducing the concept of family. Find out the different names for mummy and daddy animals in the jungle – and then lift the flap to find the babies! This book makes a satisfying introduction to animal families, with screen-printed artwork from Jane Ormes in bold neon ink that will capture the attention and imagination of babies and toddlers.

Publisher: Allen & Unwin | RRP: $12.99



***Animal Families: Farm* by Jane Ormes**

The second in a series of lift-the-flap board books introduces very young readers to a series of farm animals.

Publisher: Allen & Unwin | RRP: $12.99

***Quitting Plastic: Easy and Practical Ways to Cut Down the Plastic in Your Life* by Clara Williams Roldin and with Louise Williams**

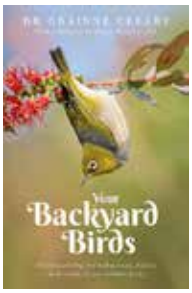
As President of AWS, I have been writing on the danger to wildlife from plastic for many years. But where do you start if you want to reduce the plastic in your life? Especially when most of us are wearing it, eating and drinking from it, sitting on it, walking on it, and probably even ingesting it. Anywhere you go, plastic is within easy reach. This book is an excellent guide to the many things you can do to reduce your plastic footprint, starting with changes that are small and easy to make, and working up to more significant changes to your daily routine.

Publisher: Allen & Unwin | RRP: $19.99

Waddle - A Book for Penguin Lovers

This compilation of quotations about penguins – each quote accompanied by gorgeous photography – keeps the focus on fun. You can enjoy this book just for the photographs, but also read it from cover to cover for some added pleasure. *Waddle* intends to put a grin on your face and a warm feeling in your heart – all thanks to these delightful creatures that don't just walk, but waddle.

Publisher: Exisle Publishing | RRP: $29.99



***Your Backyard Birds: Understanding the Behaviours, Habits and Needs of our Brilliant Birds* by Dr Gráinne Cleary**

Our human relationships with the birds who share our backyards are revealed with humour and charm in this beautiful, inspiring and heartwarming book. An ideal gift for any bird lover.

Publisher: Allen & Unwin | RRP: $29.99

***Australia's First Naturalists: Indigenous People's Contribution to Zoology* by Penny Olsen and Lynette Russell**

Australia's First Naturalists is invaluable for those wanting to learn more about our original inhabitants' contribution to the collection, recognition and classification of Australia's unique fauna. It heightens our appreciation of the previously unrecognised complex knowledge of Indigenous societies.

Publisher: NLA Publishing | RRP: 44.99

***Yahoo Creek: An Australian Mystery* by Tohby Riddle**

Luminous images, accompanied by newspaper extracts dating back to the early 1800s and words by Ngiyampaa Elder Peter Williams, explore the ongoing mystery of yahoo encounters. Throughout the first century or so of Australian settlement by Europeans, the pages of colonial newspapers were haunted by reports of a bewildering phenomenon: the mysterious yahoo or hairy man ... But what was it? Yahoo Creek breathes life into this little-known piece of Australian history – which, by many accounts, is history still in the making.

Publisher: Allen & Unwin | RRP: $29.99

AUSTRALIAN WILDLIFE SOCIETY
PO BOX 42 BRIGHTON LE SANDS NSW 2216 | (ACN 134 808 790)

PRESIDENT'S ANNUAL REPORT FOR 2018

A year in review

The past year for the Society has been one of consolidation and growth. I was honoured to be elected as President following the Annual General Meeting. We were delighted to welcome a new member to the Board – Assoc. Professor Julie Old, a very keen wildlife conservationist and author.

One of the highlights of the year was the presentation of our three awards – the **Serventy Conservation Award, Community Wildlife Conservation Award** and **Wildlife Rehabilitation Award.** Our Society knows that many organisations and thousands of volunteers are already working tirelessly to save our threatened species as well as the humble and more common Australian species and the precious wildlife habitat in which they live. We are all aware of the wonderful work being carried out by conservation organisations and volunteers across the country. We are very proud to acknowledge and reward these individuals or conservation groups and encourage them to continue their good work on behalf of the whole community.

Another highlight is the awarding of our ten University Scholarships offered to honours or postgraduate students at Australian universities. Each year, ten $1,500 grants are awarded. Grants are available for research projects of direct relevance to the conservation of Australian wildlife – plant or animal. We also award two special scholarships at University Technology Sydney and University of New South Wales.

Australian Wildlife magazine

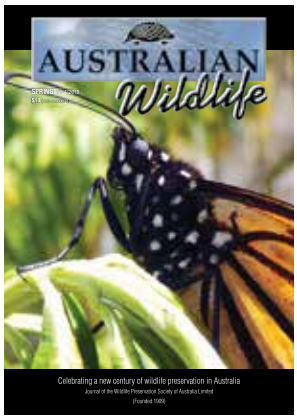
Our coloured *Australian Wildlife* magazine is the flagship of the Society and has proved to be extremely popular amongst all of our members. We invite members to distribute copies to family and friends and to invite them to become members. A special thankyou to our Subeditor, Sabine Borgis, for her valuable contribution to assisting with the editing of the magazine.

Our fortnightly email wildlife newsletter has also proven to be very popular with our members and we encourage them to forward the newsletter on to their family, friends and associates to help spread the wildlife conservation word. A big thankyou to Linda Dennis, Editor of the newsletter, for her valuable work in keeping us regularly informed on wildlife matters. If you have not registered your email address and would like to be put on the email list to receive the fortnightly newsletter, please contact accounts@aws.org.au with your details.

Summer Cover

Autumn Cover

Winter Cover



Spring Cover

Website

We continue to update our website to make it more user friendly. Changes to the structure and layout will be an ongoing process. We are in the process of constructing a 'Members Only' section. This year also saw the introduction of a free membership to all students and educational institutions via our website.

Membership

We introduced a new category of free membership classified as a Class B membership. Class B members do not have the right to vote at company general meetings, and receive an Emag subscription to the quarterly magazine *Australian Wildlife.* To be eligible a person must be a student at any school or registered educational institution, and hold a current student ID card or be a registered school.

Members are encouraged to view the website and send any feedback via email to: info@wpsa.org.au

Wildlife rescue calls

We continue to receive numerous and wide-ranging distress calls for help from members of the public about sick, injured and stranded wildlife across Australia. Calls are received at all hours of the day and night and often the best we can do is to advise the caller to keep the animal or bird warm until a local rescue service can assist further.

Our Mission

Part of our Mission Statement reads: "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." To fulfil this goal we introduced the University Student Grants Scheme in 2005 and since its inception have awarded over 150 grants to very worthy recipients. In 2016 we increased the grant to $1,500 and plan in the future to steadily increase the dollar amount of the grants subject to further donations, which are always welcome.

Wildlife Science Ecology Research Scholarships

The **University Technology Sydney Wildlife Ecology Research Scholarship** was awarded to UTS School of the Environment PhD student Etsy Yanco, for her project titled "*Foxlights*: A tool for coexisting with wildlife on production landscapes of New South Wales".

The inaugural **University of New South Wales Wildlife Ecology Research Scholarship** was awarded to UNSW School of the Environment PhD student Corey Callaghan for his project "What impact do cities in the Blue Mountains World Heritage Area have on bird-life?".

Wildlife Conservation Awards

The winner of the **Serventy Conservation Award** was Jennie Gilbert. Jennie has devoted her life to caring for all animals, but for her, there is nothing more rewarding than watching a healthy sea turtle swim its way to freedom. The co-founder of the Cairns Turtle Rehabilitation Centre (CTRC), Jennie, along with her dedicated team of volunteers, has helped nurse hundreds of sick and injured reptiles back to health over the past 20 years, releasing them back onto the Great Barrier Reef with satellite trackers attached to monitor the success of the release.

Jennie Gilbert

The winner of the **Community Wildlife Conservation Award** was Port Stephens Koala and Wildlife Preservation Society, who have been operating in the Hunter region of NSW for 40 years. The group has built up a magnificent set of statistics on koala rescues and has been able to demonstrate conclusively the decline in the local population. This has led to efforts to have the local koala population classified as Endangered by the NSW Scientific Committee.

Port Stephens Koala and Wildlife volunteers

The winner of the **Wildlife Rehabilitation Award** was Robin Crisman. Robin is a Doctor of Veterinary Medicine with additional degrees in Veterinary and Biomedical Science. Robin has practised for over 25 years, and in that time her work has included veterinary care of wildlife at Blackbutt Reserve and Australia Walkabout Wildlife Park. Robin's devotion to animal care and her passion for veterinary excellence makes her a worthy recipient of the Wildlife Rehabilitation Award.

Suzanne Medway presenting Robin Crisman with her award

Wildlife Photographic Competition

The annual judge's prize of $1,000 was won by by Tom Burd for his photo of a short-necked turtle.

The annual people's choice prize of $500 was won by Nicholas Chu for his photo of a crest-tailed mulgara.

Gala Ball

The 2018 Gala Ball was held again in the Grand Ballroom of the Western Leagues Club, Campelltown, on Saturday 7 July. It was another outstandingly successful evening, with some 220 guests enjoying the festivities of music and dancing. A special thankyou to all our sponsors who contributed to the fundraising for the evening, and especially to Damion Stirling of Wollondilly Council for being our special guest speaker to raise the awareness of the local koala populations. We thank director Trevor Evans for bringing along two baby dingoes, a koala and a snake to help highlight the plight of our wildlife of which many species are facing the threat of extinction.

A big thank you to our major sponsor, Family Conveyancing Practice.

L to R: John, Jonathan and Louise Howart-Sparks

Helpers at the Ball. L to R: Olivia Grabowski, Cindy Aldridge, John Grabowski and Will Grabowski

2018 – University Student Grants Scheme

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. The winners for 2018 were:

Michael G Bertram - School of Biological Sciences, Monash University
Project Title: Sex on steroids: Effects of a widespread agricultural pollutant on reproductive processes in fish

Kimberly Chhen - School of BioSciences, University of Melbourne
Project Title: Preying upon a pathogen: The effects of species interactions on chytrid fungus

Anita Freudmann - School of Earth, Environmental and Biological Sciences (Queensland University of Technology)
Project Title: Foraging ecology and behaviour of eastern tube-nosed fruit bats (*Nyctimene robinsoni*)

Angela Hansen - University of Tasmania
Project Title: Plastic pollution in Australian waterfowl and wetlands

Jacinta Humphrey - La Trobe University
Project Title: Beyond the fringe: Temporal and spatial change in peri-urban land-use and avian communities

Oliver Jewell - Centre for Sustainable Aquatic Ecosystems, Harry Butler Institute, Murdoch University, Western Australia
Project Title: Functioning without food? Energy landscapes and foraging energetics of white sharks

Peter Puskic - University of Tasmania; Institute for Marine and Antarctic Studies (IMAS)
Project Title: More than skin deep: Examining the cellular-level effects of ingested plastic on the flesh-footed shearwaters of Lord Howe Island

Alexandra Ross - Centre for Ecosystem Science, University of New South Wales
Project Title: The Nailtail Nursery: Assessing a novel conservation strategy

Anthony Waddle - James Cook University
Project Title: Using emergent genetic tools to identify genes associated with resistance to chytridiomycosis

Wytamma Wirth - James Cook University, Epidemiology
Project Title: Epidemiology of Ranavirus in Australian freshwater turtles

2018 Conservation Group Grants

The Board of Directors carefully considers all requests for grants from other wildlife conservation groups and places a special emphasis on native wildlife research, conservation and the preservation of wildlife habitat. We lobby organisations and government bodies on their behalf and make donations to assist them in their special wildlife conservation projects. Conservation grants were made to the following projects:

- Kit Prendergast, PhD researcher, was awarded a grant of $5,000 from the FlowHive Pollinator Support Program for her project Barcoding Bees for Biodiversity Assessments.
- Kimberley Wildlife Rehabilitation Inc. was awarded a grant of $5,000 for the purchase of a building for caretaker/keeper accommodation.
- Queensland Platypus Alliance was awarded seeding funds to establish the campaign to protect platypus from Opera House nets throughout Queensland.

Conferences and wildlife research seminars

The Society's directors attended and contributed to a number of important wildlife conservation conferences, seminars and meetings throughout the year. We initiated and sponsored many of these conferences and participated in others. AWS is an active member of the Nature Conservation Council of New South Wales. Our Society's CEO is a representative on a number of pest animal control committees and attends both city and country meetings.

Donations, bequests and gifts

During the year we continued with our bequest program to encourage donors to support our wildlife conservation work across Australia through the website and through general publicity. We are very grateful to all our members for considering using the bequest program to help the Society with its long-term planning. Please contact the National Office for more details on the Bequest Program and on how to join the Friends of the Society and make a regular monthly donation to support our national wildlife conservation programs. We hold Australian Tax Office gift deductible status for any donations over $2.

Financial Report summary

The Society's directors and the Finance and Investment Committee continue to exercise tight and effective control over our finances, reviewing and adjusting the investment portfolio as required during the year. The investment funds of the Society have continued to grow. The board will conduct a review of our investments in line with ethical issues.

Moving Forward

The process of gradually moving the national office to Narellan was commenced with the transferring of the membership functions to what we hope will be the permanent national office of the Society.

A special thankyou to all our members

May I wish every member of the Society a happy, healthy and prosperous 2019. This will mark our 110th anniversary. We thank you all most sincerely for your tremendous support and continued dedication and commitment in helping the Society to preserve and protect our native wildlife for future generations of Australians.

Suzanne Medway AM | PRESIDENT | 31 December 2018

Board of Directors at a Christmas luncheon. L to R: Julie Old, Wayne Greenwood, Stephen Grabowski, Suzanne Medway, Clive Williams Philip Sansom, Trevor Evans, Ken Mason, Dick Mason and Patrick Medway

Australian Wildlife Society
University Research Grants

INSTRUCTIONS FOR APPLICANTS

The Australian Wildlife Society University Research Grants are scholarships offered to honours or postgraduate students at Australian universities. Each year, ten $1,500 grants are awarded. Applicants wishing to become a member of the Society can do so at www.aws.org.au

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 grant is paid directly to the student.

PREPARING YOUR APPLICATION FOR A GRANT

Applications should be a maximum of 3-4 pages (12 point font), including a brief CV, and should be set out under the headings below.

APPLICATIONS EXCEEDING FOUR PAGES WILL NOT BE CONSIDERED.

Introduction: Briefly introduce the background to your research topic, specify the project's aims, and outline its importance to the conservation of wildlife.

Methods: Briefly outline your proposed methodology. We require only sufficient detail to demonstrate that your aims are achievable. Remember that the assessors may not be familiar with your field of research. You must also indicate that you have obtained (or at least applied for) any relevant research licences, permits or approvals (including animal ethics).

Schedule: Outline a proposed timeframe for the completion of your project, listing major milestones, including the submission of a final report to the AWS.

Budget: Itemise the expenses involved in conducting your research. Any funds already secured from other sources must also be declared. (This will not reduce your chances of success, provided there are necessary items in your budget that are not yet funded).

Brief CV: The final page of your application should consist of a short CV, which should demonstrate your ability to produce results of a high standard within a limited timeframe. Also include the details of two referees who can comment on the proposed project, one of whom should be your academic supervisor.

Please prepare your application as a single 'Word' document, and submit it as an email attachment to info@aws.org.au. For convenience, it would be helpful to name your file according to the format: 'Your Name AWS Grant Year', e.g. 'Joe Bloggs AWS Grant 2019'.

CLOSING DATE: APPLICATIONS ARE DUE BY 30 MAY EACH YEAR.

CONDITIONS OF SPONSORSHIP

Recipients of Australian Wildlife Society grants will be requested to acknowledge the Society's contribution in all publications and presentations arising from their project. In addition, recipients will be required to submit a brief report on their project to the Society for use in the Society's magazine, *Australian Wildlife.*

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

Be a part of the Australian Wildlife Society's conservation future






To commit to being a part of our future, please complete this form. You may cancel your donation subscription at any time by notifying the national office.

Australian Wildlife Society
PO Box 7336
MT ANNAN NSW 2567

Email: accounts@aws.org.au
Telephone enquiries to: (02) 9556 1537

You may also commit by visiting www.aws.org.au and registering online

All donations of $2 or more are tax deductible.

Australian Wildlife Society
Conserving Australia's Wildlife since 1909

Your Details

Name: Dr / Mr / Ms / Mrs / Miss

Address:

State: Postcode:

Phone: Home Work

Email:

☐ I want to join the Friends of WPSA and give by automatic deduction each month to help protect our unique native wildlife and its important habitat

I will give via: Credit Card (please complete authority form below)

Credit Card Payments

I am paying by: ☐ Visa ☐ MasterCard Card Security Code (CSC) __ __ __ __

Card No. __/__/__/__/ __/__/__/__/ __/__/__/__/ __/__/__/__/ Expiry date ___ /___

Name on card Signature

Regular Payment can be made by EFT

BSB: 062 235
Account No: 1069 6157
Account Name:
Australian Wildlife Society

I will give:

☐ $10 per month ☐ $15 per month ☐ $25 per month ☐ $50 per month

☐ My choice of $ per month _____

Signature Date

This authorisation is to remain in force until cancelled by the donor and in accordance with the terms described in the Agreement below.

Deduction will be made on 15th of each month.

CREDIT CARD AUTHORITY

1. The Donor will be advised 14 days in advance of any changes to the Credit Card Authority arrangements. 2. For all arrangements relating to the Credit Card Authority arrangements, the Donor will need to write to PO Box 7336, Mt Annan NSW 2567 or email info@wpsa.org.au. 3. Account details should be checked against a recent statement from your Financial Institution. 4. It is the donor's responsibility to ensure sufficient funds are available when the payments are due to be drawn. 5. If the due date for payment falls on a non-working day or public holiday, the payment will be processed on the next working day. 6. For returned unpaid transactions, the following procedure will apply: AWS will advise the Donor of the unpaid transaction and request alternative arrangements to be made for payment if possible. 7. All Donor records and account details will be kept private and confidential to be disclosed only at the request of the donor or Financial Institution in connection with a claim made to an alleged incorrect or wrongful debit. 8. This authorisation is to remain in force until cancelled by the Donor.

Membership Form

Membership

Become a member of the Australian Wildlife Society
Simply fill out this form.

Australian Wildlife Society
Conserving Australia's Wildlife since 1909

Name: .....

Address: .....

City/Suburb: ..... Postcode: .....

Telephone: ..... Fax: .....

Email: .....

Membership category (please tick)

- ☐ Student: $0 (Conditions apply)
- ☐ Individual: $55
- ☐ Family: $70
- ☐ Concession (pensioner/student/child): $50
- ☐ E-mag (emailed as PDF, no hardcopy will be sent): $30
- ☐ Associate (library, school, conservation groups): $85
- ☐ Corporate: $125
- ☐ Life: $2,000

(Includes postage within Australia. Add $40 for overseas postage)

Three year membership (please tick)

- ☐ Individual: $150
- ☐ Family: $190
- ☐ Concession (pensioner/student/child): $135
- ☐ E-mag (emailed as PDF, no hardcopy will be sent): $81
- ☐ Associate (library, school, conservation groups): $230
- ☐ Corporate: $340

(Includes postage within Australia. Add $60 for overseas postage)

Payment details (please tick)

☐ Direct Debit ☐ Cheque ☐ Money Order ☐ Mastercard ☐ Visa

Card Security Code (CSC) __ __ __ __

Card Number:

Name on Card: ..... Expiry: .....

Signature: .....

Amount $ .....

Donation $ .....

Total $ .....

Mail to the: **Australian Wildlife Society**
PO Box 7336, MT ANNAN NSW 2567.
Email: accounts@aws.org.au Website: www.wpsa.org.au

Direct debit: **BSB:** 062 235
Account No: 1069 6157
Account Name: Wildlife Preservation Society of Australia trading as the Australian Wildlife Society

Membership Hotline: Mob: 0424 287 297

Note: All cheques to be made out to the Australian Wildlife Society

Consider - A Bequest

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:

> I bequeath the sum of $..... to the Wildlife Preservation Society of Australia trading as the Australian Wildlife Society for its general purposes and declare that the receipt of the Treasurer for the time being of the Society shall be complete discharge to my Executors in respect of any sum paid to the Wildlife Preservation Society of Australia Limited trading as the Australian Wildlife Society.

"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.

2019 ANNUAL PRESIDENT'S LUNCHEON

Megan Fabian and Mel Tuk

Alice and John Grabowski

Hetty and Noel Cislowski

The Grabowski family enjoying the luncheon.

Pam Field, Margaret McGurgan and Colleen Keys.

Robin Crisman, Suzanne Medway and Roz Holme.