AUSTRALIAN Wildlife

WINTER Vol: 3/2020
$10 (non-members)

Celebrating a new century of wildlife preservation in Australia

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

Bird is the Word!

BEAUTIFUL PHOTOS BY GREG DAWSON
SEE PAGE 28 FOR EVEN MORE

Pink robin (male) (*Petroica rodinogaster*). Photo taken in February 2020 at Great Otway National Park, Victoria. Photo: Greg Dawson

Gang-gang cockatoo (*Callocephalon fimbriatum*). Photo taken in February 2020 at Cape Otway, Victoria. Photo: Greg Dawson

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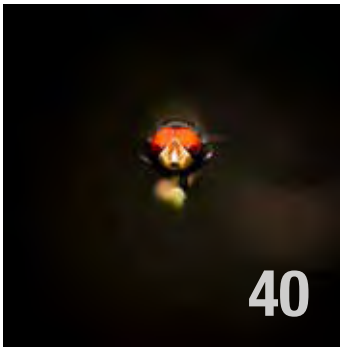

regulars

Suzanne Medway AM
Editor, Australian Wildlife

Megan Fabian
Sub-Editor, Australian Wildlife

ON THE COVER:

Front Cover:
Easter freshwater cod (*Maccullochella ikei*). The eastern freshwater cod occur in the coastal Clarence River system of north-eastern New South Wales. Photo: Brett Vercoe

Back Cover (top and bottom):
Southern pygmy perch (*Nannoperca australis*). These striking fish are usually able to hide deep in clumps of Phragmites and Typha with very little water. Photos: Luke Pearce

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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Price $10 (for non-members)

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Student Membership: $0 (Conditions apply)

Individual Members: $55

Family Members: $70
(being husband, wife and children jointly)

Concession: $50
(pensioner, student, child)

E-mag Members: $30
(Australian Wildlife magazine will be distributed via email as a pdf document - no hard copy of the magazine will be sent)

Associate Members: $85
(being schools or incorporated or unincorporated associations with a principal object related to conservation, nature study or education)

Corporate Members: $125
(being incorprated or unincorporated associations not being associate members)

Includes postage within Australia.
Add $40 for overseas postage

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Family Members: $190
Concession: $135
E-mag Members: $81
Associate Members: $230
Corporate Members: $340

Includes postage within Australia.
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Contact

National Office
Australian Wildlife Society
(Wildlife Preservation Society of Australia Limited)

PO Box 7336
MOUNT ANNAN NSW 2567

Tel: 0424 287 297
Email: info@aws.org.au
Accounts: accounts@aws.org.au

Editor "Australian Wildlife":
president@aws.org.au

Website: aws.org.au

Membership Hotline:
Mob: 0424 287 297

Correspondence to:
Hon Secretary:
Australian Wildlife Society

PO Box 42, BRIGHTON LE SANDS NSW 2216
Email: secretary@aws.org.au

Directors 2020

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

The purpose of a wildlife carer's work is to raise or rehabilitate orphaned or injured native wildlife so that they may be returned to the wild, and live the natural life that was intended for them.

Since the foundation of our Society in 1909, we have a very proud and successful history. Our mission statement is:

> *The Wildlife Preservation Society 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.*

In summary, the Society is dedicated and committed to:

- Protection and conservation of Australia's precious wildlife – fauna and flora;
- Support of the volunteer conservationists who give their time and resources to wildlife; and
- Education of the next generation of young Australians on just how unique and precious Australia's native wildlife is.

The people we support in these endeavours are volunteers. They volunteer not only their time and expertise but also their resources.

When the Society gives a grant or donation to a wildlife conservation organisation, we ask only two things:

1. That the donated funds are spent on the specified project; and
2. The recipient sends us a short paragraph and photo on the project.

Recently we ran a campaign to raise funds for wildlife affected by bushfires. The response was marvellous, and we distributed all the funds received to worthy organisations. However, we were astonished that a few organisations turned us down, feeling that they did not have the time, endurance or resources to adhere to the two requests. On reflection, I quite understand.

The purpose of a wildlife carer's work is to raise or rehabilitate orphaned or injured native wildlife so that they may be returned to the wild, and live the natural life that was intended for them. They're not pets; they simply need love and care to help them on their way. Caring involves feeding, keeping them warm or cool depending on the weather, providing a safe space to live, and making sure they receive any attention they need from a vet.

Each state and territory in Australia has different rules and regulations about becoming a wildlife carer. To become a wildlife rescuer, a person has to apply to their local state authority, receive training, and fulfil state-specific requirements. The learning process includes animal behaviour, emergency medical procedures, and proper animal handling. Shelters and reserves tend to rely heavily on volunteer labour, and most wildlife rescuers have full-time jobs, in another field, and use their days off and weekends to rescue wildlife.

Many people find the experience of rehabilitating native wildlife rewarding; however, it is time-consuming and can be very expensive. Anyone considering entering into wildlife care should initially touch base with a local volunteer wildlife care association. These organisations can be found in most major regional centres.

Caring for native wildlife takes a lot of experience. It is not like looking after a cat or a dog. Native animals have special dietary requirements, need constant veterinary care and a strong commitment by the carer to rehabilitating the wildlife. Some native animals need highly specialised care; koalas, echidnas, platypuses, raptors and reptiles are some examples of animals that require high levels of expertise and a degree of specialisation. Many of these species are also threatened, and their survival is highly significant. Only people with extensive experience in the rehabilitation of these species will be able to obtain a rehabilitation permit for them.

A volunteer gives their time, energy, expertise and resources to the conservation of an animal. In the case of the bushfires, an injured animal would be in tremendous pain and distress, and the volunteer would care for this animal 24 hours a day. When a newborn is rescued, the animal requires feeding every two hours around the clock. You can imagine the toll this takes on a person, their home, their family, their health and their resources.

A volunteer still has to earn a living, shop and feed a family, as well as take care of an injured animal. When asked to write reports or submit statistics or articles, I can understand the pressure wildlife carers must feel. What do they give up to write a report – looking after the animal? Family time? Cooking? Cleaning? Shopping? Personal hygiene? Sometimes, the answer has to be "NO, I just can't do it! I have nothing more to give".

Volunteer wildlife carers often suffer from burn-out and 'compassion fatigue' due to the stress of the job. Wildlife carers deal continuously with death, sickness and loss. Juggling paid work along with volunteer work can take a toll. Quite often, when an animal in their care dies, it can push a carer over the edge. Because carers are often self-sacrificing by nature, they are less likely to take care of their mental health.

I am very humbled by the dedication and commitment of these wonderful people – the volunteer wildlife carers. They are my heroes!

Australian Wildlife Society

NATIONAL COLOURING-IN COMPETITION

The Australian Wildlife Society colouring-in competition is designed to inspire the younger generation to learn about Australia's native wildlife via visual art and creativity. We hope that the experience provides participants with the opportunity to explore and develop a deeper understanding of environmental and wildlife-related issues.

There will be one first, second and third place winner in each state and territory of Australia. The first place finalist in each state and territory will go into a draw to have their artwork published in the Society's magazine *Australian Wildlife*. All first place winners will receive an annual family membership, valued at $70, and a certificate of congratulations. Their artwork will be published in the Society's e-newsletter and social media platforms. Second and third place winners will receive a certificate of congratulations and their artwork will be published in the e-newsletter and social media platforms.

TERMS AND CONDITIONS

When you submit your entry, please include the following information:

- Your name
- Your state of residence
- Telephone number and/or email address (this is how we will notify the winners)
- Parent/guardian's signature as consent for entry into the competition

SUBMITTING YOUR ENTRY

- Entries are limited to one (1) entry per person
- To submit your entry, please take a photo or scan the completed artwork and email a copy to info@aws.org.au
- Please name your file according to the format: Name, State, Date (For example: MarkNSW15.11.20)

CLOSING DATE FOR ENTRIES: 30th NOVEMBER 2020

PARTICIPANTS WILL BE NOTIFIED BY EMAIL/PHONE IN MID-DECEMBER

Wildlife Preservation Society of Australia,
Trading as Australian Wildlife Society

Megan Fabian - National Office Manager

In this issue of Australian Wildlife, I wanted to provide new and existing members with a summary of the ongoing efforts of the Society for the past 111 years. Firstly, to those of you who are new members of the Society, welcome! I really do hope that you obtain a sense of satisfaction and increased knowledge on the collaborative work being promoted nationally, through our magazine, social media platforms and website. To our ongoing and loyal members, thank you for your continued support. We hope that you all feel valued and rewarded, knowing that you are implementing action to make a positive change and are contributing to the preservation of Australia's wildlife.

The Wild Life Preservation Society of Australia was founded in 1909 by a group of enthusiastic bushwalkers. Our founders suggested the need for such a group in a talk with the Naturalists' Society of New South Wales. The Swedish Consul-General for Australia, Count Birger Mörner, organised the first preliminary discussion in the consulate on 11 May 1909. As an outcome of this discussion, it was decided to call a public meeting on the formation of such a Society. Fifty people attended and were enrolled as the first members of the Society. Within one week, the newly formed Wild Life Preservation Society of Australia had grown to more than 100 members. The provisional committee worked hard and in the same year, the inaugural meeting adopted a constitution and elected the first chairman, the Honourable Frederick Earle Winchcombe MLC. The Society pioneered the recognition of the need for legal protection for Australia's animals and plants.

Today, we are known as the Australian Wildlife Society (AWS). We are a national not-for-profit wildlife conservation organisation. Our mission is to conserve Australia's wildlife (flora and fauna) through national environmental education, political lobbying, advocacy, hands-on conservation work and involvement of the community. AWS is a registered company limited by guarantee with the Australian Charities and Not-for-profits Commission (ACNC) and is responsible for complying with all its regulations. The Society is funded through membership fees, sponsorship, partnerships and donations, and managed by an elected board of ten volunteer directors. We hold regular monthly meetings to discuss important wildlife conservation matters and make many significant decisions upon which we act.

Directors

Suzanne L Medway AM - President and *Australian Wildlife* Editor

Suzanne has been a member of the Society since 1988 and was elected as Secretary/Executive Director in 2002. For the past ten years, Suzanne has served as the Society's National President. Since that time Suzanne has modernised the office administration, created and maintained the website, increased the membership base and raised the standard of the *Australian Wildlife* magazine to a very professional level, along with the new wildlife email newsletter. Suzanne was awarded Life Membership of the Society in February 2009. Suzanne has edited three books for the Society – *Conserving Australia's Wildlife*, *Conservation Victories and Battles Yet to Win* and *100 Years of Saving Australia's Wildlife*. Suzanne has overseen many major achievements during her tenure, including the implementation and completion of the Towra Beach Restoration Project in Botany Bay. Suzanne also introduced an Australian Wildlife Society scholarship program, which to date has awarded more than 150 scholarships to university students. Suzanne was awarded Environmental Volunteer for 2010 in the prestigious NRMA Helping People Awards and was named Rockdale 2019 Local Woman of the Year.

Associate Professor Julie Old - Vice President

Associate Professor Julie Old is a wildlife biologist, who is passionate about educating future wildlife researchers and helping to conserve the natural environment. She completed her PhD in 2002 in marsupial immunology and worked as a postdoctoral research fellow at Macquarie University before commencing her teaching position at Western Sydney University in 2006. Julie's research expertise combines immunology, developmental biology, molecular biology, anatomy, microscopy, ecological techniques and citizen science to solve important issues in wildlife health and disease, especially marsupials. Julie is also the Chief Investigator of the Citizen Science project, WomSAT, which aims to educate the wider community about wombats and sarcoptic mange. Julie joined the Society as a Director in 2018 and became Vice President in 2020. Julie founded the 'Youth Conservation Award' for AWS – an annual prize of $500, which is awarded to a young individual or small youth organisation who contributes to the conservation of Australian wildlife.

Stephen Grabowski - Vice President

Stephen was appointed as a Director on the board in 2016 and was re-elected as Vice President in 2020. Prior to Stephen's involvement in the Society, the return on our investments was negligible. Under Stephen's stewardship, the Society's investments grew considerably. We feel that the Society's investments are in safe hands and we have no hesitation in endorsing Stephen as a trustworthy and competent financial manager. Stephen is a lifetime member and his future goals for the Society are to expand its membership base and social media profile and establish as a "go-to" peak conservation organisation.

Patrick W Medway AM - Honorary Secretary and Chief Executive Officer

Patrick joined the Society in 1985 and was awarded Life Membership of the Wildlife Preservation Society in 1988. He has been an active member serving as the Honorary Secretary and Executive Director of the Society since 1995. Patrick was elected as National President on the retirement of Dr Vincent Serventy AM in 2002 and served for eight years in that capacity before nominating Suzanne Medway to the position of President of the Society in 2010. With his professional qualifications, experience and expertise he has been actively involved in many conservation, zoological, botanical and educational associations across Australia. He co-authored *Conservation Victories* with the late Dr Vincent Serventy AM and commissioned two other publications, *Conserving Australia's Wildlife* and *100 Years of Saving Australia's Wildlife*, to mark the centenary of the Society in 2009. Patrick's current ambition is to establish a sustainable and commercially viable national headquarters for the Society over the next year or two.

Alice Suwono - Treasurer

Alice is a Certified Public Accountant with over 20 years' experience in the accounting and finance departments, with a particular focus on improving business process efficiencies. Alice has extensive experience in cash management, has completed multiple system transfers and has a deep understanding of the system work as an integration of various modules. Alice was appointed as a Treasurer of the Australian Wildlife Society in 2018.

Philip Sansom - Director

Philip has formal qualifications in visual arts and creative and performing arts as well as extensive experience on various board appointments, committees and in local government. Philip was a Councillor on Hurstville City Council from September 1991 to May 2016, Mayor on three occasions and received the title of Emeritus Mayor in 2016. Philip was chair of the Sydney Metropolitan Catchment Management Authority (2008 - 2011) and served for 15 years on the Metro Southwest National Parks and Wildlife Service Regional Advisory Committee (2000 - 2015). Philip was appointed as a Director of the Australian Wildlife Society in March 2018. Philip's future goals for the Society are to: 1. Protect and conserve Australia's native wildlife; 2. Continue to support wildlife conservation research; and 3. Provide the opportunity for our community to be more informed about Australia's native flora and fauna.

Ken Mason - Director

Ken became a Director on the board in March 2012. Ken was appointed Vice President in 2014 and held this position for six years. Ken has strived to ensure that the Society is financially secure and commercially equipped to be able to promote and support wildlife conservation programs across Australia and provide university student grants for bright young people to study wildlife conservation issues. His commitment to the board of directors is to continue to work for the successful future of the Society.

Trevor Evans - Director

Trevor joined the Society in 2001 and became a Director on the board in 2016. Trevor holds a Bachelor of Applied Science (Ecotourism and Ecosystem Management) from Charles Sturt University New South Wales. Trevor is General Manager of Secret Creek Wildlife Sanctuary, Lithgow and has wide experience in wildlife management, wildlife conservation, environmental education programs and hands-on experience in breeding rare and endangered species. Trevor represents on many government and agency threatened species programs/projects. He was awarded Conservationist of the Year in 2010 and Australian Ecosystems Foundation, of which Trevor is Secretary, was a recipient of the Wildlife Preservation Society Community Conservation Award in 2009.

Wayne Greenwood - Director

Wayne joined the Society in 2009 and became a Director on the board in 2016. He has a long-term interest in wildlife conservation with strong family connections in the country. He is very committed to helping to save Australia's native wildlife and to promote Land for Wildlife projects. Wayne expects to retire to Kangaroo Valley and will have more time to devote to helping the Society and its projects. Wayne and his wife Jeanette's property is part of the Greater Eastern Ranges Wildlife Initiative and, over the past few years, he has been actively remediating areas of their property, which has enabled wildlife like lyrebirds, echidnas and wombats to return in number to their property. Wayne's future goal for the Society is to promote wildlife conservation in all schools for future generations of children.

Brian Scarsbrick AM - Director

Brian is an innovator and strong networker within government, industry, corporate sector and research/academic communities. Brian has held senior positions throughout his career, from Regional Director of Agriculture, to leading a small professional multi-disciplinary team at Landcare Australia Ltd., to his most recent position as Chief Executive Officer of The National Trust of Australia New South Wales (2012 - 2017). Brian was appointed as a Director of the Australian Wildlife Society in March 2020. Brian's future goals for the Society are to: 1. Provide assistance and advice to help facilitate the recovery of biodiversity, with a particular emphasis on wildlife following the devastation from the Australia-wide bushfires; 2. Bring an enhanced botanical and habitat perspective to the activities of the Society; and 3. Help promote the importance of enhancing flora biodiversity (in particular, trees) in reducing carbon emissions.

Our Projects

The *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 also. The magazine has developed over time since the 1930s, largely due to the efforts of the current President and CEO, and went from black and white to colour. We also produce a monthly e-newsletter to help convey the importance of wildlife conservation, the work of the Society and news from our members. You can become actively involved in the newsletter and magazine by sending photos and written articles for inclusion.

The Society offers four prestigious awards – the Serventy Conservation Award, Community Wildlife Conservation Award, Wildlife Rehabilitation Award and Youth Conservation Award. Our Society is aware that many organisations, individuals and thousands of volunteers are working tirelessly to save Australia's native wildlife and the precious habitats in which they live. 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 grants of $1,500 are awarded. Grants are available for research projects of direct relevance to the conservation of Australian wildlife and applications are due by 31 May.

We also award three special university scholarships at University Technology Sydney, University of New South Wales and Western Sydney University. The Wildlife Ecology Research Scholarship is open to postgraduate research students undertaking a research project of direct relevance to the conservation of Australia's wildlife. Scholarships are valued at $5,000 for one year, a payment of $2,500 each semester.

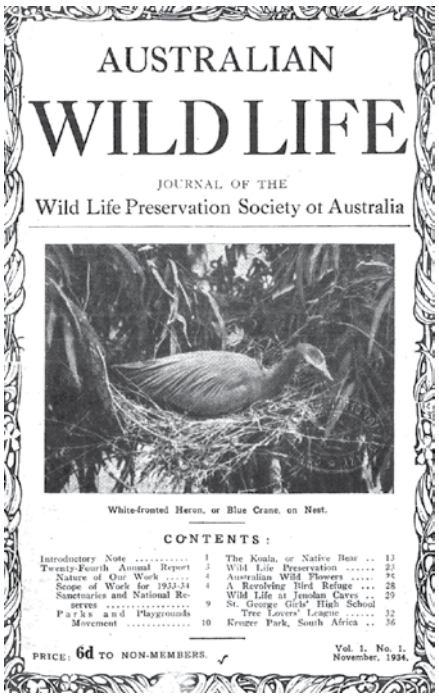
Meeting with the Minister for the Environment, Matthew Kean MP, on behalf of the New South Wales Platypus and Turtle Alliance, at Parliament House on Wednesday, 13th November 2019. L to R: Philip Sansom, Stephen Kamper MP (Member for Rockdale), A/Professor Julie Old, Matthew Kean (Minister for the Environment), Patrick Medway, Suzanne Medway, Wayne Greenwood, Ken Mason, Professor Richard Kingsford, Megan Fabian.

The Society also offers conservation group grants. The board of the Society carefully considers all requests for grants from conservation groups that place a special emphasis on wildlife preservation. A grant application form is available on the website, should you be interested in applying.

The Society selects a threatened species each year to feature as its 'wildlife of the year'. The Society allocates funds toward the conservation of this species to ensure its preservation for future generations. This year's wildlife of the year is the mountain pygmy possum (*Burramys parvus*). You can read more about what the Society is doing to preserve this species on the home page of our website.

The Society holds a Threatened Wildlife Photographic Competition, which is a national competition that rewards and promotes the conservation of threatened or endangered Australian wildlife through the medium of photography. The Society invites photographers to raise the plight of threatened or endangered wildlife across Australia and aims to encourage the production of photographs taken in Australia that reflect the diversity and uniqueness of Australia's wildlife. The closing date for entries is 30 June and online voting is from 1 to 31 July.

The colouring-in competition is designed to inspire the younger generation to learn about Australia's native wildlife via visual art and creativity. We hope that the experience provides participants with the opportunity to explore and develop a deeper understanding of environmental and wildlife-related issues. Entries are due by 30 November.



AUSTRALIAN

WILD LIFE

JOURNAL OF THE

Wild Life Preservation Society of Australia

White-fronted Heron, or Blue Crane, on Nest.

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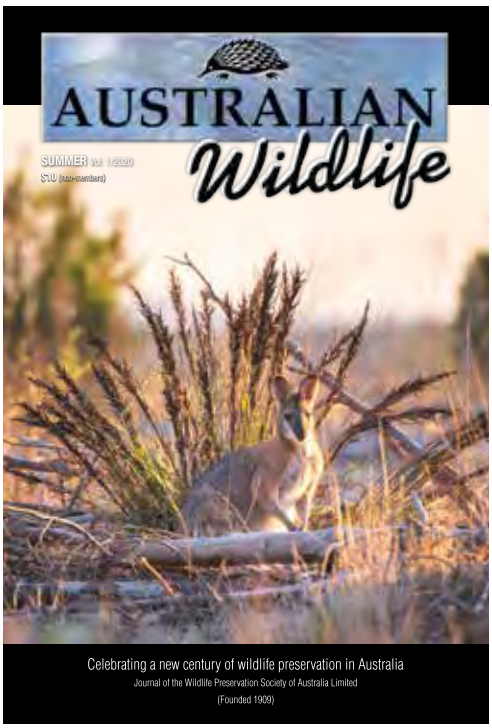
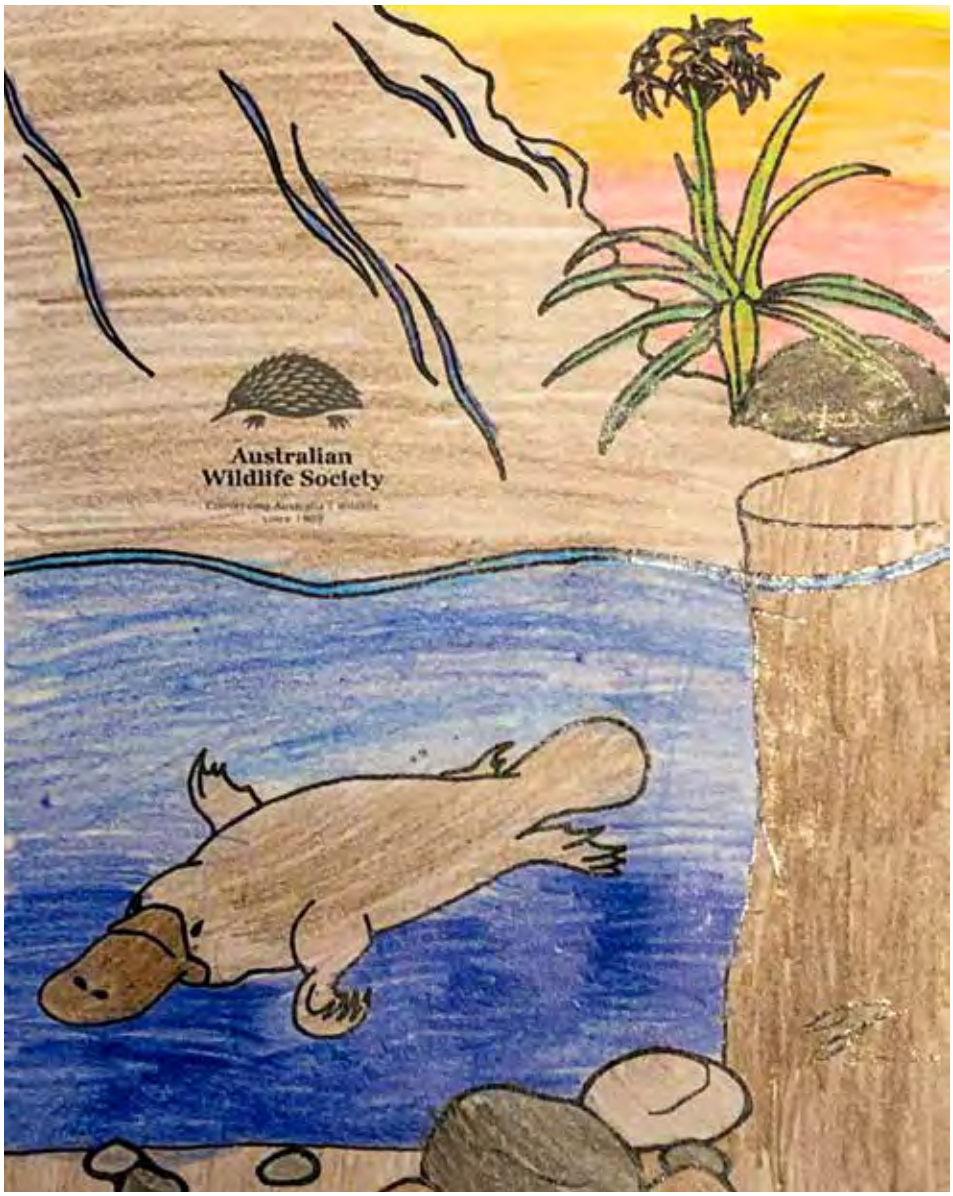
The *Australian Wildlife* Magazine, in black and white, in 1934.



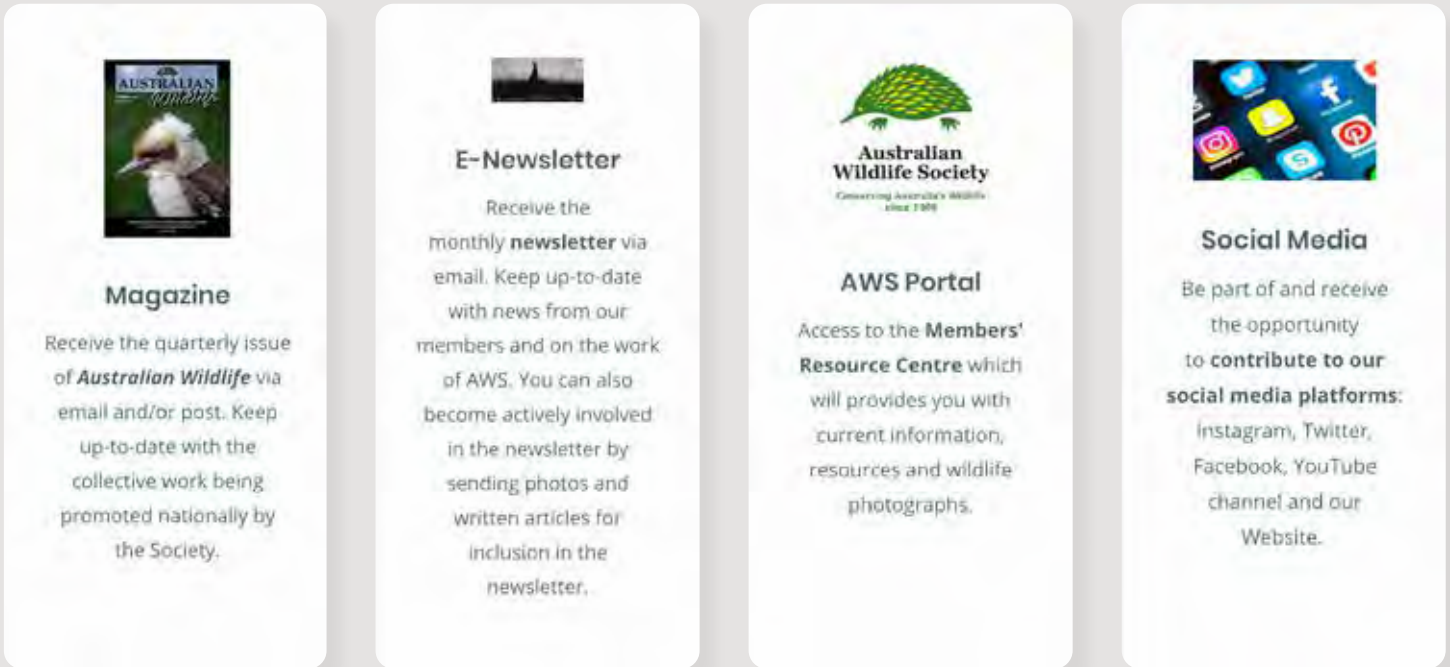
The *Australian Wildlife* Magazine, in colour, in 2020.



2019 colouring-in competition entry from 7yo Savannah Henderson of New South Wales.

The Society founded the New South Wales Platypus and Turtle Alliance. We met with New South Wales Minister for the Environment, Matthew Kean MP, on behalf of the New South Wales Platypus and Turtle Alliance, at Parliament House on Wednesday, 13 November 2019. The Alliance asked the Minister to implement a complete ban on opera house nets across the state, and implement a net exchange program to help save platypus and other air-breathing aquatic wildlife from drowning in New South Wales rivers. The Society is pleased to announce that our efforts have been recognised, with a complete ban on opera house nets to be implemented in New South Wales, effective from the end of 2020. We would like to recommend an immediate embargo pending the final announcement. We are indebted to the strong support from the New South Wales Platypus and Turtle Alliance members, all of whom are dedicated to the conservation of Australia's unique wildlife. We are now asking the Queensland Government to follow the lead of other states in Australia and implement legislation to ban enclosed yabby traps in all Queensland waters.

In 2019, the Society accepted a significant sponsorship from family-owned confectionery brand, Ferrero as part of their new Kinder Natoons series which aims to help save endangered native wildlife. The Society selected one wildlife conservation program in each state of Australia and one in New Zealand as recipients of conservation funding as part



Benefits for members.

of this partnership. We are continuing to collaborate with Kinder, with details of our projects available on our website.

The Society wanted to do more to help wildlife affected by the recent bushfires sweeping the country and, as a result, the Society decided to establish an initiative to raise much-needed funds for bushfire-affected wildlife and those groups on the frontline caring for them. One hundred percent of donations raised were distributed to nine wildlife rescue groups in total across New South Wales, South Australia and Victoria. The treatment and rehabilitation of native wildlife is an intensive and long-term process and recovery can take up to six to nine months.

The Society founded Australian Wildlife Week, which is commemorated across the country during the first week of October to encourage a positive relationship between humanity and nature. We hope to raise awareness and inspire all Australians to explore and develop a deeper understanding of environmental issues, gain the necessary skills to make informed decisions and take action to improve the environment, by offering 50 percent off one-year and three-year membership subscriptions during the week of 1 to 11 October.

The Society's newly established student blog page provides students with the opportunity to publish and promote their work, whilst providing new and interesting perspectives for the broader AWS community. Podcasts and vlogs are also welcome.

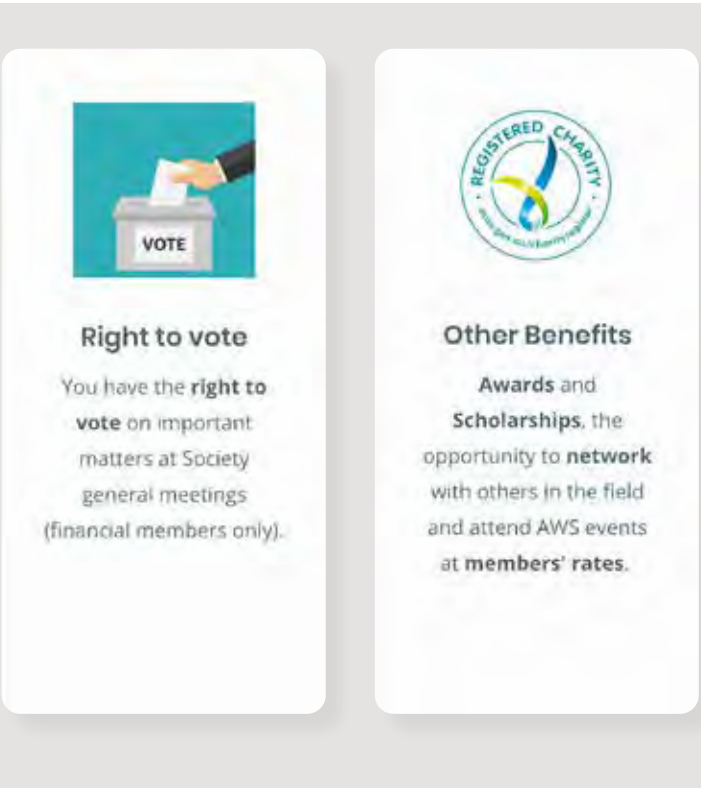
Kinder®

NATOONS

The Society is active on four social media platforms (Facebook, Twitter, Instagram and YouTube). We aim to keep our followers up to date with important actions of the Society and the collective work being promoted nationally. Our followers continue to grow each month and we welcome you to join us. The Society continually updates the website to accurately reflect its current projects and work. We welcome you to access the website for further information.

Membership

The Society offers a variety of membership options and there are many benefits to becoming a member. Membership is divided into one-year and three-year categories. You will receive benefits according to the membership category that you select. For example, an individual membership includes a hard copy of the magazine and an e-mag membership includes an electronic copy of the magazine. Further information regarding our membership options is provided on page 54. In 2019, the Society introduced free membership for students. To activate the membership, we ask that you email us a copy of your current student ID or university transcript detailing the expiry date of your enrolment. We invite you to join/renew directly with the Society and welcome everyone on board to help preserve Australia's native wildlife.



The benefits of membership include:

- An electronic or hard copy of the quarterly issue of *Australian Wildlife*;
- A copy of the monthly e-newsletter;
- Access to the Members' Resource Centre;
- The opportunity to publish and promote your work on the Society's newly established student blog page;
- The opportunity to be part of and contribute to our social media platforms;
- Reduced ticket prices for AWS events;
- The opportunity to apply for grants including our annual awards and scholarships;
- The opportunity to interact and network with others in the field of wildlife conservation; and
- The opportunity to have a say on topics that concern the Society, such as environmental legislation, climate change and land clearing.

Thank you for your support! Please do not hesitate to get in touch should you have any questions. We look forward to the vital wildlife conservation work of the Society in 2020 and beyond.

FRIENDLY LOCALS

Vimal Aravinthan

Noojee the koala who has just turned five years old.

Hello, fellow wildlife enthusiasts. I am an aspiring photographer based in southeast Melbourne. For the past 30 years, I have been working as an IT consultant and while I have learnt to enjoy my job, the joy that comes from having a camera in my hand supersedes anything else.

My photography journey began 15 years ago as a casual hobby with two aims – to be able to reminisce on the wondrous sights my family and I have experienced during our travels and, just as importantly, to do justice to this witnessed beauty. The latter formed the roots of my growing passion for wildlife photography – to capture the chaos and harmony of some of Australia's untouched terrestrial ecosystems, and spread it to those around me. My involvement in the Australian Native Orchid Society has also played a significant role in my appreciation of wildlife. These interests engendered me to participate in the hybridisation of butterfly orchids or fairy bells the *Sarcochilus species*.

While in a world surrounded by constant modernisation at the sacrifice of our climate, we are only recently starting to see a societal movement towards ecological modernisation. With the threats of climate change apparent, now more than ever before, seeking to combine the interests of both economy and ecology should be a top priority. This movement has the potential to provide solutions for the source of biodiversity issues, and is a shining light for those who have sought to preserve Australia's flora and fauna for years on end. I wholeheartedly commend those individuals and organisations who have made it their duty to preserve the diversity of Australia's nature, whether it means being a conservation scientist, a natural historian, a zookeeper or even a wildlife enthusiast.

However, for people out there who don't have such careers, we can take on the responsibility of impressing upon the younger generation (a generation that will ultimately decide the fate of our climate) the significance of preserving nature. It starts by fostering appreciation. When it comes to my grandchildren, regular visits to zoos, sanctuaries and native gardens have not only provided an exciting day out but a wonderful educational opportunity. Furthermore, Netflix has an abundance of wildlife documentaries, covering from top to bottom what our planet has to offer. These learning experiences will be pivotal to the younger generation's development as to how they view nature preservation in the future.

Sean the echidna who is a venerable 23 years old.

Dindi the koala who is seven years of age.

The featured images are a collection of snapshots from a day trip to Healesville Sanctuary, one of the few major conservation organisations in Victoria. These native Australian animals are no strangers to us locals. Healesville has played a tremendous role in the protection of Australia's wildlife and took on a great responsibility to treat recent bushfire-affected species. I recommend a visit for those who have not yet been to Healesville.

As photography became a profession for me during the past few years, with experience in a number of wedding and event photography assignments, I am now looking to take my wildlife exposure to another level, with aspirations to take part in a range of tours and expeditions on offer. This will allow me the breadth to experience close-up encounters of a diverse network of flora and fauna, with the goal to both exhibit and enhance my photography skills with likeminded people.

Vimal Aravinthan (photographer and author).

kinder® Natoons sponsorship to save endangered native wildlife

In 2019, the Australian Wildlife Society accepted a significant sponsorship from family-owned confectionery brand, Ferrero as part of their new Kinder Natoons range which aims to help save endangered wildlife across Australia and New Zealand. Kinder's Natoons collection features a native Australasian animal toy range to provide parents with the tools to educate their children about the importance of native wildlife. The Society has selected several wildlife conservation programs in each state of Australia and one in New Zealand as recipients of conservation funding under this program.

Wildlife Conservation Projects We Have Supported

Raising Awareness of the Plight of Koalas by Educating Children

Julie Reid

Friends of the Koala (FOK) is a not-for-profit organisation in the Northern Rivers region of New South Wales. We are licensed by the New South Wales Department of Planning, Industry and Environment to rescue, rehabilitate and release koalas (*Phascolarctos cinereus*) in the region. Each year we rescue up to 400 sick, injured and orphaned koalas – more than any other rescue organisation in New South Wales. Amongst many other activities, we maintain a 24/7 rescue hotline, operate a native tree nursery, and manage both a triage, treatment and pathology clinic and an education and administration centre in East Lismore. Our mission is to make a key contribution to Australia's biodiversity, by ensuring the conservation of the iconic koala and the preservation and enhancement of koala habitat, particularly in the Northern Rivers region.

Koala conservation cannot be achieved without the inclusion of Australia's future generations and the ongoing education of children and young adults. By teaching environmental awareness and wildlife conservation, children are more likely to become engaged with their local communities later in life, and be more conscious of threats to sustainability. Younger generations play a key role in conveying the important message of koala conservation to others, including their friends and family. Such messages include koala preservation, the need for protection of habitats, and the ongoing threats to wildlife.

FOK educators are regularly called on to attend school environmental education events and to visit local schools to

Lismore City Council 'Upcycle' family education day - looking for koala (*Phascolarctos cinereus*) scratch marks.

World Environment Day, combined schools' event - Wyrallah Road Public School students.

Rocky Creek Dam Environmental Family Education Day.

Lismore High School Education Day.

communicate with students, reaching more than 300 students on an annual basis. What FOK educators are finding in their regular contact with children, is the high level of knowledge amongst local students relating to Australia's native wildlife and, in particular, koalas. Most students have had contact with Australia's endearing icon or can have their first encounter at one of the many combined school events, held in koala habitat at the Lismore City Council's Botanical Gardens education site. We are always fortunate to have a koala in attendance; however, the challenge is to locate it.

Students are provided with the opportunity to put on their detective hats; they are guided in what signs to look for when koalas are known to be present (e.g. scats and scratch marks on trees). While children are initially excited by the sight of a koala, whether in a tree or on the ground, they are also learning to determine if the koala is in distress or unhealthy. Furthermore, they are taught how to report an injured koala, and whether it requires FOK's assistance.

The New South Wales Environmental Trust funded 'Koala Watch' project has generated an education resource package that is suitable for all members of the community. The success of this ongoing education, across all sectors of the community, has led to an escalation in the reporting of koala sightings and an increase in the number of koalas coming into care. As part of the 'Koala Watch' project, students are issued with a fridge magnet with the FOK rescue number. Students of all ages can also access activity sheets on the FOK website https://www.friendsofthekoala.org/.

School Education Program - Eltham Public School.

Key outcome and impact of the funding provided: in 2019, Friends of the Koala (FOK) engaged with students and members of the community at a number of events such as Lismore City Council 'Upcycle' family education day, Eltham Public School Education Program and Rocky Creek Dam Environmental Family Education Day, to educate students and members of the community about the importance of koala conservation. Students and members of the community were taught what signs to look for when koalas are known to be present (e.g. scats and scratch marks on trees), to determine if a koala is in distress or unhealthy, how to report an injured koala, and if it requires FOK's assistance. FOK successfully educated more than 300 students and members of the community about the importance of koala conservation.

Save Australia's Wonderful Wombats: A Wombats SA Education Project

Sally Letcher

Wombats SA aims to promote and raise public awareness of the value of conserving Australia's native flora and fauna through the maintenance and re-establishment of natural ecosystems and wiser land use. Currently, our main objectives are the management, maintenance and restoration of Moorunde Wildlife Reserve, which is the first established and currently largest sanctuary for the southern hairy-nosed wombat (*Lasiorhinus latifrons*) in the Murraylands Mallee, and one reserve near the town of Robe, southeast of Adelaide.

In recent years, southern hairy-nosed wombats in the Murraylands have faced many threats. The last couple of years have been very difficult, largely due to overgrazing pressures on the land and weather conditions, which have meant their native grasses haven't come back since the end of the last drought in 2012. In addition to the resulting malnutrition and starvation, many local farmers and landholders view wombats as vermin to be destroyed. We have seen disturbing evidence of wombats that have been culled both legally and illegally by shooting or bulldozing warrens over vast areas, leaving the wombats trapped to die slow deaths. Wombats SA, together with other groups, individuals and researchers, under the name Wombats Alliance, is working towards a long-term and region-wide solution to the overgrazing situation.

Wombats SA has been developing resources to promote greater public awareness of the endangered southern hairy-nosed wombat. A website has been developed, which contains student resources, as well as comprehensive teacher notes, units of work, and enquiry activities for students from foundation through to year six. These

Southern hairy-nosed wombat (*Lasiorhinus latifrons*) at Moorunde Reserve. Photo: Karen Collins

units align with both the Australian Curriculum and International Baccalaureate frameworks. Through the study of a species, such as the southern hairy-nosed wombat, students will be encouraged to see the relevance of their classroom studies to the complex environmental issues confronting the country they live in. We hope that these resources will assist teachers in equipping their students with the skills they need to be creative problem solvers and powerful advocates, to contribute to a healthy environment that supports all those who depend upon it.

In the next few months, we will also be conducting and filming several interviews with experts and volunteers. These interviews will help bring conservation and science to life in classrooms by providing students with the opportunity to hear from, and potentially interact with, people in the field.

While these resources are focused on the southern hairy-nosed wombat, they can easily be adapted to suit wombats in other regions. If you know a school, teacher or organisation who may wish to use them, we welcome you to share the following link with them https://www.saveourwonderfulwombats.org.au

Key outcome and impact of the funding provided: Wombats SA developed education resources to promote greater public awareness of the endangered southern hairy-nosed wombat. A website containing student resources was developed, which also provides comprehensive teacher notes, units of work, and enquiry activities for students from foundation through to year six. These units align with both the Australian Curriculum and International Baccalaureate frameworks. Through the study of a species, such as the southern hairy-nosed wombat, students were encouraged to see the relevance of their classroom studies to the complex environmental issues confronting the country they live in. These resources also assist teachers in equipping their students with the skills they need to be creative problem solvers and powerful advocates for a healthy environment that supports all those who depend upon it.

Tree Roo Rescue and Conservation Centre: A Very Special Australian Animal is in Trouble

Dr Karen Coombes


Mickie, a blind adult male Lumholtz's tree-kangaroo with his favourite umbrella flower (*Schefflera actinophylla*).

Did you know that kangaroos can climb trees? In 1872, William Hann stated, "to entertain the idea that any kangaroo known to us, or approaching its formation, could climb a tree, would be ridiculous". An individual might think that a kangaroo is incapable of climbing a tree; however, there is indeed a very special kangaroo that can climb a tree – a tree kangaroo.

There are 14 species of tree kangaroos. 12 species are found in Papua New Guinea and Australia has two very unique and endemic species – the Lumholtz's tree-kangaroo (*Dendrolagus lumholtzi*) and Bennett's tree-kangaroo (*Dendrolagus bennettianus*). Both species are found only in Far North Queensland and nowhere else in the world. While Bennett's is found north of the Daintree River, Lumholtz's distribution is from the Cardwell Ranges to the Daintree region, although it is found mostly in a fragmented rainforest on the Atherton Tablelands.

Many Australians don't even know these amazing animals exist, let alone that we have two very unique endemic species here in Australia.

The Lumholtz's faces several threats from habitat loss to dog attacks and vehicle strikes. In the past eight years, a new danger to their survival has emerged. An alarming number of Lumholtz's have been presenting with neurological or central blindness, with an increase of animals coming into care every year. Last year was the worst year, with one blind tree-kangaroo rescue being completed per week from August 2019 through to January 2020.

Tree Roo Rescue and Conservation Centre Ltd (TRRACC) is a non-profit organisation that is committed to rescuing and rehabilitating orphaned, injured or displaced Australian tree-kangaroos and returning them to the wild. However, if a tree-kangaroo is blind, returning it to the wild is not

possible. Fortunately, many can be rehomed at accredited zoos, which will play an important role in education and conservation. TRRACC works closely with the Queensland Department of Environment and Science (DES) and the Zoo and Aquarium Association (ZAA). Together, we have developed a captive breeding program and train zookeepers in the husbandry of Lumholtz's tree-kangaroos. TRRACC's vision is to assist in the prevention of the extinction of Australian tree-kangaroos, help to educate the public and increase awareness of Australian tree-kangaroo conservation and the threats that bring them into care. TRRACC is the very first and only dedicated tree-kangaroo rescue and rehabilitation centre in Australia and probably the world.

My husband and I moved to the Atherton Tablelands twenty years ago, with ten years of wildlife caring experience. We could not believe so little was known of this charismatic species. I embarked on, and completed, a PhD on the ecology and habitat use by Lumholtz's tree-kangaroos in 2005. We began rescuing injured and orphaned individuals from the time we arrived and have continued ever since. TRRACC was founded and established in 2012 due to the increase in rescues coming in. Until then, all costs were coming out of our own pockets, with no government funding available to wildlife carers. TRRACC still relies heavily on donations.

To have a large increase in individuals being rescued due to blindness is a huge concern for the future of this special and unique animal. While the affected tree-kangaroos are not completely blind, they suffer from loss of focus and poor depth perception. They can sense movement, light and shade and can see enough to get into trouble. Their actual eyes are not damaged, and they can look fine and healthy otherwise. They can still hop fast across the ground and climb around in trees but are not as agile as other animals. They become disoriented and lost and turn up in unusual places such as the plumbing section of a hardware store in the centre of Malanda, a noisy workshop of a service station and a toilet block in a café in Yungaburra. If the eyes are damaged, I believe it is due to the tree-kangaroo running into something due to the lack of focus and there is secondary damage to the eye. It is not toxoplasmosis or herbicide exposure and it is not contagious or hereditary. Joeys born from blind parents are not blind, and pouch young that come into care from mums being killed are not blind – only bigger teenagers, adults and older tree-kangaroos are affected.

We believe that the drier and warmer weather, experienced by the Atherton Tablelands over the past eight years, has played a major role in the increased stress to the rainforest fragments in which Lumholtz's tree-kangaroos live. Warmer weather increases the toxins in the rainforest leaves that the tree-kangaroos eat. Rainforest on the tablelands was continuous until it was cleared for timber and farming and is now highly fragmented, which allows the forest to dry out more than it would have in the past. The rainforest leaves are already very toxic, and the stress from drying out would increase these toxins. Whether these toxins are causing the damage, or the stress is allowing something else such as a pathogen to cause it, is yet to be determined.

Although research is ongoing, we do know that these rescued tree-kangaroos have brain damage and optic nerve damage behind the eye. Tissue samples, taken from affected animals, have been examined by veterinarian pathologist Dr Andrew Peters, a senior lecturer in Wildlife Health and Pathology at Charles Sturt University. Andrew believes that some evidence suggests this may be a new viral infection, potentially even a new virus, and that a lot of wildlife diseases, particularly new viral infections, are caused by changes to the environment.

Newly completed tree-kangaroo enclosures at Tree Roo Rescue and Conservation Centre Ltd.

Dr Karen Coombes with Jilly, a hand-raised orphaned Lumholtz's tree-kangaroo. Jilly is not blind and will be released once old enough.

TRRACC also works closely with Dr Tony Read, a veterinarian ophthalmologist from Adelaide. We have been working with Tony for the past eight years. He donates his time to check all blind Lumholtz's tree-kangaroos that come into care and to assist in the investigation of their blindness. We will be continuing our research this year, along with a veterinarian neurologist and a veterinarian neuropathologist who are joining the team, to help determine if the damage is from a virus or toxins.

Key outcome and impact of the funding provided: Tree Roo Rescue and Conservation Centre (TRRACC) was able to make improvements to their tree-kangaroo facilities such as tree-kangaroo enclosures, further develop their research into the cause of blindness in tree-kangaroos and created educational material for schools and the general public to help educate and increase awareness of Australian tree-kangaroo conservation and the threats that bring them into care.

Increasing Awareness of Platypus Conservation Issues in Victorian Primary School Students

Josh Griffiths

Josh Griffiths with Neerim South Primary School students. Josh is teaching the students about the importance of platypus conservation.

The platypus (*Ornithorhynchus anatinusis*) is one of the most unique animals in the world. After all, it is a duck-billed, beaver-tailed, semi-aquatic, venomous, egg-laying mammal. Platypuses live in freshwater rivers, creeks, lakes and dams throughout eastern Australia. As an aquatic species, the water that they rely on is also used in our houses, farms and industry, placing serious stress on their habitat. Other threats to platypus populations include drought and climate change, clearing vegetation, pollution, fragmentation from dams and weirs, and entanglement in litter and fishing equipment. As a result, we have seen declining populations and localised extinctions over the past few decades.

Platypus education poster.

One of the challenges as a researcher is to be able to share our findings and knowledge with the wider community, to help instil the wonder of Australia's amazing native animals and to hopefully change behaviours that will result in better conservation outcomes for wildlife.

Thanks to a grant provided by the Australian Wildlife Society, leading platypus ecologist, Josh Griffiths from Cesar, is sharing more than a decade of experience and knowledge of platypuses with primary school students across regional Victoria. Primary school students, particularly those in the seven to ten age group, are an ideal target audience with their natural curiosity and tendency to ask the most interesting questions without reservation. Josh Griffiths also designed some educational material (e.g. stickers, a poster and a brochure) to leave with the students, featuring key messages and amazing photos by Doug Gimesy. Importantly, they are then able to share the information they learn with their family and friends, thus increasing the reach of the message of the importance of platypus conservation.

Students learn about the unique features of the platypus, how it is so well adapted to its environment, some of its habitat preferences, and the threats it faces. Importantly, students learn what they can do to help. There are three take-home messages that we can all apply to help platypuses:

1. use less water – every litre of water we save can go back into the environment for platypuses and other aquatic species;
2. pick up rubbish and snip through any enclosed loops before throwing them away – platypuses are very good at getting entangled in things like rubber bands, hair ties, and plastic rings; and
3. fish responsibly – take any discarded line with you, retrieve snagged lines, and do not use opera house nets for yabbies (now illegal in many areas).

Additionally, everyone can also help researchers learn more about platypuses by recording any sightings on the platypusSPOT website or app https://platypusspot.org/.

Key outcome and impact of the funding provided: Platypus expert, Josh Griffiths, was able to successfully educate groups of students at a range of local Victorian schools about the importance of platypus conservation. Josh Griffiths covered a range of topics including: 1. What makes the platypus so interesting and unique; 2. The threats the platypus faces and why; and, 3. What we can do to help ensure the platypus continues to survive and flourish. Through our donation, Josh was able to educate more than 120 students in 2019.

Platypus Education Group: Junior Ambassador Program

Jen Ellison

Young people are naturally curious and protective of animals, especially weird, cute and unusual creatures like the platypus. This is why we launched the Platypus Education Group in 2015. Our initial idea was to run free lessons in schools in the Yarra Ranges region of Victoria. We wanted to educate, engage and excite children about the platypus that live in their local creeks and rivers. For two years, we visited every primary school in the region, as well as several kindergartens and high schools. We spoke to hundreds of students, and realised, through a mixture of discussions, games and activities, all the young people were eager to learn about this bizarre egg-laying, venomous mammal.

Two Platypus Education Group ambassadors at the Belgrave Platypus Festival. Photo: Doug Gimesy

In 2017, following the success of our school lessons, we launched a Junior Ambassador program for children who wanted to learn more and do more to protect their local environment. The Junior Ambassador program consists of a group of children, between eight and twelve years of age, who meet every month throughout the year. We complete a mixture of activities, from practical hands-on conservation work to learning about native wildlife and ways to live sustainably. We have worked with more than 50 ambassadors over the years, and together they have collected over 5,000 items of litter, planted more than 1,000 native trees, and built and sold numerous nest boxes for possums, sugar gliders (*Petaurus breviceps*) and microbats. We have also had guest speakers teach children about wombats, lyrebirds, indigenous history and so much more. Furthermore, all ambassadors are encouraged to help us at festivals and events, so they can help educate the community and, hopefully, inspire others to do their bit for the planet. We hope that we are creating future environmental stewards who will conserve and protect Australia's natural environment.

Making nest boxes at Belgrave Men's Shed. Photo: Jen Ellison

Our group was part of the Victorian Alliance for Platypus-Safe Yabby Traps. When our ambassadors learnt about the numerous amounts of platypuses tragically drowning in opera house nets, they were desperate to take action. The ambassadors wrote letters and drew pictures that were sent to the Victorian State Environment Minister, as well as our local member of parliament, James Merlino, who is also the Deputy Premier of Victoria. We met with Mr Merlino several times, and the children were provided with the opportunity to speak about conservation issues regarding these dangerous nets. We were very honoured to work alongside other alliance members and were thrilled when the ban on opera house nets was implemented throughout Victoria in July 2019. Mr Merlino joined us for our

celebratory party, and he informed the ambassadors that they played a key role in the outcome of the decision. Mr Merlino spoke about the importance of young people having a voice and not being afraid to use it – something we also highly encourage.

As a result of the ambassadors implementing wildlife conservation action, they were awarded the Ken Macintosh Memorial Award for Young Environmental Achievers, at the 2019 Yarra Ranges Council Australia Day Awards. We were incredibly proud to watch a number of the children speak at the ceremony about their passion for protecting wildlife and how they hoped that everyone would take action to look after the planet.

We are an entirely volunteer-run group, and therefore we rely on grants and fundraisers to help cover our costs. Our main project for this year is to work with Brooke Wandin, a Wurundjeri educator. Brooke will share stories and Woiwurrung language with students to help deepen their understanding of the environment, culture and place. She will also focus on the creation story of the platypus, and how this relates to the other work being implemented by the ambassadors.

At the completion of the Junior Ambassador program, the ambassadors will produce a book, available at no cost, which will detail everything that they have learnt as part of the project. The book will help to educate individuals, schools and communities on what they can do to help protect the platypus and maintain healthy creeks and waterways.

The program will run alongside other activities such as a revegetation planting day along Monbulk Creek in Belgrave Heights, working with a local wildlife carer to support their important tasks, and learning about other native wildlife. We are very excited about the Junior Ambassador program as we believe this knowledge is a wonderful way for young people to connect to their local environment, and to inspire others to want to help native Australian wildlife.

Key outcome and impact of the funding provided: Platypus Education Group (PEG) successfully educated many children in the Yarra Ranges region of Victoria about the platypus that live in their local creeks. PEG established the Junior Ambassador program, which consists of a group of children, between eight and twelve years of age, who met every month throughout the year. They completed a mixture of activities, from practical hands-on conservation work to learning about native wildlife and ways to live sustainably.

Virtual Classroom to Assist in Tasmanian Devil Education

Darren Rumble

Tasmanian devil joeys during an interactive tour.

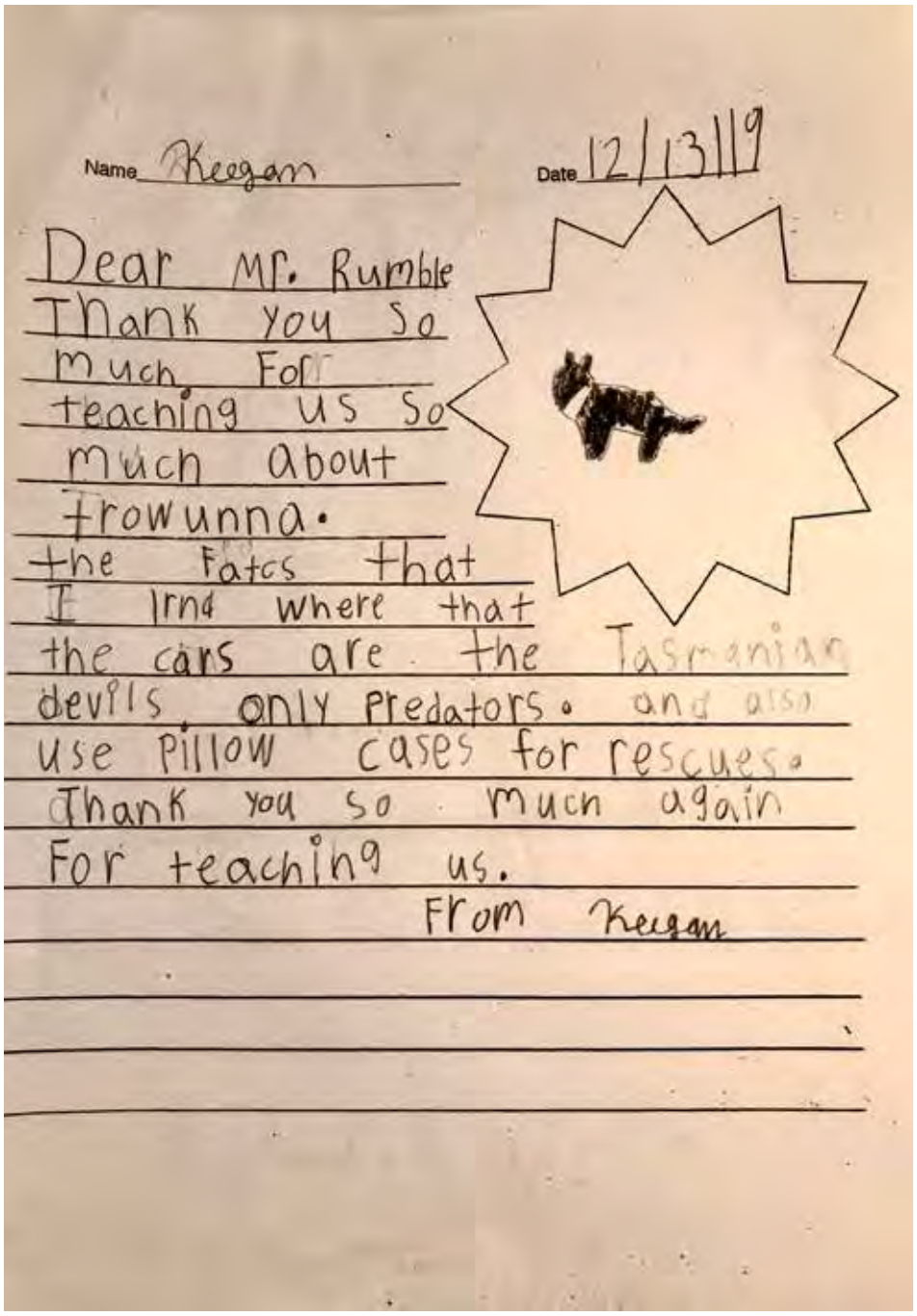
The Tasmanian devil (*Sarcophilus harrisii*) is one of the most misunderstood native animals of Australia. They have earnt themselves a reputation as being fierce and savage animals. From the time of early European settlement in Tasmania, they have been vilified and persecuted with a bounty after mislaid claims of livestock predation. The name devil originates from the early settlers who would hear the devil's shrieking vocalisations reaching out from the darkness, raising the hairs on the necks of even the staunchest of listeners. Adding to this reputation, was the fact that if you saw a devil as evening fell you would see the eerie glow of two red horns emanating from the head of a dark silhouette. The morning would only strengthen the devil's persona, as the nightly actives were revealed with a victim picked clean of flesh and everything but the largest of bones.

Today, we recognise these traits in a very different light. The vocalisations form an important

part of the devil's social dynamics and are essential for establishing hierarchy in social feeding situations. Although primarily a solitary animal, the devil is known to be a social feeder, with groups gathering on the discovery of a large carcass. A cohort of devils is far more efficient than an individual, for the important task of cleaning the landscape of carrion and its potential to harbour disease. What was once thought to be glowing horns are recognised now as one of the devil's many adaptions to its environment and plays an important part in heat dissipation. The devil's ears are only lightly covered with hair and their thin membranes allow for the regulation of body temperature, thus appearing red in certain light conditions.

The interpretation and repair of the devil's reputation has been the life's work of Trowunna's managing director Androo Kelly. Since its inception, Trowunna, under Androo's guidance, has been at the forefront of Tasmanian devil conservation, research and education, a three-tiered approach. The education component of this three-tiered approach has always been viewed as crucial to having the devil recognised for the incredible and unique animal it is. Trowunna has always seen its visitors as the conduit for delivering a message that would evoke a much deeper understanding and appreciation of the Tasmanian devil and wildlife in general. Androo wanted to ensure that having an experience with a Tasmanian devil was within everyone's reach, especially children. After engaging in conversations with both primary and secondary schools in Tasmania, it was discovered that many schools were struggling to meet the costs of excursions, with the transport costs being the most significant factor.

From these discussions, the concept of a virtual classroom was born. The idea was to create a short video about the Tasmanian devil – its lifecycle, the Tasmanian devil facial tumour disease and its impacts, and how the public can help to conserve the devil. The video would enable teachers to engage with students on a preliminary level and establish a knowledge base about the Tasmanian devil. Schools that couldn't afford an excursion to Trowunna could have their learning outcomes supported with a virtual classroom lesson conducted over Skype. The virtual classroom lesson would have all of the features of an interactive tour, other than the tactile component.


Name Keegan Date 12/13/19

Dear Mr. Rumble
Thank you so much For teaching us so much about Trowunna. the Fatcs that I lrnd where that the cars are the Tasmanian devils only predators. and also use Pillow cases for rescues. Thank you so much again For teaching us.
From Keegan

Thank you letter from the pilot session of the virtual classroom.

The video for the virtual classroom will start production soon, with the final layout and schedule to be finalised in the coming weeks. The virtual classroom has been successfully trialled with a primary school in Florida in the United States of America, who enjoyed their lesson immensely. Although, the students were slightly distracted by two of our Tasmanian devil joeys who featured prominently in the lesson.

Key outcome and impact of the funding provided: Trowunna Wildlife Sanctuary established a virtual classroom to assist in Tasmanian Devil education. The virtual classroom was successful in educating a number of students about the Tasmanian devil, its lifecycle, the Tasmanian devil facial tumour disease and its impacts, and how the public can help to conserve the devil. The virtual classroom also enabled teachers to engage with students on a preliminary level, and establish a knowledge base about the Tasmanian devil and the importance of Tasmanian devil conservation.

Kaarakin Black Cockatoo Conservation Centre's Education Program

Sam Clarke and Anne Hart

A 'Cockatoo Club' member meeting Squark, our friendly resident red-tailed black cockatoo (*Calyptorhynchus banksii*).

Kaarakin is a not-for-profit wildlife conservation organisation located on a 41-acre bushland site in Martin, Western Australia. We specialise in the rescue, rehabilitation and release of all three endemic black cockatoos found in Western Australia's southwest. These are the endangered Carnaby's black cockatoo (*Calyptorhynchus latirostris*), Baudin's black cockatoo (*Calyptorhynchus baudinii*) and the threatened forest red-tailed black cockatoo (*Calyptorhynchus banksia*). As part of our mission, Kaarakin strives to engage with and educate Australia's future generations to become active conservationists and support us in our mission to save Australia's iconic black cockatoos.

Kaarakin provides a broad range of interactive and educative events to promote the plight of the black cockatoos. We have launched the Kaarakin Cockatoo Club, an education program where children between the ages of eight and twelve are provided with the opportunity to visit Kaarakin, to see our rehabilitation program firsthand, and learn about black cockatoos. The program includes an educational presentation about Western Australia's endemic black cockatoo species, their threats, conservation status and what Kaarakin is doing to help conserve these species. Furthermore, the program teaches children what they can do to help conserve the black cockatoos, and encourages them to implement conservation action. We aim to inspire the next generation to become wildlife conservationists, by providing them with the opportunity to meet and engage with some of our charismatic resident black cockatoos, in our interactive aviary. The first Kaarakin Cockatoo Club was held on the 22 February 2020 and was extremely popular. The next session will be held on 23 April 2020.

To reach the maximum number of students, Kaarakin provides educational presentations at schools. These talks can be tailored for all ages and aligned with the current Australian curriculum and related topics. One of our non-releasable education birds can also attend, where feasible. These school visits aid us in our mission to raise awareness of the threats faced by our black cockatoos and encourage children to actively promote and engage in environmental action that will protect black cockatoos in the wild. To date, we have attended three library sessions at different venues, four community events, and have conducted two school visits. Plans are already underway to conduct more sessions within several different schools and organisations. If your school or organisation would like to visit Kaarakin or if you would like our education officer to present at your school, please enquire at education@kaarakin.com.

Key outcome and impact of the funding provided: Kaarakin's Education Program, Kaarakin Cockatoo Club, is an education program where children between the ages of eight and twelve are provided with the opportunity to visit Kaarakin, to see their rehabilitation program firsthand, and learn about black cockatoos. The program educates students about Western Australia's endemic black cockatoo species – their threats, conservation status, what Kaarakin is doing to help conserve these species, and what students can do to help conserve the black cockatoos. Kaarakin was able to provide a broader range of interactive and educative tools such as PowerPoint presentations, worksheets and videos as part of the program to promote the plight of the black cockatoos.

Kaarakin's education officer giving an education presentation.

Wild Deserts: Tackling Naiveté of Reintroduced Mammals to Feral Predators in The Strzelecki Desert, Sturt National Park

Reece Pedler, Rebecca West and Richard Kingsford

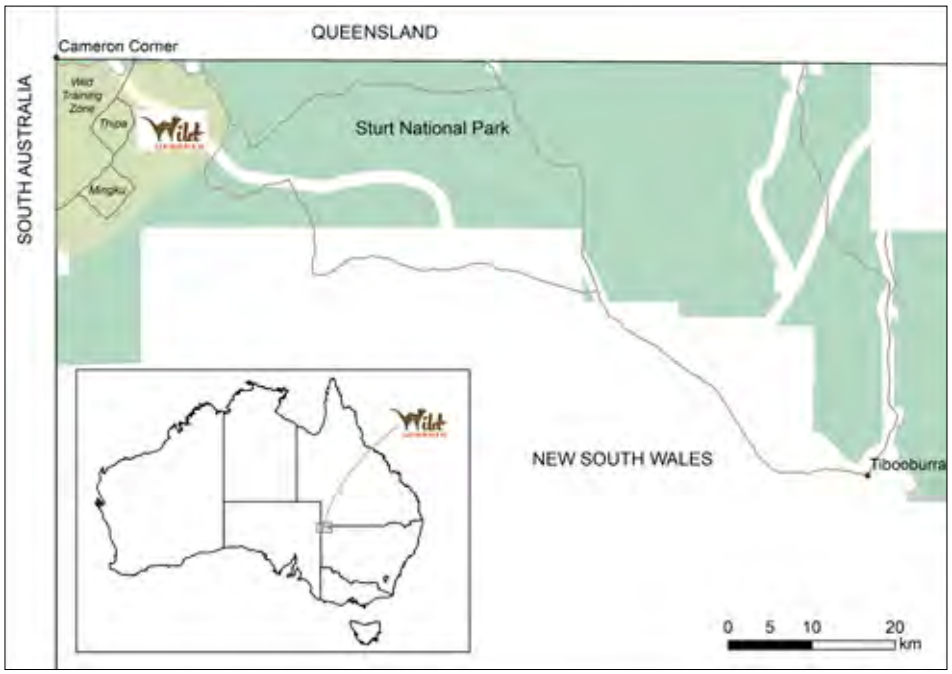
Wild Deserts is an exciting project partnership between the University of New South Wales and Ecological Horizons, with ten years of base funding from the New South Wales Government Saving Our Species program (2016–2026). We aim to understand, restore and promote the wonder of desert ecosystems by reintroducing seven locally extinct mammals, using our partnerships. Our project has established two large feral predator-proof exclosures (each 2,000 hectares, total 40 kilometres of boundary fence) in Sturt National Park in the far north-west corner of New South Wales. During 2019, we achieved a wonderful milestone: the total eradication of rabbits, cats and foxes from inside the feral-proof exclosures. In 2020, we plan to reintroduce the greater bilby (*Macrotis lagotis*) to the site – the first of seven species to be reintroduced, including the crest-tailed mulgara (*Dasycercus cristicauda*), burrowing bettong (*Bettongia lesueur*), western barred bandicoot (*Perameles bougainville*), golden bandicoot (*Isoodon auratus*), stick-nest rat (*Leporillus conditor*) and western quoll (*Dasyurus geoffroii*). These species, along with many others, disappeared from the area over 100 years ago following the arrival of rabbits in the 1890s, along with feral cats, foxes and over-grazing by livestock.

Feral-proof fences at the Wild Deserts project in Sturt National Park exclude rabbits, cats and foxes from two exclosures totalling 4,000 hectares.

An area of cutting-edge research and management at the core of this project is our focus on one of the long-running challenges for reintroduction in Australia – how to get locally extinct native mammals beyond predator-free fenced reserves or islands and back into the broader landscape. Returning previously established species into the landscape is not only important for the conservation of the species themselves, but also for the important ecosystem role that these species provide. For example, the digging of bilbies affects soil structure and function, nutrient cycling and mycorrhizal associations. Some of our team showed that bilbies and burrowing bettongs could co-exist with satellite-collared feral cats in a large 2,500-hectare exclosure at Arid Recovery in South Australia. Furthermore, bettongs improved their predator awareness after just two years of exposure to feral cats. Subsequent work has shown that predator-trained bilbies had improved survival compared to non-predator exposed individuals when released into areas with feral cats.

The greater bilby and burrowing bettong are two of the species proposed for reintroduction and in-situ predator training at Wild Deserts, with the aim of addressing their naiveté to feral predators. Photo: Hugh McGregor, Arid Recovery

Wild Deserts is building on this proof-of-concept work by creating a Wild Training Zone of 10,400 hectares, adjacent and linked by ten kilometres of fencing to the two cat-free and fox-



Wild Deserts is in the far north-west corner of New South Wales, with the project site and 'Wild Training Zone' bounded by the state border fence with South Australia and Queensland.

free exclosures and the Dog Fence (also the New South Wales State Border Fence). This 'half-way house' between the predator-free environment and the predator-common outside environment will allow us to release bilbies, bettongs, western quolls and other species where feral predators are tightly controlled. At the same time, we can improve awareness of the naïve native mammals about these predators. Predator awareness is important because we will never be able to eliminate cats and foxes from most of Australia, but we can work out better ways of keeping their numbers down and numbers of native species up. Such an innovative approach will have broad application to threatened species conservation and reintroduction projects in Australia, as well as globally.

You can follow Wild Desert's progress and outcomes from the Wild Training Zone via our website https://www.ecosystem.unsw.edu.au/research-projects/conservation-practice/reintroductions/reintroducing-locally-extinct-mammals-sturt-national-park, and social media https://www.facebook.com/WildDeserts/, including volunteer field opportunities to get involved with the project onsite.

Key outcome and impact of the funding provided: Wild Deserts is a project that aims to reintroduce locally extinct mammals to Sturt National Park in outback New South Wales. The project aims to bring back seven locally extinct mammals to the New South Wales corner country, using large feral-proof fenced exclosures and a range of innovative predator control and research techniques in Sturt National Park. Wild Deserts will use specialised netting fences to exclude feral predators and herbivores such as cats, foxes and rabbits, before reintroducing mammals that were once widespread in New South Wales but have not been seen for over a century. The mammals to be reintroduced are the western barred bandicoot, golden bandicoot, greater stick-nest rat, burrowing bettong, crest-tailed mulgara, the western quoll and, in particular, the greater bilby. The support will assist in the recovery of these mammals and help to prevent these mammals from becoming extinct on a national scale.

A predator-naïve burrowing bettong approaches a researcher conducting behavioural scoring. Bettongs exposed to low-level in-situ predation by feral cats at Arid Recovery, South Australia demonstrated significant increases in predator awareness behaviours over a two-year period. Photo: Rebecca West

The Secret Lives of Stewart Island Kiwi: A Case Study of Invasive Versus Non-Invasive Wildlife Monitoring from New Zealand

Emma Feenstra

Population monitoring to assess wildlife numbers is an essential component of wildlife research, conservation and management. Methods range in scale from least invasive (e.g. satellite images) to most invasive (e.g. surgical procedures). Invasive methods have a greater physical and/or physiological impact on individual animals, while non-invasive methods have little to none of these impacts. The distinction between invasive and non-invasive is primarily important from an animal welfare perspective but can also affect the cost, resources and experience of personnel required to monitor a population.

The methods used for monitoring wildlife populations are largely based on the species of interest, resources available, location/habitat and monitoring objectives. Less invasive methods, such as trail cameras or scat surveys, could be a lower-cost strategy in some situations but might not capture all the information required. A more invasive method, such as catching an animal and taking measurements or samples, may provide additional data but requires significant funding and qualifications. The decision is made more challenging by the fact that monitoring methods are rarely validated against known populations or alternate methods.

Acoustic recorder as part of our non-invasive survey. Mason Bay, Stewart Island.

Therefore, it is common to be unsure as to how effective and efficient a monitoring method may be for a project and species of interest.

The project aims to explore and compare the effectiveness and efficiency of invasive (catching, attaching very high frequency transmitters and tracking) and non-invasive (camera trapping, acoustic recorders and scat mapping) monitoring methods using a case study species, the Stewart Island kiwi or 'Rakiura tokoeka' (*Apteryx australis lawyri*). The Stewart Island kiwi is a flightless ratite restricted to Stewart Island. Stewart Island is an area spanning 1,746 square kilometres, situated off the south coast of New Zealand and comprised mostly of national parklands. The Stewart Island kiwi is of great conservation significance as it lacks defences

Setting up a trail camera for our bi-annual non-invasive survey. Port Adventure, Stewart Island.

French intern Orane Bitaud monitoring kiwi using very high frequency telemetry.

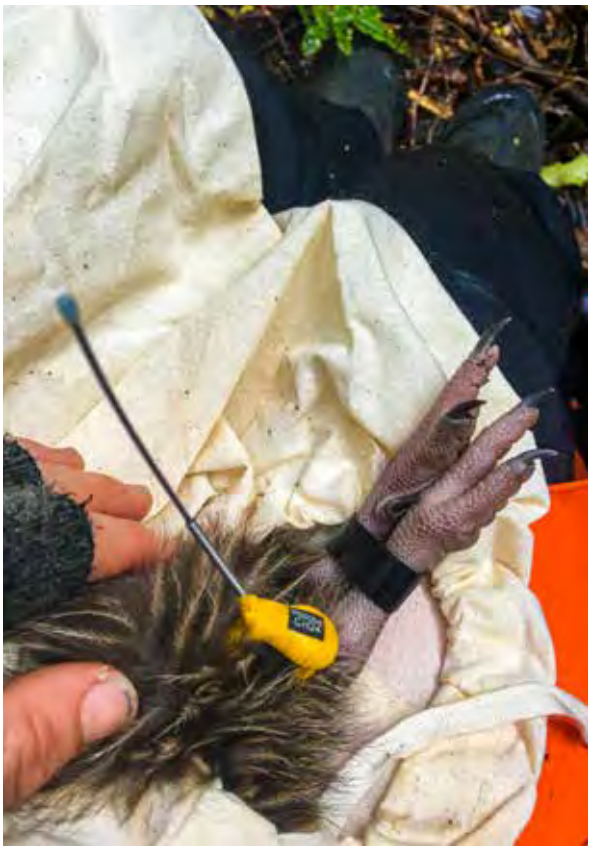
An adult tokoeka extracted from a burrow for a transmitter change.

Trail camera image as part of our non-invasive surve. Kaipipi, Stewart Island.


Researcher Emma Feenstra changes the transmitter on a growing kiwi chick. Stewart Island.

against introduced mammalian predators and has been decimated by the arrival of people, habitat destruction and pests to New Zealand. The Stewart Island kiwi was selected as the study species as research on their population is limited, they are thought to be in decline, and information regarding their population status is currently a top priority for several conservation organisations in New Zealand. The comparison and validation of invasive and non-invasive monitoring will contribute valuable information on the population of the Stewart Island kiwi. Through a novel chick survival study, The Project will also determine what threats they may face and what, if any, management is required for their conservation.

There are five species of kiwi (Apteryx spp.), all of which can be considered 'cryptic' in the sense that they are difficult to detect. They are naturally shy, camouflaged and predominantly nocturnal. Their traits make monitoring their populations challenging; and subsequently, decisions about their conservation management problematic. Luckily, kiwi have sexually dimorphic calls that carry long distances and therefore non-invasive call surveys are a popular method for assessing their populations. Call surveys are used to measure changes in call rates, which are widely assumed to be positively related to the numbers of birds. Call surveys are simple to implement and are becoming easier to use in remote areas thanks to the growing utilisation of acoustic recording devices. However, the confidence in call surveys exists despite a lack of knowledge on the calling behaviour of individuals and populations of


The smallest very high frequency transmitter available for kiwi chicks at 5 grams.

kiwi. To make more accurate estimates of population numbers, the more invasive method of telemetry is used. This 'gold standard' of kiwi monitoring involves five-yearly surveys; catching individuals in a small area to attach specifically made very high frequency transmitters, which are then used to track birds to their locations for a short period to determine densities. Telemetry, although resource-intensive, is a particularly effective method for tracking more specific population variables such as breeding success; however, personnel must be accredited to work directly with kiwi, and the disturbance to individuals can be significant. Call survey and telemetry monitoring methods are widely used throughout the country for population estimates; however, the accuracy of these methods has not been validated against known populations or trialled in a comparison.

There are four sites on Stewart Island. At each site, invasive and non-invasive methods are being used to survey the local kiwi population. Two of the sites have been subject to historical five-yearly surveys using telemetry, and so we have reasonable estimates of density at these locations. At all sites, many birds as possible were caught within the pre-determined area. Each bird is fitted with a very high frequency transmitter and can then be monitored and tracked. The subsequent locations of these individuals, and the other kiwi they are found with, are used to develop territory maps and estimate the local density of birds, including those that were seen or heard but not caught. At two sites, the transmitters were left on the birds throughout the breeding season to monitor the survival and dispersal of their chicks and to explore the benefits of using a more invasive method of monitoring. The non-invasive surveys are completed bi-annually at the four sites using acoustic recorders and trail cameras. These are paired in a grid formation 350 to 500 metres apart, covering the study area. The distance was proven suitable to capture kiwi calls by the acoustic recorders and equates to approximately one camera per kiwi territory.

Part of this project is working on a novel method for surveying kiwi populations non-invasively using scat surveys. Kiwi scats are easy to identify and particularly pungent, making them great targets for a scat detection dog team. The project will explore whether the number and density of scats to the 'known' densities, collected from the other method, will correlate. I believe that scat mapping kiwi could provide a novel method for kiwi detection and monitoring that is unbiased, useful in large and remote areas, able to detect presence and could prove cost-effective compared to other methods.

The results are still to come. Stay tuned as we uncover the secret wild lives of the Stewart Island kiwi and how our monitoring methods compare. https://www.facebook.com/Rakiuratokoeka

Rakiura tokoeka are the only kiwi species commonly active during the day.

A kiwi chick, as part of a novel chick survival study of Rakiura tokoeka. Stewart Island.

Key outcome and impact of the funding provided: The project explores the use of invasive and non-invasive monitoring methods, for a cryptic species, by comparing trail cameras, acoustic recorders and scat mapping with telemetry and tracking. By conducting population monitoring, increasing the number and diversity of sites, as well as conducting a novel chick survival study, the project will reduce information gaps, help direct the next steps for population management and contribute to saving kiwi from extinction Nationwide.

Bird is the Word!

Greg Dawson

Spotted pardalote (male) (*Pardalotus punctatus*).
Photo taken in February 2020 at Cape Otway, Victoria. Photo: Greg Dawson

I am a sixty-year-old retired horticulturist who has always loved nature and photography. My wife, Val, and I are based in Adelaide; however, we like to spend our winters in the Northern Territory or Far North Queensland. Fortunately, Val also loves nature and together we have been on many bushwalks in search of some waterfalls and a unique wildlife location.

A couple of years ago, we spent 20 months travelling right around Australia in our caravan. We visited some pristine and beautiful places; however, our favourites are Esperance, Ningaloo Reef and Karijini National Park in Western Australia, Kakadu and Litchfield National Parks in the Northern Territory, and the Mossman region in Far North Queensland. We also love the 'Red Centre' in the outback region in the Northern Territory.

Although I love all wildlife, I have always particularly liked Australia's native birds. A couple of years ago, I purchased a better camera more suited to photographing them. It takes a long lens and a steady hand to produce a decent photo. You can never stop learning about photography. When out birding, I usually go to one of Australia's conservation parks or national parks. I then look for trees in flower or a water source to find the birds, and I like to go early in the morning when wildlife is actively out and about, searching for food and water.

White-browed scrubwren (*Sericornis frontalis*). Photo taken in February 2020 at Cape Otway, Victoria. Photo: Greg Dawson

Spiny-cheeked honeyeaters (*Acanthagenys rufogularis*). Photo taken in Spring 2019 at a Birdlife Australia property called Gluepot Reserve. Photo: Greg Dawson

Eastern-yellow robin (*Eopsaltria australis*). Photo taken in February 2020 at Great Otway National Park, Victoria. Photo: Greg Dawson

Eastern spinebill (*Acanthorhynchus tenuirostris*). Photo taken in November 2019 at Myponga, South Australia. Photo: Greg Dawson

Crescent honeyeater (*Phylidonyris pyrrhopterus*). Photo taken in April 2020 at Scott Creek Conservation Park, South Australia. Photo: Greg Dawson

Mulga parrot (*Psephotus varius*) in South Australia. Photo taken in Spring 2019 at a Birdlife Australia property called Gluepot Reserve. Photo: Greg Dawson

Scarlet robin (*Petroica boodang*). Photo taken in February 2020 at Mark Oliphant Conservation Park, South Australia. Photo: Greg Dawson

Spotted pardalote (female) (*Pardalotus punctatus*). Photo taken in February 2020 at Cape Otway, Victoria. Photo: Greg Dawson

Variegated fairywren (*Malurus lamberti*). Photo taken in January 2020 at Kinchina Conservation Park, South Australia. Photo: Greg Dawson

Crimson chat (*Epthianura tricolor*). Photo taken in October 2019 at Kinchina Conservation Park, South Australia. Photo: Greg Dawson

Southern emu-wren (*Stipiturus malachurus*). Photo taken in February 2020 at Cape Otway, Victoria. Photo: Greg Dawson

Crimson finch (*Neochmia phaeton*). Photo taken in July 2019 at Ord River, Western Australia. Photo: Greg Dawson

We Only Get One Planet, One Opportunity! Tara Cull

I've been living in France now for almost two years, and I am passionate about Australia's amazing and unique wildlife. My passion only grew when I came to live in France, as it took being away from home to realise how lucky we are in Australia. There is just not the same diversity of wildlife here in France.

I started drawing more animals recently after I drew a little koala to raise money for the recent bushfires in Australia. The winner of the auction donated money to the Majors Creek Wombat Refuge. I was then invited by a resident in Montpellier to create a paste-up to stick on the walls in a neighbourhood in Montpellier ('The World'). I also did a little quokka drawing to encourage people to smile. In addition, with the current Coronavirus pandemic sweeping the globe, I thought I would share a special message with you all: be a wombat – stay safe and stay at home!

I have had such a great response to my work and a lot of questions about Australian wildlife. For French people, it's a dream to visit our country and to cuddle an Australian animal. I think I have now found my passion and the inspiration in my work that makes me, and others, smile. After working for many years as a landscape architect and teacher, I continue to draw as a hobby, further develop my drawing skills, and create freelance illustrations for my own business at Tussock Studio Drawings. www.tussockstudio.com

Stay safe and stay home during the current COVID-19 pandemic.

It's the little things in life that make you happy.

Paste-up on the walls in Montpellier. We only get one planet. Take care of it and it will take care of you.

LOOKING AFTER THE LITT

NEW SOUTH WALES DPI FISHERIES GIVING SMALL THREATE

A plume of rust coloured earth swirls upwards from beneath the row of white Ford Rangers and Toyota Hiluxes inching up the hillside before us, long-armed scoop nets occy-strapped to the roof racks. In the rear window is a large water tank full of river water that shudders our Hilux as it pulls to a stop at the bank of the river. Almost immediately as the 4x4 entourage comes to a halt at the river, pairs of enthusiastic scientists emerge from the vehicles and begin to unload tub after tub. Strange implements that resemble whipper snipper poles are extracted carefully from between a tangled pile of mesh nets. Datasheets, pencils and GPS units are distributed. The orderliness of this apparent disarray is obvious as the crew splits up and gets to work without delay. Downstream moments later we hear the call of a pair of backpack electrofishing operators. "Macca. Big one!" The crowd of observers on the banks hurriedly make their way through the phragmites to catch a glimpse of the rare Macquarie perch (*Macquaria australasica*). Profound is the discovery as it represents the preservation of some of the precious remnant genetic code (or alleles), and relief that not all is lost after months of drought, heatwaves, algal blooms, low dissolved oxygen, high water temperatures, fires and floods.

The expedition is but one of many search and rescue missions that were carried out by the Department of Primary Industries (DPI) Fisheries over the last year and a half. The objective is to collect and secure genetic resources from populations of threatened species of freshwater fish from across the state; and, unfortunately, there are more than a few of these in New South Wales. The conservation and management of threatened fish in New South Wales are overseen by the DPI Fisheries Threatened Species Unit, of which I am a member. We are supported by highly skilled researchers and field technicians who carry out in-stream surveys in waterways across the state. A meticulous database is maintained, which logs the threatened species records and provides clues to their whereabouts for future surveys and to inform management and recovery actions. Many of these species are cryptic and elusive.

LE GUYS

NED FISH A FIGHTING CHANCE

ERIN LAKE - THREATENED SPECIES FISHERIES MANAGER

Small fish such as the southern purple-spotted gudgeon (*Mogurnda adspersa*) are tricky to find and already occurred in low numbers before the current drought. If a rescue mission was not instigated, we may have lost several populations. It is the genetics that we need to worry about because once those are gone, they cannot be returned. The gudgeon was listed as endangered in New South Wales in 2008. Two populations of gudgeon occur in New South Wales: an eastern population found in coastal catchments north of the Clarence River, and a western population found throughout the Murray–Darling Basin. With scattered records across the Basin, the low water levels and bushfires further increased the risk of genetic separation of local populations. Many gudgeons were trapped in drying isolated pools with time ticking until they dried. Several rescue missions to collect the gudgeons took place throughout the last 18 months, with batches of fish relocated to DPI hatcheries in Narrandera, Port Stephens and Grafton. A separate population from the Macquarie River catchment also made its way to Taronga Western Plains Zoo where they are being safely housed in a moat in the lion enclosure.

The western New South Wales population of olive perchlet (*Ambassis agassizii*) has also been impacted by the drought. This small threatened glassfish has several distinct genetic lineages in the New South Wales Murray–Darling Basin including in the Lachlan, the Macquarie and the Border Rivers catchments. More than 1,600 of these small fish were rescued from a number of drying waterways throughout the Murray–Darling Basin. Those occurring in northern New South Wales were collected from several waterways and taken to the DPI hatchery at Grafton. A separate population of olive perchlet from the Macquarie River catchment was also collected and is being held at DPI's Narrandera Fisheries Centre.

The eastern draining catchments in New South Wales have also been exposed to record-breaking dry conditions. Bushfires and subsequent flooding compounded the impacts,

Above: Fisheries Technician, Tim McGarry, setting fine meshed fyke nets for olive perchlet. Photo: Bron Powell

Olive perchlets (*Ambassis agassizi*) rescued from drying waterways. Photo: Tim McGarry

Fisheries Technician, John St Vincent Welch, surveying oxleyan pygmy perch (*Nannoperca oxleyana*) habitat that was impacted by bushfires. Photo: Andrew Bruce

A pond at the Narrandera Fisheries Centre. Photo: Tim McGarry

with many of our coastal threatened species feeling the pressure. Habitat for the endangered oxleyan pygmy perch (*Nannoperca oxleyana*) in the Clarence River catchment was extensively burnt in November and December 2019, from fires that burnt through Bundjalung National Park and parts of Yuraygir National Park. With their limited distribution, rarity and dependence on specific habitats, these fish are particularly vulnerable to the impacts of bushfire. A population of these perch species was collected in December 2019. The fish were relocated to DPI's Grafton Fisheries Centre as an insurance population to help negate the impacts of further losses from the wild.

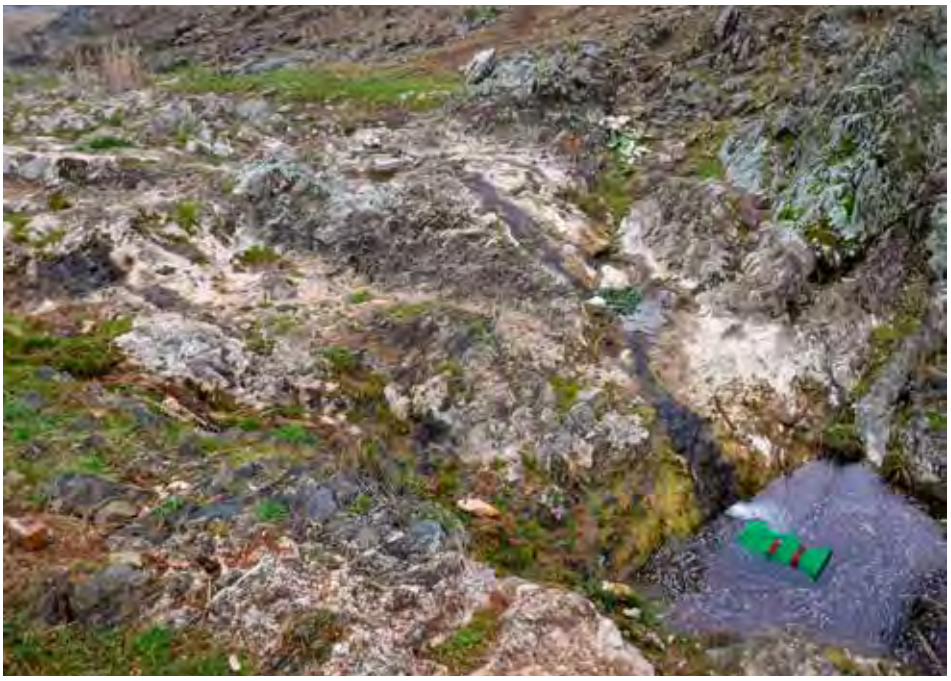
Back across the divide again, rescues of several hundred fish from two populations of southern pygmy perch (*Nannoperca australis*) will establish two separate insurance populations (Murray and Lachlan) in DPI hatcheries and a private hatchery in Victoria. Most were retained for the captive breeding program, but a small number were also relocated to secure pools in the same catchment. These striking fish are usually able to hide deep in the clumps of Phragmites and Typha with very little water. But even these relatively tough little fish needed rescue as networks of pools retreated to earthen puddles of crusty mud in the height of the drought.

DPI Fisheries hopes that the fish rescues undertaken so far will help protect the key populations of small threatened fish in New South Wales that were already under severe threat prior to the recent

Threatened Species Fisheries Manager, Erin Lake, inspecting a fyke net.

drought and bushfire impacts. While DPI Fisheries is aware of most of the populations where these threatened fish are found, there are likely to be other waterways in New South Wales where they could be present in either small or larger numbers. This may be particularly the case in smaller streams only accessible through private land. In these instances, community sightings of threatened species are extremely important in helping to identify significant populations to manage or protect. DPI Fisheries has a new threatened species sighting tool that can be accessed online. It is a quick and easy way for community members to log sightings with an interactive map and photo upload feature, which are then verified by our fisheries experts. The online reporting tool has already led to new threatened species records in several cases. Interested parties can locate the reporting tool on the DPI Fisheries Threatened Species web page (https://www.dpi.nsw.gov.au/fishing/threatened-species).

To check if a threatened species occurs in your area, DPI Fisheries has produced a series of distribution maps, which are also available on the above website. These maps identify likely distributions based on a geographic information system model that combines features such as existing survey records and habitat features that are preferred by the species. Keep your eyes peeled when next in New South Wales waterways, and you might just be able to add to those survey records. For more information about DPI threatened species initiatives, please visit the website above or contact us at fisheries.threatenedspecies@dpi.gov.au



Drying pools with traps set for gudgeons. Photo: Erin Lake

Fisheries Manager, Rod Price, saving the gudgeons. Photo: Erin Lake

A southern purple spotted gudgeon (*Mogurnda adspersa*) rescued from the Macquarie River catchment. Photo: Erin Lake

Dried pools where southern pygmy perch (*Nannoperca australis*) once thrived. Photo: Erin Lake

From meat pies to blow flies

Rob Downer

My name is Rob Downer. I am a macro and wildlife photographer from Australia, specialising in insect photography. I started my photography career in 2010 and, like most photographers, experimented with different types of photography, including nature, landscapes, food, automotive, portraits and weddings. However, I decided to focus on stock photography a few years later. I built my stock photography portfolio by taking images of local landmarks, nature, landscapes, and even Australian food (interestingly, meat pie images were one of the more popular subjects). Stock photography eventually led me to take photos of animals, which mainly included birds and mammals. I have been capturing stock images since 2013 and have independently built an online portfolio of over 12,000 images.

After focusing on stock photography early in my career, it became apparent that I did not have one particular style. I took photos that I thought would sell, based on research, and produced them in a way that I believed would be best suited to the commercial market. However, I found my photography was based on demand, not my own personal style. As a result, I was not known in the field for any specific type of photography.

In 2019, I moved away from taking the previously mentioned types of stock images, took a step back to re-evaluate what the right move would be, and whether I wanted longevity in this industry and fulfilment within the craft. It was then that I decided to focus on wildlife photography. What became apparent to me was my passion for being outdoors, being one-on-one with an animal, and attempting to form a bond and capture its beauty and wildlife behaviour in a natural environment. I have seen many photographers fail after a relatively short time in the field due to feeling dissatisfied with their work and I can relate to this feeling; I was not happy with some of the stock images I had taken and produced, even though many had been used commercially, both locally and internationally.

In 2020, I decided it was time to, once again, re-evaluate my business and re-focus after spending the previous year primarily taking images of wildlife. To me, my journey had become somewhat like a funnel, working my way down the spiral to find my true passion. After experimenting with macro

Green large lacewing (*Myiodactylus sp*).

28-spotted potato ladybird beetle (*Epilachna vigintioctopunctata).*

photography and, more recently, the world of insects, I have found something that is truly rewarding and thoroughly enjoyable. It is the first time in my photography journey that the experience is not just about the business and following a market trend; it is a new beginning – a journey based on both passion and a mission.

Why insects and macro photography? I find the diversity of wildlife incredibly fascinating. It is constantly evolving with new species being identified. The sheer amount of species to learn about, and the skills required to take stunning and impactful natural macro photos, is a challenge but also tremendously rewarding. Some examples of species I photograph include: *Hymenoptera* (ants, bees and wasps), *Coleoptera*

Evening brown butterfly (*Melanitis leda*).

Steel-blue bluebottle blowfly (*Chrysomya saffranea*).

Rob Downer

(beetles), *Lepidoptera* (butterflies and moths), *Orthoptera* (crickets and grasshoppers), *Odonata* (damselflies and dragonflies) and *Phasmatodea* (leaf and stick insects).

My current goal is to continue to refine the skills required for macro photography as well as broadening my knowledge of insect species. In the future, I hope to achieve mastery in the field and become an ambassador in awareness and the ethical treatment of wildlife. I hope you enjoy following my journey www.robdowner.com

Eucalyptus tip-wilter bug nymph (*Amorbus obscuricornis*).

ARTICLES

Burnt slopes, Kuark forest.

FROM SOME OF OUR 'WILDLIFE AFFECTED BY FIRES' RECIPIENTS

The scale and severity of Australia's recent bushfires, which swept through the country from December 2019 to mid-March 2020, tested the strength and resources of many wildlife rescue groups across Australia. The extent of native wildlife that lost their lives and the amount of wildlife habitat that was destroyed was utterly disheartening. The total amount of land affected across the country reached more than ten million hectares and it was estimated that over 1.25 billion native wildlife lost their lives. In the wake of the bushfires, many wildlife rescue groups issued public pleas for financial support and donated goods to help them meet the needs of native wildlife that were suffering from the impact of these fires. As a result, the Society established an initiative to assist nine wildlife rescue groups across Australia that were treating bushfire-affected wildlife. These groups worked around the clock to rescue and rehabilitate what wildlife was remaining and some of their stories are shared below. This is one traumatic moment in history that will never be forgotten and will leave a long-term impact on many individuals for years to come.

Following the Needs of the Wombat: Battling on for Australia's Wildlife Through the Aftermath of the Local Bushfires

John Creighton - Wombat Care Bundanoon

The suffering and devastating effects of mange on Australia's native wildlife prompted John Creighton, Wombat Care Bundanoon (WCB) founder, to place all his efforts and energy exclusively into addressing mange in the Southern Highlands region of New South Wales. The change in direction was a long, educational, challenging and complex journey, which brought with it many lessons and new knowledge. John was studying and tracking wombats in the wild and treating them for mange. While doing so, John gained a greater understanding of the local wildlife and the places where many of the wombats dwelled. It also brought John real insight into the devastating effects of the ongoing drought. Many dams and streams had dried up and other water sources ceased to exist.

As drought and mange tightened its grip and bushfires ravaged throughout the region, it became apparent that action was called for and that it needed to happen quickly and with the greatest impact. WCB began a difficult process of supplementary feeding and watering in all the areas where wildlife was present. Feed by the trailer-load and water stations were delivered and set up in these spots. WCB put out meadow hay and some 'Extra Cool' pellets as well as fruit for the possums. All was consumed within days and so they doubled the delivery. The job became so big, and the need so great, that in late December WCB put out a plea to the local community for support. The response was enormous. Parents and children came together to gather feed, united in the desire to do something positive for Australia's wildlife. WCB offered wildlife feed at no cost and asked residents to distribute the feed to places where they knew wildlife were struggling. By early January 2020, the supplementary feed station idea was gaining momentum and animal lives were being saved.

John Creighton installing a water station tube in a remote bushfire-affected region to assist the wildlife in re-establishing itself.

A resident wombat emerging from the burnt forest seeking food.

Sadly, these efforts were abruptly interrupted by the Morton bushfire that swept through the region soon afterwards. The Southern Highlands towns of Bundanoon, Penrose and Wingello came into direct contact with the force of the fire that tore through so much dry drought-affected bushland. The fire had been threatening and approaching for weeks but it was around midnight on 5th January that it arrived. Many homes were lost, lives were disrupted and the landscape of Morton National Park was drastically reduced to large areas of burnt bushland. The fire swept through wide kilometres of land leaving very little alive in its wake.

As the sun rose upon the devastated landscape, John loaded up his truck and trailer with cages, blankets and first aid supplies, not quite knowing what to expect or what he would encounter. John drove as small fires were still burning in isolation and smoke filled the air. He knew the area very well after years of tracking and regularly treating manged wombats that lived in the area. He walked through the local forests many times and was very familiar with the lay of the land, where many of the wombat burrows were and where the possums and other animals were most plentiful. However, what he witnessed was unlike anything he had seen before. All that was once thick verdant bushland with multi-layered shrubs, bushes and trees, had been devastated and was nearly all gone. The ground was grey with ash, still warm and smouldering, and only the blackened remains of the trees remained. Land that he once knew so well was now unrecognisable, laid bare of all life, or so it seemed. As John and the volunteers walked through this now strangely quiet and foreign landscape, it became clear the magnitude of the loss that had been suffered. The entire area, for as far as the eye could see, was blackened and bare. There were no birds to be heard or possums to be seen.

As the days progressed, and as they walked through the area, they saw several wombats quietly sitting at the entrance of their burrows. They saw an echidna and a goanna too. Some animals had survived and WCB resolved then and there to do their best to ensure their ongoing survival. To sustain the life that remained, supplementary feeding would be needed, as would a reliable supply of water. The introduction of the water station tubes was a real lifesaver. Each tube holds nine litres of water. The

tubes are cheap and easy to produce and are greatly effective in getting water to remote locations and allowing it to remain clean and available for as long as possible. WCB quickly made over 60 of these water stations and, with another 50 donated, they filled the fire-fields with desperately needed water and feed to sustain life and assist the wildlife in re-establishing itself.

Once again, the local community stepped up and took on the challenge to keep Australia's wildlife survivors fed and provided with water through the most difficult of times. Word spread and soon they had the help of over 160 volunteers. These volunteers, from far and wide, assisted by doing their bit, watching over their chosen fire-affected area and taking ownership of their water and food stations by monitoring and maintaining them. These locations were all mapped and all feed was supplied to volunteers at no cost. WCB quickly saw positive results happening for the wildlife; feed and water were being consumed and the wildlife was able to sustain themselves whilst the landscape healed. Once again, people were enabled and empowered to bring real and lasting change to the wildlife that they love and so deeply appreciate.

It has been six months since the Morton bushfire swept through the region and what was once bare is now regenerating. However, with winter approaching, there is little chance for much further growth in these areas. WBC feed drops continue three times a week and are well consumed at each visit. These fire-fields that spread across kilometres are still in great need of support and attention. In many locations, WCB food drops are the only feed these animals will have to survive. Providing food and water is such a simple solution and WBC is so happy to be able to provide this support to the survivors. WCB will continue to care for Australia's bushfire-affected wildlife throughout winter and into spring, to ensure their survival.

Key outcome and impact of the funding provided: Funds provided by the Society were allocated to supplementary feed and water stations. Funding will also assist Wombat Care Bundanoon to continue supplementary feeding throughout winter and will contribute towards their important work to protect Australia's wombats.

John Creighton walking through the burnt forest absorbing the impact of the fires.

Dispersing carrots and hay in the fire fields for local wildlife.

Distributing free feed to residents of the Southern Highlands.

The Development of a New Wildlife Hospital as a Result of the Devastating Bushfires

Gayle Chappell - Hepburn Wildlife Shelter

Hepburn Wildlife Shelter, founded in 2005, is a 24-hour, self-funded volunteer wildlife rescue and treatment centre, established to assist and care for injured, orphaned, sick and distressed wildlife in and around the forested shire of Hepburn in central Victoria. The shelter is an incorporated non-profit association run by the founders, Gayle Chappell and Jon Rowdon, from their home just outside Daylesford in the Wombat Forest.

In response to Australia's bushfires, Hepburn Wildlife Shelter decided to establish a new wildlife hospital – Central Victoria Wildlife Hospital. Unlike the eastern side of Melbourne, which has access to the wonderful facilities at Healesville Sanctuary, the region has no dedicated wildlife treatment centre or facility that can cater for wildlife disasters or provide professional training for wildlife carers. The new wildlife hospital will build on and significantly expand the work of Hepburn Wildlife Shelter, by establishing better facilities for wildlife care in the central Victoria region and western Victoria. A triage and rehabilitation centre will be established, particularly for open wounds and nerve injuries (mostly kangaroos), adult injured wombats, and a burns centre for treating wildlife affected by any regional bushfires. It will include onsite facilities that will allow the assessment and response to injuries immediately and with greater effectiveness. The hospital will also act as a wildlife ambulance base and a 24-hour depot for injured wildlife.

The hospital is also destined to become a research and teaching centre. It will provide specialist care and rehabilitation on a regional basis where vets, vet nurses and volunteer wildlife carers can gain essential hands-on experience. The hospital will have dedicated facilities and well-trained people to perform necropsies, blood sampling and faecal floats. While the new wildlife hospital does not replace the need for wildlife shelters, it will provide an added resource for them and the wildlife that they care for. It will also nurture and expand the wildlife rescue community that already exists and provide more volunteer and community involvement opportunities. The 24-hour aspect also means that wildlife rescuers can immediately take injured animals for treatment, rather than sit by the side of the road with the animal in their car, making multiple calls to shelters to find a placement for them, which will reduce stress for both the animal and the rescuer. The new wildlife hospital is to be completed during the 2020/2021 summer.

Key outcome and impact of the funding provided: Funding from the Society will go towards the development of the new wildlife hospital and will assist Gayle Chappell and Jon Rowdon to continue their important work to save Australia's precious native wildlife for future generations.

Sarah Dalby, Assistant Manager, with a resident koala.

Providing Wildlife With Refuge and Relief from the Frequency and Intensity of Australia's Bushfires

Dr Rachel Westcott - South Australian Veterinary Emergency Management Inc.

South Australian Veterinary Emergency Management Inc. (SAVEM) was founded in 2009 and has been part of the State Emergency Management Plan since 2010. A decade of effective response has built SAVEM's reputation and credibility with Tier 1 Emergency Services such as the Country Fire Service and South Australia Police. This fire season, SAVEM was active on the fire ground since 20 December 2019 at the Cudlee Creek (Adelaide Hills; 25,000 hectares) and the Ravine (Kangaroo Island; 200,000 hectares) fires. SAVEM was quickly activated for the Cudlee Creek fire five days before Christmas.

Their tasks over the first few days of the fire largely involved 'pet' livestock. However, by day four of the response, in persistently hot weather, wildlife began to emerge, seeking water and food and, as a result, their focus shifted to assessment and triage of kangaroos and koalas, with the occasional possum, bird or reptile. Many kangaroos suffered severe hind limb burns and were euthanised on animal welfare grounds. Koalas presented in three main groups: 1. Those with minor burns to face or to two limbs were able to be sent into care with a competent licensed carer after veterinary assessment and initial treatment; 2. Those requiring hospitalisation were given veterinary first aid and transported to the nearby Cleland Wildlife Park into the care of senior veterinarian, Dr Ian Hough; and 3. Those triaged as being too badly injured and with poor prognosis were euthanised.

Rescue of 'Charlie' the koala at the Cudlee Creek fire, with the assistance of Charlie the cherry-picker operator. SAVEM volunteers, Nurse Belinda (L) and Dr Rachel (R). There were very few unburnt food trees for Charlie nearby. Charlie had very minor burns on two feet and was well enough not to need hospitalisation; instead, he was able to be rehabilitated by a licensed koala carer. He made a full recovery.

Operation teams working from SAVEM's inflatable six x nine metre air shelter triage and treatment center. SAVEM volunteers in red overalls are Dr Peter and Dr Sue.

SAVEM's professional experience over ten years has taught them that triage must be rigorous. The highest standards of animal welfare must be maintained and there is no benefit in keeping and treating a badly injured wild animal in a hospital, only to find that euthanasia is required after the animal has endured several weeks of captivity and frequent anaesthesia and handling. Another important consideration is that South Australian koalas often succumb to renal disease following stress – especially the stress of hospitalisation.

The Kangaroo Island fires began at the same time as Cudlee Creek, however, escalated rapidly when a south-westerly change with dry lightning caused the fire to spread catastrophically. Two-thirds of the island (which is about 150 kilometres long and 60 kilometres wide; area 4,500 square kilometres) burned out of control for 22 days. Vast numbers of livestock were lost or were euthanised by farmers or Primary Industries veterinarians. Wildlife losses were shocking – early estimates ranged from between 50 and 70 percent lost.

'Simon's' rescue team: SAVEM volunteers L to R: koala carer Sally, Dr Peter and Capt. Garnett, Joint Task Force (Army) veterinarian.

'Simon' the koala, rescued on Kangaroo Island. He had very minor injuries and was soon able to be released in unburnt habitat near Parndana on KI. Simon was found by a fire crew on the highway roadside between Kingscote and Parndana. He was brought into the care of the SAVEM team, who assessed and treated him for two weeks, and was released into an approved release site in the middle of the island near Parndana.

SAVEM's first response team was on the ground on 4 January, and teams were rotated through the fire ground over the next six weeks. Teams working from SAVEM's inflatable six by nine metre air shelter triage and treatment centre received admissions of many different wildlife species, though predominantly koalas. Other agencies working from their centre alongside SAVEM included Kangaroo Island vets, Army (Joint Task Force), Zoos SA, RSPCA and Department of Environment. The world's media flocked to Kangaroo Island and the SAVEM 'tent' as it is affectionately known. The second half of SAVEM's Kangaroo Island deployment involved revisiting sites where injured animals had been seen and relocating some if the food was scarce. In addition, an important part of the fieldwork included establishing connections with local people who were able to assist them to locate injured wildlife, often observed by fencing, utility or arborist teams.

During the sixth week, SAVEM spotted a koala sitting in the middle of a burnt paddock, surrounded by burnt vegetation. Their first thought was the animal would be at least emaciated if not burnt. As they approached him, a large male, he bounded across the paddock to a tree near a dam, which he quickly climbed. On closer examination, he was not injured and was in very good body condition. They were delighted and amazed and theorised as to how this animal had survived so well. This was their hypothesis:

- The tree he was in was adjacent to a well-filled dam in the middle of a bare paddock, surrounded by burnt large trees varying between 50 to 200 metres away;
- At the time of the fire, the tree's foliage was well loaded with water from the dam;
- The tree was scorched but not badly burnt;
- New leaf was shooting after good rain two weeks prior and the nearby water source filled;
- The koala could have survived on desiccated leaf given an adjacent drinking water source, which was clean; and
- Now with green leaf available he was in a very good place.

The 2019/2020 fire season has been very confronting, and wildlife recovery will be ongoing for some time on both firegrounds.

Key outcome and impact of the funding provided: Funding from the Society assisted SAVEM to treat and rehabilitate bushfire-affected wildlife via the use of funding medical supplies. In SAVEM's 50+ day summer deployment, the field teams and hospital activities involved the expenditure of a little above $160,000 in consumables.

Shocking Photos Reveal the Devastating Impacts of the Bushfires at Kuark Forest, East Gippsland

Chris Schuringa – Goongerah Environment Centre Office

After a five-year-long community campaign, the iconic Kuark forest in East Gippsland was finally protected by the Victorian government, partly in 2017, then expanded in 2019. Tragically, Kuark was severely impacted by this summer's horrific bushfires. Kuark forest was one of the most biodiverse forests in Victoria, rich in wildlife, rare rainforest and old-growth forests. After months of wondering with hope and fear of how Kuark had been impacted by the fires, Tasmanian nature photographer Rob Blakers and Goongerah Environment Centre Office (GECO) campaigners returned to the area to document the devastation. Sadly, the scale and intensity of the destruction wrought by the fires was profoundly devastating. Unfortunately, all of Mount Kuark was severely burnt, with extensive stands of fire-sensitive warm and cool temperate rainforest destroyed. The old-growth rainforest areas will take centuries to recover and with climate change fuelled fires more likely to occur in the coming decades, it is unlikely these rainforests will ever recover.

Kuark was identified by the Victorian government as making one of the highest contributions to biodiversity values in the state, according to the Environment Department's *'Nature Print'* data set maps. Kuark forest was a flagship area for biodiversity conservation. Its rainforests provided a rare window of insight into what Australia's forests looked like millions of years ago. The forests of Kuark were once filled with birdsong. Now the silence is deafening, and the grief overwhelming. It is hard to imagine that the forests of Kuark will ever be the same. But there are still very important forests in East Gippsland that did not burn and are threatened by logging. These forests need urgent protection.

It is hard to reconcile with the scale and extent of impacts from the bushfires. Initial assessments of bushfire impacts have been detailed in a Victorian government report. According to the report:

- Over 40 percent of Victoria's sooty owl habitat is within the burnt zone;

Greens Road, slopes of Mount Kuark to the right.

- Over 25 percent of Victoria's greater glider habitat is within the burnt zone;
- 70 percent of Victoria's warm temperate rainforest is within the burnt zone;
- 30 percent of Victoria's cool temperate rainforests are within the burnt zone; and
- 100 percent of the habitat for the East Gippsland galaxias (*Galaxias aequipinnis*) is within the burnt zone, this critically endangered species of fish is found nowhere else on earth, other than the Kuark forest.

In November 2019, the Victorian Labor government announced protection for 96,000 hectares of forest across Victoria, with 48,500 in East Gippsland. These forests were designated as 'Immediate Protection Areas (IPAs)' and were part of a forestry package that attempted to address Victoria's dwindling timber resources supply

Old-growth forests on Mount Kuark, incinerated.

Ancient old-growth tree, Mount Kuark.

Burnt sassafras in what was cool temperate rainforest, Kuark.

Old-growth forest, Mount Kuark.

crisis with a $120 million-dollar industry assistance package, a stepping down of native timber volumes from 2024 and a complete end of native forest logging by 2030.

The IPAs were a key component of the *Greater Glider Action Statement* that was released as part of the government forests package. The IPAs are supposed to provide habitat for the glider while logging in unprotected areas occurs. However, the action statement weakened existing protections for the greater glider in East Gippsland and, according to an analysis of government data regarding the fire extent, over 90 percent of the forests in the IPAs in East Gippsland have burnt, including Kuark.

Laws must function to protect the glider, not continue to allow logging in key unburnt areas of habitat where greater gliders are found. The protections in the government's plan are based on landscape protections that fail to protect the most important hot spot areas for greater gliders and will allow logging in areas where these animals are found. Logging in East Gippsland has been temporarily suspended, but the Victorian government must bring forward their native forest transition plan for workers and protect precious unburnt areas, so wildlife and ecosystems have a chance to recover.

We will not see the recovery of some fire-affected forests in our lifetime. But, the government can take immediate action to protect unburnt forests and wildlife. They protected Kuark after years of dedicated community campaigning. Now they must take action to protect what remains. Given the extensive impacts of the fires, the government must rule out logging in unburnt forests and so-called 'salvage logging' in burnt areas to ensure wildlife and forests can recover.

Key outcome and impact of the funding provided: Funding from the Society assisted Goongerah Environment Centre Office (GECO) campaigners to return to Kuark forest to document the devastation caused by the bushfires, which will assist with their ongoing campaigns to protect Victoria's biodiverse forests and wildlife habitats.

The Society would like to thank everyone who contributed to the initiative. We are extremely grateful for your generosity and support.

Ancient mountain grey gum, burnt at Larissa Lane.

Ancient rainforest gullies incinerated, Larissa Lane.

Logging was halted in Kuark forest by a legal injunction and the forest later protected.

2020 University Student Grants Scheme - Winners

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

The Australian Wildlife Society is delighted to announce the winners of the ten grants of $1,500 each to honours or postgraduate students conducting research that will contribute to the conservation of Australian wildlife. **The winners for 2020 are:**

ANGELA RANA
School of Life and Environmental Sciences, University of Sydney

Project Title:
Assessing the success of the rewilding of small mammals into North Head

BALI LEE
Faculty of Biology, Medicine and Health, University of Tasmania

Project Title:
Are microplastics causing inflammation in seabirds?

BEN STEPKOVITCH
School of Biological, Earth and Environmental Sciences, University of New South Wales

Project Title:
Ecosystem effects of western quoll (*Dasyurus geoffroii*) reintroduction on prey species inside a fenced reserve

CAROLYN WHEELER
ARC Centre of Excellence for Coral Reef Studies, James Cook University

Project Title:
A novel approach to investigate reproduction in a model shark species threatened by ocean warming

CHRISTINE MAUGER
School of Biological Sciences, University of Queensland

Project Title:
The effect of fire regimes on habitat structure, demography and predator avoidance in northern brown bandicoots (*Isoodon macrourus*) and northern quolls (*Dasyurus hallucatus*)

EMILY JARVIS
School of Biological Sciences, Monash University

Project Title:
Artificial microhabitat use of the agile antechinus *(Antechinus agilis*) in wet-forest environments

JOSHUA ZIMMERMAN
School of Environmental and Rural Science, University of New England

Project Title:
Next-generation sequencing of *Felis catus* in Australia: Helping to elucidate feral cat population dynamics and interaction with domestic cats

JULIANNA SANTOS
School of Ecosystem & Forest Sciences, University of Melbourne

Project Title:
Mammals on the move in fire-driven mosaics

MOSES OMOGBEME
School of Veterinary & Life Sciences, Murdoch University

Project Title:
Dingoes and trophic interactions in landscape-scale cell fencing

KELLY WILLIAMS
School of Life Sciences, La Trobe University

Project Title:
Surviving predators: Assessing antipredator behaviours in an endangered wallaby to improve threatened species conservation

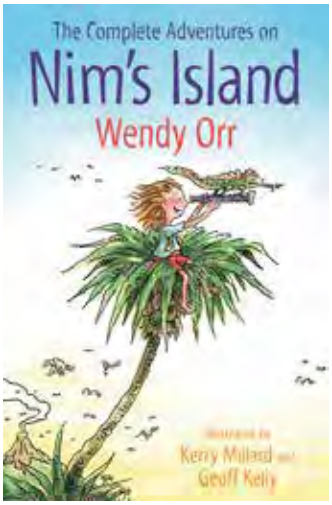
Book Reviews

***The Sustainable(ish) Living Guide* by Jen Gale**

If you want to make a difference for a sustainable future without radically changing your lifestyle, then this book is for you. This user-friendly book offers plenty of practical recommendations about how we can live more sustainable lives. Covering every aspect of our daily life from the items we buy and the food we eat, to how we travel, work and celebrate. *The Sustainable(ish) Living Guide* shares practical tips such as switching your household devices to standby mode and being mindful of food waste while encouraging you to put your newfound knowledge into action.
Publisher: Bloomsbury Publishing | RRP: $29.99

***Out of Nowhere* by Chris Naylor Ballesteros**

Out of Nowhere, a beautifully illustrated book by author Chris Naylor-Ballesteros, is a story about a unique friendship. Beetle and Caterpillar are best friends. Every day, they sit together on a big rock, sharing a picnic and looking out over the forest. But one day, Caterpillar goes missing and Beetle cannot find her. Just as Beetle is about to give up hope, a very friendly butterfly appears out of nowhere. Can she be his friend? She might look different now but she is still just the same and they are together once again.
Publisher: Allen & Unwin
RRP: $24.99

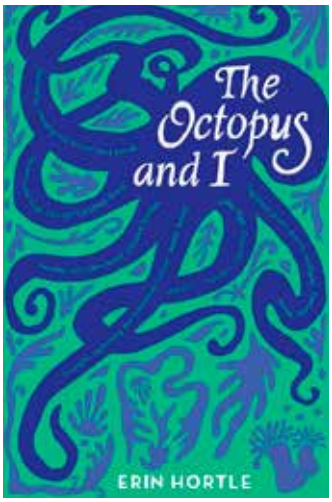


***The Complete Adventures on Nim's Island* by Wendy Orr**

Nim lives on an island in the middle of the wide blue sea with her father, Jack; a marine iguana called Fred; a sea lion called Selkie; a turtle called Chica; and a satellite dish for her email. No one else in the world lives quite like Nim, and she would not swap places with anyone.
Publisher: Allen & Unwin
RRP: $19.99

***Great and the Giants* by Żoe Tucker and Zoe Perisco**

Greta and the Giants is an inspiring picture book that retells the story of Nobel Peace Prize nominee, Greta Thunberg, the Swedish teenager who has led a global movement to raise awareness about the world's climate crisis. Greta is a young girl who lives in a beautiful forest threatened by Giants. When the Giants first came to the forest, they chopped down trees to make houses. The houses grew into towns and the towns grew into cities and now there is hardly any forest left. Greta knows she must help the wildlife that lives in the forest, but how? Luckily, Greta has an idea. *Greta and the Giants* is an imperative book recommended as the centrepiece on all family coffee tables.
Publisher: Allen & Unwin
RRP: $19.99

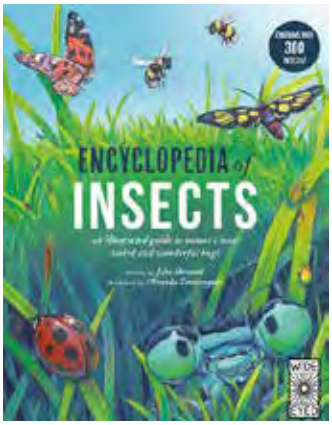


***The Octopus and I* by Erin Hortle**

Lucy and Jem live on the Tasman Peninsula near Eaglehawk Neck, an Australian coastal landscape, where Lucy is recovering from major surgery. As she tries to navigate her new body through the world, she develops a deep fascination with the local octopuses. As the story unfolds, the octopuses come to shape Lucy's body and her sense of self in ways even she can't quite understand. It is said that humans are 60 percent water and *The Octopus and I* reminds us that we sometimes forget our creatureliness. *The Octopus and I* is a stunning novel that explores love and loss, the wonderful wildlife of the ocean, and the human dimensions of wildlife.
Publisher: Allen & Unwin
RRP: $29.99

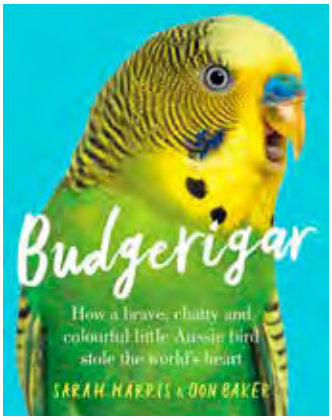
Baby Earth: An ABC of Our Planet

Teach and encourage young children to learn about the world around them and inspire them to develop environmental awareness from an early age. *Baby Earth* is a great conversation starter for important topics such as climate change, sustainability and conservation. While the target audience is said to be toddlers, there are some tricky words to grasp such as 'atmosphere' and 'biodegradable'. *Baby Earth* is a stunningly illustrated book that is a perfect introduction to teach children about the earth and how it is changing.
Publisher: Allen & Unwin
RRP: $16.99



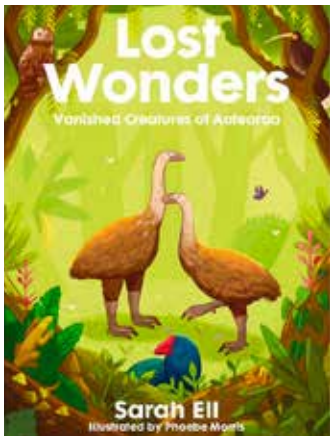
***Encyclopedia of Insects* by Jules Howard**

Are you a lover of entomology? If so, then this book is for you. The *Encyclopedia of Insects* is a field companion to the insects of the world. From endearing moths such as the gardenia bee hawk (*Cephonodes kingii*) to the previously thought extinct and rediscovered otway stonefly (*Eusthenia nothofagi*), there is something for everyone in the *Encyclopedia of Insects*. Find out what makes an insect an insect, how to make your neighbourhood insect-friendly and be encouraged to take part in citizen science.
Publisher: Allen & Unwin
RRP: $29.99



***Budgerigar* by Sarah Harris & Don Baker**

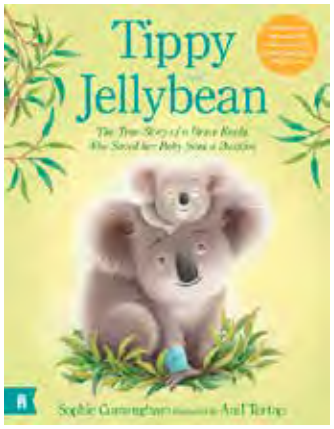
Budgerigar fulfils the curiosity of everything you ever wanted to know or realised you never knew about Australia's budgerigar (*Melopsittacus undulates*). Budgerigars, a colourful parrot native to Australia, have been bred in captivity since the 1850s and are now one of the world's best-known pet birds. They are hardy, animated and masters of mimicry. They grasp simple grammar, can count to six and have memories that contradict their size. They have been painted by masters, rendered in the finest porcelain, and graced fashionable hats and earrings of the highest order. *Budgerigar* is the book that opens the cage door on the incredible story of the little bird who grew.
Publisher: Allen & Unwin
RRP: $29.99



***Lost Wonders: Vanished Creatures of Aotearoa* by Sarah Ell**

Lost Wonders tells the story of New Zealand's natural history and the extinct species that are now gone forever. *Lost Wonders* also features some threatened species and the efforts that are being made to save them for future generations. Featured species include those that are long gone, such as New Zealand's dinosaurs; those that disappeared following the human habitation of New Zealand, including the moa (*Dinornithiformes*) and piopio (*Turnagra*); those that were lost and found, such as the takahe (*Porphyrio hochstetteri*) and taiko (*Pterodroma magenta*); and those at risk of extinction, among them the kakapo (*Strigops habroptilus*), Maui dolphin (*Cephalorhynchus hectori maui*) and kauri (*Agathis australis*). It is now time to take action to prevent additional species from becoming extinct.

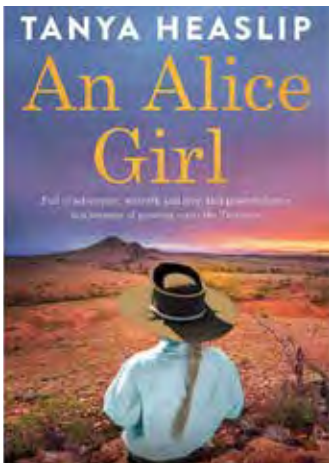
Publisher: Allen & Unwin
RRP: $19.99



***Tippy and Jellybean* by Sophie Cunningham**

Tippy and Jellybean is an emotional, heart-warming true story of a koala who saved her baby from a bushfire. Tippy and her baby, Jellybean, live in a beautiful eucalyptus forest in East Gippsland, Victoria. One day, they wake up and sniff the air. It is smoky, hot and windy. Kangaroo and wallabies are bounding. Wombats are scrambling to their burrows. The cockatoos take off in an enormous flock. Tippy cannot hop, run or fly and so she shelters her baby in the only way she can. Tippy and Jellybean are rescued and rehabilitated by a team of dedicated vets. Six months later, Tippy and Jellybean are released back home where they can enjoy their beautiful eucalyptus forest again. One dollar from every copy sold will be donated to the Australian Bushfire Emergency Wildlife Fund, to aid the work of the vets who cared for Tippy and Jellybean.

Publisher: Allen & Unwin
RRP: $19.99



***An Alice Girl* by Tanya Heaslip**

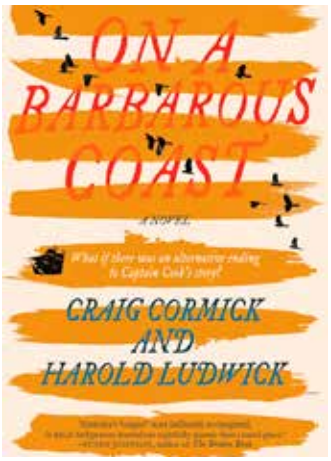
An Alice Girl is the remarkable biography of Tanya Heaslip's childhood growing up on a remote cattle station just north of Alice Springs during the 1960s and 1970s. Tanya's parents developed a cattle station where water was scarce, all power was dependent on generators, and a trip to town for supplies usually meant a full day's journey. Tanya and her siblings led a childhood unimaginable to many Australians. Their father was determined to teach them how to survive in this severe and isolated environment and his lessons were often harsh. But despite all that, Tanya tells of this precious time with raw honesty, humour, love and much kindness.

Publisher: Allen & Unwin
RRP: $32.99

***Six Capitals* by Jane Glesson-White**

The accounts of nations and corporations are vital to the twenty first century global economy. They translate value into the language of modern times – numbers and money – in the shape of GDP and profit figures. But, increasingly, the world is coming to realise that the seemingly endless growth that capital offers us is limited by the Earth's resources and comes at a huge price to the planet and our wellbeing. It simply cannot be sustained. *Six Capitals* demands that we start accounting for nature and society. It urges us to rethink our idea of capital to include four new categories of wealth: intellectual, human, social, and natural. Incorporating them into our financial statements and GDP figures could be the only way to address the many crises we face today.

Publisher: Allen & Unwin
RRP: $24.99



***On a Barbarous Coast* by Craig Cormick and Harold Ludwick**

On a Barbarous Coast offers a fascinating and thought-provoking alternative to Captain James Cook's story, re-imagined from both a European and Indigenous writer's perspective. Captain Cook's *Endeavour* became shipwrecked 250 years ago on a coral reef off the coast of far north Australia. A small distinct group of survivors huddled on the shore of this strange land, with little protection from the dangers of undetermined wildlife and natives that live here. Imagine the different paths our nation's history may have taken, and how different our world would be today, if the few survivors had to learn from the indigenous peoples how to survive this land. One can only imagine.

Publisher: Allen & Unwin
RRP: $29.99

***The Age of Islands* by Alistair Bonnett**

Today, geologists talk about a new geological era defined by human impact on the planet – the Anthropocene. New islands are being built for tourism, while many islands are disappearing due to rising sea levels. In *The Age of Islands*, explorer and geographer, Alastair Bonnett, takes the reader on a fascinating tour of the world's newest, most fragile and beautiful islands. From rising islands such as the Australian coastline of the Gold Coast, which has been transformed from a natural beachscape into a long chain of artificial residential island developments, to islands that are disappearing such as the Isles of Scilly. There is no doubt that human activity has accelerated the rate at which the planet's climate and landscapes have transformed.

Publisher: Allen & Unwin
RRP: $29.99

***Humankind - A Hopeful History* by Rutger Bregman**

No doubt you have heard that human beings can be selfish by nature and governed by self-interest. *Humankind* makes a new argument that it is realistic to assume that people are good. The instinct to cooperate rather than compete, and trust rather than distrust, has an evolutionary basis going right back to the beginning of Homo sapiens. The author, Rutger Bregman, shows how believing in human kindness and altruism can be a new way to think and act, as the foundation for achieving true change in our society. We have never needed this message more than now. *Humankind* poses the question: Can we discover new ways forward and build a better future, in particular for the sustainability of the planet?

Publisher: Bloomsbury Publishing | RRP: $39.99

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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@aws.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 $ .....

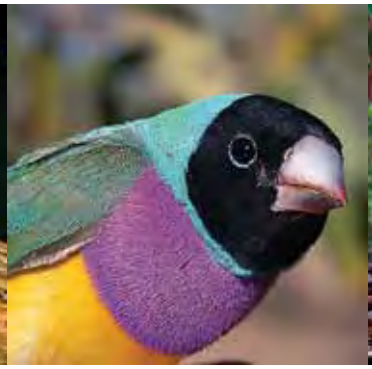
Total $ .....

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

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

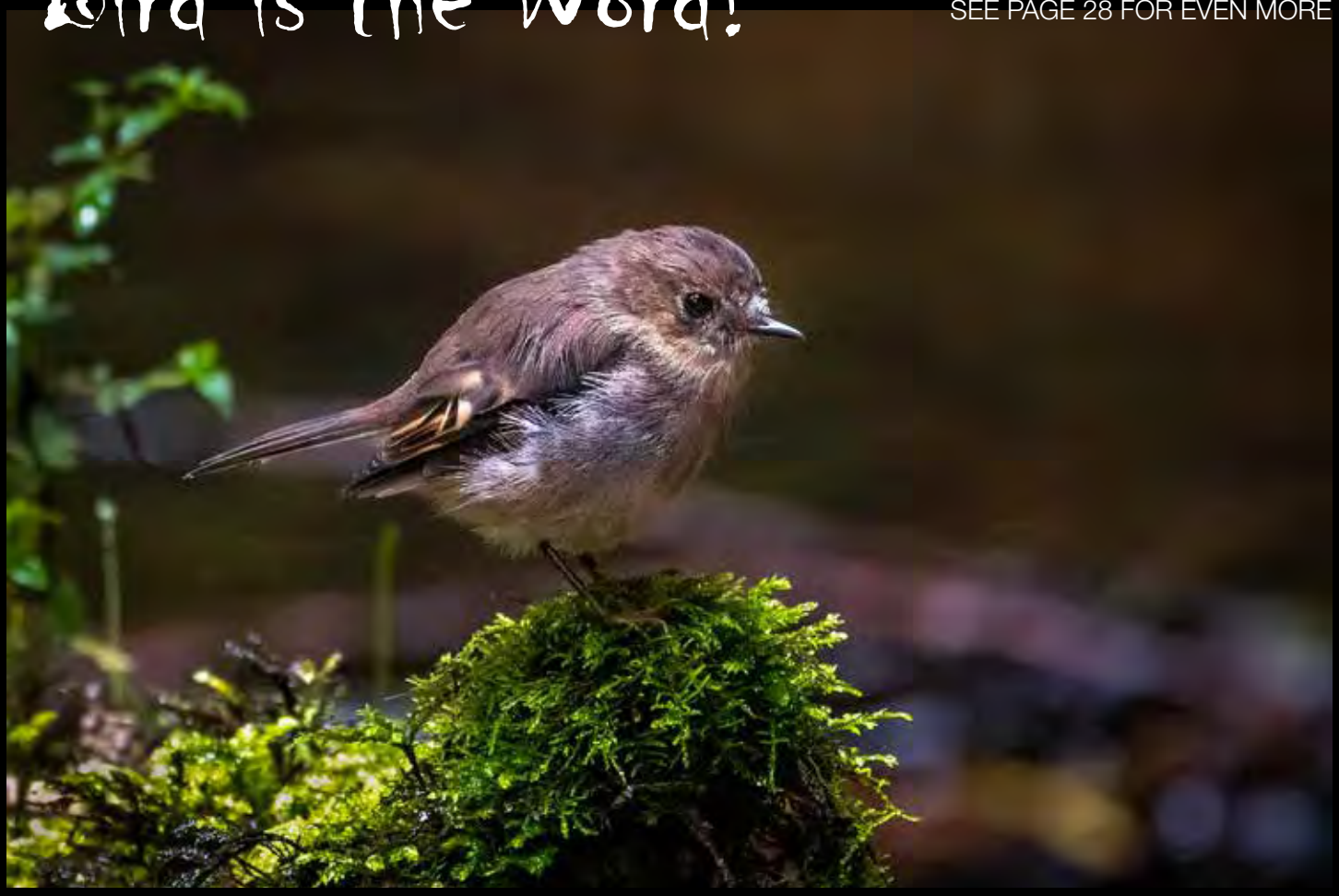
Membership Hotline: Mob: 0424 287 297

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

Bird is the Word!

BEAUTIFUL PHOTOS BY GREG DAWSON
SEE PAGE 28 FOR EVEN MORE



Pink robin (female) (*Petroica rodinogaster*). Photo taken in February 2020 at Great Otway National Park, Victoria. Photo: Greg Dawson

Plumed whistling ducks (*Dendrocygna eytoni*). Photo taken in June 2019 at Mary River National Park, Northern Territory. Photo: Greg Dawson