



# AUSTRALIAN

# *Wildlife*

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**\$10** (non-members)



Celebrating a new century of wildlife preservation in Australia

Journal of the Wildlife Preservation Society of Australia Limited

(Founded 1909)



# Wildlife Ecology

## Research Scholarship

The Australian Wildlife Society Wildlife Ecology Research Scholarship is open to postgraduate research students from three Australian universities undertaking a research project that is of direct relevance to the conservation of Australia's native wildlife.

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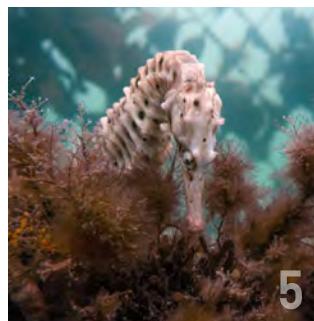
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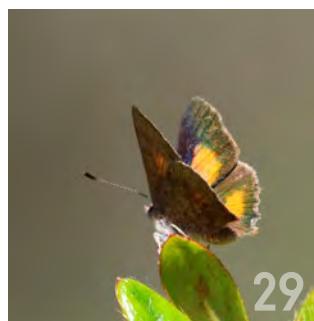
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**Megan Fabian**  
Editor, *Australian Wildlife*



### On the Cover:

**Front Cover:** The red-spotted Jezebel (*Delias aganippe*) is a butterfly endemic to Australia. While superficially like some other species of white butterfly on its upper side, there is no mistaking this species with its bold red, yellow, black, and white patterned underside. These butterflies are found mainly in southern Queensland, New South Wales, Victoria, South Australia, and southern Western Australia. Image: <https://bit.ly/IMGCred>

### Back Cover:

**Top:** The ghost bat (*Macroderma gigas*) is a microbat species found in northern Australia and is Australia's only carnivorous bat, preying on large insects, frogs, birds, lizards, and small mammals, including other bats. It is listed as a Vulnerable species and is under threat from destruction of caves by mining, and loss of feeding habitat by clearing and land degradation from agriculture. Image: Bruce Thomson.

**Bottom:** The eastern banjo frog (*Limnodynastes dumerili*), found in south-east Queensland, most of eastern New South Wales, the Australian Capital Territory, all of Victoria, most of Tasmania, and south-east South Australia, is a large species of frog reaching up to 7.5 cm in body length. It feeds on small invertebrates such as flies and other small insects and has a distinctive 'bonk' call which sounds like the string of a banjo being plucked. Image: Candice Bartlett.



## Australian Wildlife Society

Conserving Australia's Wildlife  
since 1909

## Membership

**Student Members: \$0** (Conditions apply)

**Individual Members: \$55**

**Family Members: \$70**

(Husband, partner, and children jointly)

**Concession Members: \$50**

(Pensioner, student, child)

**E-mag Members: \$30**

(Australian Wildlife will be distributed via email as a PDF document - no hard copy of the magazine will be sent)

**Associate Members: \$85**

(Schools or incorporated or unincorporated associations with a principal object related to conservation, nature study, or education)

**Corporate Members: \$125**

(Incorporated or unincorporated associations not being associate members)

**Includes postage within Australia.**

**Add \$40 for overseas postage**

## Three Year Membership

**Individual Members: \$150**

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**Concession Members: \$135**

**E-mag Members: \$81**

**Associate Members: \$230**

**Corporate Members: \$340**

**Includes postage within Australia.**

**Add \$100 for overseas postage**

## Member Notice

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 tax-deductible gift recipient and registered with the Australian Charities and Not-for-profit Commission. Its public fund is listed on the Register of Environmental Organisations under item 6.11 of subsection 30-55(1) of the Income Tax Assessment Act 1997.

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.

# Australian Wildlife

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

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

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## Directors

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Dr Julie Old

### Vice Presidents

Stephen Grabowski and Brian Scarsbrick AM

### Hon Secretary/Chief Executive Officer

Patrick Medway AM

### Treasurer

Dr Hayley Stannard

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Philip Sansom

Dr Robin Crisman

Dr Hayley Stannard

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Environmental Science

Geoffrey Ross  
Wildlife Management

Dr Jennie Gilbert  
Marine Conservation

Vanessa Wilson  
Biodiversity and Wildlife

## Our Mission

The Australian Wildlife Society (Wildlife Preservation Society of Australia Limited) is a national not-for-profit wildlife 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, advocacy, public awareness, community involvement, 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 attempted to convince politicians of the necessity to include the preservation of Australia's precious wildlife and its vital habitat in all their planning, environmental issues, and discussions.

Articles and comments expressed in this magazine do not necessarily reflect the opinions of the Editor, Society, or members. Articles contributed from outside sources are included for the reading enjoyment of members and to encourage discussion on different points of view.

Articles may be copied or quoted with appropriate attribution.

# From the President's Desk

Dr Julie Old – President

Over the last year, we have actively campaigned to reduce plastics in the environment. We have seen government action on implementing laws to limit single-use plastic, which will reduce plastic entering our environment, including our oceans, but we can do more.



## Welcome to the Autumn 2022 Edition of *Australian Wildlife*

The Society has been off to a flying start in 2022, campaigning to protect and preserve Australia's flora and fauna. In addition to advocating for the conservation of our native frog species, the Society has supported two wildlife conservation groups to continue achieving our wildlife conservation goals. The Society provided a Wildlife Conservation Group Grant to Aussie Ark to help them save the broad-toothed rat (*Mastacomys fuscus*), an Endangered native rodent, from the risk of extinction. We also provided a grant to the Mornington Peninsula Koala Conservation Landcare Group to help them maintain and increase available habitat for koalas (*Phascolarctos cinereus*), as well as to increase community awareness and education, particularly around road safety. In March, the Society also acknowledged our 2021 award recipients at the Annual President's Luncheon, and we celebrate their efforts on pages 7-10 in this edition of *Australian Wildlife*!

At the Annual General Meeting this year, we saw the retirement of one of our long-standing and highly respected Board Members, Ken Mason. Ken is an enthusiastic supporter of reducing feral animals and plants to aid the conservation of wildlife, and became the first recipient of the newly created Australia Wildlife Society Roll of Honour. Ken was awarded this honour for his commitment and support of the Society as well as his commitment to wildlife conservation. Dr Clive Williams OAM and Suzanne Medway AM were also inducted into the Australia Wildlife Society's Roll of Honour at the President's Luncheon. Further information is provided on pages 6 and 8.

During the Election of Directors, Dr Hayley Stannard was nominated as Treasurer and delightfully accepted the position. I wish Hayley all the best in her new role overseeing and safeguarding the financial administration of the Society.

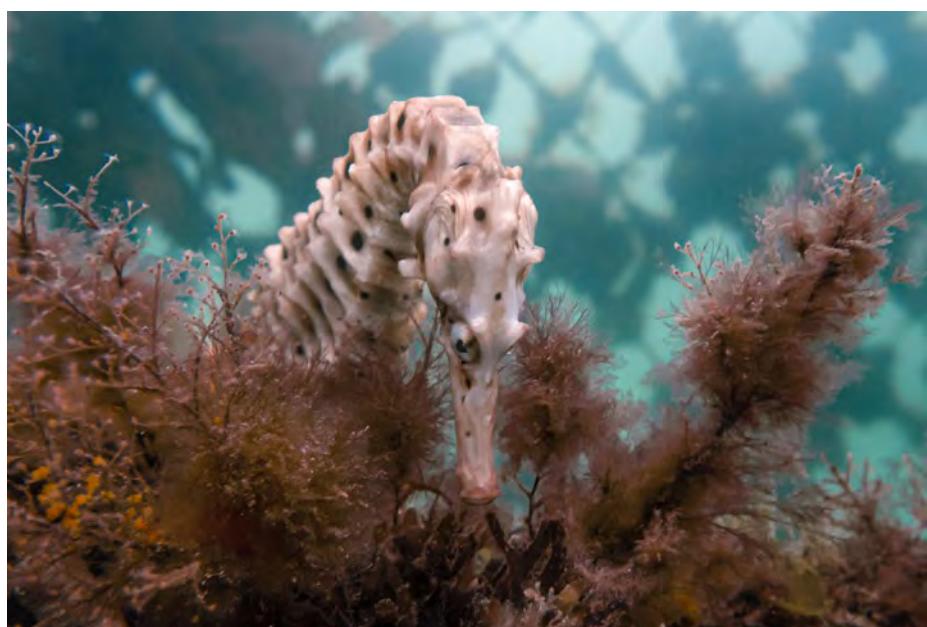
Unfortunately, despite all the Society's achievements, climate change continues to impact Australia, its

ecosystems, our flora and fauna, and ultimately ourselves, whether through unprecedented heatwaves and coral bleaching events, fires, flooding, or disease. Our coastline is not exempt, with sea levels rising and expected to further rise significantly. In January, our Pacific coastline was also placed on tsunami alert, the risk originating from the Hunga Tonga-Hunga Ha'apai volcano around thirty kilometres south-east of Tonga's Fonuafo'ou island. The importance of global impacts on our natural world, including Australia's fauna and flora along our coastline, could not be more critical than now.

Living Seawalls are artificial habitat panels that mimic natural seawalls to increase biodiversity and the ecological value of our shoreline. In this edition of *Australian Wildlife*, on pages 27-28, you will find an article on Living Seawalls by one of our publication volunteers, Emma Harding, and how the Living Seawalls Project works to preserve our biodiversity and these critical habitats. We also have an article on corals on pages 17-19 by Rosemary Steinberg, and seagrass on pages 32-33 by Clayton Mead, Giulia Ferretto, and Professor

Adriana Vergés. Both corals and seagrass are critical components of our marine environment, with many other species also threatened by the loss of these critical habitat components. The Endangered White's seahorse (*Hippocampus whitei*) is threatened due to a reduction in their soft coral and sponge habitats. They also live in seagrasses such as the Endangered *Posidonia australis*, which boat anchors and mooring installations have destroyed. Our unique dugong (*Dugong dugon*) and other fish, crabs, and smaller invertebrates rely on seagrass meadows for their survival.

Over the last year, we have actively campaigned to reduce plastics in the environment. We have seen government action on implementing laws to limit single-use plastic, which will reduce plastic entering our environment, including our oceans, but we can do more. If we choose to consume seafood, we need to ensure we make informed choices and choose sustainable options ([see aws.org.au/act-now/](http://aws.org.au/act-now/)). Whilst the Society continues to advocate to preserve our marine, freshwater, and terrestrial habitats, and conserve our native flora and fauna, we hope you enjoy this edition of *Australian Wildlife*.



White's seahorse (*Hippocampus whitei*) is endemic to the east coast of Australia. Image: Alejandro Trevino.

# 113th Annual General Meeting



**The 113th Annual General Meeting of the Wildlife Preservation Society of Australia Limited, trading as the Australian Wildlife Society, was held on Wednesday 2 March 2022 at Castlereagh Boutique Hotel, Sydney, New South Wales.**

The President, Dr Julie Old, tabled the Annual Report for 2021 and highlighted the Society's achievements in wildlife conservation over the past year. The full report is featured in this magazine.

The meeting tabled and adopted the audited Treasurer's Report for 2021, showing a healthy financial balance.

Peter J. Varley, Chartered Accountant and Registered Company Auditor, was confirmed as the Society's auditor for 2022.

The election of the Directors for the coming year took place. Director Ken Mason retired after ten years of service on the Board of Directors, and the following Directors were re-elected to the Board: Dr Julie Old, Philip Sansom, and Dr Hayley Stannard. We thank Ken for his dedication and commitment to the Society and its mission of wildlife conservation over the past ten years, and we wish him all the best with his future endeavours.

## Annual President's Luncheon

The Annual President's Luncheon was held after the Annual General Meeting in the Cellos Grand Dining Room of Castlereagh Boutique Hotel, Sydney, and attended by an enthusiastic group of supporters, members, family, and friends.

The National Office Manager, Megan Fabian, welcomed the guests and introduced the Chief Executive Officer, Patrick Medway AM, who proposed a toast to 113 years of wildlife conservation by the Society. Patrick introduced our guest speaker for 2022, the Curator of Amphibian and Reptile Conservation Biology at the Australian Museum, Dr Jodi Rowley, who spoke about her research on

Australia's amphibians – the Society's 2022 Wildlife of the Year.

The Society established a Roll of Honour, launched at the Annual President's Luncheon, to highlight past luminaries who have made a significant contribution to the longevity and success of the Australian Wildlife Society and who are respected in the wider conservation field for their contribution to the preservation of Australian wildlife. The luminaries added to the Roll of Honour were: Ken Mason, Dr Clive Williams OAM, and Suzanne Medway AM.

The Society was pleased to announce the winners of its prestigious awards for 2021 during the luncheon proceedings.

**Top:** L to R: Roz Holme OAM, Kev Holme, Dr Robin Crisman, Philip Sansom, Brian Scarsbrick AM, Dr Julie Old, Ken Mason, Maureen Christie, Dr Clive Williams OAM, and Patrick Medway AM.

## 2021 Serventy Conservation Award

The prestigious Serventy Conservation Award was inaugurated in 1999 to commemorate the outstanding wildlife conservation work by the members of the Serventy family – Vincent Serventy, his brother Dr Dominic Serventy, and his sister Lucy Serventy. Each member of the Serventy family has given a lifetime of commitment to conserving Australia's wildlife. The award is intended to recognise and celebrate the wildlife conservation work not done as part of a professional career. It is awarded to those who labour in the field for a love of nature and a determination that it should be conserved. Often, these have been non-scientists who have earned their wildlife conservation skills through sheer hard work.

**The award for 2021 was presented to Maureen Christie of Carpenter Rocks, South Australia.**

Maureen has devoted herself to wildlife conservation work for more than twenty-seven years. Her accomplishments include initiating a plan to trap feral cats at known roost sites of the Critically Endangered orange-bellied parrot (*Neophema chrysogaster*), being active in shorebird counts in south-east South Australia, helping to establish the Friends of Shorebirds SE, and she has been the Secretary/Treasurer of the Friends of Shorebirds SE since its inception. Maureen has coordinated regular monitoring of shorebird nesting sites and educated the public on the importance of keeping dogs on a leash, which led to the first successful hatching and fledging of the Vulnerable little tern (*Sterna albifrons*). She has also been responsible for shaping South Australia's fisheries policy to protect shorebirds adequately.

She is actively involved in shorebird research, including tracking migratory birds, which has led to over thirty-five scientific articles being published. Maureen has conducted many workshops for children and community groups. She has written about two hundred newsletters for distribution to public groups and has also been interviewed on ABC radio. Maureen has organised educational displays about shorebirds and their conservation at two museums. She has become widely accepted as a shorebird expert.

Maureen's contributions have significantly increased the scientific knowledge of the natural history of shorebirds in South Australia, which is crucial for the birds' conservation. She is a worthy winner of the 2021 Serventy Conservation Award for her lifelong contribution to wildlife conservation and education.



L to R: Maureen Christie, Dr Julie Old, and Patrick Medway AM.

### Acceptance Speech from Maureen Christie

The main focus of my volunteer work in recent years has been the protection of both migratory and resident shorebirds. Having received a copy of the Autumn 2021 edition of *Australian Wildlife*, featuring Robert Bush's stunning photograph of a bar-tailed godwit (*Limosa lapponica*) and a comprehensive article by David Edwards of the Queensland Wader Study Group, I know your members are well informed not only of the threats facing shorebirds but of the work that is being done throughout the East Asian-Australasian Flyway.

There is much fear for the future of shorebirds – how they will cope with rising sea levels, continual land reclamation of shorebird habitat throughout the flyway (including Australia), and increased recreational and commercial use of our beaches. I want to share with you a 'good news' story from the south east of South Australia that came about as a result of the tens of thousands of volunteer hours that go into fieldwork, data analysis, and advocacy.

The most outstanding achievement of my life was when the Friends of Shorebirds SE (FoSSE) achieved a negotiated settlement, through the Administrative Appeals Tribunal, with the Federal Minister of the Environment, the South Australian Minister for Agriculture, Food and Fisheries, and Australian Kelp Products Pty Ltd. The tribunal led to the South Australian Beach-cast Marine Algae Fishery being reorganised. At conciliation, we were told that we were the only ones to bring science to the table. The Deputy President of the Tribunal turned to me before she made her ruling and asked if I thought the proposed compromise would adequately protect shorebirds and is evidence that the Environment Protection and Biodiversity Conservation Act 1999 can protect threatened species when enforced by the Federal Government. If the matter had remained under state jurisdiction, the battle would have been lost before it had begun.

I am a member of the Victorian Wader Study Group, the Australasian Wader Studies Group, and, of course, the Friends of Shorebirds SE. Without the work of their members over the last forty years, we would not have had the data and would not have achieved this magnificent result. So, in accepting this award, I acknowledge the work of so many others. Thank you.

## 2021 Community Wildlife Conservation Award



L to R: Philip Sansom, Shirley Lack, Dr Julie Old, and Patrick Medway AM.

The Community Wildlife Conservation Award is awarded to a community group contributing to wildlife preservation in Australia.

### **The award for 2021 was presented to the Wombat Protection Society of Australia of Tomerong, New South Wales.**

This group has operated for more than twenty years to protect wombats. Through its regular workshops and seminars, it educates schools, communities, and wildlife groups on the conservation and care of wombats. It has partnered with several universities to support research into wombats and their conservation. One of its significant achievements has been developing the burrow flap method to treat wombats with mange. Wombat Protection Society of Australia provides burrow flaps to interested groups and constantly researches the best ways to treat mange. Its education programs encourage people to coexist with wombats and not view them as pests.

### **Acceptance Speech from the Wombat Protection Society of Australia**

The Wombat Protection Society of Australia is delighted and honoured to be named the recipient of the 2021 Community Wildlife Conservation Award by the Australian Wildlife Society. In our twenty-fifth year, we are fortunate to have the tireless work of our Board, both past and present, and our dedicated members and supporters recognised and rewarded. This award will assist the Wombat Protection Society in promoting Australia's wonderful wombats and those who care for them. The recognition also reaffirms that some of the best conservation of our precious wildlife comes from people who care. The Wombat Protection Society undertakes all its work from donations, and all people involved are unpaid volunteers.

Since our inception, the 'big issue' has continued to be the prevention and treatment of mange – the devastating parasitic infestation that kills our wombats. Our conservation work with wombats covers the broad areas of harm mitigation, education, care and facts, mange and disease, and assisting government, researchers, and carers in developing the best policies and promoting ideas. A large focus of our work, and the area in which the award funds will be used, is to understand the pharmacokinetics of moxidectin, a treatment modality for mange. In partnership with Charles Sturt University and overseen by Dr Howard Ralph of Southern Cross Wildlife Care, we aim to develop the best practice treatment guidelines for wombats. At Jarake Wildlife Sanctuary, we will be using a non-harmful research methodology that does not involve trapping, containing, or misusing our wombats.

## Roll Of Honour Recipients



L to R: President Dr Julie Old, Ken Mason, Suzanne Medway AM, Dr Clive Williams OAM, Patrick Medway AM.

## 2021 Wildlife Rehabilitation Award

The Wildlife Rehabilitation Award is awarded to an individual or a wildlife conservation group contributing to the preservation of Australia's wildlife. The award is intended to acknowledge and commemorate the individuals or wildlife conservation groups working tirelessly to rescue, rehabilitate, and conserve Australia's native wildlife. Many people find the experience of rehabilitating native wildlife rewarding; however, it is time-consuming and can be very expensive.

**The award for 2021 was presented to Wildlife Rescue Australia of Woolgoolga, New South Wales.**

Wildlife Rescue Australia is an Australia-wide, specialist volunteer organisation dedicated to rescuing native animals – Australia's first truly national twenty-four hours a day, seven days a week wildlife rescue phone service. Wildlife Rescue Australia operates an emergency twenty-four-hour call centre staffed by home-based phone coordinators trained to assist in all aspects of animal rescues.

Wildlife Rescue Australia has a considerable impact on the rehabilitation of native wildlife. The dedication of its founders can be seen in the technological development and the enormous volunteer hours that have already, and still are, being put into creating an easy-to-use efficient wildlife rescue system. Winning the Wildlife Rehabilitation Award will help promote this innovative and nationally coordinated wildlife rescue service that saves the lives of thousands of vulnerable native species in need of assistance.



L to R: Brian Scarsbrick AM, Coral Johnson, Dianne Ward, Dr Julie Old, and Patrick Medway AM.

### Acceptance Speech from Wildlife Rescue Australia

First of all, we would like to thank the Australian Wildlife Society for this award. Like many volunteer organisations, we struggle to make ends meet, and this award is greatly appreciated. Wildlife Rescue Australia is run entirely by volunteers who work twenty-four hours a day, seven days a week Australia-wide, to facilitate the rescue of injured or orphaned wildlife. Wildlife Rescue Australia came about because of our concern that many wildlife rescue organisations had difficulty answering their phones.

The phone call is the first contact between the member of the public seeking help and the provision of that help. If a phone is unanswered, an animal can be left to suffer or die. The caller feels frustrated or frantic. Wildlife rescue and carer groups are staffed by wonderful volunteers who work tirelessly; spending many hours rescuing and caring for wildlife and having to be on duty to answer the phone can often be just too much.

Wildlife Rescue Australia members do not generally go out and rescue animals, nor do we look after them. Our strength lies in that we organise rescues, using in-house computer software which uses an extensive database containing vets, tree climbers, chimney sweeps, local councils, police, and other contacts Australia-wide. Our phone coordinators are specially trained to use this system. At the click of a button, phone coordinators can direct the caller to the nearest vet, including an address and opening hours, provide the contact details of a local carer group, or another appropriate source of help, Australia-wide.

Once again, we would like to sincerely thank the Australian Wildlife Society for their generosity and recognition of our wildlife rescue work.



L to R: Sisilia Citrajaya, John Creighton, and Caitlin Gallagher.



Patrick Medway AM proposing a toast to 113 years of wildlife conservation by the Society.

## 2021 Youth Conservation Award



L to R: Nabilah Chowdhury, Dr Julie Old, Dr Robin Crisman, and Patrick Medway AM.

The youth of Australia make significant contributions to wildlife conservation through innovative projects and ideas. It is young people who can drive lasting and sustainable change, who will become the next ambassadors in wildlife conservation, and hopefully the successors to the current Board of the Australian Wildlife Society. We aim to inspire young people to have a stake in wildlife conservation by rewarding and recognising their efforts.

### **The award for 2021 was presented to Nabilah Chowdhury of Ashfield, New South Wales.**

Nabilah works tirelessly for a sustainable future for the next generation while participating in other extra-curricular activities. Nabilah is part of Taronga's Youth at the Zoo program. She was the School Strike 4 Climate organiser in Sydney and is part of the United Nations Youth Delegate Programme. Her most significant personal achievement was stopping Samsung from funding the Adani coal mine and acting as the host of the Sydney school strike in May 2021, where over 10,000 people were in attendance.



L to R: Nabilah Chowdhury, Caitlin Gallagher, and Megan Fabian.

### **Acceptance Speech from Nabilah Chowdhury**

To be able to receive the Youth Conservation Award is a great honour. I started my journey with wildlife at such a young age, having always been interested in plants and animals, especially when I moved to Australia in 2014. From as far as I can remember, my love of wildlife has grown, and from the support of my family and everyone around me, I have been able to do what I love.

It was not until 2017, when I joined Taronga's Youth at the Zoo program, that I realised how passionate I was about wildlife and their conservation. That was when I realised that there was so much more to do to protect nature. Through the program, I realised I could do work to conserve wildlife for the rest of my life and that there was a career for this type of work, and it pushed me to continue to do as much as I could for the environment. As part of Taronga's Youth at the Zoo program, I participated in various wildlife conservation projects, such as partnering with the Jane Goodall Institute Australia to inspire people to protect our natural environment and participating in the City2Surf to raise awareness of the threats to our oceans and marine life. I raised over \$550 towards marine turtle conservation. In 2019, I was given a leadership position in Taronga's Youth at the Zoo program, and I still volunteer there to this day.

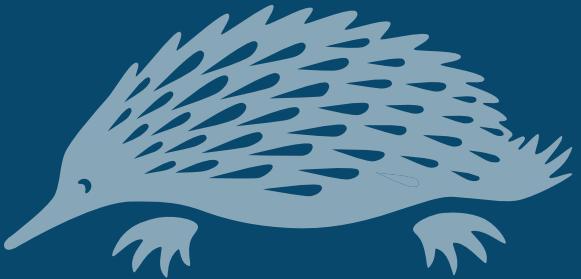
In 2019, climate change started to become more prevalent in the media, and, at the same time, I was organising the School Strike 4 Climate on both a national and local scale. I was involved in election campaigns and strikes. I spoke with politicians and climate scientists to ensure that Australia does something about climate change, or our generation will be left to face the effects of climate change. We only have a couple of years left to prevent the irreversible damage climate change has caused.

Young people are experiencing climate change in a more intense and life-changing way. We are constantly breaking record temperatures, and extreme weather events are becoming more frequent, as witnessed during the horrific 2019-2020 bushfires. The race to protect Australia's native wildlife is real. The decisions made today will affect the rest of our lives and impact the future of our native wildlife.

At the end of 2021, I was asked to join the Jane Goodall National Youth Leadership Council, which is made up of a passionate group of young people from around Australia who are dedicated to making positive change happen for animals, people, and the environment.

It is an incredible honour to accept this award. I aim to inspire many people to look after the natural world. I have been provided with a fantastic opportunity to share my experiences and speak up for what I believe in. Thank you again for this award.

# President's ANNUAL REPORT FOR 2021



## A Year in Review

The past year has been challenging, with the COVID-19 pandemic taking a toll on the economy again in 2021. However, the Society was fortunate to continue its work protecting Australia's native wildlife during these difficult times. I was honoured to be elected as President following the Annual General Meeting and am thrilled to be undertaking a new role in the Australian Wildlife Society as its 19th President. We were also delighted to welcome a new member to the Board – Dr Hayley Stannard, a wildlife researcher and lecturer on anatomy and physiology subjects at Charles Sturt University.

One of the highlights of the year was presenting our four annual awards – the **Serventy Conservation Award**, **Community Conservation Award**, **Wildlife Rehabilitation Award**, and **Youth Conservation Award**. This year, the Society was delighted to increase the sum of money for all four awards. We are aware of the wonderful work carried out by wildlife conservation organisations and volunteers across the country. We know that many organisations and thousands of volunteers are working tirelessly to save Australia's threatened wildlife, as well as the humble and more common species and the habitats in which they live. We are very proud to acknowledge and reward these individuals and wildlife conservation groups, and encourage them to continue their wildlife conservation work on behalf of the community.

Another highlight was the awarding of our ten University Research Grants offered to honours or postgraduate students at Australian universities. University Research Grants are available for research projects of direct relevance to the conservation of Australian wildlife (flora or fauna). Each year, ten \$1,500 grants are awarded. We also awarded four special scholarships, one at the University of Technology Sydney, two at the University of New South Wales, and one at Western Sydney University.

## Australian Wildlife Magazine

This year, we saw Ms Megan Fabian, National Office Manager, appointed as the Editor of *Australian Wildlife*.

The magazine has a proud record and history, and has proved extremely popular amongst all our members. The magazine's readership has spread across Australia and internationally, carrying a strong message of environmental education, wildlife conservation issues, and preservation of native wildlife. We invite members to distribute copies to family and friends and invite them to become members.



## E-newsletter

Our monthly e-newsletter received a new look and a name change from Manager's Messages to Wildlife Wisdom. We wanted the title of the newsletter to say less about us and more about our members – our wisdom of wildlife advocates! Consequently, we thought the name change would be suitable and reflect the wisdom shared by the Society and its members through the monthly e-newsletter. We encourage members to forward Wildlife Wisdom to their family, friends, and networks to help spread the important message of wildlife conservation across Australia.

## Website

Our website received an updated look with an engaging home page, including video footage from beneath the sea and stunning native flora and fauna images. Our 2021 wildlife of the year, Australia's ground-dwelling parrots, was also featured. Changes to the structure and layout will be an ongoing process as we continue to update our website to make it more user-friendly.

## Social Media

We are active on five social media platforms (Facebook, Twitter, Instagram, LinkedIn, 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; thank you for your support. We reached over 13,500 followers on Instagram and 12,200 followers on Facebook. A special thank you to Dr Jai Green-Barber (Instagram), Greg Dawson, Kate Dutton-Regester, Caitlin Gallagher, Karlee Putterill (Facebook Photography), Emma Harding and Nadya Sotnychuck (Twitter) for assisting the Society with its social media platforms.

## Membership

As of 1 December 2021, we had 603 members in total. We had 143 Individual Members, 11 Family Members, 46 Concession Members, 13 Corporate Members, 40 E-Mag Members, 14 Associate Members, 23 Life Members, 21 Complimentary Members, and 292 Student Members. Please consider becoming a member of the Society to help protect Australia's native wildlife and natural habitats.

## Our Mission

Australian Wildlife Society, founded in 1909, is a national not-for-profit wildlife conservation organisation. We are dedicated to protecting Australian wildlife (flora and fauna) through national environmental education, public awareness, advocacy, hands-on wildlife conservation work, and community involvement. To fulfil part of our mission, we introduced the University Research Grants Scheme in 2005. Since its inception, we have awarded over 165 grants to very worthy recipients. In the future, we plan to steadily increase the dollar amount of the grants subject to further donations, which are always welcome.

## Wildlife Science Ecology Research Scholarships

The [University of Technology Sydney Wildlife Ecology Research Scholarship](#) was awarded to UTS School of Life Sciences PhD student, Gwilym Price, for his research on 'The assessment and development of bioavailability-based guideline values for zinc in Australian and New Zealand freshwaters.'

The [University of New South Wales Wildlife Ecology Research Scholarship](#) was awarded to UNSW School of Biological, Earth, and Environmental Sciences PhD student, Brittany Mitchell, for her research on 'The effects of the Anthropocene on Australian frog species.'

A second [University of New South Wales Wildlife Ecology Research Scholarship](#) was awarded to UNSW Centre for Ecosystem Science PhD Candidate, Jana Stewart, for her research on 'Soil microbial responses to reintroduced semi-fossorial mammals: a temporal comparison of soil biodiversity and ecosystem function.'

The [Western Sydney University Wildlife Ecology Research Scholarship](#) was awarded to WSU Hawkesbury Institute for the Environment PhD student, Ivan Kotzur, for his research on 'Understanding and mapping how thermal and dietary constraints combine to restrict koala habitat and determine refugia.'

## Annual General Meeting and President's Luncheon

The 112th Annual General Meeting of the Wildlife Preservation Society of Australia Limited, trading as the Australian Wildlife Society, was held on Wednesday, 3 March 2021, in Sydney. The Annual President's Luncheon was held after the Annual General Meeting at New South Wales Parliament House in Sydney and attended by an enthusiastic group of supporters. Patrick Medway AM welcomed the guests, proposed a toast to 112 years of wildlife conservation, and marked Suzanne Medway AM's retirement as she stepped down from office after thirty years of active service to the Society. The Society was pleased to announce the winners of its prestigious awards for 2020 during the luncheon proceedings.



L to R: Stephen Grabowski, Brian Scarsbrick AM, Dr Robin Crisman, Philip Sansom, Trevor Evans, Suzanne Medway AM, Wayne Greenwood, Dr Julie Old, Patrick Medway AM, and Ken Mason.



Retiring President Suzanne Medway AM, with the newly elected President, Dr Julie Old, accepting their flowers from the Board at the Society's Annual General Meeting held on the 3 March 2021.



Suzanne Medway AM with the New South Wales Environment Minister cutting the 112th Anniversary cake. L to R: Philip Sansom, Mark Coure MP, Brian Scarsbrick AM, Ken Mason, Dr Julie Old, Stephen Grabowski, Dr Robin Crisman, Trevor Evans, Suzanne Medway AM, Stephen Kamper MP, Patrick Medway AM, and Minister Matthew Kean MP.

## Wildlife Conservation Awards

The winner of the **Serventy Conservation Award** was Professor Kevin Kenneally AM of Scarborough, Western Australia. Kevin has been a true warrior for wildlife conservation for over fifty years, promoting and advancing nature studies and wildlife conservation in Western Australia and Australia more broadly. His contribution to education and science is considerable. Kevin was the founder and scientific director of the multidisciplinary LANDSCOPE Expeditions that provided Australian and overseas scientists with research opportunities. Over seventeen years, the program involved over 1,000 volunteers and raised two million dollars for wildlife research. It also involved close collaboration with indigenous communities.

The winner of the **Community Wildlife Conservation Award** was the Queensland Wader Study Group of Clayfield, Queensland. For about thirty years, volunteers have been conducting migratory shorebird surveys from Cape York, Queensland, to the New South Wales border. The migratory shorebird surveys are a citizen science project that has been remarkably successful over a long period. The training and education which volunteers receive are also open to the public. Queensland Wader Study Group has identified important habitat sites for the shorebirds and has involved local groups in building roost sites to protect the birds. Queensland Wader Study Group has extensive data collection from its long-term observations. Some of the data has been used to produce scientific papers in collaboration with university research centres. The data has also helped identify threatened species and protect critical habitat sites. The designation of Ramsar areas on the Queensland coast, including Moreton Bay, was primarily built on Queensland Wader Study Group data.

The winner of the **Wildlife Rehabilitation Award** was Megan Churches of Camperdown, New South Wales. Meg has been engaged with the rescue and rehabilitation of bats, especially grey-headed flying-foxes (*Pteropus poliocephalus*), for the past fourteen years. Meg has been involved in WIRES as a volunteer and is currently the Bat Co-ordinator for the Inner West Branch of WIRES. Meg carries out many and sometimes quite tricky rescues of bats – both microbats and flying-foxes. She rescues both adults and juveniles. Meg will travel widely around Sydney in her car, at short notice, at various times, in varied weather and traffic conditions, carrying out these rescues in response to public reports to WIRES of bats that are in trouble or injured. She is very skilled, calm, compassionate, and inventive when carrying out wildlife rescues. She also films the rescues and posts the videos on her YouTube channel.

The winner of the **Youth Conservation Award** was Charlie Cairncross of Fingal Head, New South Wales. Charlie has been an active Junior Wild Defender at Green Heroes since the age of five. Charlie contributes to the creation of meaningful conservation

projects that engage young children in wildlife conservation. In response to the bushfires, Charlie's idea was to travel into heavily affected areas and link children to orphaned and injured wildlife affected by the bushfires. As a result, Charlie was able to help create the Wildlife Adoption Program and a short film that inspired children and schools in every state of Australia to sponsor orphaned wildlife. One hundred per cent of the funds raised went directly to wildlife carers for medical supplies needed to care for orphaned wildlife. Charlie has also begun to speak at school assemblies and community gatherings to share his ideas with other children. Since its launch in December 2019, Charlie's Wildlife Adoption Program has raised over \$10,000 for the care of orphaned native wildlife by preschool and primary children across Australia.



Patrick Medway AM presenting eight-year-old Charlie Cairncross with the 2020 Youth Conservation Award.



Suzanne Medway AM and Minister Matthew Kean MP presenting Professor Kevin Kenneally AM with the 2020 Serventy Conservation Award.



Suzanne Medway AM and Minister Matthew Kean MP presenting Queensland Wader Study Group with the 2020 Community Conservation Award, accepted on behalf of David Edwards (Chairman).



Suzanne Medway AM and Minister Matthew Kean MP presenting Meg Churches with the 2020 Wildlife Rehabilitation Award.

## Conservation Group Grants

The Board of the Society carefully considers all requests for grants from Conservation Groups dedicated to the preservation of native wildlife and wildlife habitat. This year, we were fortunate to be able to offer five Conservation Group Grants:

### Green Heroes

Funds assisted Green Heroes in purchasing a turtle incubation chamber to aid the research and development of artificial incubation of marine turtle eggs and conserve marine turtle species for future generations.

### Reclaim Kosci

Funds assisted Reclaim Kosci to develop the success of the Reclaim Kosci Campaign in 2021 and to continue raising awareness about the impacts of feral horses on our precious native wildlife in Kosciuszko National Park.

### James Cook University

Funds assisted Dr Conrad Hoskins from the School of Marine and Tropical Biology, University of Queensland, to monitor armoured mist frog (*Litoria lorica*) populations and implement a translocation program to protect this species from the risk of extinction.

### Broad-toothed Rat Project

Funds assisted Aussie Ark in building a broad-toothed rat (*Mastacomys fuscus*) captive breeding facility to protect this threatened species from feral predation and ensure its survival in the future by maximising its genetic diversity.

### Invasive Species Council

Funds assisted the Invasive Species Council to employ a full-time national deer campaigner and help raise awareness about the impact of feral deer in Tasmania and nationally.

## Webinars, Conferences, and Presentations

The Society attended and contributed to several important wildlife conservation conferences, webinars, and meetings throughout the year. We participated in Regional and Annual Conferences held by the Nature Conservation Council of New South Wales and discussed important wildlife conservation issues with key stakeholders in the field. We attended a special webinar hosted by Reclaim Kosci, which addressed the impacts of feral horses in Kosciuszko National Park and the actions that must be implemented to help protect native species from feral horses. We also took part in the Australian Wildlife Management Society and Australian Mammal Society Conferences which had a diverse range of topics and speakers. Furthermore, the Society strives for continuous improvement. Consequently, the National Office Manager participated in a few online courses hosted by Western Sydney Business Centre to develop and improve the Society's impact on wildlife conservation outcomes. We also visited Little Ark Preschool to speak about the importance of conserving Australia's native wildlife for future generations. The children were engaged and asked lots of questions.



Little Ark Preschool students and teachers.

## Threatened Wildlife Photographic Competition

The annual judge's prize of \$1,000 was won by Bruno Bell for his photograph of a black-tipped spider orchid (*Caladenia anthracina*). Listed as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* and the Tasmanian *Threatened Species Protection Act 1995*, the black-tipped spider orchid is extremely rare. The annual people's choice prize of \$500 was won by Chris Theobald for his photograph of a squirrel glider (*Petaurus norfolkensis*). Listed as Endangered in South Australia and Vulnerable in New South Wales, this image was photographed in the Wolgan Valley, New South Wales.



Black-tipped spider orchid (*Caladenia anthracina*). Image: Bruno Bell.



Squirrel glider (*Petaurus norfolkensis*). Image: Chris Theobald.

## University Research Grants Scheme

The Australian Wildlife Society's University Research Grants are offered to honours or postgraduate students at Australian universities. Grants are available for research projects of direct relevance to the conservation of Australian wildlife (flora or fauna). Each year, ten grants of \$1,500 are awarded. The winners for 2021 were:



**Gracie Liu**

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

**Project Title:** How can we improve frog conservation in fragmented landscapes? Closing the gap with a novel genetic approach



**Grant Linley**

Institute for Land, Water and Society, Charles Sturt University

**Project Title:** The influence of landscape-scale fire refuges and pyrodiversity on mammal communities following an unprecedented megafire



**Kyle Brewer**

Clinical and Health Sciences, University of South Australia

**Project Title:** pH-Responsive 1080 implants for the mitigation of the catastrophic predation of native animal populations



**Patrick Finnerty**

School of Life and Environmental Sciences, University of Sydney

**Project Title:** Strategically exploiting plant odours to manipulate mammalian herbivore foraging behaviours as a conservational tool



**Bethany Nordstrom**

School of Biological Sciences, University of Western Australia

**Project Title:** Assisted colonisation of the western swamp turtle



**Erica Durante**

Future Industries Institute, University of South Australia

**Project Title:** Investigating the age and growth of an endemic octopus species



**Jenna Draper**

School of Biological Sciences, University of Adelaide

**Project Title:** Conservation utility of *Pimelea microcephala* subsp. *microcephala* to arid zone frugivores and pollinators



**God'spower Okoh**

Veterinary and Biomedical Sciences, James Cook University

**Project Title:** Investigating herpesvirus infections in Australian wildlife



**Shae Jones**

School of Earth, Atmospheric and Life Sciences, University of Wollongong

**Project Title:** Do arbuscular mycorrhizal fungi help grasses in heat waves?



**Bianca Keys (L) and Karli Mylius (R)**

Institute of Marine and Antarctic Studies, University of Tasmania

**Project Title:** Assessing microplastic exposure through non-invasive examination of guano in resident Tasmanian shorebirds



## Key Projects

### Snip Rings for Wildlife campaign

The #SnipRingsforWildlife campaign continued in 2021 to raise awareness and encourage individuals to protect Australia's wildlife by cutting through plastic rings, rubber bands, hair ties, the loops of facemasks, and dome-shaped plastic lids before disposing of them. Our petition received over 500 responses, and petitions signed by 500 or more persons require a response from the government. The response acknowledged the importance of the campaign and stated that the Plastic Reduction and Circular Economy Bill 2021 might provide a framework to address ring-shaped items in the future. The response highlighted that the New South Wales Plastics Action Plan outlines a commitment to review other plastic items for a future phase-out, including plastic cups and their lids (including dome-shaped lids), in three years to determine whether a phase-out is appropriate at that time. The Society will continue its campaign to raise awareness and protect native wildlife from the threat of ring-shaped items. We encourage our members and supporters to reduce their reliance on single-use plastics. South Australia, the Australian Capital Territory, Queensland, Western Australia, and Victoria have also made commitments to ban single-use plastics. Nationally, Australia's National Packaging Targets set a goal to phase out single-use plastics by 2025.

### Platypus Alliance

Not only is the platypus listed as Endangered in South Australia, but early this year, the platypus was officially listed as Vulnerable in Victoria and is being considered for listing as a threatened species under Australia's and New South Wales environmental legislation. Protecting one of the world's most iconic animals and the rivers it relies on must be a national priority. Consequently, the Society wrote to the New South Wales, South Australian and Federal Environment Minister, and the New South Wales Shadow Minister to encourage the government to implement further action to protect the iconic platypus and expedite the threatened species listing for the platypus.

Enclosed yabby traps are now banned in Victoria, Australian Capital Territory, Tasmania, and Western Australia. In 2020 we met with the New South Wales Environment Minister regarding the need for enclosed yabby traps to be banned. Our voice was heard, and it resulted in the New South Wales Government giving 5,000 open-top pyramid nets to recreational anglers as part of a comprehensive program to phase out the use of enclosed yabby traps in New South Wales from 30 April 2021. The Queensland Freshwater Fisheries Working Group and South Australian Minister's Recreational Fishing Advisory Council are also considering implementing a ban on enclosed yabby traps. We will continue to advocate for this change. The Federal Environment Minister supports a coordinated and nationally consistent approach to using alternate trapping methods to opera house nets to minimise impacts on native wildlife such as platypus, rakali, turtles, and waterbirds.

### Australian Wildlife Week

The Society established Australian Wildlife Week to raise awareness of wildlife conservation matters across Australia and inspire all Australians to implement wildlife conservation action where possible. The Society hosted an online webinar on Tuesday, 5 October 2021, from 10:30 am to 12:30 pm to celebrate Australian Wildlife Week. The theme was 'Connecting with Nature'. We were joined by five keynote speakers and six of the Society's 2021 University Research Grant winners, who showcased their wildlife research and conservation projects across Australia. The speakers addressed the importance of protecting Australian wildlife (flora and fauna) and highlighted the actions that can be implemented to prevent our precious wildlife from becoming extinct. A recording of the webinar is available on our website and YouTube channel.

### 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. A big thank you to Dr Jai Green-Barber for drawing our beautiful 2021 Wildlife of the Year – Australia's grass parrot. Thank you to Wildcard-Sue for contributing additional drawings for our colouring-in competition. There were three colouring-in sheets to choose from.

## Donations, Bequests, and Gifts

We continued with our bequest program during the year to encourage donors to support our wildlife conservation work across Australia. We are very grateful to all our members for considering using the bequest program to help the Society with its long-term planning. Do not hesitate to contact the National Office for more details on the bequest program and how to join 'Friends of the Australian Wildlife Society' to make a regular monthly donation to support our national wildlife conservation efforts and programs. We are a tax-deductible gift recipient and registered with the Australian Charities and Not-for-profit Commission. Our public fund is listed on the Register of Environmental Organisations under item 6.1.1 of subsection 30-55(1) of the *Income Tax Assessment Act 1997*.

## Financial Report Summary

The Society's Directors, Finance and Investment Committee, and the Public Fund Committee continue to exercise tight and effective control over the Society's finances, reviewing and adjusting the investment portfolio as required throughout the year.

## A Special Thank You to all Members

This will mark our 113th anniversary. We thank you all most sincerely for your tremendous support and continued dedication and commitment to helping the Society preserve and protect Australia's native wildlife and natural ecosystems for future generations. I wish every member of the Society a happy, healthy, and prosperous 2022.

**Dr Julie Old**  
**PRESIDENT**  
**31 December 2021**



# Soft But Not Weak:

## Understanding How Soft Corals Deal with Marine Heatwaves

**Rosemary Steinberg**

For as long as I can remember, my dad has kept coral reef fish tanks. As a child, I loved to watch the pretty little fish dart between the coral structures – some wavy and soft, some rigid and hard. My favourites were always the bright, soft, smooshy soft corals that seemed like perfect beds for all the shrimp, fish, and crabs. Corals are amazing animals that are so different from humans that it can be difficult to appreciate them as animals. In fact, corals may be the closest thing to an alien a person may ever encounter in real life. They come in a huge range of shapes, sizes, and colours and provide food and shelter for countless marine species.

There are two main types of corals – stony and soft. Stony corals have a solid ‘skeleton’ surrounded by a thin layer of coral tissue. Soft corals (the group that I study) are made up of a fleshy matrix embedded with small calcium crystals giving them a texture that ranges from set jello to a flexed muscle to something even as hard as stony corals. On tropical coral reefs, stony corals make up the structural basis of the reef. They add complexity as they grow, and when they die, they become the stone their descendants will live on. Stony corals tend to grow slowly and live for years before becoming the bedrock of the reef.

On the other hand, soft corals grow quickly and often have short lives, adding complexity, diversity, and habitat to reefs in a very short amount of time. Unfortunately, these differences have led to soft corals being understudied compared to their stony cousins, especially in studies of coral bleaching. You may have heard of ‘coral bleaching’, especially regarding our magnificent Great Barrier Reef.

Swimming over a healthy reef, watching fish use corals for shelter makes you appreciate that each and every coral, stony or soft, is important to how the reef functions as a whole. My love for these beautiful and soft animals led me to want to understand and protect them, as they were easily overlooked. So, I set out to find out how one of the greatest threats to all corals – climate change – was particularly affecting soft corals.

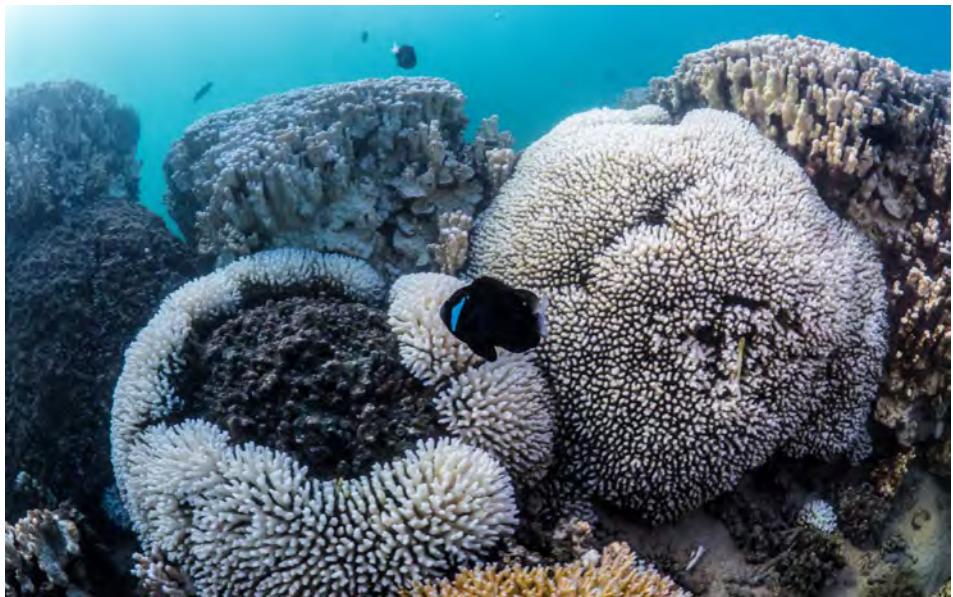
Coral bleaching relates to the beneficial symbiotic algae that many corals rely on. The algae provide the coral animal with sugars through photosynthesis, and the coral animal provides the algae with fertilisers. This relationship is so strong that many corals rely almost exclusively on their algae for energy. The algae give away up to ninety-five percent of the sugars they produce. This symbiosis has a very narrow band

of environmental conditions in which it can operate – it is a very sensitive relationship. Unfortunately, excessive heat or sunshine, bacterial infections, chemical contamination, and more can disrupt this relationship and lead to bleaching. When the symbiotic relationship breaks down, corals will become distressed and expel the colourful algae, leaving behind clear coral flesh exposing the white skeleton underneath. The aftermath of this loss appears like the ghost of a coral reef – a field of white shapes on dark rocks. Swimming through a bleached reef is haunting and tragic, and you can feel the heat that is causing the bleaching as you swim. These experiences have changed me and have made me even more determined to understand how and why soft corals bleach so we can protect them.

One of the most beautiful and unique coral reefs in the world is in the shallow lagoon of Lord Howe Island – the ecosystem that has become my research subject. This subtropical island is 600 kilometres off the New South Wales

**Top Left:** Rosemary Steinberg collects soft coral samples from a reef in Lord Howe Island. Image: Teresa Bednarek.

**Top Right:** A green sea turtle (*Chelonia mydas*) makes its bed amongst bleached corals at Lord Howe Island. Image: Tess Moriarty.



A McCulloch's anemonefish [*Amphiprion mccullochi*] hovers above the bleached reef at Lord Howe Island.  
Image: Tess Moriarty.



The bleached seascape of Lord Howe Island. Image: Tess Moriarty.



A yellow giant frogfish [*Antennarius commerson*] makes its home in a group of soft corals at Lord Howe Island.  
Image: Rosemary Steinberg.

coast. It has an incredibly diverse range of fish, corals, and seaweeds, largely due to its southerly, and thus cooler, location. In fact, this is the world's southernmost true coral reef and contains a fascinating mix of temperate and tropical species living in harmony together. The unique geography means that many species here – fish, stony corals, and soft corals – are found nowhere else in the world. The peculiar assemblage of species – with soft corals living next to stony corals living next to seaweeds in peace – is even more unique. Being so far south, we would expect that it might be cooler than the tropical reefs and less susceptible to bleaching, but it turns out that even relatively chilly water cannot protect corals from climate change.

As the climate continues to change due to carbon emissions, more and more reefs are bleaching. In February and March of 2019, the reef at Lord Howe Island experienced a series of marine heatwaves – extended periods where the temperatures were above the usual for that date. These heatwaves led to extensive coral bleaching across the Lord Howe Island lagoon, which is both a World Heritage listed and a Marine Protected Area. Lord Howe Island is so unique and isolated that we know very little about how the corals, stony or soft, may respond to the increased number of marine heatwaves expected under climate change. As many of the species here are found nowhere else in the world, we must understand what is there and how resilient each type of coral is to ensure we keep this magnificent reef into the future.

To understand the effects of marine heatwaves and the subsequent bleaching of soft and hard corals, a collaboration between the University of Newcastle, the University of New South Wales, and the Sydney Institute of Marine Science was established to study the Lord Howe Island lagoon. A stony coral researcher from the University of Newcastle, Tess Moriarty, examined the stony corals while I examined the soft corals. First, we looked at different bleaching markers. These are indications of coral bleaching, including its severity. We usually do this by looking at the density of algal cells and the amount of chlorophyll in the algae – a conventional technique for examining stony corals. This method has been used for as long as bleaching has been recorded and the techniques are well developed. However, studying

soft corals is not easy, given their relatively neglected status. The techniques were much harder to come by, such that each soft coral researcher seemed to use a different method to extract the bleaching markers. So, I set out to find the best technique for examining bleaching in soft corals.

Reading through the existing methods of studying bleaching in soft coral was like Googling how to make a sourdough starter during a lockdown. There were too many different recipes, which quickly became overwhelming and confusing. I knew it could be easier, and I was right. After several months of trial and error, I found the perfect recipe by combining the best parts of what other researchers had done. I used a tissue homogeniser – basically a small and incredibly powerful stick blender – to turn the tough and leathery soft coral samples into a soft coral ‘smoothie’. The soft coral smoothie got spun in a centrifuge which caused the larger, heavier algae cells to drop to the bottom and form a pellet while the coral protein and small animal cells stayed in the water. Once the two parts of the coral were separated, I could begin interpreting what bleaching had done to these corals. I did this by determining how much protein was in the liquid part, counting cells, and extracting the chlorophyll from the algae pellet. Determining the best method for each of these steps was finicky and time-consuming, but worth it to understand what is happening to our beautiful reefs.

Consistent methods like this are essential for soft coral research – it can be difficult or impossible to compare between sites and studies if researchers have not done things in the same way or used the same metrics. By creating a fast and accurate method and publishing it in an open access (free!) journal, I hope that soft corals are studied alongside and with as much rigour and attention as their stony counterparts across the globe. As anyone can imagine, it is hard to do research when there are no agreed-upon recipes – so I made my own. I have learnt that we cannot protect soft corals from threats that we do not understand, and we cannot understand those threats without the techniques. As such, this recipe is the first step to help conserve and protect soft corals from bleaching across the globe.



A small crab is living amongst the soft coral branches at Lord Howe Island. Image: Rosemary Steinberg.



A clam with soft coral growing on its shell. Image: Rosemary Steinberg.



Healthy mixed stony and soft coral habitat at Lord Howe Island. Image: Rosemary Steinberg.

# Australian Wildlife Society University Research Grants

The Australian Wildlife Society University Research Grants are scholarships offered to honour or postgraduate students at Australian universities. Each year, ten \$3,000 grants are awarded. **Applicants must be a member of the Society;** student membership is free, and you can join through our website [www.aws.org.au](http://www.aws.org.au). Please send a copy of your student ID to [accounts@aws.org.au](mailto:accounts@aws.org.au)

Grants are available for research projects of direct relevance to the conservation of Australian wildlife – flora or fauna. Grants may be used to purchase equipment and consumables, travel expenses related to field research, or attend a conference where you present your work.

**The grant is paid directly to the student.**

## PREPARING YOUR APPLICATION FOR A GRANT

Applications should be a maximum of four pages (12-point font), including a brief CV and should be set out under the headings below (a reference list is not required).

### APPLICATIONS EXCEEDING FOUR PAGES WILL NOT BE CONSIDERED

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

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

**Schedule:** Outline a proposed timeframe for completing your project, listing significant milestones, including submitting a final report/article to the Australian Wildlife Society.

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

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

Please prepare your application as a single Word document and submit it as an email attachment to [info@aws.org.au](mailto:info@aws.org.au). Please name your file: 'Your Name AWS Grant Year', e.g., 'John Smith AWS Grant 2022'.

### CLOSING DATE: APPLICATIONS ARE DUE BY 31 MAY EACH YEAR

### APPLICANTS WILL BE NOTIFIED BY EMAIL IN JULY

## CONDITIONS OF SPONSORSHIP

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

# The Sky is the Limit

Oma Rodger



**A high-pitched hum is the only indication of the mosquito's presence in the absolute darkness of a Tasmanian Forest. So small and agile, it is almost invisible to the many animals out in search of food. It flies through the night, completely unaware that it is now the prey. Death comes on a rustle of leathery wings, the unwitting insect no match for the acrobatic skills, athleticism, and speed of the extraordinary predator who snatched him from the air. That predator is one of eight species of microbats found on this island at the bottom of the world.**

As one of the most abundant and diverse groups of mammals on the planet, bats play a critical role in pollination, seed dispersal, insect control, nutrient distribution, and more. In the case of microbats, this is all achieved in a body weighing twenty-one grams or less. With a lifespan of up to twenty years, they can establish incredibly strong social and family bonds.

Sadly, however, despite their ecological importance, macro- and microbats are often not treated with the same love and adoration as other species. Microbats most commonly come into care as a result of dog and cat attacks, being trapped in buildings and sheds, wing damage sustained during bad weather and a range of human-related activities. They are often caught by insect traps, barbed wire fencing or bird netting. Sometimes, they are simply batty, like

deciding to come to ground in the middle of a busy shopping precinct.

Their specialised flight and hunting techniques require the highest fitness level in the wild, but after just two weeks in care, a microbat loses much of the muscle tone needed to fly from its roost each night and hunt effectively. Research shows they starve to death when they are not up to those demanding standards. To regain peak strength, bat species require a space that reflects an area of the sky they usually occupy, with some larger bats, such as the eastern falsistrelle (*Falsistrellus tasmaniensis*), not the most agile of fliers, requiring 8m<sup>2</sup> to complete a turning circle. It can take several months of solid flying before muscle tone returns, and they are as agile and manoeuvrable as they used to be. Becoming flight-ready, however, is virtually impossible in a domestic rehabilitation context. So

ideally, once bats are nursed back to health by wildlife rehabilitators, they are transported to an aviary, where they practise flying and hunting. In Tasmania, no such facility existed until now.

The Tasmanian Wildlife Rehabilitation Council's purpose-built Microbat Flight Training Centre, located south of Hobart, Tasmania, will soon be ready for its first residents. Not even a pandemic could stop its construction, although it certainly had a red hot go. Red tape associated with the build, in regular times, would be inconvenient, but during COVID-19, it became interminable. As lockdown began to bite, permits and other requirements were delayed to the point that when they did finally come through, many builders were committed to two years' worth of government-sponsored work and thus unavailable. There were also difficulties obtaining building supplies because of accelerated state-wide construction or pandemic-related disruptions to freight into Tasmania.

Fortunately, these tiny animals inspired tremendous efforts from many wonderful, like-minded people.

**Top:** The lesser long-eared bat (*Nyctophilus geoffroyi*) weighs in at just eight to ten grams and is common in urban areas. Image: Tracey Bagger.



At thirteen grams, the Tasmanian long-eared bat (*Nyctophilus sherrini*) is the state's only endemic bat species. It is a lower flier, snatching insects from vegetation. Image: Michelle Girouard.

Bat carers Ebony and her father Peter assisted with the initial planning and permit stages, while the Sorell Council team helped with legalities. Heather in New South Wales and Rachel in Queensland generously shared their knowledge and experience of the process after constructing their own bat aviaries. The actual construction was undertaken by Graeme Cure of Peace of Mind Building, who travelled hundreds of kilometres from one end of the state to the other to complete the aviary.

The Tasmanian Wildlife Rehabilitation Council is extremely grateful to a local bat carer and vet nurse who has volunteered to manage the building and the bats coming into the Microbat Flight Training Centre, and to members and supporters who donated funds to the facility. The Council is also appreciative of the Australian Wildlife Society's support combined with their patience through the delays and hurdles of COVID-19.

Thanks go to many local volunteers and supporters for creating a life-changing sanctuary for some of our smallest, but very precious animals, who will now take to the skies, flying fit and free for generations to come.

If you encounter a sick or injured bat or flying-fox, please do not attempt to handle or contain them as these species can carry Australian bat lyssavirus. Always contact your local wildlife rescue for advice and assistance. For more information on the work of Tasmania Wildlife Rehabilitation Council, please visit [www.taswildlife.org](http://www.taswildlife.org)



The Microbat Flight Training Centre built by the Tasmanian Wildlife Rehabilitation Council is the first of its kind in the state and will help these little bat-tlers get flying fit. It will provide enough space for rigorous flight training before release. The aviary will contain all the comforts of home for Tasmania's microbats in care. Images: Jordan Cameron.





# Celebrating Ten Years of BirdLife Australia's Powerful Owl Project

**Alex Croft, Content Creator, BirdLife Australia**

On a quiet green street somewhere in suburban Sydney, a great shadow watches city-goers rush about their day below. The powerful owl (*Ninox strenua*) announces its presence with a slow, double-barrelled 'whoo-hoo', that tell-tale call that sounds like something straight out of a fairy tale. But while they are apex predators – powerful by name and nature, with their piercing yellow eyes and talons almost the size of a human fist – life is no fairy tale for the powerful owl. It stays there all day, silent and unnoticed, despite its size, until dusk falls and it begins to stir.

The far-carrying calls continue into the night – a male calling out to a mate. Once, this was a sound we associated with deep, damp forests across Australia's eastern and south-east seaboard – but it is becoming a more familiar occurrence in suburban areas, especially in remnant bushland along waterways where hollow-bearing trees are more likely. Finally, a female returns his calls from somewhere in the dark – and he takes off on huge, silent wings (spanning almost 1.5 metres across), leaving behind nothing

but a spray of whitewash and a few pellets containing the indigestible parts of a previous dinner on the ground below.

## On Silent Wings, Under Silent Threat

Powerful owls are adapting to a new life in the city – taking advantage of the suburban smorgasbord of possums, flying-foxes, and lorikeets. But like many Australian birds, they also rely on tree hollows to nest and raise their chicks in – and these hollows can take hundreds of years to form. Unfortunately, the land under these trees are in high demand – they are prime real estate for urban developers.

Due to widespread logging and land clearing, we are seeing more trees being cut down to make way for our sprawling cities – meaning critical nesting trees are becoming a rarity. There is another kind of housing crisis taking place across our cities – and it is driving species like the powerful owl towards extinction. Today, researchers estimate that only around 5,000 birds remain in the wild. But a dedicated

group of scientists around the country are determined to turn things around for Australia's powerful owls.

## Ten Years of the Powerful Owl Project

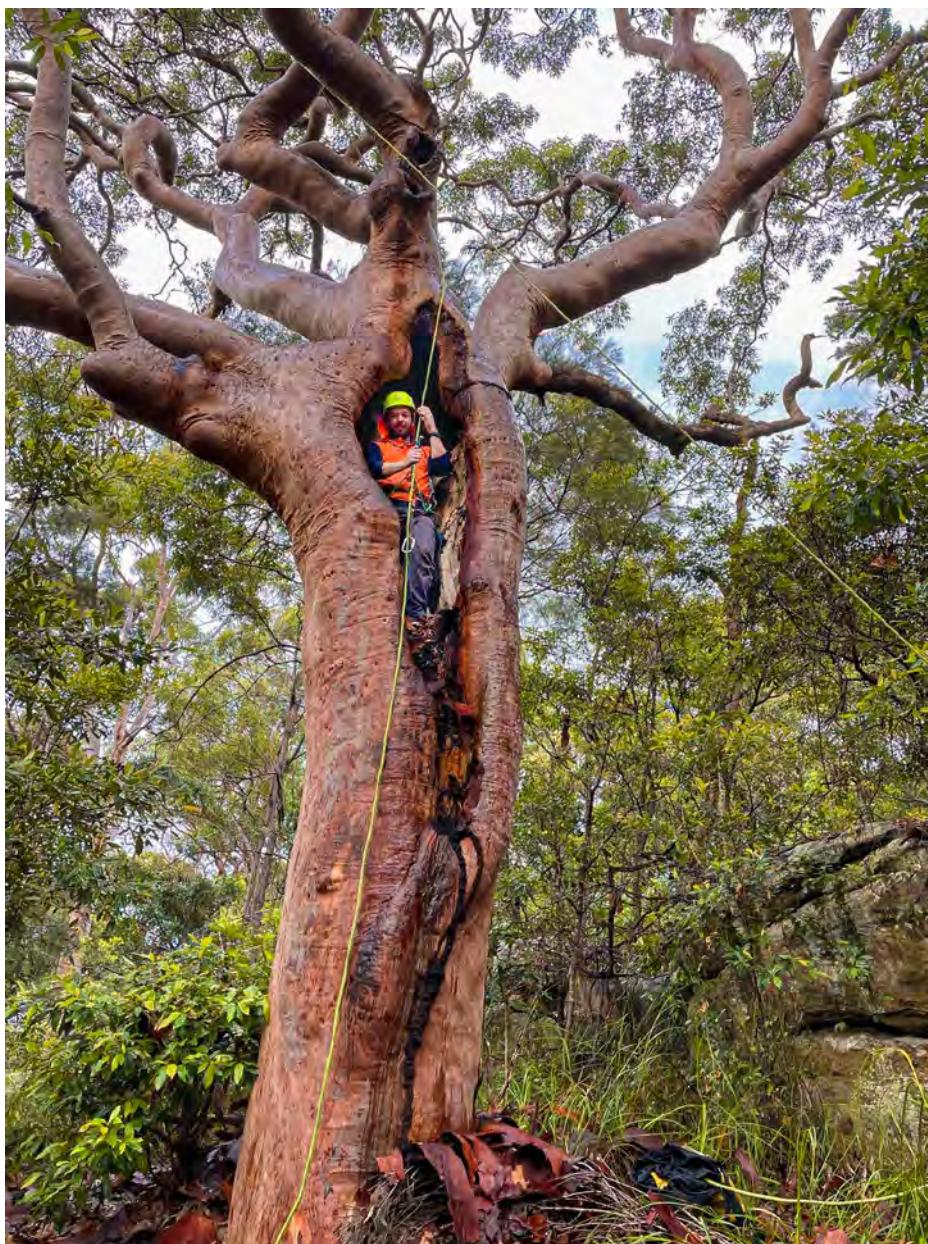
If a powerful owl calls in the forest and there is no one to hear it, how do we know they are around? The Powerful Owl Project is a citizen science project and a huge collaborative effort – helping us find out more about the ecology of our urban powerful owl populations and how best we can protect them. Established in 2011, the Powerful Owl Project is one of Australia's largest raptor-focused conservation projects and home to the largest national database of powerful owl breeding sites. Thanks to

**Top Left:** A young, powerful owl (*Ninox strenua*) peers down from its perch towards the camera. It is a large bird, with predominantly white downy plumage and dark brown streaks on its chest and face.  
Image: Brett Mezen (@wildlife\_by\_brett).

**Top Right:** A young, powerful owl (*Ninox strenua*) peers upside down from its perch, fixing the camera with a wide-eyed stare. It has bright yellow eyes and talons clasped around a brown tree branch. Its wings and tail are barred white and brown and held slightly askew in this comical pose.  
Image: Brett Mezen (@wildlife\_by\_brett).



In the dark, two young powerful owls (*Ninox strenua*) peer down from their perch – the grey branch of a large gum tree. They both have streaky brown and grey crowns and masks, and their eyes are beady and dark yellow. Image: Brett Mezen @wildlife\_by\_brett.



Conservationist and arborist Kailas Wild scales a tree in north-west Sydney to retrieve a data logger installed in a powerful owl (*Ninox strenua*) nesting hollow. The data collected from these devices helps better understand the conditions inside successful breeding hollows. Image: Powerful Owl Project.

the database and volunteers who collect the data, our knowledge of the location of urban powerful owls is growing significantly. Importantly, it means we can collect and manage the information we need that informs our conservation efforts to protect these precious owls.

BirdLife Australia's devoted citizen scientists are at the heart of it all. They brave cold winter nights and summer swarms of mosquitoes to search for and monitor these surprisingly cryptic birds, painting a picture of what these secretive owls are up to across the country. Our volunteers have now monitored over 240 powerful owl territories in urban New South Wales. Excitingly, our modelling suggests there could be over 950 pairs hiding in the forests and urban areas of south-east Queensland – a staggering nineteen times higher than previous estimates before the project started!

From here, Powerful Owl Project researchers can use this data to educate land managers and the broader community about the importance of protecting and managing critical powerful owl habitats. In New South Wales, we are working with seventeen local councils, the Department of Education, State Rail, and power companies (to name a few) to advise on owl-friendly land management practices. We are partnering with the Rural Fire Service and National Parks and Wildlife Service to minimise the damage by prescribed burns to large forest owl habitats. We continue to upskill and educate the community through weed and habitat management plans, and targeted training resources for land managers.

Ten years on, community engagement in this project continues to grow from strength to strength – now spanning over 1,000 citizen scientists across two states. Over 2,000 people have attended our owl talks in Queensland in the last three years alone, and media coverage has reached over a million people. Our team has presented workshops to over one hundred different community groups, schools, and special interest groups in New South Wales. Education is key when it comes to bird conservation in Australia. In bringing to light forest conservation issues to such a large audience, we are encouraging Australians to care about these majestic and threatened owls and their protection.

Have you seen or heard a powerful owl? Report your sightings on BirdData. It is free to use, or you can download the free app on your android or apple device. To get started, visit: <https://birddata.birdlife.org.au/get-started>

## Where to From Here?

The Powerful Owl Project has made impressive discoveries about how and where powerful owls live in urban landscapes across Australia. But there is still much more to discover about these mysterious and hugely threatened owls. The team is working to continue increasing community engagement in the project. At the top of the list is forming cross-cultural partnerships with Indigenous communities and rangers to share their knowledge of powerful owls (and the important role they play in ecosystems) with a wider audience.

The Brisbane team is partnering with the Queensland University of Technology to find and identify breeding powerful owls using passive sound recording devices on the research front. We are optimistic that remote acoustic monitoring could transform powerful owl surveys as we know them – while helping researchers find out more about where powerful owls occur and if they are breeding successfully.

Meanwhile, in New South Wales, funding from the Foundation for National Parks and Wildlife means we can find out how these owls move across the urban landscape, using genetic data collected from their feathers. In partnership with Ku-ring-gai Council, we are researching the correlation between green corridors in urban areas and the genetic diversity of powerful owl populations. The New South Wales Powerful Owl Project team is investigating the worrying impact of second-generation rodenticides on urban powerful owls, alongside BirdLife Australia's Urban Birds and Campaigns teams.

Initiatives like the Powerful Owl Project give these majestic creatures another chance to remain the nocturnal monarchs of our parks, forests, and gardens. But for now, with the help of our 'Owly Empire' of volunteers and the support of our partners, the Powerful Owl Project continues to listen out for the haunting call of one of Australia's most exceptional birds to protect them.

## Rodenticides and Powerful Owls

Unlike first-generation products, second-generation anticoagulant rodenticides can kill not only the rats and mice they are targeting but anything that eats them. Sadly, this includes powerful owls.



A young powerful owl (*Ninox strenua*) (right) and its parent (left) are perched in the foliage of a gum tree during the daytime. Both birds are facing away from the camera, but their heads are turned to stare directly towards the camera. Image: Andrew Silcocks.



To the left of the photograph, an adult powerful owl (*Ninox strenua*) perches at the entrance of its nest, a large, gnarled hollow in a brown and grey gum tree. To the right, its chick is peeking its head out of the hollow, staring directly into the camera. The adult bird is large and mostly dark brown, with light brown barring on its head and wings. Its chest and underparts are white and pale brown, with dark brown barring, and it has huge orange eyes and talons. The chick has mostly downy white plumage, with a streaky brown mask and crown, a large grey beak and piercing yellow eyes. Image: Brett Mezen @wildlife\_by\_brett.



Perched on a gum tree, an adult powerful owl (*Ninox strenua*) stares down into the camera during daylight. This bird is predominately dark brown, with light brown and cream barring on its head, wings, and stomach. Image: Andrew Silcocks.

Thanks to a successful crowdfunding campaign last year, our researchers analysed liver samples from thirty-eight powerful owl specimens found in and around Sydney to test for rodenticide poisoning.

Here is what the study found:

1. Rodenticide was present in thirty-seven of the thirty-eight samples,
2. Almost sixty percent of the powerful owls had exposure levels that would make them unwell and more vulnerable to incidents such as car strikes, and
3. Ten percent of samples had levels of poison high enough to kill the bird outright.

That is why BirdLife Australia is calling on Bunnings to remove second-generation anticoagulant rodenticides from its shelves. Bunnings sells more second-generation anticoagulant rodenticides than any other Australian hardware retailer – but these deadly poisons should only be available to licensed professionals, like regulations already in place in Europe and Canada.

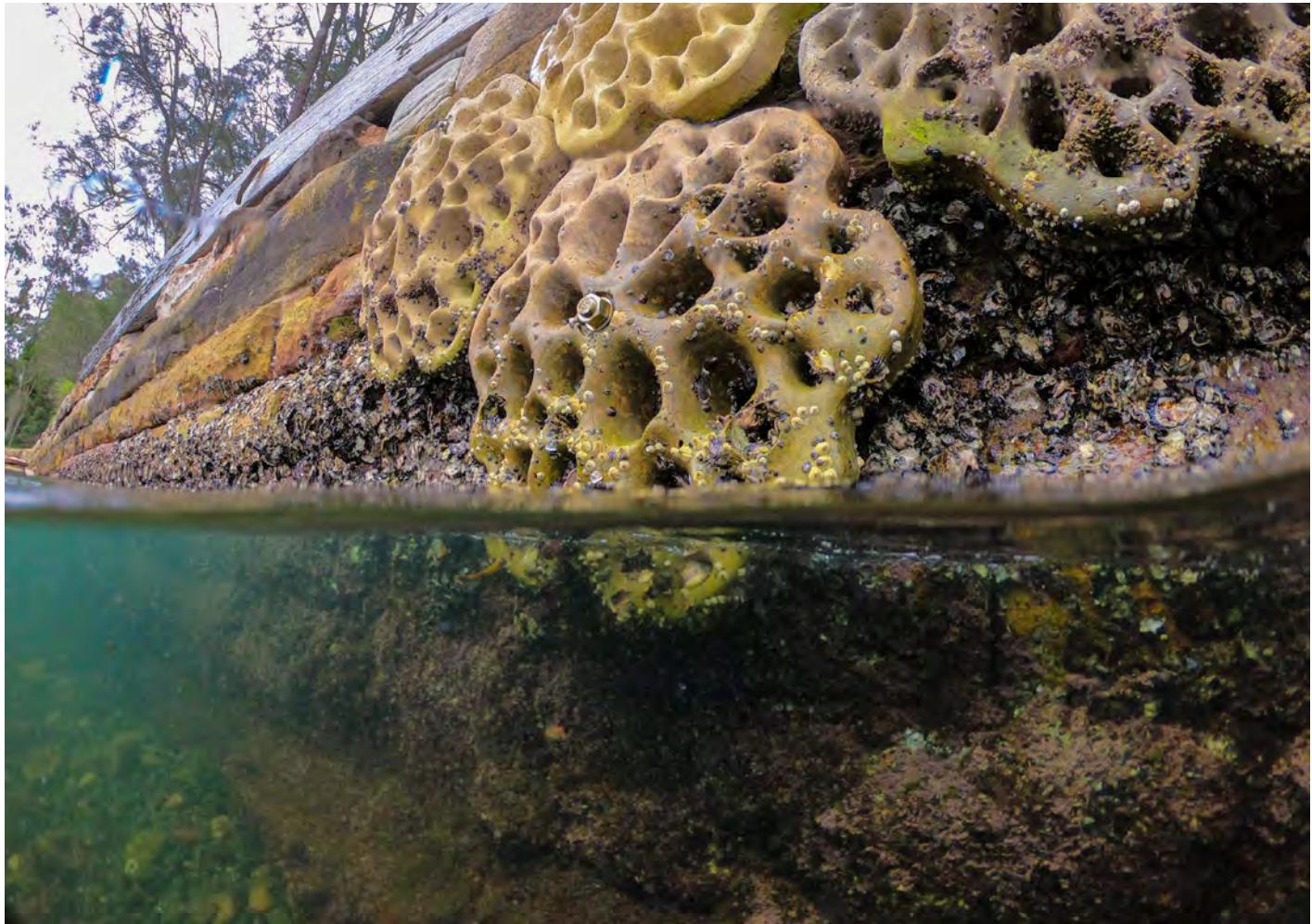
**Please sign and share the petition at <https://www.actforbirds.org/ratpoison>**



Three Powerful Owl Project staff and volunteer pose from inside the BirdLife Discovery Centre, New South Wales, while holding a book entitled *Mikey the Powerful Owlet & Friends: Saving Byles Creek Valley & Beyond*. They are surrounded by photos, artwork, and taxidermy of raptors, including a white-bellied sea-eagle (*Haliaeetus leucogaster*) and powerful owls (*Ninox strenua*). Image: Powerful Owl Project.



BirdLife Australia's Urban Bird Program Manager, Holly Parsons (Left) and Senior Wildlife Research Scientist and Forest Ecologist Rod Kavanagh (Right), are searching for powerful owls (*Ninox strenua*). Image: Powerful Owl Project.



# LIVING Seawalls: Habitat Panels that Promote Biodiversity

**Emma Harding**

Artificial structures occupy more than fifty percent of the Sydney Harbour shoreline. Often flat concrete walls or wooden pylons invade the marine habitat and remove natural shorelines, which are vital for many organisms in the ecosystem. Natural shorelines have uneven surfaces, which help a variety of organisms like seaweed and barnacles to attach and grow. In addition, many natural rocky shorelines contain crevices for animals and invertebrates to seek refuge. Replacing these natural habitats with artificial structures displaces wildlife, leading to reduced biodiversity and a myriad of ecosystem health problems, including poor water quality and clarity.

Associate Professor Melanie Bishop, Dr Katherine Dafforn, and Dr Mariana Mayer Pinto developed the idea of Living Seawalls – modifying artificial structures by adding habitat panels that mimic natural seawalls to increase the ecological value of Sydney's shoreline. Unlike the walls of artificial structures, which are very flat and provide little surface area for organisms to

colonise, the habitat panels are shaped like natural rocky shorelines, full of crevices, holes, and rock pools, providing a variety of hiding spots and increased surface area for a range of wildlife.

The project aims to change how we think about building in the marine environment and promote sea life conservation around artificial structures. Many towns and cities globally are situated near the water and often build into the surrounding marine environment. By incorporating Living Seawalls into both new developments and existing structures, we can retain the valuable ecosystem in and around the shoreline.

Living Seawalls habitat panels have been installed at several locations around Sydney Harbour and have increased the biodiversity by up to thirty percent. The habitat panels resulted from over twenty years of scientific research combined with engineers and designers to create 3D-printed hexagonal habitat

panels tailored to the Sydney coastal environment. The modular design of the habitat panels allows them to be fit together in unique combinations and cover both small and large spans of the seawall. While the Sydney Harbour habitat panels are designed with Sydney in mind, the habitat panels can be adapted for use in various marine climates worldwide and have previously been successfully trialled in Townsville, Adelaide, Singapore, Gibraltar, and Wales.

Now that the habitat panels are installed, the following steps are to monitor what kind of wildlife is using them and refine the design if needed to suit the location better. The current habitat panels are being assessed on how well they perform in different conditions and environments, with the future aim of choosing and placing the most suited habitat panels for each location. The first habitat panels were

**Top:** The Living Seawalls habitat panels feature complex surface designs that mimic the natural environment. Image: Living Seawalls.



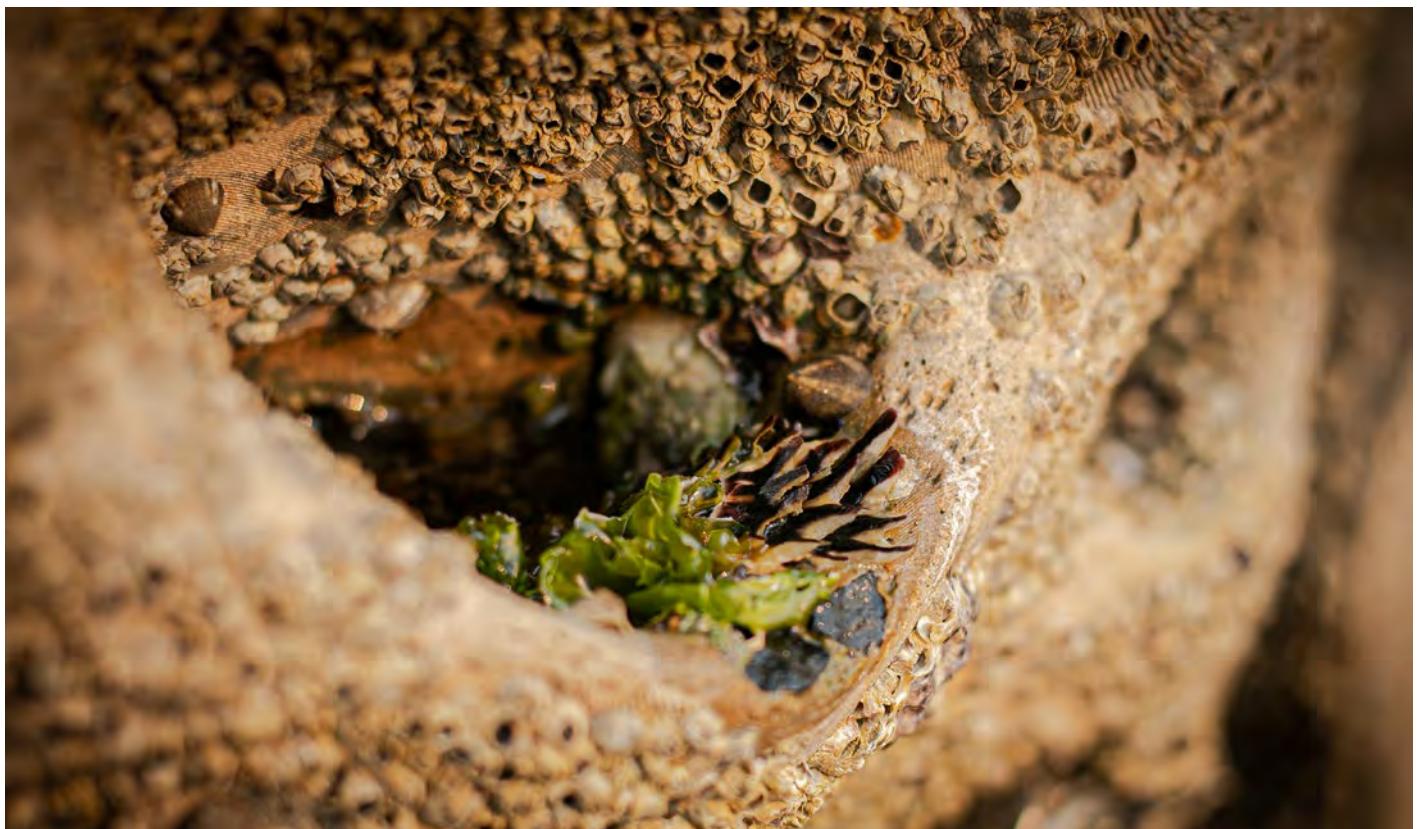
Dr Aria Lee evaluates the ongoing success of the Living Seawalls habitat modifications. Image: Living Seawalls.



The Living Seawalls Team. L to R: Dr Aria Lee, Associate Professor Melanie Bishop, Dr Katherine Dafforn, Dr Mariana Mayer Pinto, and Dr Maria Vozzo. Image: Living Seawalls.

installed in 2018 in North Sydney and Milsons Point and have more than eighty species of invertebrates, seaweed and fish living on or near the habitat panels. Since installing habitat panels in Sydney Harbour, they have been beneficial to conserving Sydney rock oysters and mussels, which help filter the water and are vital to keeping it clean. By promoting the growth of more filter feeders like oysters, larger organisms like worms, crabs and shrimp are also encouraged to live nearby.

Coastal locations like Sydney will likely need to expand further into the water in future years, and new structures must be helpful for both humanity and the wildlife around us. Promoting initiatives like Living Seawalls to local councils and raising awareness about benefits to the marine environment is a great help. Another meaningful way you can help is by minimising waste around beaches, rivers, and lakes. Thousands of people use beaches during summer, and unfortunately, we see a lot of waste left behind, including plastic bags, bread ties, string, and, more recently, face masks. These can pollute the environment and are a hazard to marine life that can get tangled in the rubbish. If you visit the beach this autumn, please be mindful and leave with everything that you brought to help protect the delicate marine ecosystems in your local area.



It takes time for disturbed areas like seawalls to be colonised by marine life, but barnacles, smaller seaweeds, oysters, marine snails, and limpets attach to the tiles within a year. Image: Living Seawalls.

# Butterflies on the Brink

Em Dale, Threatened Species Ecologist,  
Threatened Species Conservancy



**Little is known about many of Victoria's rare and critically endangered butterflies, but a group of insect enthusiasts and citizen scientists want to change that. Local Landcare groups and conservationists have headed to bushfire-ravaged Mallacoota, East Gippsland, to search for seven elusive species of butterfly most threatened within the fire footprint, following the 2019-2020 bushfires.**

Many threatened butterfly species have localised ranges and unique habitat requirements, including specific host plant and ant associations. The 2019-2020 bushfires of eastern and southern Australia most likely severely impacted the seven threatened butterfly species below, as butterfly species closely associated with a specific host plant or ant depend upon their host species' existence for survival. If a bushfire wipes out the host plant or ant colony, then there is no habitat or ant association left for the butterfly:

1. Southern sedge-darter (*Telicota eurychlora*),
2. Large ant-blue (*Acrodipsas brisbanensis*),
3. Orange ringlet (*Hypocysta adiante*),
4. Silky hairstreak (*Pseudalmenus chlorinda fisheri*),
5. Chequered sedge-skipper (*Hesperilla mastersi*),
6. Two-spotted grass-skipper (*Pasma tasmanica*), and
7. Common pencilled-blue (*Candalides absimilis*).

Researchers know very little about these butterfly species and even less about how bushfires affect them. The Threatened Species Conservancy is a

not-for-profit organisation that works to protect lesser-known animals and plants from extinction. Established in 2018, the Threatened Species Conservancy is Australia's only not-for-profit organisation dedicated exclusively to preventing the extinction of the nation's threatened plants and animals. They are long-standing practitioners of threatened species recovery and use ecological expertise to protect and restore threatened plant and animal populations. Among the group's most-wanted butterflies are the Vulnerable southern sedge-darter, the Endangered copper ant-blue, and the regionally Extinct orange-ringlet.

Funded by a Landcare Led Bushfire Recovery Grant, the search began for these threatened butterfly species in early December 2020 with a community training event in Mallacoota, East Gippsland, which has produced outstanding results thus far. However, Chief Executive Officer of the Threatened Species Conservancy, Abi Smith, is worried that a lack of information on these species means these butterflies could still become extinct.

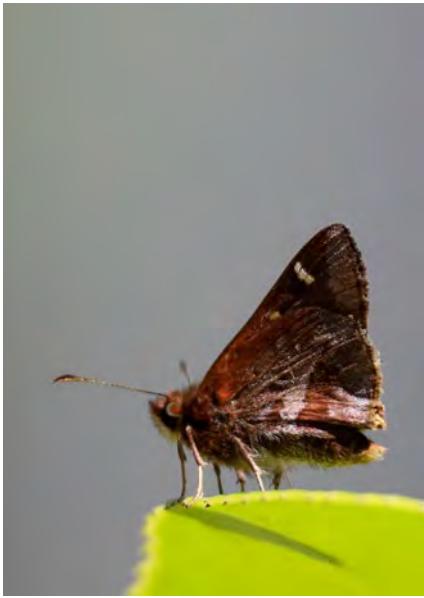
These threatened butterfly species have such specific requirements that landscape-scale actions are not going

to prevent their local extinction. The severity of the impacts of a bushfire can be very hard to assess as information on species distribution is limited, and there are rarely adequate monitoring programs for butterflies. Without gathering baseline data and running scientifically rigorous monitoring programs, these species will slide into extinction unnoticed.

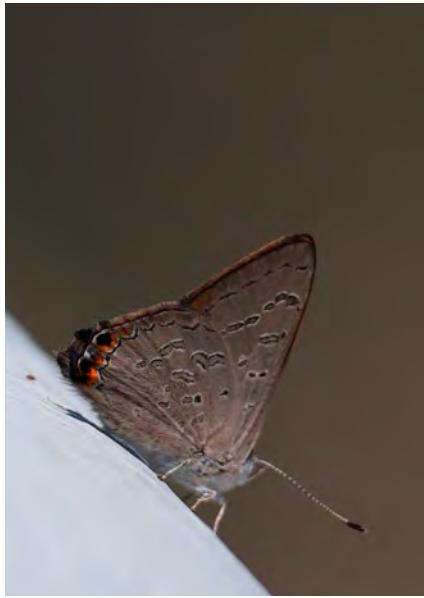
The first identified species in the search was the chequered sedge-skipper, which Gipsy Point resident Kate Cowden identified. The chequered sedge-skipper larvae feed exclusively on the black fruit saw-sedge (*Gahnia melanocarpa*), a tussock forming perennial plant, and the thatch saw-sedge (*Gahnia radula*), a tufted sedge native to south-east Australia. The butterflies construct a shelter joining the leaves of their host plant with silk and remain in the shelter during the day and come out to feed at night. Pupation takes place within the shelter.

The second identified species in the search was the large ant-blue. The Threatened Species Conservancy team searched in Croajingolong National Park, Bidawal Country, for over a month for the listed focal butterfly species. However, they became disheartened as they were not encountering even the most common species of local butterflies. They would solemnly walk through the remains of the forests at the foothills, often pausing to take

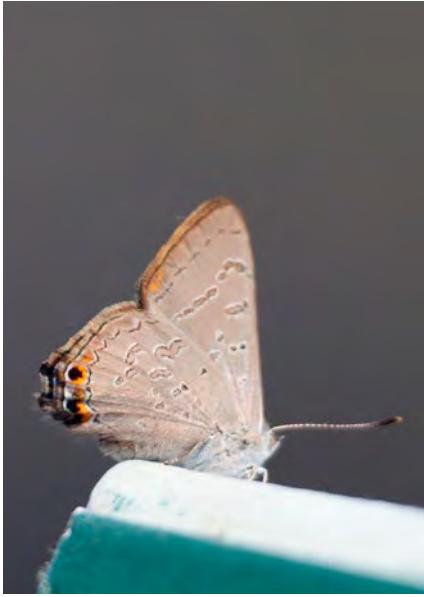
**Top:** A bright copper (*Paralucia aurifer*). Not a focal species, but very lovely. Image: Em Dale.



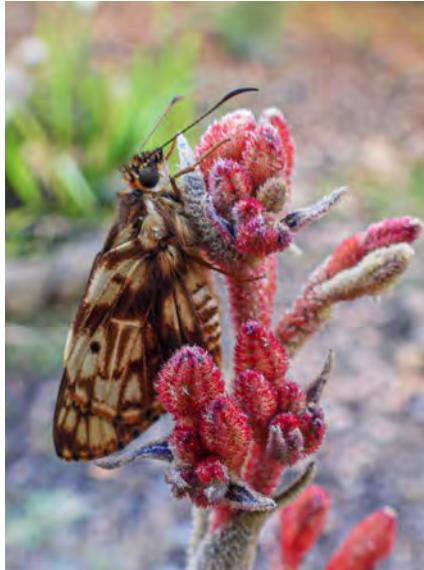
Lilac grass skipper [*Toxidia doubleday*]. Not a focal species, but very lovely. Image: Em Dale.



An Endangered ant-blue [*Acrodipsas brisbanensis*]. Image: Em Dale.



An Endangered ant-blue [*Acrodipsas brisbanensis*]. Image: Em Dale.



A chequered sedge-skipper [*Hesperilla mastersi*] was found on a flowering kangaroo paw. Image: Kate Cowden.

in just how extensive the damage to the landscape was. The team climbed incredible granite boulders leading to the peak of the mountain in the hopes they would find what they were looking for. It was not until January 2022 that the team returned to the site, climbed the ladder to the final summit, and there it was – an Endangered large ant-blue perched on the trig point, overhanging from the top of the highest granite boulder. Females can proceed to these prominent peaks and be assured of a high probability of finding a suitable mate. This behaviour is called ‘hill-topping’. The team was thrilled and filled with joy. Although observed a couple of hundreds of times across the modern-day records of the species nationwide, the large ant-blue has never been recorded in East Gippsland – a win for the team.

The team saw at least five individual butterflies (both male and female) and witnessed their breeding display as the butterflies rose into the sky and fell together to the forest floor in an intricate dance. The female butterflies would have laid their eggs close to a coconut ant (*Papyrius nitidus*) colony, where the ants would have tended to the butterfly eggs and later caterpillars. The ants will tend to the caterpillars feeding them their larvae in return for the sickly-sweet carbohydrates and amino acid secretions produced by the caterpillars.

Typically, butterfly-ant associations are mutually beneficial, with the immature stages of the butterfly occurring within or close to the nests of ants. This butterfly-ant association is how the butterflies would have survived the 2019-2020 brushfire, nestled within a fallen tree, surrounded by hundreds of ants that would have protected and nurtured the caterpillars until they were ready to emerge as adults – an incredibly resilient species.

The search continues into 2022, with the Threatened Species Conservancy searching for five of the seven butterfly species. If you would like to get involved in the project, please upload your butterfly images, taken in East Gippsland, to iNaturalist. Furthermore, if you would like to attend a search in Mallacoota, please do not hesitate to contact me at [Em.Dale@TSConservancy.org](mailto:Em.Dale@TSConservancy.org)

As the on-ground ecologist in Mallacoota, East Gippsland, it has been an honour to work with the community, local Landcare groups, and conservationists to bring these species back from the brink of extinction. I have enjoyed highlighting the importance of these butterfly species to the greater ecology of East Gippsland. Learning from the community has been a highlight, and I am so thankful to everyone for getting so passionately involved in the project.



Common pencilled-blue [*Candalides absimilis*]. Image: Em Dale.



Em Dale has over ten years of experience in conservation ecology and threatened species management. They have a Bachelor of Science in Ecology and Conservation with Honours and a University Medal from Griffith University. Em has a deep passion for diverse ecological systems and using emerging technology to understand and protect ecosystems.



# An Underwater Mission to Restore Seagrass and Engage Coastal Communities

Clayton Mead, Giulia Ferretto, and Professor Adriana Vergés

A marine restoration project is engaging citizen scientists to re-establish endangered seagrass meadows in urbanised estuaries of New South Wales. Operation Posidonia invites coastal communities to assist in collecting washed-up seagrass (*Posidonia australis*) fragments for underwater transplantation, making meaningful participation in marine conservation as easy as enjoying a walk on the beach.

## Seagrasses: The Unsung Heroes of our Coast

Seagrasses are flowering plants with terrestrial ancestors adapted to life fully submerged in saltwater. Australia is home to the largest and most diverse seagrass meadows on the planet. Seagrass meadows are dominant habitats along our coasts all over Australia, from tropical intertidal flats to the cool waters of our southern coast.

Their interlocking green leaves provide hiding places for juvenile fish, seahorses, and crabs, as well as all the tiny invertebrates they like to feed on. Beyond supporting valuable fisheries, seagrasses also store and sequester large amounts of carbon, improve water quality, and protect shorelines from erosion. However, coastal development, pollution, and climate

change put seagrasses at significant risk. Here in Australia, we have already lost over 270,000 hectares of seagrass meadows – an area larger than three times the whole of Canberra.

One of the main problems for seagrasses is that they generally thrive in protected bays and estuaries where humans like to settle. Disturbances such as dredging and coastal development, nutrient pollution and boat anchors and moorings have led to enormous declines of seagrass in urbanised sections of the coast. Estuaries in New South Wales such as Sydney Harbour and Botany Bay have been intensely developed with hard infrastructure to cater for industry and tourism. Other estuaries such as Lake Macquarie and Port Stephens have become recreational havens, perfect for fishing and boating. A range of threats to sensitive habitats arises from human presence in the marine environment.

*Posidonia australis* is the largest seagrass in Australia and is a preferred habitat of iconic species like the White's seahorse (*Hippocampus whitei*) and many recreationally targeted fish species. While some seagrasses can be relatively fast to recover in disturbed places, *Posidonia* is much slower growing than

other species. In New South Wales, which includes the most populated coastlines of Australia, continuous declines and little natural recovery have led to *Posidonia* meadows being formally listed as Endangered by the Commonwealth and New South Wales state government in multiple estuaries near Sydney. Although these legislative measures can protect *Posidonia* from further damage in some instances, ongoing threats such as boating activities and large-scale development continue to cause declines, and the risk of local extinction is very real. Restoration efforts are needed to reverse declines and build resilience in threatened populations.

## Operation Posidonia: Restoring Seagrass with the Help of Local Communities

Operation Posidonia, a flagship project of the Sydney Institute of Marine Science (SIMS) and the University of New South Wales, Sydney, is leading an effort to restore *Posidonia* meadows in New South Wales estuaries by enlisting help from local citizen scientists. Restoring *Posidonia* is challenging

**Top:** *Posidonia australis* is vital fish habitat, creating complex and vast underwater meadows. Image: David Harasti.



1. Naturally detached fragments of *Posidonia australis* wash up on shorelines after storms, strong winds and high tides

2. Citizen science projects like 'Operation Posidonia' can encourage local communities to collect fragments and increase awareness about the marine environment



3. Collected seagrass fragments can be temporarily planted in floating boxes within large outdoor tanks until replanting occurs

4. Seagrass fragments can be replanted into old boat mooring scars by SCUBA divers, helping to revegetate bare patches in seagrass meadows.



*Posidonia australis* fragments are collected for restoration. Image: Zuhairah Dindar.



Citizen scientists are asked to collect fragments of *Posidonia australis* from their local beach, which form the donor material for underwater restoration. Image: Harriett Spark.



Community outreach activities, including walk and talks and school visits, are designed to build local knowledge about the marine environment and facilitate participation in seagrass collections. Image: Giulia Ferretto.

because harvesting donor material from existing meadows puts these sensitive habitats at greater risk. To prevent damaging existing meadows, the Operation Posidonia team is using seagrass fragments that are naturally detached and end up onshore due to the movement of tides and winds. If fragments still have a rhizome, the base of the plant that anchors it to the seafloor and stores energy, they can be replanted. However, to use these fragments, they must be collected in the short window before tides or winds take them back to the water or before the sun dries them out.

Citizen scientists, known as the 'Storm Squad', are trained by Operation Posidonia scientists to collect fragments from their local beach during their everyday activities or after big storms. With their help, enough fragments can be salvaged for restoration. After fragments are collected, they are dropped off at special collection stations around the estuary before being moved to temporary aquaculture storage facilities by the Operation Posidonia team. After a few months, they are replanted underwater by scuba divers and form the start of a recovering meadow. Operation Posidonia has the additional benefit of building public knowledge of marine habitats and increasing local stewardship of the marine environment.

Operation Posidonia began in 2018 in Port Stephens, on the mid-north coast of New South Wales, where researchers have been developing the proof of concept to save endangered seagrasses. Boat moorings heavily impact *Posidonia* meadows in Port Stephens. Traditional boat moorings have a heavy swinging chain that scours the seafloor and is one of the significant causes of decline in *Posidonia* and has led to losses of over 130,000m<sup>2</sup>. Even after moorings are removed, the 'scars' or bare patches left behind in seagrass meadows remain because *Posidonia* is slow to revegetate the area naturally. The Operation Posidonia team trialled restoration in old mooring scars and in scars where traditional moorings were replaced with Environmentally Friendly Moorings (EFMs), which do not harm the surrounding areas. Large-scale transition to such mooring designs, combined with restoration, is a promising solution for the future of seagrass meadows.

PhD student, Giulia Ferretto, led the project and researched the survival rate of transplants and several factors that could influence restoration

success. Recently published in the journal *Biological Conservation*, Giulia's results showed that naturally detached fragments are viable for restoration, with up to seventy percent of transplants surviving in some plots after twelve months. Giulia's research produced a variety of important lessons for future restoration. She found that fragments planted in winter have higher survival rates and that morphological traits such as the number of individual shoots within a fragment and level of leaf necrosis are important factors. Promisingly, many fragments produced new shoots just a few months after planting, showing that these plants are beginning to expand and revegetate the surrounding area on their own.

#### **Effective Community Engagement: Key for Success**

The Operation Posidonia team developed a substantial science communication campaign to engage with the Port Stephens community – an interactive website and active social media channels. Seagrass 'walk and talk' gatherings and public seminars in the area were not only excellent training opportunities, but they allowed the team to develop relationships with volunteers who would champion the project. Fragment collection data shows that a sustained effort leads to continued engagement, with collections peaking after individual outreach activities. Successful engagement of volunteers ultimately led to the collection of over 1,500 *Posidonia* fragments in just more than one year, allowing Operation Posidonia to revegetate ten mooring scars in Port Stephens.

#### **What is Next for Operation Posidonia?**

The project is now in an exciting stage of expansion. Operation Posidonia has recently commenced in both Awaba Lake Macquarie and Gamay Botany Bay – two estuaries where *Posidonia* is Endangered. The Operation Posidonia team will be collaborating with various organisations, including fishing and habitat restoration charity OzFish, and the Gamay Rangers – Australia's first urban Indigenous ranger group. In mid-2022, an exciting project will be starting, combining the rehabilitation of the Endangered White's seahorse with *Posidonia* restoration across these estuaries and beyond. You can follow the project's progress via the website at [www.operationposidonia.com](http://www.operationposidonia.com)

Operation Posidonia has been supported by the NSW Environmental Trust, NSW Recreational Fishing Trusts, and the Wild Elements Foundation.



Each *Posidonia australis* fragment used in the Port Stephens restoration project was tagged, and its growth and survival were monitored. Image: Operation Posidonia.



PhD student Giulia Ferretto is planting *Posidonia australis* fragments in a boat mooring scar to begin restoring the fragmented meadow. Image: Richard Woodgett.



The White's seahorse (*Hippocampus whitei*) is an iconic species that depends on *Posidonia australis* habitat. It is also Endangered in some New South Wales estuaries where habitat loss has been extensive. Image: David Harasti.

# Australian Wildlife Society

## Threatened Wildlife Photographic Competition

A national competition that awards and promotes the conservation of Australia's threatened wildlife through the medium of photography.

The Australian Wildlife Society invites photographers to raise the plight of threatened wildlife across Australia. Our Society aims to encourage the production of photographs taken in Australia by Australians, reflecting the diversity and uniqueness of Australia's wildlife whose conservation status is listed as Vulnerable, Endangered, or Critically Endangered.

**An annual judge's prize of \$1,000 will be awarded**  
**An annual people's choice prize of \$500 will be awarded**

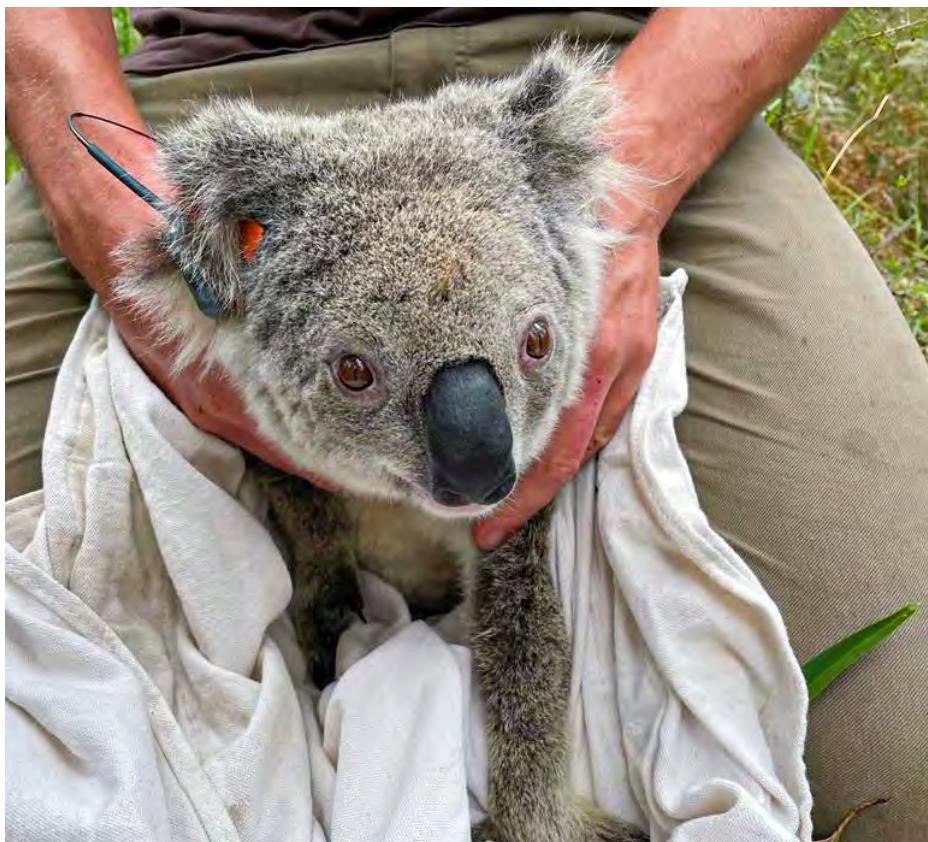
### Rules of entry:

1. The subject of each entry must be officially listed as either a Vulnerable, Endangered, or Critically Endangered Australian species – fauna or flora,
2. The entry must be the work of the entrant,
3. The photograph must have been taken within the twelve months prior to the date of entry,
4. The name of the threatened species, photographer, and date taken must be included in the 'file name' of each photograph submitted. For example, koala\_JohnSmith\_1.1.11,
5. Entrants retain the copyright to their entries but accord the Australian Wildlife Society the right to use the photographs in any of its publications or any reprint arising therefrom,
6. Entries are to be submitted to – [photo@aws.org.au](mailto:photo@aws.org.au). It is recommended that image files are no larger than 2mb,
7. All entries must be accompanied by a short paragraph (maximum 150 words) describing the status of the threatened species, the photograph's location, and the reasons and circumstances for choosing to photograph it,
8. Directors of the Society or their families are ineligible to submit entries,
9. There shall be no charge for entry and entrants may submit more than one entry, and
10. The final result is at the discretion of the Directors and will be announced in August each year.

**CLOSING DATE FOR ENTRIES IS 30 JUNE**

**ONLINE VOTING FOR THE PEOPLE'S CHOICE  
WILL BE OPEN FROM 1 JULY TO 30 JULY**





# Science and Citizens Offer Hope for Koalas After the Bushfires

**Science for Wildlife**

The Blue Mountains has not always been known for its koala (*Phascolarctos cinereus*) population. However, the work of Science for Wildlife, led by Dr Kellie Leigh, has been steadily changing that perception. Using innovative methods and citizen science, the group has uncovered hidden populations of genetically diverse koalas living in the World Heritage region, which boasts a choice of food trees and habitats unrivalled by any other areas of the country. As this critically important environment faces increasing threats from bushfires and climate change, Dr Leigh and her team are working to protect what remains of this significant koala population. Furthermore, working with this Endangered and flagship species also informs conservation efforts for other critical species.

Since 2013, Science for Wildlife has been dedicated to understanding where koalas occur in the Blue Mountains, which habitats they use, and what threats they face. Executive Director of the organisation, Dr Leigh, calls the Mountains' koala population 'rule breakers' for a number of reasons. Although koalas are generally known to like trees on richer soils, the Blue Mountains is sandstone country. In addition, some of the koala populations

Dr Leigh and her team discovered live above the eight hundred metre climate envelope for koalas and feast on silvertop ash (*Eucalyptus sieberi*) – not usually considered a food source.

The research became mission-critical after the Gospers Mountain mega-bushfire tore through the region in 2019-2020. The bushfires damaged an estimated eighty percent of the World Heritage area in the Blue Mountains, devastating wildlife. Reports estimate that around 143 million native fauna were impacted in the Greater Blue Mountains area, including fifteen million mammals. Four of the five koala study sites the research team was using were hit by bushfires.

"The bushfires were a game-changer, and conservation management will have to be more 'hands on' under climate change. Maintaining the intact wildlife and habitats we have left is critical," Dr Leigh said.

Science for Wildlife was active both during and after the bushfires, carrying out the first emergency evacuation of koalas from approaching fire and then providing three months of food and water for wildlife that survived the bushfires but then faced dehydration

and starvation. Working under approval from the NSW National Parks and Wildlife Services, twelve koalas were rescued and temporarily moved to Taronga Zoo, thanks to the help of both a Victorian climbing team and diligent volunteers who tracked the radio signals coming from the koalas' collars and scoured canopies for animals without collars.

For the three months immediately after the bushfires, Science for Wildlife deployed ninety camera traps across three sites to conduct post-bushfire research. With the assistance of volunteers, more than 250,000 images were analysed, helping to understand which species survived the bushfires, which used the emergency food and water, and which water station designs were the most successful for different species. The research will inform future emergency response efforts as well as wildlife recovery.

## Mapping Survival Through Surveys and Radio Tracking

Dr Leigh and her team are now working to assess the remaining koala populations and their potential to recolonise. "The longer-term bushfire recovery work we are doing is multifaceted. With support from our core partners, the San Diego Zoo Wildlife Alliance and the NSW Koala Strategy, we are working to understand where and why koalas survived after the bushfires. If we know what koalas need to survive across a burnt landscape, then we can predict what we need to protect. With bushfires of the scale we witnessed during the Black Summer, the concept of actively managing bushfire refugia is critical," Dr Leigh said. The recent decision to list koalas on Australia's east coast as Endangered has made this work more imperative than ever.

To collect the data needed, the team at Science for Wildlife has been undertaking surveys across the bushfire zones at multiple study sites in the Blue Mountains and adjoining areas, and they are finding signs of hope. Scientist Dr Victoria Inman said, "the main basis for hope resides in what turns out to have been the varied intensity of the bushfire. More koalas survived in areas that were either unburnt or had a low-intensity burn that did not reach the tree canopy." Indications are that the recovery rate of vegetation and the level of moisture in vegetation are key elements of locations in which koalas survived after the bushfires.

**Top:** A koala (*Phascolarctos cinereus*) is fitted with a radio tracking device. Dr Kellie Leigh and her team are working to protect what remains of this significant and Endangered Blue Mountains koala population. Image: Science for Wildlife.



Science for Wildlife is using camera trap surveys to examine which animals are using these areas post-bushfire and whether they have preferences for certain vegetation. Image: Science for Wildlife.

"We are still working out just how many koalas were lost. We need to monitor them longer term to see if there are enough koalas for the populations to grow again, or if there are too few, and the populations are likely to decline without further intervention," said Dr Inman.

The research team is also radio-tracking the koalas, which were released back into the wild three months after their rescue from the approaching bushfires. Those koalas, plus others the team has since found, provide more detail about how koalas use the landscape after a bushfire. Compared to before the bushfires, there appears to be an increase in the distances in which koalas now move to find food trees. For Dr Leigh, that is a source of concern since koalas need to maintain a delicate energetic balance – they must even out the energy they spend digesting eucalypt leaves and travelling to find

food against the calories and moisture they get from the leaves. If there is a deficit in the amount of energy koalas gain compared to what they spend, the potential result could be poorer nutrition and body condition, more susceptibility to disease, and a drop in breeding rates.

#### **Hope After the Bushfires: Harnessing the Power of Citizen Science**

Evidence of surviving koala populations has spurred hope in locals, who have become vital to conservation efforts. "One of the lessons learned after the black summer bushfires was that there were limits to emergency responses regarding wildlife, including lack of access and resourcing, in the event of large-scale bushfires," Dr Leigh said. "Community willingness to help wildlife has been high, and we have been working on ways of informing conservation efforts to best support both people and animals."

For Dargan resident Kat Boehringer, an unexpected encounter with one of our furry national treasures was a sign of hope for her small community that led many locals on a mission to protect the species. The isolated villages of Bell, Clarence, and Dargan, suffered extreme damage from the bushfires, including the loss of twenty-nine homes. "The bushfires were deeply traumatising for our communities. There was so much loss. Landscapes were scarred for as far as the eye could see. Many of us were keen to help our local wildlife, but it was hard to know how," Kat said.

Kat was on the morning school run along the Darling Causeway between Mt Victoria and Bell when she spotted movement out of the corner of her eye. To her surprise, this turned out to be a koala. "It ambled across the road in front of my car and then headed off into the bush. I was stunned. I posted about it on our community Facebook page, and there was such a buzz about it. For many, it was a sign of hope that our animals and environment could recover after such a devastating event."

Kat and a number of other locals are now taking part in projects with Science for Wildlife to help protect local koala populations. These projects, funded by a recent Landcare Led Bushfire Recovery Grant, include surveying populations on private land using audio recordings.

#### **Backstreet Bellows Mapping Populations on Private Land**

The presence of unburnt asset protection zones around communities has been particularly important for koalas, especially after the black summer bushfires. Such zones are often located on good soils that are



An Endangered Blue Mountains koala (*Phascolarctos cinereus*) is captured on one of the wildlife cameras. Image: Science for Wildlife.

preferred by both koalas and people and may support koalas and other species to recolonise the burnt protected areas. In partnership with the Department of Primary Industries, the 'Backstreet Bellows' project engaged the community to deploy koala acoustic listening devices across the Lower Blue Mountains and the western edge of the Greater Blue Mountains World Heritage area to provide data on koala occupancy.

"After the devastation of the bushfires, a range of innovative survey techniques became critical to helping us find what was left of our koala populations across both public and private land," said Lacey Hofweber from Science for Wildlife, who is assisting with the citizen science project. "Koalas are notoriously difficult to detect in complex forest habitats, and access to private property for scat surveys can be difficult to obtain. This system helps survey developed areas while increasing community awareness of koalas."

More than two hundred landowners registered to have a small recording device located on their property for seven days to record the bellowing of male koalas. Once koala occupancy is understood through this innovative initiative, habitat restoration, corridor planning, and long-term habitat conservation can be prioritised by area and habitat type across more sites to increase koala population viability and resilience.

#### From Koalas to other Small Mammals

Australia's many small-sized native animals (35-5,500 grams in weight) are easy prey for invasive predators like feral cats and foxes. These species are known as 'critical weight range'

mammals, and a number were already 'in trouble' before the black summer bushfires. If bushfires increase in intensity and frequency, as predicted under climate change, species that were once common across the Blue Mountains World Heritage area might become threatened at the population level.

One primary concern is that, aside from losses directly attributable to the bushfires themselves, the lack of ground cover and shelter for such species immediately after the bushfires means that numbers may have been even further reduced by predation in the following weeks and months.

Science for Wildlife is using camera trap surveys to examine which animals are using these areas post-bushfire and whether they have preferences for certain vegetation. In response to the post-bushfire threat, Science for Wildlife joined with the World Wildlife Fund, the University of Sydney, and the local National Parks and Wildlife Service to deploy 165 camera traps across the Blue Mountains over three remote sites – Kanangra, Hawkesbury, and Newnes – as well as nearer to developed areas. Building on their current work with koalas, these researchers are mapping species composition and diversity across bushfire intensities to better understand the impact of the bushfires on these species.

#### Information Sharing Systems to Enable Grass-Roots Efforts

Strategic and evidence-backed approaches to organising and managing emergency responses to assist wildlife and coordinating efforts to achieve population

recovery were identified as critical to sustaining koala populations after the black summer bushfires. "A lack of evidence-based information and coordination prevented conservation efforts from having a maximum impact for wildlife, and in some cases put wildlife and people at risk," said Dr Leigh.

To increase the reach and effectiveness of bushfire recovery actions in the Blue Mountains and beyond, Science for Wildlife is developing an information-sharing system to harness the collective action of grass-roots efforts.

Dr Leigh said that the 'Help Wildlife Near Me' app, which launches in 2022, is a "one-stop-shop for local communities to access information and opportunities to participate in wildlife and habitat conservation, from citizen science projects to volunteering and habitat restoration actions in the local area, along with maps of priority areas for different species."

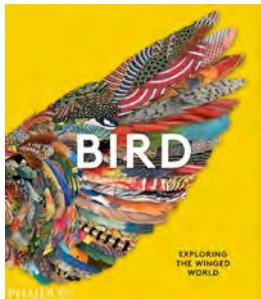
"The app will also provide communities with critical information to ensure future emergency responses for wildlife are safe and effective for both people and animals. It will build a sense of place in the Greater Blue Mountains World Heritage area that will also be scalable to other regions."

There are frequent opportunities to help the Science for Wildlife team, from participating in fieldwork and community education to donating your office skills. For further information and to get involved, please visit <https://www.scienceforwildlife.org/>



A short-beaked echidna (*Tachyglossus aculeatus*) is captured on one of the wildlife cameras. Image: Science for Wildlife.

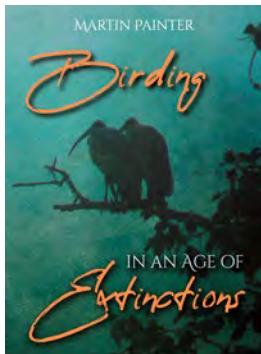
# Book Reviews



## Bird: Exploring the Winged World - Phaidon Editors, Katrina van Grouw, and Jen Lobo

Let your imagination take flight and celebrate the beauty and diversity of birds throughout art, science, history, and culture. From the majestic and colourful eastern rosella (*Platycercus eximius*) to the stubble quail (*Coturnix pectoralis*) depicted via rock carvings, and the vibrant superb fairywren (*Malurus cyaneus*) to the clever cockatiel (*Nymphicus hollandicus*), *Bird: Exploring the Winged World* is a visually stunning survey of birds, chronicling their scientific and popular appeal throughout the ages and showcasing the remarkable diversity of species in the avian kingdom.

**Publisher:** Phaidon Press Ltd  
**RRP:** \$79.95

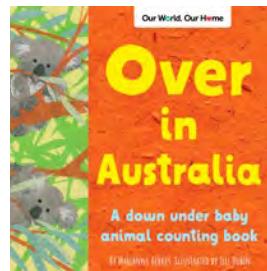


## Birding in an Age of Extinctions - Martin Painter

As a pivotal book for birders and anyone interested in wildlife conservation, *Birding in an Age of Extinctions* is about what it is like being a birder in an age of natural decline. It is part autobiographical tales of spell-binding birding encounters that left unforgettable memories, and it is part reflective. Travels to and birding in the Himalayas, the Australian outback, the Southern Oceans, and many other places are recalled. The author's experiences, tales and reflections are shaped by birding during an extinction crisis and the growing biodiversity

crisis. Consequently, the author came to ponder what birders are doing in response, whether it is for good or harm. Because our visits to places provide funds, we are also among these species' last hopes for survival. Is this the best we can do?

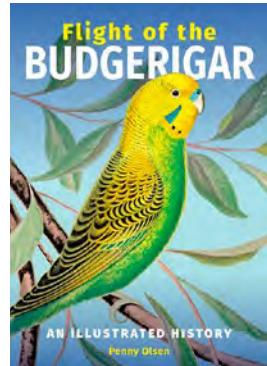
**Publisher:** Whittles Publishing  
**RRP:** \$35.00



## Over in Australia - Marianne Berkes and Jill Dubin

Begin to appreciate and learn about the wildlife in Australia with this animal counting book. From bare-nosed wombats (*Vombatus ursinus*) that dig to sugar gliders (*Petaurus breviceps*) that glide, explore the world around you and develop a bond with nature through curiosity and wonder. Learning becomes fun with this book about the animals that are unique to Australia.

**Publisher:** Dawn Publications  
**RRP:** \$8.99

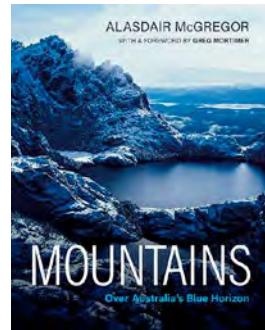


## Flight of the Budgerigar - Penny Olsen

Taking the reader from the Dreamtime to the colonial live bird trade and to today's thriving wild flocks, *Flight of the Budgerigar* is the authoritative history of the budgerigar (*Melopsittacus undulatus*), written by respected ornithologist Dr Penny Olsen and lavishly illustrated in full colour. The budgerigar (*Melopsittacus undulatus*) is arguably Australia's best-known bird. At the same time, it is so ubiquitous that not everyone knows

that it is Australian. The native budgerigar has lived millennia of boom-bust cycles in the arid inland of Australia. For the Warlpiri and their Arrernte neighbours around Alice Springs, the budgerigar (in its ancestral form) was a totem animal, featuring in art, ceremonies, songlines, and legends. In addition, since 1840, when ornithologist John Gould took living specimens to London, this little parrot has been on a remarkable journey as Australia's first mass export; its story includes British queens and nobles, Hollywood stars, and world leaders. Take a journey through time and discover the evolution of this amazing bird.

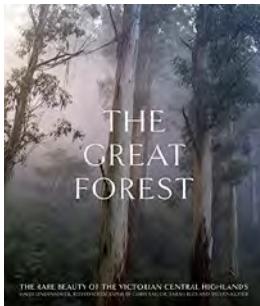
**Publisher:** NLA Publishing  
**RRP:** \$49.99



## Mountains: Over Australia's Blue Horizon - Alasdair McGregor

True to the diversity of the Australian continent, Australia's mountains are home to natural habitats of both exquisite beauty and astonishing variety and, sadly, rapidly increasing rarity. Still, they are spectacular and have a rich history that many do not know. *Mountains: Over Australia's Blue Horizon* provides a stunning visual and photographic history of our most well-known mountains. On the top of Mount Everest, you can touch the edge of outer space, but you can feel the beginning of time in the Australian mountains. Our First Nations People have an enduring spiritual connection to many of these sites, and they have been a rich source of inspiration for many painters, poets, photographers, and writers. *Mountains: Over Australia's Blue Horizon* defies our reputation as the flattest continent on earth, illuminating the landscape in all its breathtaking height and glory.

**Publisher:** NLA Publishing  
**RRP:** \$49.99



## The Great Forest: The Rare Beauty of the Victorian Central Highlands - Professor David Lindenmayer

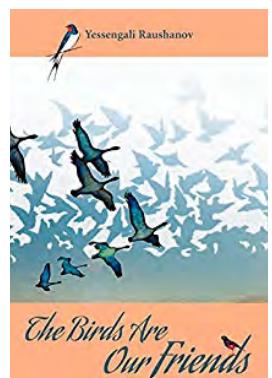
The city of Melbourne lies on the edge of a vast plain surrounded by a green and blue mountainous rim, whose hills and peaks are home to the magnificent Mountain Ash, the tallest flowering plant on the planet. The book showcases the Mountain Ash forests as well as the world's tallest moss and breathtaking snow gum plateaus. It is a tribute to the extraordinary landscapes now under severe threat from logging and wildfires. It explores the unique forests that have sustained the Gunaikurnai, Taungurung, and Wurundjeri peoples for tens of thousands of years and provided a home for wildlife found nowhere else in the world. It uncovers the intricate webs of life that make Mountain Ash forests so much more than their towering trees.

**Publisher:** New Holland Publishers  
**RRP:** \$49.99

(*Neophema chrysogaster*), and swift parrot (*Lathamus discolor*). *Parrot Conservation* explores why parrots are endangered and the conservation techniques used to save them.

Aimed at birdwatchers, conservationists, and a 'nature writing' readership, the book seeks to promote a broader interest in the plight and conservation of parrots through engaging text and captivating stories. Many chapters highlight the author's time in the field, observing conservation projects related to the parrots' survival.

**Publisher:** New Holland Publishers  
**RRP:** \$54.99



## The Birds Are Our Friends - Yessengali Raushanov

Yessengali's book is an unusual and lyrical account of birds from the late Kazakh poet and author in which he looks at the world of birds from a slightly different viewpoint. There are more than thirty engaging and knowledgeable stories recounting the mysteries of some of our winged friends. For many, birds represent freedom and spirituality since they are created to be free. Looking out of his office window and seeing the birds flying, the author regrets his lost freedom. Life tends to be over-complicated, and many would advocate following a simpler life. *The Birds are Our Friends* is a beautiful and enlightening collection of essential information, curiosities, myths, and folklore of birds and people. The author hopes that these stories will interest readers, remind them of their spirituality, and evoke good memories.

**Publisher:** Whittles Publishing  
**RRP:** \$35.00

# Membership Form

## Membership

### Become a member of the Australian Wildlife Society

Simply fill out this form.

Name:.....

Address: .....

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

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

..... Email:.....

### Membership category (please tick)

- Student (conditions apply): \$0
- Individual (hardcopy magazine): \$55
- Family (hardcopy magazine): \$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 (hardcopy magazine): \$150
- Family (hardcopy magazine): \$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:.....

Amount \$.....

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

Donation \$.....

Signature:.....

Total \$.....

**Mail to the:** Australian Wildlife Society  
29B/17 Macmahon St, HURSTVILLE NSW 2220  
Email: [accounts@aws.org.au](mailto:accounts@aws.org.au)  
Website: [www.aws.org.au](http://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**

### Membership Benefits

**Magazine:** Receive the quarterly issue of Australian Wildlife via email or post to keep up-to-date with the collective work promoted nationally.

**E-Newsletter:** Receive the monthly e-newsletter. Keep up-to-date with news from our members and on the work of the Society.

**AWS Portal:** Access the Members' Resource Centre - your destination for resources and materials on various wildlife-related topics.

**Social Media:** Contribute to our social media platforms: Instagram, Twitter, Facebook, LinkedIn, YouTube, and Website.

**Right to Vote:** You have the right to vote on important matters at Society general meetings (financial members only).

**Other Benefits:** Awards, Scholarships, Grants, and the opportunity to network with like-minded people.

### LEAVE A BEQUEST IN YOUR WILL

If you would like to find out how to leave a bequest to the Society or how your bequest can make an impact, please download our bequest information pack.



