



EMPOWERING
PEOPLE TO SAVE THE
NATURAL WORLD

2018
ANNUAL
REPORT

BE PART OF OUR JOURNEY

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**“A DONATION TO ENVIRONMENTAL CARE IS
AN INVESTMENT FOR ETERNITY.”**

~ DAVID THOMAS, THE THOMAS FOUNDATION



FROM THE CEO

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We are challenged with the mission to empower people to save the natural world. Not an easy task, especially when economic growth is often seen in competition with environmental gain. But attitudes are changing and science is proving that nurturing healthy ecosystems has invaluable benefit to social and economic sustainability.

Over the past year we have been working diligently with our partners to tackle some of the greatest environmental threats and the attitudes towards them. Climate change is still by far our ultimate challenge. In response we created an exciting new partnership with Tasman Environmental Markets, Qantas and Green Collar, to change the mind-set of decision makers through a first-hand experience in carbon offsetting. We initiated our Blue Carbon project in partnership with HSBC and Deakin University engaging to date 100 employees in Sydney, Melbourne and New Zealand whereby employees contribute to research that helps us demonstrate the value of wetlands as a climate mitigation strategy.

Our ClimateWatch program continues to strengthen and is now mapped to Australian curriculum. We are upskilling teachers on climate change and providing tools to engage their students, embedding climate change in classroom learning. This year ClimateWatch was also integrated into corporate climate change and employee engagement strategies and even Christmas functions, showcasing the changing values of society.

On the biodiversity front, it was a great achievement to see Bush Blitz renewed for a further five years, taking our partnership with BHP and the Australian Federal Government to 13 years. The program remains Australia's greatest species discovery and mapping project and will be taking on a stronger focus to provide land managers with capability to improve biodiversity management.

And we can't forget the waste issue. The War on Waste has heightened Australians' awareness of this problem, but will it be enough? We continue to work with Amcor on helping to improve sustainability within the packaging industry and empower their employees to drive change. This year Earthwatch signed the New Plastics Economy Global Commitment (an Ellen MacArthur Foundation Initiative) and will shortly be launching a very exciting plastics circular economy project.

All of this great work is only achievable thanks to our supporters, donors and partners and I'd like to sincerely thank you all for your outstanding values and contributions to make this world a better place. This year Earthwatch has also benefited from a great new leader, Megan Flynn, who is steering the organisation with vigour, passion and insight. She is an inspiration to the team and we look forward to working together with the Board to drive the change that is needed for a healthy planet and society.

Cassandra Nichols
Chief Executive Officer
Earthwatch Institute Australia



FROM THE CHAIR

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In 2018 the United Nations Intergovernmental Panel on Climate Change (IPCC) released its 2018 special report on the impacts of global warming of 1.5° C above pre-industrial levels. The report makes it clear that climate change is happening, it is happening faster and at a greater risk to businesses and livelihoods globally than previously estimated. The report stresses how alarmingly different 2° C warming is from 1.5° C — impacting sea level rise, food and water scarcity and biodiversity. While I am challenged by what the science is telling us about impacts on our natural world, I am also emboldened by the validation that the work Earthwatch is doing is even more critical today to ensure the world meets this challenge.

Through delivery of its mission of empowering people to save the natural world, Earthwatch is playing a pivotal role in engaging Australians directly in nature and scientific research in their work, life and play. Earthwatch programs, such as ClimateWatch and Bush Blitz, are prime examples of how the organisation is catalysing behavioural change through the combination of nature, learning and social inclusion, crucial to mitigating climate change and protecting our natural world.

It is through the enduring support of our donors, partners and expedition participants that we have been able to continue to deliver these significant activities in research, conservation and public education. We are grateful for the friendship and support of each of our donors and partners and are proud to be working with individuals and companies that are leaders in their own right.

I would like to personally thank the Board for their support over the last year that I have stepped into the Chair role. Earthwatch's strong and diverse Board, bring a wealth of governance and strategic expertise to support Cassandra and the team. We are very grateful to have welcomed new additions in the last 12 months - Nuvan Aranwela and Shamal Dass - who bring deep commercial and philanthropic expertise along with renewed energy and vision. A gracious

thank you to Debbie Spring, who stepped down from the Board in 2018, for her contribution. It is a pleasure and privilege to work alongside such talented, experienced and committed individuals.

On behalf of the Board I also thank our CEO, Cassandra, for her incredible leadership throughout 2018. She is a pillar of strength and embodies the best of Earthwatch – equal parts integrity, passion and inspiration.

2019 presents new and significant opportunities for Earthwatch. The Board and senior management are confident in our ability to execute our new strategy and increase Earthwatch's ambition and impact across research, conservation and education in the years ahead.

Megan Flynn

Chair, Board of Directors
Earthwatch Institute Australia



OUR MISSION

To empower people to save the natural world

OUR VISION

A world in which we live within our means and in balance with nature

OUR ROOTS

Earthwatch Institute is an international environmental not-for-profit established in Boston, USA in 1971. Globally, we have offices located in the United States, United Kingdom, India, Hong Kong and Japan and began operating in Australia in 1982.

OUR MODEL

To use citizen science to create behaviour change

Citizen science is an extremely powerful tool that enables us to:

- 1) Undertake scientific research that informs policy and management strategy
- 2) Educate and increase knowledge within society
- 3) Empower people and business to take positive action toward the environment

Since its inception Earthwatch has provided more than \$100 million for funding of nearly 1,400 conservation and community sustainability projects in more than 120 countries. Over 100,000 global supporters, volunteers, scientists and educators have committed nearly 10 million hours to conservation research with Earthwatch -- equal to more than 5,000 years of solid hard work.

The environmental issues we face today are beyond the capacity of our world leaders and scientists alone to solve. It is going to take a combined effort by all of us.



HIGH LEVEL GOALS		MEASURES OF SUCCESS
1	INCREASING SCIENTIFIC KNOWLEDGE	<ul style="list-style-type: none">» Increased human hours dedicated to collecting scientific data» Peer reviewed publications produced» Popular publications and outreach events held
2	DEVELOPING ENVIRONMENTAL LEADERS	<ul style="list-style-type: none">» Education: individuals engaged and increased capacity developed
3	ENABLING ORGANISATIONS TO BECOME MORE SUSTAINABLE	<ul style="list-style-type: none">» Partnerships: actively engaged organisations and improved corporate social responsibility
4	INFORMING ENVIRONMENTAL POLICIES, AGENDAS AND MANAGEMENT PLANS	<ul style="list-style-type: none">» Contributions to conventions, agendas, policies and management plans» Pro-environment actions taken
5	ENHANCING NATURAL AND SOCIO-CULTURAL CAPITAL	<ul style="list-style-type: none">» Recovery of species of conservation-significance enhanced» Natural habitats and ecosystem services enhanced» Cultural heritage and livelihood assets enhanced» Sustainably-run organisation

2

EARTHWATCH PROGRAMS

“OUR ABILITY TO PERCEIVE QUALITY IN NATURE BEGINS AS AN ART WITH THE PRETTY, IT EXPANDS THROUGH SUCCESSIVE STAGES OF THE BEAUTIFUL, TO VALUES AS YET ENCAPTURED BY LANGUAGE.” ~ ALDO LEOPOLD

Experiential learning experiences are the core of Earthwatch programs. Members of society are actively engaged in research activities and work alongside renowned scientists gathering data that will help solve real-world issues. Programs may range from one day to two weeks and cater to all aspects of life.

It is the combination of personal experience, learning, and social inclusion that makes Earthwatch programs transformational experiences that create long term behaviour change towards the environment.

W

WORK: Corporate programs

Our corporate programs support companies to communicate and embed sustainability strategies. Using a flexible model we co-create employee and stakeholder engagement programs in independent scientific research that is material to business.

L

LIFE: Education programs

Our education programs target teachers and students to transcend learning beyond classroom walls and equip the next generation of leaders with the skills and knowledge needed to innovate and adapt to real world problems. We facilitate teacher training workshops on citizen science and we take both students and teachers in the field on scientific research expeditions.

P

PLAY: Public expeditions

Our public expeditions are for the general community and are at the heart of Earthwatch. People from all walks of life, with no experience necessary, are immersed in field research across the globe. Experiencing a holiday like no other, people visit destinations out of bounds to the general tourist, learn from world class researchers daily and get up close and personal with all kinds of plants and animals.

BUSH BLITZ

W

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2018 saw the conclusion of eight years of Bush Blitz funding from BHP and the Australian Government, but we are extremely excited to say the program has been renewed for a further five years. Bush Blitz remains Australia's largest nature discovery project – a unique multi-million dollar partnership between the Australian Government through Parks Australia and the Australian Biological Resources Study, BHP and Earthwatch Australia. Bush Blitz aims to facilitate the discovery and documentation of species, and sharing of scientific knowledge about the biodiversity of Australia, with an enhanced focus on improved land management outcomes, innovation, public awareness of biodiversity, and environmental, social and educational outcomes for local and indigenous communities.

One Bush Blitz survey was conducted in the last financial year: **Protected areas of the Australian Capital Territory.**

This expedition brought together 25 scientists from 11 leading scientific institutions all around Australia, including five early career researchers whose participation strengthened their knowledge in the science of taxonomy; as well as land managers and representatives from Parks ACT, Birrigai Outdoor School, Australian National Botanic Gardens and Parliament House. Five teachers from various schools across Australia were also selected to attend and participate as research assistants to the Bush Blitz scientists through the TeachLive program (see p.9). The teachers documented and communicated their experience back to their students and community, and were inspired and empowered to develop environmental projects, and educate their colleagues and students about taxonomic science and Australia's precious biodiversity.

The scientists who participated in this expedition, many of whom have the support of Bush Blitz III taxonomy research grants, are continuing to research the specimens they collected. In addition to supporting ongoing investigations of the impact of Bush Blitz discoveries on science, conservation and biosecurity, the number of species identified and described is continually increasing. Several new species were discovered during Bush Blitz this year, however official numbers are yet to be confirmed. New discoveries will bring the total number of species discovered in the 9 years of the program to over 1,630.



Australian Government

Department of the Environment and Energy

BHP

"BUSH BLITZ HAS BEEN A CAREER HIGHLIGHT FOR SO MANY REASONS, NONE THE LEAST BECAUSE IT PROVIDED AN AMAZING OPPORTUNITY TO LEARN FROM EXPERTS IN THE FIELD, TO LEARN 'ON THE JOB' BY 'DOING' AND BEING FULLY IMMERSSED. YOU CANNOT GET EVEN CLOSE TO THE SAME LEVEL OF UNDERSTANDING FROM A TEACHER RESOURCE GUIDE. SECONDLY, THE PROFESSIONAL CONNECTIONS DEVELOPED HAVE BEEN FABULOUS AND IT WAS SUCH A GREAT OPPORTUNITY TO LET THEM DEVELOP NATURALLY AND AUTHENTICALLY."

~ Michelle Allen, Birrigai Outdoor School



BLUE CARBON: COUNTERACTING CLIMATE CHANGE

W

For the past seven years, Earthwatch has supported the international HSBC Water Programme which aims to provide clean water and protect water sources, inform and educate communities in need, and enable people to drive economic development across the world. This program commenced in 2012 and is set to provide US\$150 million of support to charities including Earthwatch, WaterAid and World Wildlife Fund. Under this funding scheme and scope, Earthwatch and HSBC partnered with the Blue Carbon Lab at Deakin University to address two key problems in order to protect aquatic resources particularly wetlands in Australia and New Zealand: 1) the lack of investment in protecting and restoring aquatic ecosystems and 2) the current knowledge gaps on the value of wetlands.

For a long time, wetlands have been thought of as the arm-pit of our environment, yet they play a key role that affects millions of people around the world. Wetlands provide a range of ecosystem services including coastal biodiversity, storm surge protection, nutrient run-off filtering, and habitat provisioning for wildlife thus serving as the kidneys of our planet and nurseries of our oceans. Additionally, a recent discovery found that wetlands are among the most efficient ecosystems on the planet for sequestering carbon.

Wetlands can sequester carbon 30 -40 times faster for much greater periods of time than terrestrial ecosystems (i.e. trees). Thus, degradation and loss of wetland

ecosystems releases carbon back in to the atmosphere and has a profound impact on the Earth's climate.

This project engages HSBC employees and other corporate partners to identify the most important wetlands for carbon sequestration in Melbourne, Sydney and Auckland. Citizen scientists and Deakin University researchers, led by Dr Peter Macreadie, install tea bags, collect soil and carbon cores, and measure plant morphometrics to determine how well each of the chosen wetlands store carbon.

The burial of teabags (provided in-kind by Lipton) forms part of an international initiative known as The TeaComposition H2O, which studies the long-term litter decomposition and hence the long-term carbon dynamics (i.e. carbon losses and/or preservation) as a measure of organic matter breakdown. Identifying the breakdown rate of a system is critical when establishing the capacity of an ecosystem to capture and store carbon. This research is indirectly strengthening Australia and New Zealand's capacity to withstand climate-related hazards by highlighting the need for restoration and conservation of wetlands in order to mitigate climate change.

By putting a value and price on wetland ecosystems, this project will help policy makers and government agencies justify the conservation of these systems. HSBC participants have acknowledged the importance of incorporating the value of ecosystem services into investment portfolios, accounting for risks and opportunities brought up by climate change, and steering capital into sustainable investments so that the world can move towards a low-carbon economy.



Earthwatch's education program stimulates students and teachers to further their knowledge and enthusiasm for science and research leading to greater environmental awareness and increased motivation to work to protect our precious planet for future generations.

STUDENT CHALLENGE

The Student Challenge program, generously supported by the George Alexander Foundation, allows senior high school students to take part in special student-only field research expeditions, involving them in hands-on scientific research with a genuine working field scientist. The aim is to expose interested students to real-world activities out in nature, to encourage them to pursue tertiary courses in conservation, research or environmental science, and potentially become future leaders for a sustainable planet.

The GAF funding covers the entire cost of students' participation including their travel which allows students to come from regional and rural areas or from economically disadvantaged backgrounds for a life changing experience. Students relish the chance to meet like-minded peers, often developing lasting friendships and kick-starting their university studies and future careers.

The Indigenous Student Challenge program is supported by funding from HSBC Bank Australia and QBE Insurance, enabling Earthwatch to dedicate a number of spaces on each Student Challenge expedition to Indigenous students who are keen to learn more about the land and share their own knowledge.

TEACHLIVE

TeachLive gives teachers the opportunity to teach from the field through blogs posted on teachlive.org.au, social media and Skype while they participate as research assistants on an Earthwatch or Bush Blitz expedition. TeachLive is a unique professional development opportunity for STEM and geography school teachers. By being immersed in nature while undertaking field research, they learn from world-class scientists, improve their research skills to a scientific standard, and gain knowledge about Australia's plants, animals and ecosystems. Most teachers return to their schools with a newfound enthusiasm for teaching science and sharing their new knowledge and skills with their school community.

Seven teachers from around Australia participated in *Daintree's Hidden Coastline* expedition, working along the Daintree River with a research scientist, collecting important data whilst learning all about mangroves and their environmental importance.

Further south, three teachers travelled to North Stradbroke Island in Queensland, to collect data on whales' movement, health and habitat alongside a marine scientist in Moreton Bay Marine Park for the *Healthy Humpbacks* expedition.

"TeachLive helped enthuse my students because I was there — so many students have approached to ask about the trip. They are genuinely excited by the idea of a real life adventure where science is being done."

~ Janet Price, Northgate State School



CASE STUDY: STUDENT CHALLENGE



Josiah (Joe) Buden is a senior high school student from Melbourne whose interests include environmental science, leadership and our country. His future may include secondary school teaching in the field of environmental science, however the school he currently attends doesn't offer this subject at the senior level. The Student Challenge gave him the perfect opportunity to gain exposure in a very practical way to this area of interest as well as helping him to gain a greater understanding of whether this is the direction he wants to head in.

Josiah believes that the most pressing environmental issue facing Australia is the salinity of the Murray-Darling river basin. He believes this whole region is vital to our future given that it produces one-third of the nation's food supply and that cities and towns across four states as well as 14 national parks are dependent on a healthy river system. So it has impacts across many branches of the economy and the lives of many Australians. Joe's concerns were a perfect match with the **Student Challenge Ecosystems of the Murray River and Mallee** expedition which he attended in April 2018.

Clearly it was a life changing experience for Joe.

"I want to say thank you. That experience has really redefined my relationship with the Australian environment, my sort of fundamental philosophy on it. I've realised that Australia is a nation very fundamentally rooted in our landscape, that our national soul is built on it.

That very close physical interaction and experience with the country I experienced on Earthwatch has built that within me. You are making a difference, and so from the bottom of my heart I have to say thank you, so much to everyone at Earthwatch.

That expedition has also helped me grow some of my strongest friends, however far they may be. Thank you." ~ Joe Buden



PUBLIC EXPEDITIONS

P

AUSTRALIAN EXPEDITIONS

Australia's Changing Islands, Dr Alistair Melzer
Central Queensland University, *St. Bees Island, QLD*

Daintree's Hidden Coastline, Prof Norm Duke
James Cook University, *Daintree River, QLD*

Healthy Humpbacks, Dr Olaf Meynecke
Griffith University, *North Stradbroke Island, QLD*

Project Manta, Frazer McGregor & Dr Mike van Keulen
Murdoch University, *Coral Bay, WA*

Recovery of the Great Barrier Reef, Dr David Bourne
Australian Institute of Marine Science, *Orpheus Island, QLD*

Wildlife of Australia's Rainforest, Prof Stephen Williams
James Cook University, *Wet Tropics Heritage Area, North QLD*

Student Challenge: Ecosystems of the Murray River & Mallee
Dr Peter Cale, Manager and Senior Ecologist (Riverland)
Australian Landscape Trust, *Calperum Station, SA*

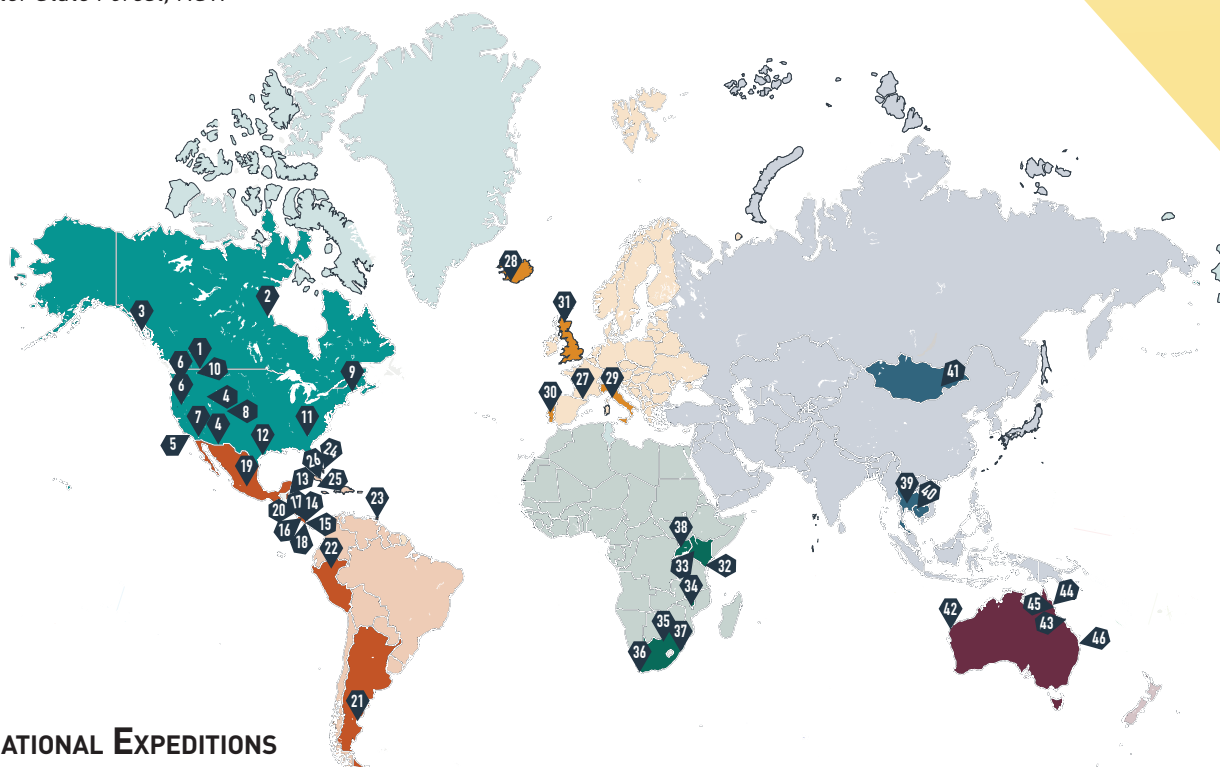
Student Challenge: Australia's Vanishing Frogs
Prof Michael Mahony, University of Newcastle
Chichester State Forest, NSW

Australian expeditions cover a diversity of important research topics allowing participants from around Australia and the world to learn about scientific field research firsthand while contributing to vital environmental understanding and inspiring positive change in all areas of their lives.

EXPEDITIONS 7

PARTICIPANTS 119

PARTICIPANT HOURS 7,140



INTERNATIONAL EXPEDITIONS

From Uganda to the Peruvian Amazon, the Caribbean to the Arctic Circle, from Italy to Iceland and Mongolia to Cuba, intrepid Australians were helping to deepen our understanding of climate change, threats to chimpanzees, the food web of Orcas, the life cycle of penguins and turtles, and many other fascinating aspects of our natural world.

Earthwatch supports environmental research on every inhabited continent across the globe. Engaging and educating the general public worldwide helps Earthwatch create and implement sustainable solutions.

INTERNATIONAL EXPEDITIONS 45

COUNTRIES 21

AUSTRALIAN PARTICIPANTS 36

TOTAL PARTICIPANTS 1,177

PARTICIPANT HOURS 111,440

ClimateWatch

an initiative of Earthwatch Institute

ClimateWatch continues to be a strong program in educating society on climate change and monitoring the seasonal changes and distributions of many plants and animals across Australia.

The program collected over 10,000 ClimateWatch records and increased by over 1,000 users in 2018, helping fill scientific knowledge gaps that will inform scientists and land managers and support policies to manage the impacts of climate change on Australia's biodiversity. Severe events such as the mass die-offs of flying-foxes in 2018 are a tell-tale reminder of the growing dangers we face from increased extreme heat events and foretells a disturbing future for our native wildlife which is why collective action is necessary.

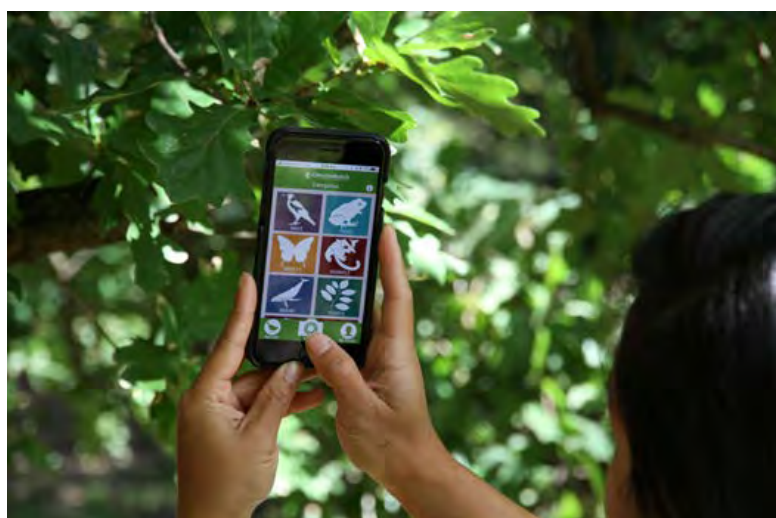
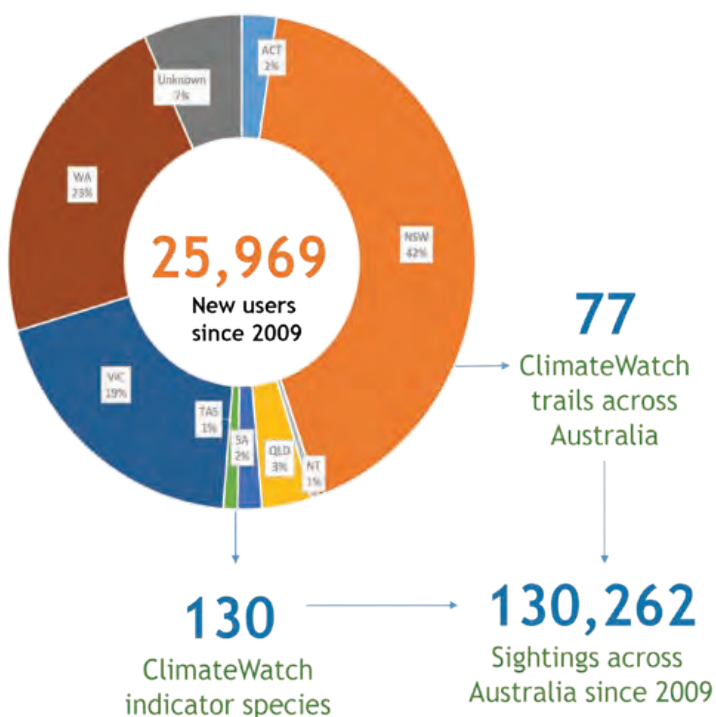
Outstanding achievements for ClimateWatch in 2018 include the delivery of 19 free secondary school curriculum resources developed in collaboration with not-for-profit curriculum developers, Cool Australia, and progress on species distribution maps for 142 ClimateWatch indicator species in collaboration with BCCVL. The lessons focus on citizen science, biodiversity and climate change, and offer teachers a great tool for introducing students to real-world biological data.

The number of ClimateWatch trails increased steadily in 2018 with the development of five trails in regional Victoria as part of the ClimateWatch in Parks partnership program with Parks Victoria: the first ClimateWatch trail for the Northern Territory in collaboration with City of Darwin, a new trail at Macquarie University developed by undergraduate students, and ClimateWatch trails for Western Sydney developed through a new partnership with the Cumberland Land Conservancy. Monitoring on ClimateWatch trails also increased in capital cities through corporate engagement activities with AMP and GSA Architects on Royal Botanic Gardens trails.

Overall, 2018 activities for the ClimateWatch program have increased data that helps address scientific knowledge gaps for Australia, provided tools for on-ground action and monitoring of native and non-native flora and fauna, delivered free educational resources for teachers and students across Australia, and increased human wellbeing by getting people outdoors to help protect the natural world we depend upon.

These accomplishments were supported by our users, ClimateWatch Science Advisory Panel, program delivery partners and funding provided by the Commonwealth Inspiring Australia Science Engagement Program, Helen Macpherson Smith Trust and the Department of Education and Training Victoria.

DOWNLOAD OUR FREE
CLIMATEWATCH APP



An Australian Government Initiative

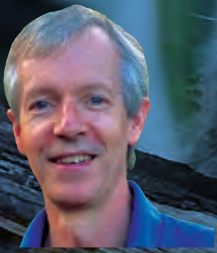
Inspiring
AUSTRALIA

Helen Macpherson Smith Trust

VICTORIA
State Government | Education and Training

3

SCIENTIFIC RESEARCH



2017-2018 OVERVIEW

The role of the Scientific Advisory Committee (SAC) is to ensure that the research undertaken by Earthwatch is of value to Australia and conforms to the highest scientific standards.

Over the past year, Earthwatch reviewed the four scientific pillars under which it conducts research. Given the pressing need to safeguard the environment, a decision was made to refocus our research themes. This has resulted in the replacement of the Archaeology and Culture pillar with a Restoring our Iconic Landscapes pillar. We believe culture should be embedded across all research projects rather than stand alone, and that all scientific projects should consider and include (where possible) the local communities and culture where they takes place.

Earthwatch's existing projects continue to research today's most pressing issues including climate change, biodiversity loss and ocean health. A great example is Recovery of the Great Barrier Reef. This project discovered the etiology and environmental drivers of Black Band Disease which is now enabling trials for a cure for the disease. In 2019, the

project will begin to target a new threat – macroalgae – and aims to develop the first scientific methodology for removal of algae from reefs to enable successful regeneration of coral.

We thank our dedicated scientists and their teams for their excellent work and for contributing to the mission of Earthwatch, to empower people to save the natural world.

I am very grateful to the steadfast members of the SAC who have provided such well-informed and enthusiastic support over the last year. I'd like to say a special thank you to Ian Lilley who stepped down from the committee at the end of 2018. We thank you for your advice and contributions over the past year. I look forward to the continuing assistance of our current members particularly with developing new initiatives and expanding our partnerships with research institutions and other citizen science organisations.

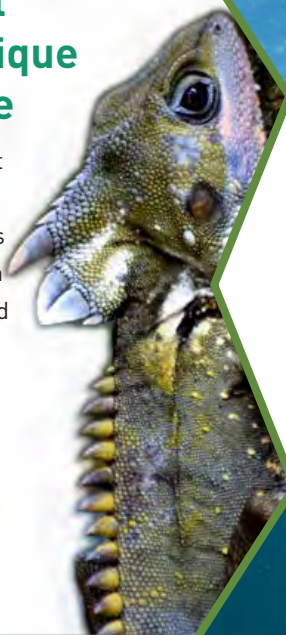
Professor Ian Woodrow
SAC Chair

PRIORITY RESEARCH AREAS



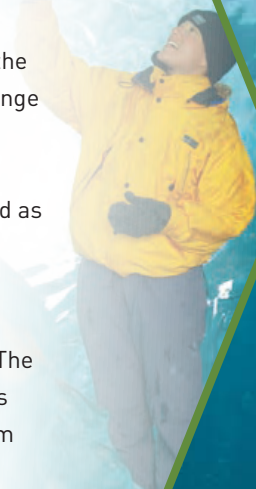
Protect our Unique Wildlife

Earthwatch strives to protect what is endemic to Australia and cherished by Australians and the global community. In 2018, Earthwatch contributed to the protection of unique wildlife by supporting the expeditions Australia's Vanishing Frogs, Healthy Humpbacks, and Wildlife of Australia's Rainforest.



Keep Ahead of Climate Change

Earthwatch is keeping ahead of the challenges posed by climate change by researching impacts to flora, fauna and how wetlands and restoration of habitat can be used as climate mitigation strategies. In 2018, Earthwatch delivered the expeditions Blue Carbon: Counteracting Climate Change, The Babinda Carbon and Reef Credits Project, and our flagship program ClimateWatch.



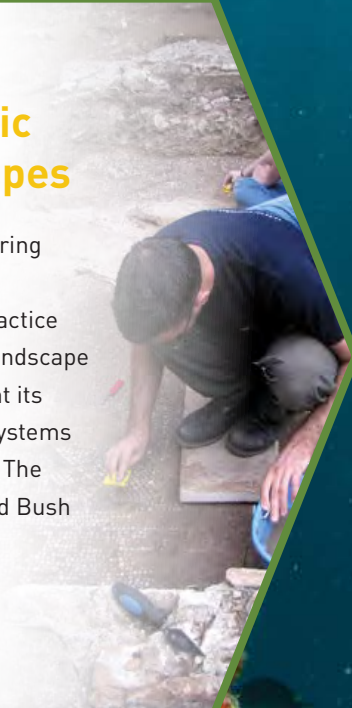
Save the Reef and Oceans

Earthwatch is actively supporting research that focuses on the conservation and restoration of oceans and reefs. In 2018, Earthwatch Australia supported the expeditions Project Manta Ningaloo Reef, Recovery of the Great Barrier Reef, and a global Marine Debris Study.



Restore our Iconic Landscapes

Earthwatch contributes to restoring iconic Australian landscapes by supporting research on best-practice restoration and monitoring of landscape change. In 2018, Earthwatch lent its support to the expeditions Ecosystems of the Murray River and Mallee, The Daintree's Hidden Coastline, and Bush Blitz.



EARTHWATCH SCIENTISTS PROFILE



PROF MICHAEL MAHONY

UNIVERSITY OF NEWCASTLE

Michael has worked with Earthwatch since 1991. He is the head of the Conservation Biology Research Group, University of Newcastle, and has supervised over 40 doctoral and honours graduates. Amphibian declines are a major concern for biodiversity internationally, and Michael was the first scientist to identify disease as the cause of extinctions in Australia, a finding subsequently confirmed worldwide. Michael advises international, national and state government agencies on conservation biology, adaptation and mitigation for threatened amphibians.



FRAZER MCGREGOR

MURDOCH UNIVERSITY

Frazer has lived and worked in tourism on the Ningaloo Reef for 19 years, showing people from around the world why Ningaloo was inscribed as a World Heritage site. Through his role as manager of the Coral Bay Research Station and his studies of manta rays within the Ningaloo ecosystem he has developed a holistic understanding of how Ningaloo functions seasonally and is working to maintain its health.

WE ASKED OUR SCIENTISTS 5 HIGH PRIORITY QUESTIONS

1

What first inspired you to pursue a career in your scientific field?

My primary inspiration was to be an excellent biology teacher, with the aim that by showing students the inner workings and wonders of the natural world, they would be motivated to protect it. This has expanded to training professional environmental scientists.

The realisation that the spectacular Ningaloo Reef could be damaged by our actions inspired me to gain a better understanding of how it functions. My first ever swim with a manta ray sealed the deal. I study its home so having the ability to protect it from numerous threats inspires me to continue.

2

What is the most pressing issue facing the environment?

Most humans do not understand that they are part of the ecosystem, and that sustainable living is the only means to long-term survival and happiness. There is an old mantra in environmental science "think globally and act locally". True appreciation only comes from understanding, and that is education.

Climate change is quite simply the most urgent. It has cascading effects that will change every ecosystem on the planet. Reducing our consumptive behaviours globally needs to happen immediately. In the meantime at a local level we need to do everything we can to help ecosystems maintain their resilience and adapt to change.

3

What keeps you motivated as an environmental scientist in this day and age?

I am fascinated by human capacity to develop innovative solutions to so many problems in our daily existence. As an evolutionary biologist, I consider that the evolution of the human brain has provided us with the tool of communication which will be needed as we face the great dilemma of survival and equitable use of limited resources.

I take the greatest reward from seeing attitudes change when people are given knowledge about or an experience with nature. To see and hear children talk about conservation of the environment with optimism provides sufficient motivation to assist them.

4

How can individuals make a positive impact?

By acting with integrity in their own lives, be that in what goods they purchase and how they use energy and other resources. Be active in environmental programs in your local community. Invest in environmental and social portfolios.

Awareness of the issues and an understanding that we all contribute to them is key to changing our behaviours and the excessive consumption of resources we simply don't need. Bypass the two dollar shop and say no to plastic packaging!

5

What do you most want to achieve with your current Earthwatch program?

Exposing volunteers to the practice of field ecology and the quest for sustainable development. By appreciating that an animal that is rapidly declining towards extinction has the same deep ancestry as all life on earth, including humankind, and has every right to a secure future.

An increase in sanctuary zones within Ningaloo Marine Park to incorporate habitats critical to local Manta Ray populations and a formal set of interaction rules. Both will assist this key species to remain resilient in light of climate change pressures.

SUSTAINABLE DEVELOPMENT GOALS

The 2030 Agenda for Sustainable Development was agreed upon by 193 member countries of the United Nations, including Australia, in September 2015. It consists of 17 Sustainable Development Goals (SDGs) that form a roadmap for global development and prosperity by governments, business, and individuals by 2030. Earthwatch is committed to aligning our scientific background and experience to help hit these targets.

3 GOOD HEALTH AND WELL-BEING



Our ClimateWatch program promotes good health and wellbeing by encouraging people to get out in nature (p.12).

Other programs that align with this SDG: *Turning the Tide on Plastic Pollution in Bali* expedition

Our corporate programs have resulted in a number of organisations improving their environmental and corporate sustainability.

Examples: Amcor case study (p.22), Blue Carbon research project (p. 14), *Turning the Tide on Plastic Pollution in Bali* expedition

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



4 QUALITY EDUCATION



We work with teachers and students to help deepen learning about the environment through our various expeditions and programs such as the Student Challenge, ClimateWatch, and BushBlitz (pp.7,9,12)

Our ClimateWatch program collects data that helps scientists understand how climate change is impacting our flora and fauna.

Other programs that align with this SDG: *Recovery of the Great Barrier Reef* expedition, *Climate Change and Thailand's Biodiversity Hotspots* expedition, Blue Carbon research project

13 CLIMATE ACTION



6 CLEAN WATER AND SANITATION



Our Blue Carbon research project focuses on the protection and restoration of wetlands which are important for water security (p. 14).



OF CITIZENS BELIEVE IT IS IMPORTANT FOR BUSINESSES TO SIGN UP TO THE SDGs

(PWC SURVEY 2015)

14 LIFE BELOW WATER



The participants on our expeditions help collect scientific data that is utilised in the management of marine and coastal ecosystems in order to help conserve them for the future.

Programs that align with this SDG: *Recovery of the Great Barrier Reef* expedition, *Daintree's Hidden Coastline* expedition, *Project Manta Ningaloo Reef* expedition, Amcor case study (p.22)

11 SUSTAINABLE CITIES AND COMMUNITIES



Earthwatch Australia supports sustainable living. We are located in the 60L Green Building which is a commercially-viable, healthy, low energy, resource-efficient workplace with minimal impact on the environment

The participants on our expeditions help collect scientific data that is utilised to help reduce the loss of natural habitats and biodiversity.

Programs that align with this SDG: *Ecosystems of the Murray and Mallee* student challenge, *Australia's Vanishing Frogs* expedition, *Daintree's Hidden Coastline* expedition, *Climate Change and Thailand's Biodiversity Hotspots* expedition

15 LIFE ON LAND



PROJECT IMPACTS & RESEARCH PARTNERS

BLUE CARBON RESEARCH

It's only early days for this project, but the Blue Carbon project is tackling seven research questions including the social impact of the project and its ability to change behaviour towards wetlands. To date:

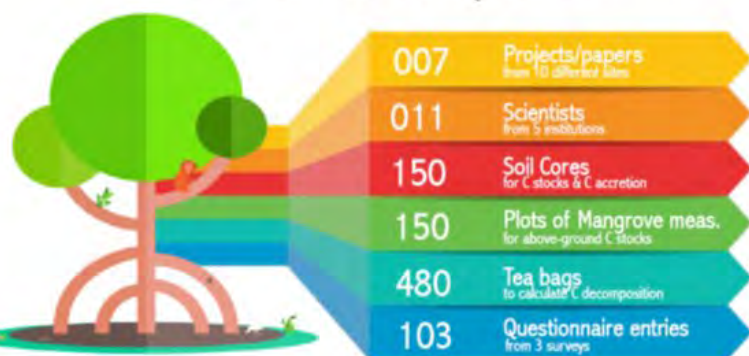
96 participants have partaken in field expeditions, **50%** of whom had never visited a wetland.

97% have reported an increase in knowledge and awareness.

SATISFACTION SCORE



research impact



BUSH BLITZ

On the scientific front, Bush Blitz remains the largest species discovery project in Australia and has now discovered over 1,631 new species. Bush Blitz has undertaken 22 expeditions to 44 reserves, which together cover approximately five million hectares of land and almost a million square kilometres of sea, making a major contribution to the understanding and conservation of Australia's biodiversity.

An external review of the program was conducted to establish the effectiveness of Bush Blitz in regards to non-scientific outcomes. 190 people were surveyed, 105 completed surveys. Results indicated:

- 83% consider it extremely or very effective as a learning and development opportunity
- Personal re-ignition of enthusiasm has been carried through to an increase in conservation activities and wider communication
- On average, each participant considered 237 people have directly or indirectly learned about their Bush Blitz experience so at least 38,000 people outside the program would have been reached just by the participants
- 71% say there has been a positive change in their work that they link with their Bush Blitz experience
- Over 83% of participants said it was a very to extremely effective learning and development opportunity

Project	Research Partners
Australia's Changing Islands	Central Queensland University
Australia's Vanishing Frogs	University of Newcastle
Blue Carbon: Counteracting Climate Change	Deakin University's Blue Carbon Lab
Bush Blitz	Australian Biological Resources Study (ABRS)
ClimateWatch	University of Melbourne, University of Western Australia, Monash University, University of Sydney, University of South Australia, Illawarra Environmental Education Centre, Royal Botanic Gardens Victoria, The Atlas of Living Australia, Biodiversity and Climate Change Virtual Laboratory
Daintree's Hidden Coastline	James Cook University, MangroveWatch
Ecosystem Services of the Murray River and Mallee	Australian Landscape Trust
Healthy Humpbacks	Griffith University
Project Manta Ningaloo Reef	Murdoch University
The Little Things Matter	RMIT University
The Babinda Carbon and Reef Credit Program	Jaragun Natural Resource Management Green Collar
Where Two Oceans Meet: Investigating Marine Debris in South Africa	CSIRO
Wildlife of Australia's Rainforest	James Cook University

4 SUPPORTERS & DONORS

Every year our fundraising efforts are supported by a very special group of regular givers, who generously donate their chosen amount every month. This kind of enduring support enables Earthwatch to invest in a sustainable future for the organisation as well as for our precious planet.

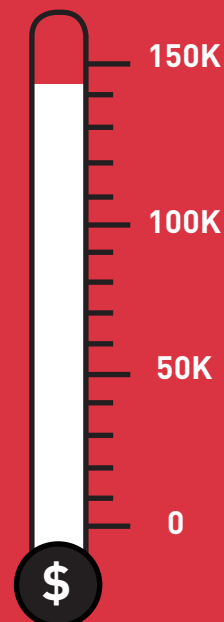
Earthwatch fundraising campaigns in 2018 included our traditional annual appeal at the end of the financial year and an end of year Christmas appeal. With your support we raised \$38,856 enabling us to enhance our environmental science and wildlife conservation efforts, and expand our citizen science, education and marine debris programs.

Edge Pledge continues to be a fun way for supporters to get involved and raise funds for our research projects

on threatened species. This year through this platform we raised \$11,754.

A healthy environment is what supports livelihoods and life in general. Hence any work that Earthwatch undertakes not only benefits the natural world, but also the communities which rely on it. The generous support of our donors has had and continues to have significant social and environmental outcomes.

.....
TOTAL FUNDS RAISED:
\$146,946
.....



All donations above \$2 are tax-deductible



SUPPORTER PROFILE: HELEN MUELLER



I am a printmaker and a paddler. I paddle the waterways of Sydney and have long been fascinated by the mangrove creeks I encounter there, so much so that I decided mangroves would be the subject of a new body of work.

In searching for information about mangroves, I came across an excellent opportunity to take a trip with Earthwatch on Daintree's Hidden Coastline. Participants on this expedition were sought to assist with shoreline condition assessment and surveying blue carbon budgeting of a tropical mangrove forest. What better way to learn about mangroves than to participate in a scientific project! So I eagerly joined Jock Mackenzie from James Cook University, two young science teachers from Tasmania and Western Australia and Sandra McCullough from Earthwatch on a seven-day expedition that truly hit the mark for me.

Jock gave us a thorough introduction to mangrove species, their tidal wetland habitat, their vulnerabilities and threats, and was generous throughout the trip with information and answers to endless questions. We ventured into an environment humans don't usually go to. We waded through mud, climbed over and ducked under buttress roots, swatted mosquitos and sandflies, and tried to avoid honey ant nests. We searched for tags swinging from trunks, measured circumferences, heights, identified species and assessed conditions. Finding our trees was not always easy, some of them having been felled by cyclones and rotted in the mud. For those, all that was left were their semi-buried tags. The more challenging the conditions, the more engrossed we became and the more we seemed to revel in our tasks. There was so much to see and discover: tiny crabs clearing the leaf debris, spider webs glistening in the sparse rays of sun, rare blooms, the play of light and shade, a myriad of shapes, the patterning of bark and roots....

It would be easy to dismiss this environment as too uncomfortable. This would be to overlook the majesty of these forests and the mystery of survival in what to most other trees would be hostile conditions, not to mention the critical functions of this ecosystem. I returned enthused and inspired to my studio, my aim to capture in print this majesty and mystery, the density and darkness, the play of light, growth and decay, the threatened nature of this fragile environment. Much has come off my printing press since returning.

This Earthwatch expedition was incredibly inspiring and insightful and ticked all the boxes for my favourite pursuits in life. I wonder what my next Earthwatch adventure will be?

~ Helen Mueller



Work in Progress © Helen Mueller



Remembering the Fallen © Helen Mueller

5 BUSINESS PARTNERSHIPS

WHEN TAILORED TO A COMPANY'S CORE ACTIVITIES, CITIZEN SCIENCE CAN HAVE POWERFUL IMPACTS THAT BENEFIT THE COMPANY AND BROADER ENVIRONMENT

NO COMPANY CAN CREATE SOUND POLICIES OR FRAMEWORKS WITHOUT STRONG SCIENTIFIC FACTS.

Earthwatch is uniquely placed to support businesses with their sustainability and corporate social responsibility strategies. As businesses adopt more-innovative approaches to support sustainable development the input of their own staff to create environmental solutions is becoming even more important.

Our approach engages employees and other stakeholders in interdisciplinary research programs that reach across many of the Sustainable Development Goals. This people-powered tactic inspires action and connects employees to business sustainability objectives, whilst also increasing the scientific community's capacity to build valuable data sets rapidly. Data is used to inform appropriate policy, innovate product design and manufacturing, and drive more sustainable practices.

When tailored to a company's core activities, citizen science can have powerful impacts that benefit the company and broader environment including the:

- provision of evidence required to shape policy and practices;
- improvement of employee environmental and scientific literacy leading to more informed decision making; and
- empowerment of individuals to create positive change.

It is a win-win for companies and the environment.



Australian Government
Department of the Environment and Energy



PARTNER PROFILE



Marine debris is quickly becoming one of the most pressing environmental challenges our oceans face, and the sources and causes are multi-faceted. This means that the challenge will only be countered with a diverse range of ideas and solutions coming from equally diverse people.

For 17 years now, Amcor has chosen to partner with Earthwatch Institute to promote sustainability and environmental stewardship. Each year, 15 Amcor employees are selected to participate in Earthwatch's marine debris learning expedition, giving them an opportunity to learn as citizen scientists and take their knowledge back to the workplace to continually improve Amcor's sustainability practices. The Amcor fellows learn the field science behind marine debris studies, as well as the social, economic and cultural factors that contribute to the issue.

In October 2017, 15 Amcor fellows from all over the globe landed in Cape Town, South Africa to participate in the annual marine debris expedition, which contributed to the CSIRO global marine debris study currently underway. Other research has already shown that most marine debris begins on land as waste that was not properly disposed of, and the current study is focusing on how that waste is making its way to the oceans.

CASE STUDY: AMCOR

The team of Amcor fellows - led by Earthwatch staff and CSIRO Oceans and Atmosphere Unit researchers, Dr Chris Wilcox and TJ Lawson - covered 350 km of coastline over 10 days, and conducted 215 individual surveys at 65 different sites. The group took a tour of a South African manual recovery facility (where recyclables are sorted and packed) and to a local recycler turning waste plastics back into bags. They also received informative presentations and lectures on a variety of subjects, such as marine pollution and seabirds, and transforming waste plastics into housing material for people in poverty.

The Amcor fellows' participation in the expedition strengthens their environmental literacy, as well as giving them insight to the challenges and solutions to marine debris. Armed with this new information, the fellows return home ready to make improvements in their homes, their communities, and ultimately, their workplace.

Early results of CSIRO research suggest that marine debris (deposited to the ocean from a land-based source such as a large urban metropolis) tends to remain close to its source, so preventative measures are within reach of good waste management practices on land.

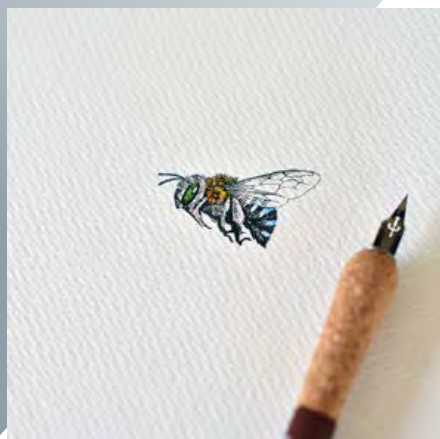
"I now know that local recycling facilities and infrastructure have a massive impact on how we manage our waste and where it could end up. I understand, more than ever, the importance of recycling properly and verifying that our local plant aligns with Amcor's sustainability commitment. I've identified gaps and I'm working to correct them by educating my co-workers and ensuring the recycling process is established, developed as needed, and being followed within my facility." ~ **Brooke Higgenbotham**

Amcor Warehouse Supervisor & Earthwatch Fellow



PARTNER PROFILE

MARINI FERLAZZO



MARINI FERLAZZO®

ART FOR WILDLIFE

Marini Ferlazzo is a family-owned business based in Melbourne, Australia that works alongside not-for-profit organisations to support wildlife conservation around the world.

Marini Ferlazzo's founder and artist, Nathan Ferlazzo, shares his love of nature and wildlife through his intricate pen and ink illustrations. We have been lucky enough to have Nathan apply his undeniably powerful talent to showcase some of the species Earthwatch works on.

In 2018 these include:

- Southern Corroboree Frog
- Reef Manta
- Peacock
- Blue-banded Bee
- Giant Dragonfly
- Rusty Patched Bumble Bee

Nathan's limited edition artworks form a range of products that provide organisations with a unique way to fundraise while engaging a larger audience.

Marini Ferlazzo collections can be found in over 200 stores across Australia, New Zealand, UK, Germany and the United States. Earthwatch receives a percentage of profits from any purchase from the Earthwatch range at mariniferlazzo.com.au

"We are always looking to work alongside organisations that are making a real difference on the ground — this is what drew us to Earthwatch Institute."

~ **Nathan Ferlazzo**



DAINTREE ECOLODGE & SPA



In 2018, the Daintree Eco Lodge has generously supported scientific expeditions undertaking research on the health of the Daintree River ecosystem, the most biodiverse mangrove region in the world. Mangroves are some of the most productive ecosystems on Earth, sequestering vast amounts of carbon each year making them a key player in our fight against climate change. They provide habitat and nursery grounds to countless species of commercially-important fish, both for tourism on the Great Barrier Reef, and as fisheries products. This diverse system provides habitat for rare bird and reptile species, drawing tourism dollars from around the world.

Furthermore, they act like kidneys of the Earth, trapping sediment and pollutants running off from the land, playing a significant role in protecting seagrass beds and the Great Barrier Reef from nutrient overloads. They also protect shoreline erosion, acting as a natural barrier to storms and other natural disasters, such as floods, cyclones and tsunamis.

The Daintree Eco Lodge has enabled Earthwatch, in collaboration with MangroveWatch, to take citizen scientists into the field and gather data that will help us understand the carbon value of mangrove ecosystems and the ongoing health of this iconic region.

PARTNER PROFILE

mitsubishi corporation

For seven years, Earthwatch Australia has partnered with Mitsubishi Corporation to undertake critical research with scientists from James Cook University and Australian Institute of Marine Science on the *Recovery of the Great Barrier Reef* project. The aim was to document the recovery of an inshore reef following a major disturbance - severe tropical cyclone Yasi. The project has provided an opportunity to understand the fine scale processes involved in the recovery of coral reefs, providing insights into the dynamics of coral demography that are essential for determining coral reef resilience following major coral loss.

In addition, the underlying environmental and microbial drivers of disease outbreaks within coral populations, has been revealed. Results from this project have been used in the Australian Government's 'Coral Disease Response Plan' administered by the Marine Park Authority.

As part of the project, Mitsubishi Corporation also recruits employee volunteers, in a program designed to deepen their understanding of environmental issues and use this new knowledge both personally and professionally.

We look forward to the continued partnership between Earthwatch Australia and Mitsubishi Corporation to generate social, economic and environmental value to society.

"To see is to believe. I am now more aware of the importance of marine ecosystem and the critical role of corals. I work in the resource sector and I am very keen on sustainability issues. How to balance between economic growth and environment is an inevitable theme for each organisation. Whenever we have an opportunity to address some sustainability topics, experience through this expedition helps me a lot."

~ Participant 2018



FRANK GREEN

Do your bit and reduce single use plastics by purchasing a reusable water bottle or cup for those beverages you consume every day.

\$1.50 will go to Earthwatch Australia with every purchase of a Frank Green product. Contact Earthwatch for your discount code to purchase online.

For Earthwatch partners, contact us to receive a special discount if you buy in bulk or to get a discount for your staff.



PARTNER PROFILE

Celebrating 10 years

This year we proudly celebrated a decade long partnership with Brother International (Australia). Aligning common goals in 2008, we began working together to build a society where sustainable development can be achieved. Brother's support has facilitated critical conservation efforts focused on Climate Change and Sustainable Resource Management, in particular in ocean research. Project Manta was kick-started through this partnership with the purchase of a research vessel which led to eight years of research expeditions on Lady Elliot Island. With Brother's support Project Manta was the recipient of two Australian Research Council linkage grants and the data collected from the project contributed to policy change that now sees manta rays fully protected in Australian Waters under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

Other research projects which Brother has supported include:

- Bandicoots on the Brink, NSW
- Bushwalks for Healthy Habitats, NSW
- Echidnas & Goannas, SA
- Freshwater Management – An introduction to Natural Capital, NSW
- Sydney's Hidden Mammals, NSW
- Sydney's Tropical Damsels & Surgeons, NSW
- The Little Things That Matter, VIC & QLD
- Turtles in Trouble, QLD
- Turtles on the Move, VIC

BROTHER

.....

Core to the partnership, beyond the science, is providing opportunities for staff to engage in the research projects. Brother recognises the significant benefit of staff being directly involved in environmental issues rather than just to follow policy and we look forward to continuing to provide invaluable educational experiences for their staff and customers for many years to come.

"Brother is proud to acknowledge and celebrate its 10-year partnership with Earthwatch. I believe the key to this partnership's success is establishing mutual value. Not only does the partnership give us an opportunity to support Earthwatch's valuable manta ray research, but it also allows our staff and other stakeholders to get involved and participate in hands-on field projects. This type of engagement is priceless. For me personally, it is a rewarding experience to participate in the various 'Scientist For a Day' projects around Australia, and witness the positive effects and outcomes from our employees being directly involved and assisting in the field."

A decade of mutual support has seen over half a million dollars donated in support of Project Manta and Earthwatch Scientist for a Day projects; the production of two documentaries ('Turtles in Trouble' QLD, 2010 and 'Project Manta' WA, 2016); and over 100 Brother staff participating in critical environmental research expeditions across our great nation.

We look forward to another 10+ years – working with you for a better environment."

~ Alex Rodriguez, Corporate Social Responsibility and Compliance Manager, Brother International Australia

brother
at your side





A healthy future planet, together

Proudly supporting Earthwatch and the Babinda Reef Project.

6

COMMITTEE MEMBERS

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Prof Ian Woodrow
Appointed: December 2013



Kerrie Lavey
Appointed: March 2016



Peter Cochrane
Appointed: May 2017



Debbie Spring
Appointed: February 2018



Chris Schultz
Appointed: January 2011



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Shamal Dass
Appointed: June 2018

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Design: Kate Sasser

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