EARTHWATCH® INSTITUTE

2019 ANNUAL REPORT

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From The CEO & Chair

The urgency to ACT rather than talk is upon us. Environmental challenges continue to grow, yet our efforts to combat them are still thwarted by limited knowledge, apathy and an uncoordinated effort.

In a social media driven society riddled with fake news, enabling people to experience first-hand how science contributes to finding solutions to the global issues we face is becoming ever more necessary. Building trust in science and ensuring government, business and individuals can relate to this, so it drives our decisions and behaviour, is core to what we do.

In 2019, Earthwatch had the biggest impact we have ever had. We continued to focus on key environmental topics including waste management and climate change, initiating two new significant research projects. We launched a plastics circular economy project in Bali, Indonesia with new partners TJX, Plastic Collective, Sea Communities and Southern Cross University. This innovative project focuses not only on environmental benefits, but also social and economic benefits for small scale village communities and provides a critical pilot for replicating across other regions.

A multi-year wetlands project traversing the Queensland coast was also developed to accelerate our understanding of blue carbon and the role wetlands play in mitigating climate change now and into the future. This exciting project initiated a new partnership with Mitsubishi Development Pty Ltd, MangroveWatch and the Great Barrier Reef Foundation.We also welcomed new partner QBE on board. Eight staff were selected from QBE's global operations to participate in climate-focused Earthwatch expeditions across the world, upskilling these individuals in climate science literacy relevant to the growing risk the insurance industry faces.

Despite these impacts, the challenges are only getting bigger. Earthwatch continues to play a pivotal role in engaging Australians in relevant science driven experiential learning programs and catalysing behaviour change within society towards a sustainable future. It's thanks to the ongoing support of donors, partners and expedition participants that we are able to continue our important work and from the Board and the Earthwatch team we thank you sincerely for your contributions and continuing belief in our mission. We would also like to personally thank Chris Schultz for his nine-year tenure of serving Earthwatch. His commitment to our cause and passion for the environment and education has been unwavering. As a highly valued member of the Board, he will be missed. Additionally, we thank former Chair Megan Flynn for her outstanding leadership over the past year. Megan has taken maternity leave from early September and we wish her all the best until her return.

It's with great pleasure we welcome Emily Gerrard and Andrew Thomson to the Board, who bring legal expertise and a wealth of native title, renewable energy and climate change experience. Earthwatch looks forward to harnessing their new energy and vision to excel our impact in the years ahead.

Cassandra Nichols, Chief Executive Officer
Mathew Nelson, Interim Chair

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

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.

Our Mission

To empower people to save the natural world.

Who We Are

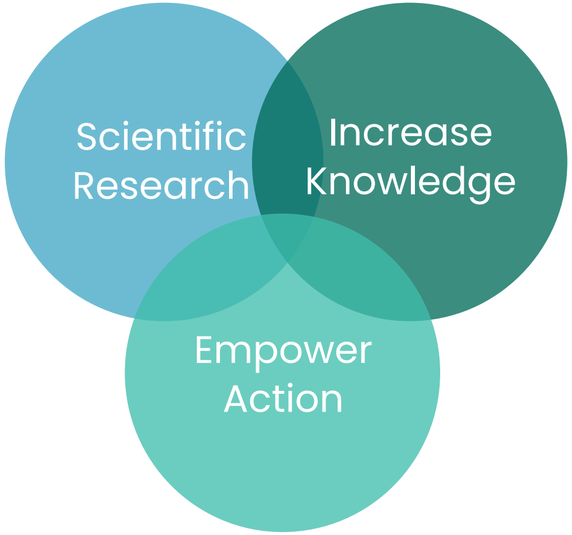
Working in partnership across all sectors including academia, government, corporate, NGO and civil society, Earthwatch utilizes citizen science programs to create long-term behaviour change. Citizen science is a sophisticated tool with multiple benefits including:

1) increasing capacity to undertake scientific research that informs policy and management strategy

2) educates and increases scientific and environmental literacy within society, so more informed decisions are made

3) empowers people and business to take positive action toward the environment.

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



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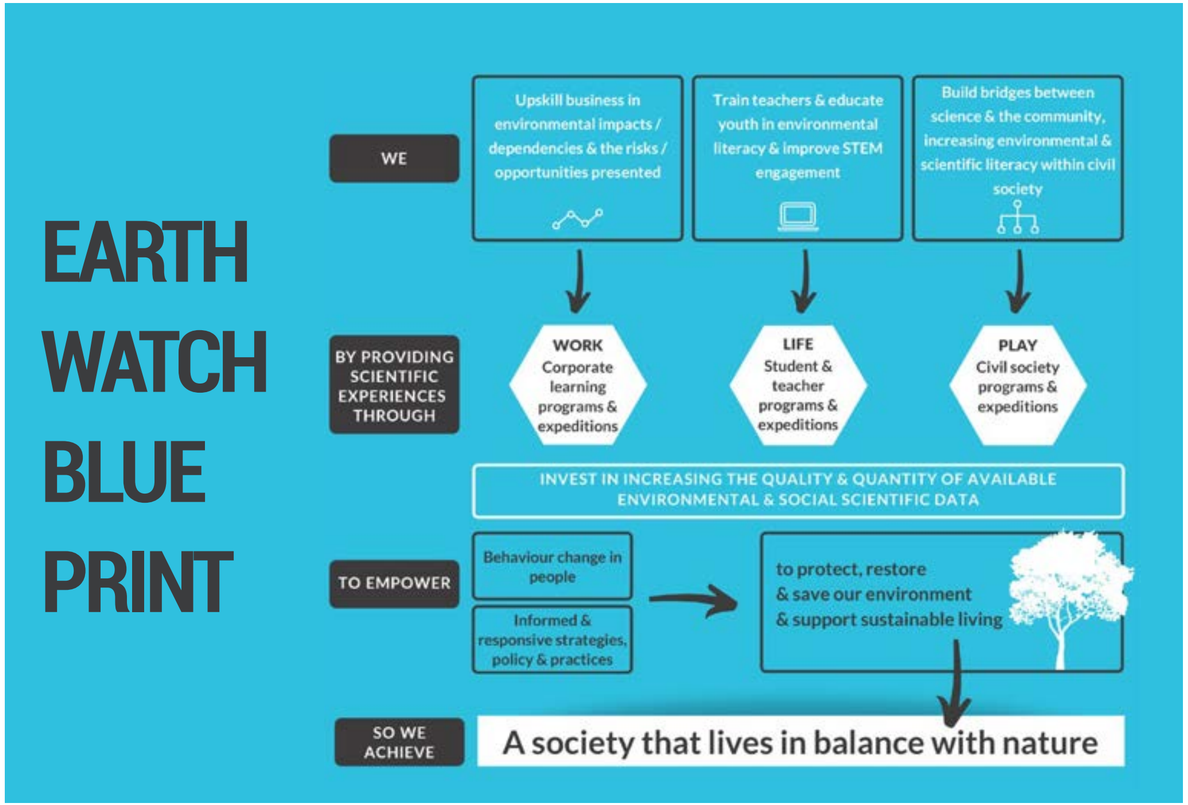


What We Do

We provide experiential learning experiences by engaging people directly in real world research activities through their Work, Life and Play. Programs may range from one day to two weeks and we have catered for all aspects of life.

WORK | Corporate programs

Our corporate programs support companies to communicate and embed sustainability strategies and meet Sustainable Development Goals. Using a flexible model we co-create employee and stakeholder engagement programs to upskill companies in environmental impacts and dependencies, and the risks and opportunities presented.

LIFE | Education programs

Our education programs train teachers and educate youth in environmental literacy and improve STEM engagement. We facilitate teacher training workshops on citizen science and take both students and teachers in the field on scientific research expeditions.
By transcending learning beyond classroom walls, we equip the next generation of leaders with the skills and knowledge needed to innovate and adapt to real world problems.

PLAY | Public programs

Our public expeditions are for the general community and are where it all began for Earthwatch. People from all walks of life, with no experience necessary, are immersed in field research across the globe helping to bridge the gap between science understanding and the community. Travelling for purpose, 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 unusual plants and animals.

Bush Blitz: A nature discovery project

Bush Blitz is Australia's largest nature discovery project – an ambitious partnership between the Australian Government, BHP and Earthwatch Australia. The ultimate goal of the project is to protect Australia's biodiversity and build resilience in our landscapes by connecting specialist taxonomists, indigenous communities, rangers, landholders, teachers, students and BHP employees.

Together we are making an extraordinary contribution to the protection and understanding of our country's natural heritage.

Since 2010, over 40 Bush Blitzes have discovered more than 1700 new species, uncovered new locations of threatened species, found species thought to be extinct, recorded range extensions of many species, and increased knowledge of pest and weed species. Individuals and industries across Australia are inspired to share their transformative experiences within their communities empowering others to save the natural world.

The magnificent Cape Range National Park in Western Australia was the site of our first Bush Blitz in 2019. Eight BHP employees from all over Australia became research assistants for the week to help scientists collect, classify and record a range of species in the area.

Post-expedition, employees are asked to use their experience to transform aspects of their everyday lives to make a positive difference to the environment and those around them.

One BHP employee championed a waste management program on his remote work site, where most single-use plastics have been replaced by re-usable alternatives.

On the other side of the country, Bush Blitz TeachLive took five Australian teachers to Little Desert National Park in Victoria to work alongside taxonomists while Spring flourished and species abounded.

This unique professional development opportunity is designed to upskill and motivate teachers to inspire their students in STEM by sharing their experience live through storytelling blogs and video calls.

Teachers are encouraged and supported to develop biodiversity projects or engagement activities back at their schools. A TeachLive alumni has gone on to hold her own school bio-blitz, integrating primary and secondary students, as well as working with us to develop a ClimateWatch trail in her local area.

A recent innovation to the program is the Bush Blitz TeachLive Adventure Portal. Bush Blitz aims to teach and inspire

students through discovery of Australia's unique biodiversity, including the amazing plants and animals uncovered during expeditions to some of Australia's wildest and most remote locations

Open to all Australian schools, this online video conference connects Bush Blitz scientists live in the field to students for a Q&A session.

In 2019, 225 students participated in the Adventure Portal experience.

earthwatch.org.au/bush-blitz
earthwatch.org.au/teachlive-expeditions

Australian Government
Department of the Environment and Energy

BHP

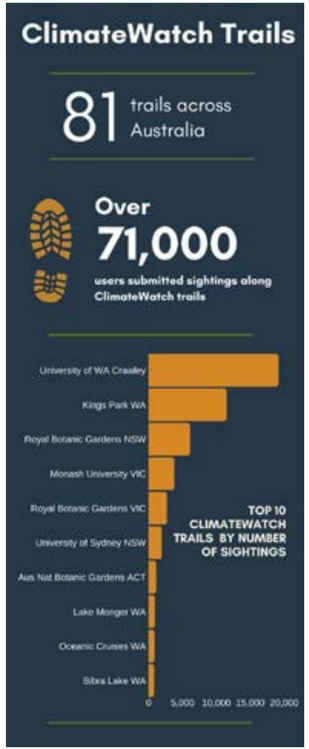
ClimateWatch: 10 years of Climate Action

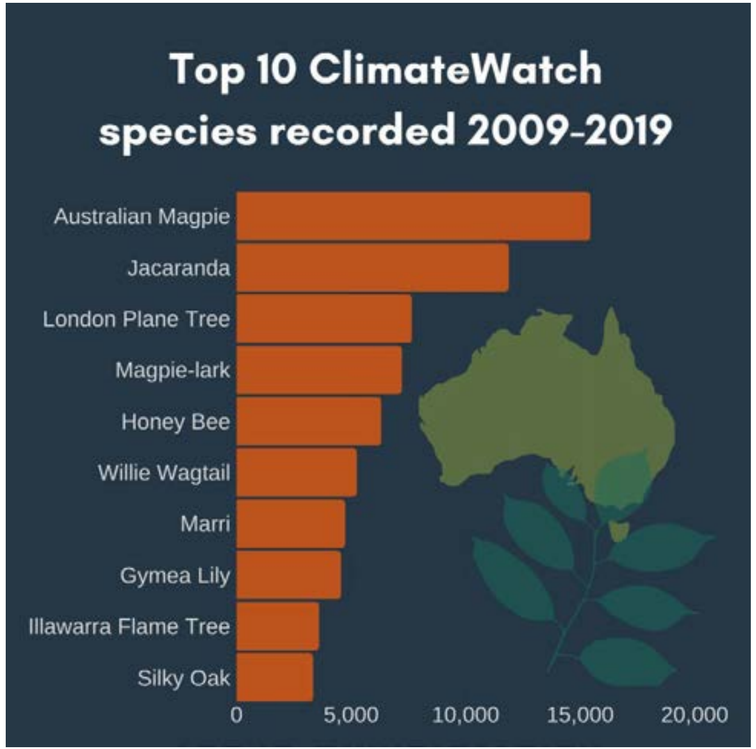
ClimateWatch
an initiative of Earthwatch Institute

ClimateWatch is the collaborative brainchild of Earthwatch, the Bureau of Meteorology and The University of Melbourne. Celebrating a decade of climate science and action in 2019, ClimateWatch is available to every Australian to help shape the country's response to climate change.

ClimateWatch aims to understand how changes in temperature and rainfall are affecting the seasonal behaviour of Australia's plants and animals by monitoring shifts in flowering times, breeding cycles, migration movement, and other phenological changes. These changes in phenology have the potential to disrupt ecosystems and affect predator-prey relationships, food webs and competition of resources.

ClimateWatchers have been gathering the long-term data required to research the impacts of climate change for over 10 years.





ClimateWatch continues to be Australia's leading citizen science phenology network with over 28,000 registered users thanks to our free mobile app, developed in 2009, and ongoing partnerships with Universities, Botanic Gardens and Parks.

The more often sightings are submitted, the better understanding we will gain of how species are responding to climate change.

Citizen-science curriculum lessons, created in collaboration with Cool Australia and mapped to the Australian Curriculum, are freely available for anyone to engage young Australians in citizen science through ClimateWatch.

The lessons make topics such as phenology, biodiversity, climate change and food webs easy and accessible for students and teachers alike.

In 2019, ClimateWatch worked with the Biodiversity and Climate Change Virtual Laboratory (BCCVL) to create maps for current, future and range-change-predicted habitat suitability of 141 terrestrial ClimateWatch species thanks to over 130,000 sightings submitted by ClimateWatchers over the last decade (See next page). All maps are available at climatewatch.org.au/species.

In addition, regular monitoring on ClimateWatch trails has revealed phenological changes in species already. For example, volunteer guides at Royal Botanic Gardens in Melbourne have recorded earlier flowering behaviour of Jacaranda following periods of record-breaking temperature.

Over the past 10 years, ClimateWatch has attracted generous support from industry, government, private trusts and everyday Australians.

Partnerships are key to the success of the program and ultimately to creating a society that lives in balance with nature.

Please get in touch with us if you would like to partner and act on climate change.

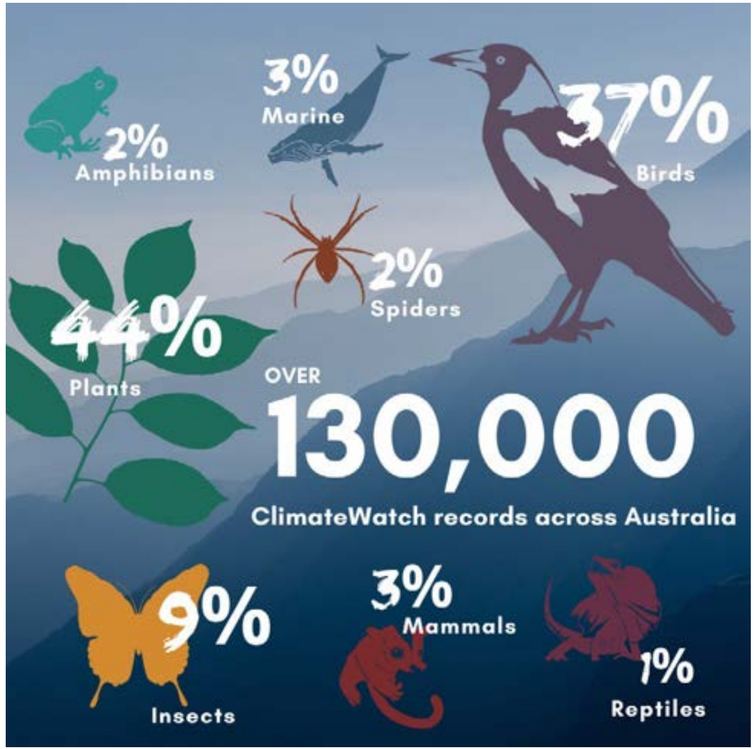
earthwatch.org.au/climatewatch

Helen Macpherson Smith Trust

An Australian Government Initiative

Inspiring

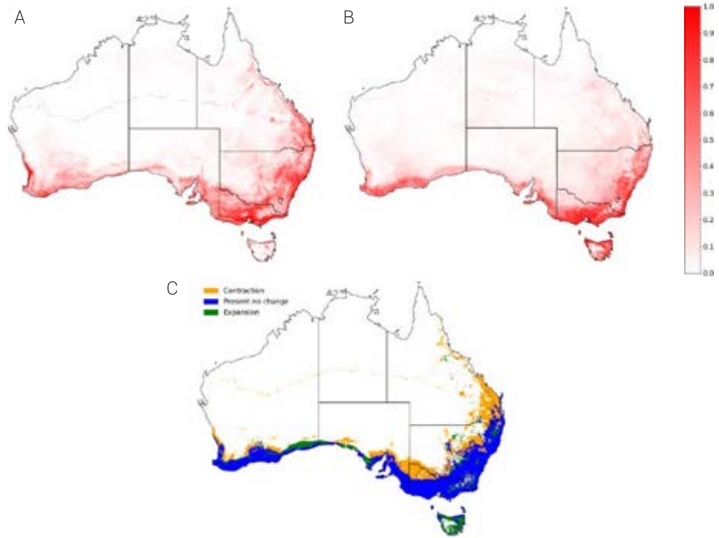
VICTORIA State Government | Education and Training



Species Distribution Model: Australian Magpie

Maps A and B show the modelled habitat suitability for the species under current and potential future (year 2070; RCP 8.5 'business as usual' scenario) climate conditions. The colours indicate the predicted habitat suitability from low (white) to high (dark red).

Map C shows how the range of the species might change between now and 2070, with orange areas indicating where the species might disappear, green areas where the species range might expand, and blue areas where the habitat is predicted to be suitable for the species now and in the future.



Education

Protecting Wetlands for the Future

2019 marked the year Earthwatch launched an innovative program to bring mangrove and saltmarsh education and monitoring to teachers along the Queensland coast in four specialised workshops in Cairns, Mackay, North Keppel Island, and Gladstone, all delivered by our in-house MangroveWatch team.

Teachers learned about the importance of wetland ecosystems. Traditionally undervalued, wetlands such as salt marsh and mangrove forests contribute to healthy reefs (particularly the Great Barrier Reef) through protecting the coast from erosion, enhancing water quality by filtering, providing habitat for fish nurseries and many wildlife species, and sequestering vast amounts of carbon.

Teachers were instructed on how to monitor and measure mangroves and saltmarsh in the field. This crucial data will contribute to strengthened coastal management plans that improve the health of the Great Barrier Reef. In addition to the workshops, Earthwatch provided teachers with newly developed wetland-specific curriculum resources created with Cool Australia.

Protecting Wetlands for the Future is funded by the partnership between the Australian Government's Reef Trust and the Great Barrier Reef Foundation.

Australian Government | Reef Trust | Great Barrier Reef Foundation

Student Challenge

The Student Challenge program gives senior high school students the chance to experience life as field scientist for a week and make a real world contribution to scientific research. The program aims to cement enthusiasm for STEM subjects to encourage students to consider tertiary courses and careers in conservation, research or environmental science.

The George Alexander Foundation generously funds all costs of student participation, including travel to and from the field site, enabling students from all over Australia to participate. Additional funding from HSBC Bank Australia allows Earthwatch to dedicate a number of spaces on each team to Indigenous students.

In total 33 students from 28 different schools took part in the program in 2019.

Students come away from their experience with a new understanding of Australia's fragile ecosystems and iconic landscapes as well as an appreciation of the enormous effort that goes into collecting the substantial amounts of data required for a scientific understanding of the natural world.

The hands-on fieldwork gives students the opportunity to see their impact directly and make lifelong connections with other action-oriented students whilst having their study and career questions answered by experts.

earthwatch.org.au/student-challenge

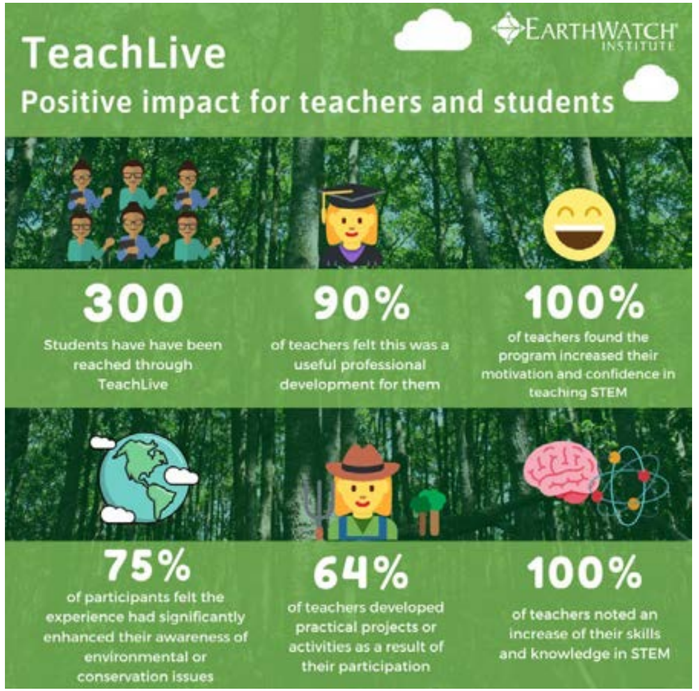
TeachLive

TeachLive has continued to provide immersive, science-based experiences in remote and wild locations all over Australia to upskill and motivate STEM and geography teachers.

Teachers communicate their time spent as research assistants via live video calls to their class as well as sharing their stories on the Earthwatch Teacher Blog. This unique method of teaching has motivated students to increase their engagement with STEM and geography subjects.

In 2019, 11 teachers from around Australia participated in Protecting the Reef's Coastal Frontier over four expeditions to the Daintree and the Mackay region, helping to collect data to assess the condition of mangrove forests, learn about their ecological significance and their incredible ability to store large amounts of blue carbon.

earthwatch.org.au/about-teachlive



Student Testimonial: Elina Katsikas

The Student Challenge on Australia's Vanishing Frogs expedition was probably the best week of my life. From experiencing new environments to being introduced to different species and being amongst like-minded people, I could not have been happier.

A key aspect which I highly valued was the hands-on learning in the field and the sit-down talks at lunch. It was so different to a standard school environment. Being taught by scientists and students from Newcastle University as well as being treated as equals, created an encouraging, safe and enjoyable atmosphere.

Being around so many knowledgeable people meant that we were all constantly learning new things, including calculating population estimates, frog identification, gender identification (by looking for the nuptial pads on males), and how to find a frog based on calls and eye shine. We were given meaningful insight into the world around us and what needs to be done to protect habitats and the frog species vulnerable to the Chytrid disease. We were also given a tour of the Newcastle University Lab and told about how they can preserve DNA and potentially save species from extinction.

The opportunity to form connections with other people of similar age and interests was fantastic. I was able to talk to older students from the same state as me about university courses, which gave me a broader understanding of what I could potentially do in the future.

Being with people from other states also helped me learn about their unique species and ecosystems as well as the difference in education systems and courses. With the scientists sharing their experiences in the field and their journeys to get where they are, it just fuelled my passion for science and conservation further.

I doubt any of us returned home as the same people we were when we boarded the plane to Sydney.

I would like to thank everyone involved in organising this incredible program, especially the George Alexander Foundation for funding so many of us to participate. Nothing could replace or compare to the week I spent in NSW with a group of such amazing people.

Teacher Testimonial: Ryan Nelson

Attending Protecting the Reef's Coastal Frontier expedition, in conjunction with MangroveWatch, was indeed the highlight of 2019 for me personally and professionally.

Being out in the field collecting data, seeing the changes to habitats from multiple sources and learning the vital role that mangrove ecosystems play (protecting shorelines, storing carbon and providing sanctuary to numerous marine species) strengthened my own scientific understanding and passion for biology.

The 'Citizen Science' approach to the program was powerful.

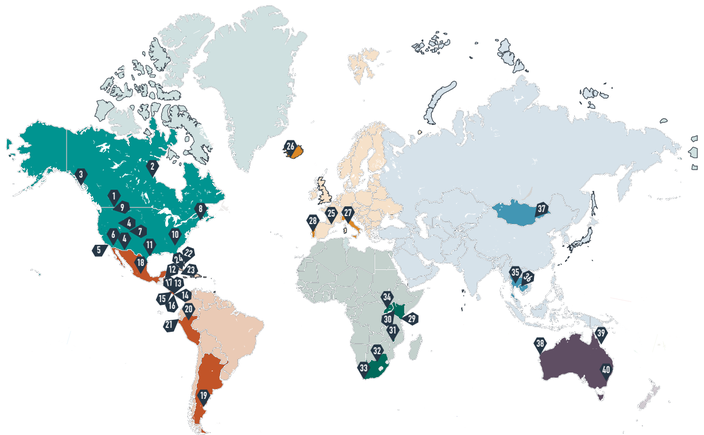
By empowering people living and working in close proximity to the mangrove habitats with scientific understanding and the tools to monitor and record changes is an invaluable source of data, whilst hopefully increasing a local community's incentive to protect and conserve such habitats.

Being able to Skype my classroom was an absolute joy - to demonstrate and discuss with the students measuring and recording tools; and for them to be able to ask questions in real time was a great way for them to learn.

This learning was kept alive once back at school with numerous students researching mangrove habitats and writing persuasive information and explanation texts. Age appropriate texts about mangrove habitats were selected for guided reading.

However, the greatest learning experience for the students was when Jock Mackenzie, Earthwatch's Wetlands program manager, came out to the school and presented to the students. It provided such a rich learning experience for the students to listen to an expert scientist, ask questions and be engaged in discussion.

I cannot recommend the TeachLive program highly enough to anyone who wants to further their understanding of environmental conservation, experience first-hand field science techniques and data collection; especially those who have a passion for biology and conservation!



International Expeditions

Immerse yourself in the Amazon on a riverboat exploration, observe the behaviour of giant manta rays in Peru, or investigate threats to chimps in Uganda. Whatever your choice, the data you collect on your Earthwatch expedition will help protect threatened wildlife, habitats and ecosystems across the globe.

Expeditions	40
Countries	24
Australian Participants	24
Total Participants	1,100
Participant Hours	81,848

Travel For Purpose

Australian Expeditions

Earthwatch expeditions let you experience hands-on science in some of the most astounding locations in the world.

You meet a community of like-minded travellers and return home with stories filled with adventure and a sense of inspired action.

Expeditions	8
Participants	82
Participant Hours	3,920

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

Protecting the Reef's Coastal frontier
Jock Mackenzie,
MangroveWatch
Daintree and Mackay, Qld

Project Manta
Dr 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
Magnetic Island, Qld

Turning the Tide on Plastic Pollution in Bali
Dr Stephen Smith,
Southern Cross University
Bali, Indonesia

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

Student Challenge: Australia's Vanishing Frogs
Prof. Michael Mahony,
Faculty of Science and
IT University of Newcastle
Chichester State Forest, NSW

Scientific Research

Sustainable Development Goals

At Earthwatch, we envision a future where we work together to live within our means and in balance with nature.

We align our strategic priorities to the UN Sustainable Development Goals (SDGs), guiding us in project development decisions and a common language for shared goals with our partners.

193 United Nations member countries agreed to the 2030 Agenda for Sustainable Development in September 2015.

The SDGs serve governments, business and individuals as the essential 'laundry list' to secure global development and prosperity over the next decade.

Stewardship of our biosphere is fundamental to the goals of global development and prosperity.

Together with our partners, Earthwatch delivers projects that feed directly into SDG 6 (clean water and sanitation); SDG 13 (climate action); SDG 14 (life below water); and SDG 15 (life on land).

Earthwatch programs address social and economic SDGs as well. Central to our approach is citizen science, where we conduct programs in nature to support good health and wellbeing (SDG 3), where our experiential learning model delivers quality education (SDG 4), and our corporate programs directly contribute to responsible consumption and production outcomes (SDG 12).

Priority Research Areas

Protect our Unique Wildlife

Australia is home to a wide variety of marvellous animals that are found nowhere else on the planet, and these creatures are valued by Australians and the global community alike.

Earthwatch is helping protect this unique wildlife on expeditions such as Australia's Vanishing Frogs and Project Manta Ningaloo Reef.

Save the Reefs and Oceans

The Great Barrier Reef is an icon of Australia, and the reefs and oceans around Australia are valuable for climate regulation, oxygen production, fisheries, and tourism. But reefs and oceans are increasingly under threat from multiple sources such as coastal development, overfishing, sediment and nutrient runoff from land, disease and coral bleaching events.

Earthwatch is helping to save the reefs and oceans with the expeditions Recovery of the Great Barrier Reef, Turning the Tide on Plastic Pollution in Bali and the Global Marine Debris Study.

Restore our Iconic Landscapes

The Australian landscape is a fragile environment that has seen dramatic land use change in its history.

Rehabilitating and monitoring these landscapes is essential, and Earthwatch is helping to restore these iconic landscapes through the expeditions Bush Blitz and Ecosystems of the Murray River and Mallee.

Keep Ahead of Climate Change

Climate change is one of the most pressing environmental challenges of our time, with impacts being experienced by flora and fauna across Australia. Natural mitigation measures in the form of carbon farming and blue carbon (wetlands) are becoming increasingly important.

Earthwatch is keeping ahead of climate change by supporting the expeditions Protecting the Reef's Coastal Frontier, Blue Carbon: Counteracting Climate Change, and our flagship program ClimateWatch.

Research Partners

Earthwatch Project	Research Partners
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)
Protecting the Reef's Coastal Frontier	James Cook University, MangroveWatch
Ecosystems of the Murray River and Mallee	Australian Landscape Trust
Project Manta Ningaloo Reef	Murdoch University
The Babinda Reef Experience	Jaragun NRM, Green Collar
Tackling Marine Debris: Protecting our Oceans in Peru	CSIRO
ClimateWatch	University of Melbourne, University of Western Australia, Monash University, University of Sydney, Royal Botanic Gardens Victoria, The Atlas of Living Australia, Biodiversity and Climate Change Virtual Laboratory

Scientist profile: Britta Denise Hardesty

Dr. Denise Hardesty is a Principal Research Scientist for CSIRO's Oceans and Atmosphere where she leads a portfolio of research projects on plastic pollution within Australia and around the globe. She regularly provides advice to government and other stakeholder groups on the plastic pollution crisis. She's been actively involved with Earthwatch since joining CSIRO in 2006.

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

Working on plastics is really coming full circle for me – from when I first saw the issue out on Midway Atoll in the middle of the Pacific in the 1990s where I was working in albatross (seabird) colonies.

What is the most pressing issue facing the environment? What action would you take?

Wow, that's a tough one – there are so many, and they are (we are) so strongly interconnected. As a scientist I'd urge people to get involved in something they feel passionate about, commit and 'lead by example' as they say.

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

The conviction that what we are doing matters, that it makes a difference to people, societies, governments. The increasing interest in the plastic pollution research we're doing is really heartening – I can see change happening; People everywhere take bags with them to the supermarket, I met a fisher on the beach cleaning up. This stuff matters to people.

How can each individual make a positive impact in regards to current environmental issues?

By living true to your values, by stepping up and speaking out, by spending in accordance with what you believe, by challenging decision makers, by voting people into power who are aligned with what YOU think is important.

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

I probably most want participants to gain a deeper understanding of the connectedness of the decisions we make, the things we use, the way we live, and the impact on the environment. I want people to be empowered, educated, and become changemakers/advocates for good.

Scientist profile: Hillary Smith

Hillary's research interests lie broadly in the field of coral adaptation to climate change. Her work utilises molecular approaches to learn how cellular mechanisms translate to ecosystem processes. She works on the Earthwatch project Recovery of the Great Barrier Reef, which aims to develop techniques to restore degraded inshore reefs. Hillary is also passionate about science communication, which she pursues through her work with Earthwatch as well as through scientific illustration.

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

I first pursued a career in fashion design, where I witnessed industrial practices that contributed to environmental decline on our planet. I changed careers into science because I wanted to help, not hurt, the delicate reef ecosystems I grew up with.

What is the most pressing issue facing the environment? What action would you take?

Climate change is the ultimate issue facing our species and the planet as a whole. It is urgent for us to take action to reduce carbon emissions – on an individual level as well as a larger scale.

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

Witnessing the rapid decline of our reefs, which certainly raises feelings of ecological grief, is a daily reminder that my work can make a difference. Being involved in ground-breaking research, combined with working to maintain and restore the beauty of our reefs, is great motivation.

How can each individual make a positive impact in regards to current environmental issues?

Firstly, vote. Our politicians need to be pressured to take action for our planet. Vote also with your dollar – know the environmental impact of companies you support. Finally, be aware of and lower your carbon footprint through reducing consumption and waste.

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

The key research outcome is to determine the best methods to restore degraded reefs. However, equally important to me is to educate and inspire Earthwatch participants to lead more sustainable lifestyles to preserve the natural beauty of our planet.

Supporters & Donors

Donors are the lifeblood of charities, and Earthwatch is no different. We are encouraged by each and every donation from Earthwatch supporters as a resounding endorsement of our mission, to empower people to save the natural world through their work, life and play.

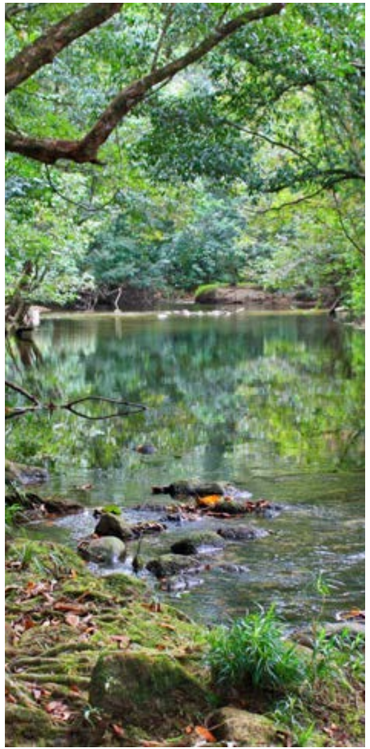
We are energised by your support and you can be proud that your donation delivers transformative experiences that inspire enduring behaviour change – something nature needs from us more urgently than ever before.

Fundraising at Earthwatch is conducted through an annual appeal, an end of year appeal, and regular giving, where individuals donate each month. Collectively, your donations raised $64,506 to drive the mission and expand environmental education, citizen science and research across key priorities: climate change, marine pollution and plastic waste, and conserving vital habitats and wildlife.

We also seek out partnerships with Trusts and Foundations where our goals align. In 2019, Earthwatch employed a Chief Development Officer, whose work encompasses both business and philanthropic partnerships.

Earthwatch does work that has people at its centre, inspiring new stewards of the natural world and changemakers within their realm of influence, whether that be the boardroom, the classroom, or the family home.

Funds raised in 2019: $64,506



Supporter Profile: Jake Dury

Tell us about your business and what makes you proud about it.

Transport Direct officially launched in 2016 as a national transport company moving freight from within Australia. Transport Direct is a broker model, so we source the right carrier for our customers' needs. The best thing about having a freight broker is that our customers can focus on their core business and leave their freight requirements to us. The beauty about creating a company is that you can do things in the way that you envisage. We have high expectations within the team and a high-performing culture, which is also informal and very customer-centric. I am proud of having a business with systems in place that have the ability to execute on difficult deliveries and ultimately keep our customers happy. It's a pleasure coming to work and enjoying the company of my colleagues. We spend so much time at work so we're encouraged to have a bit of fun.

How did you first get involved in with Earthwatch?

I found Earthwatch online when I was searching for a local environmental charity to support, who I believed were making a difference and having an impact. After reading about Earthwatch and understanding that you are a global not-for-profit really making a difference, I decided to get involved. I believe that education is the foundation for change and the work that Earthwatch does is extremely valuable for our future.

What do people think of your choice to support Earthwatch?

My friends, family and colleagues are well aware of my support of Earthwatch, as they understand that Transport Direct feels the need to play a part in making an environmental difference. We move hundreds of tonnes of freight every month and even though almost every human on the planet is reliant on having goods transported, the industry is responsible for significant carbon emissions. The work that Earthwatch is doing is a driver to encourage people of all ages to understand the environmental impact of everyday life.

Do you see new environmental conversations emerging in your sector?

Absolutely. There is a shift - with a number of large transport companies introducing hybrid vehicles into their fleet including some that have purely electric fleet vehicles. I've recently started a company called Transport Electric which in the near future will use only electric vehicles to transport goods around capital cities. Electric powered transport vehicles will be the standard in the future, not an exception. Conversations are being had, particularly between manufacturers, as most transport carriers are aware of their environmental impact.

Business Partnerships

Sustainable Development Goals, evidence-led policies and frameworks, and embedding environment and sustainability priorities across the workforce are three key drivers for businesses to partner with Earthwatch Australia.

Partnerships range from deep experiential engagement in the environmental science that is material to an organisation's bottom line, to our "Scientist for a Day" program where staff and clients get into the field to collect research data alongside scientists while learning about the company's specific sustainability agenda and the impact, risks and opportunities it has to business.

Engaging employees and other stakeholders in interdisciplinary research programs has powerful impacts, creating shared value for the company and the environment.

Our approach creates opportunities for an organisation's own staff to innovate and inspire environmental solutions that fit both the culture and goals of the organisation. Using scientific data and experiential learning informs a company policy and innovation, and drives more sustainable practices across the business.

Where 'culture eats strategy for lunch', Earthwatch's people-powered approach inspires action and directly connects employees to business sustainability objectives.

Enhanced employee engagement, health and wellbeing (the outdoor fieldwork is fun!), and a workforce with improved environmental and scientific literacy are further benefits back to the business.

Case Study: Protecting Queensland's Blue Carbon Resource

Earthwatch and Mitsubishi Development Pty Ltd launched an exciting new partnership this year, aimed at better understanding blue carbon stocks in the tidal wetlands of Queensland. Tidal wetlands are of crucial importance for their role in mitigating climate change, and improved scientific knowledge of the amount of carbon sequestered in these ecosystems is needed now more than ever.

Tidal wetlands such as mangroves and saltmarshes are increasingly under threat due to land use change and coastal development, but also coincidentally from the effects of a changing climate, such as drought and rising sea levels.

Demonstrating the ecological value of these ecosystems, understanding the threats they face, and better knowledge of their rates of change will aid land managers in protecting these vital ecosystems now and into the future.

The partnership continues existing scientific research in the Daintree River estuary, and expands the scope of the research to Mackay and the Pioneer River basin estuaries, using the established MangroveWatch methods.

The program will take educators, early career researchers and Mitsubishi Development Pty Ltd staff out into the field four times each year for the next three years, to provide them with hands-on experience in wetland science to understand the value of Australia's blue carbon resources.

Mitsubishi Development Pty Ltd

Case Study: The Babinda Reef Experience

In a world of growing carbon emissions, carbon offsetting is becoming increasingly important in mitigating climate change. However, understanding how investments in offsets contribute to reducing emissions can be hard to envision.

Earthwatch, in partnership with Qantas Future Planet, GreenCollar, Jaragun Natural Resource Management and James Cook University came together to create an experience that would bring offsetting to life for Qantas Future Planet partners.

Over 30 Qantas Future Planet partners where engaged directly in hands-on activities in the Experience 60km south of Cairns, bordering the Great Barrier Reef.

The Reef remains seriously threatened by climate change and poor water quality associated with a heavily modified landscape and terrestrial runoff from adjacent catchments. Human-induced terrestrial runoff, however, is one of the most manageable threats facing the Reef.

The Babinda Reef Experience is a pilot Carbon and Reef Credit project that will deliver significant water quality and climate change mitigation outcomes through management of the unique ecosystems within the Russell River coastal lowlands.

The project is rebuilding wetlands and replanting endangered rainforest, to naturally filter water flowing from farmland before it reaches the Reef.

The immersive experience enabled QFP partners to see first-hand how investments in credits are delivering real impact on the ground.

Jaragun
Natural Resource Management

greencollar

Mitsubishi Corporation

Since 2011, the Earthwatch and Mitsubishi Corporation partnership has supported the Recovery of the Great Barrier Reef expedition.

Through the years, the program has made discoveries on coral diseases and uncovered which types of coral will need assistance in getting re-established on the reefs after major storms. However, other impacts such as Crown-of-Thorn starfish outbreaks, increasing coral bleaching events, sedimentation and run-off onto the reefs are other challenges the Great Barrier Reef faces. With multiple stressors on the reef, there is often not enough time for the corals to recover between disturbances, and the cumulative impacts mean that coral reefs are being replaced by fast-growing macroalgae (seaweeds).

This year, the Recovery of the Reef program – and as an ongoing part of Mitsubishi's Global Coral Reef Conservation Project – turned its focus to that macroalgae which has taken over inshore coral reefs across the Great Barrier Reef.

Earthwatch and Mitsubishi Corporation have continued to support the research team of Dr David Bourne and Hillary Smith at James Cook University as they seek to understand the best practice methods for removing this macroalgae, such as when, how often, and how much to remove, in order to allow coral reefs to successfully recover in these areas.

Corals are slow growing and future expeditions will tell if removing macroalgae increases regrowth of corals, but encouragingly the project has already observed an increase in fish abundance in experimental areas where algae was removed. Their continued findings will have relevance for reef managers across the globe facing similar challenges.

Mitsubishi Corporation

Brother

Earthwatch and Brother are now in their 11th year of partnership in support of Project Manta Ningaloo Reef, a study of Australia's manta ray ecology and populations, with the goal of better management to conserve a vulnerable and highly important marine species.

This past year, the project has expanded its scope to examine manta ray ecology and health to a whole-of-ecosystem approach.

In 2019, the program deployed over 10 tow nets for plankton to determine the microplastics composition in manta's food source, which is a substantial threat to the health of these marine megafauna.

Additionally, mantas frequent 'cleaning stations' where species of small fish pluck parasites, mucous and dead skin from the animals, helping to keep them healthy and free from disease. However, since mantas spend anywhere from 20 minutes to one hour at a cleaning station, this is also where tourism of these animals is heavily focused. Research from Project Manta has shown that these animals change their behaviour and sometimes leave the cleaning station in response to heavy tourism.

Brother has enabled critical research that is helping to guide the sustainable management (such as tourism practices) of these gentle giants of the oceans, for the enjoyment and wonder of future generations.

brother
at your side

Case Study: Bali Plastic Neutral Program

Indonesia has been facing many challenges in recent years with mismanaged waste making its way to the oceans, and the marine debris issue is at the forefront of the minds of locals, the Indonesian government, and the global community.

Supported by UK company TJX, Earthwatch has implemented two of Plastic Collective's Shruder (small-scale recycling) machines in the small, remote village of Les in northern Bali, welcomed by the village social enterprise Sea Communities. This will promote local solutions to the accumulation of plastics in the environment, and aims to grow circular economy solutions amongst local enterprises and entrepreneurs.

Since the program's inception, the community has developed numerous products from recycled plastic for sale to local and global audiences.

With the guidance of Plastic Collective, the village social enterprise is aiming to sell its recycled plastic into larger international markets for post-consumer recycled plastics.The program is also undertaking environmental monitoring to understand what impact small-scale recycling is having in reducing plastics in the community.

Led by Professor Stephen Smith of Southern Cross University, his team has found that some items that can be recycled in the Shruder have decreased in the environment from 2018 to 2019, demonstrating that small-scale recycling can have positive impacts on the local environment.

Blue Carbon: Counteracting Climate Change

Earthwatch in partnership with the Blue Carbon Lab at Deakin University have been studying and valuing Coastal Wetlands (mangroves, saltmarshes & seagrass beds) since 2018 in Australia and New Zealand, in order to protect these natural systems that offset carbon emissions, clean and store water, protect our coasts, enhance biodiversity and mitigate climate change.

The accomplishments listed here have helped fill the gaps in knowledge that scientists, land managers and planners need to set the value of these vulnerable ecosystems, and provide a robust baseline to launch a new environmental market, the Blue Carbon market. Through this market, protecting and restoring wetlands will be incorporated into Australia's environmental offsetting system to reduce carbon emissions in the atmosphere and use natural solutions to fight climate change.

2019 was a very fruitful year for the program:

- Delivered 25 "Scientist for a Day" events linking corporate staff to science by providing immersive experiences for everyday people to get their boots muddy and contribute to fieldwork,
- Upskilled over 300 corporate staff across the banking, insurance and transportation sectors, including HSBC and other Qantas Future Planet partners, in topics such as the importance of natural capital and healthy functioning ecosystems, moving towards a low carbon economy, and adopting sustainable practices that decrease their ecological footprint, and
- Completed collecting the data needed to assess current carbon stocks and future carbon sequestration capacity of 10 wetlands located in Sydney, Melbourne and Auckland.

In recognition of this project's collaborative work beyond standard commercial relationships between industry and Higher Education, it was the recipient of the 2019 AFR Higher Education Industry engagement award.

Blue Carbon Lab

HSBC

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