

Earthwatch Institute Submission to Inquiry on Australia's Extinction Crisis

Senate Standing Committee on Environment and Communications

Executive Summary

Earthwatch Institute has been supporting scientific research, citizen science and behaviour change for forty years in Australia. We are pleased to have been able to contribute to the 2021 State of the Environment Report and believe that we have a positive contribution to make to the Inquiry on Australia's Extinction Crisis.

Assuming that the committee is already familiar with the current challenges facing Australia in regard to environmental protection and restoration, biodiversity, climate change and the related impacts on human settlements, this submission will focus on solutions and opportunities to address the extinction crisis.

Australia has always prided itself on its natural capital and unique environment, including flora and fauna found in no other parts of the world. For instance, 82% of mammals are found nowhere else. We also better understand the opportunities that biodiversity presents not just in terms of maintaining our unique natural capital, but also the impact it has on livelihoods, human settlements, climate resilience and urban wellbeing. However, we are experiencing widespread habitat destruction and therefore increasing rates of biodiversity loss and increased levels of species under threat.

On our failure to protect this biodiversity:

- Australia has the worst mammalian extinction rate in the world,
- Is among the [top seven countries worldwide](#) responsible for 60% of the world's biodiversity loss between 1996 and 2008; and
- The destruction of threatened species habitat is continuing at an alarming rate. Between 2000 and 2017, 7.7 million ha of potential habitat was cleared and [93% wasn't assessed or scrutinised under the EPBC act](#)

It is clear that the legislation put in place (the EPBC Act) is failing to protect what it was designed to protect, and therefore is helping to accelerate the rate of extinction of Australia's unique species.

This submission, whilst focusing on solutions, does not ignore the immediate and critical threats to our biodiversity nor the impacts that this is having on many aspects of Australia's food production, urban environments and overall resilience.

A response to the extinction crisis requires a multi-faceted approach, and will be most effective if supported by a robust policy framework at all tiers of Government, supports citizen science, and actively engages communities.

The extinction crisis is not just something happening in our national parks or coastal waters – it is happening in our backyards, our parks and our cities.

Earthwatch Australia believes that we can arrest this crisis, and that the solutions we

Empowering people to save the natural world

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discuss in this submission is just one part of what needs to be a national effort.

The power of citizen science: the case for behavioral change and transformative conservation action

Given the magnitude of the biodiversity crisis it is clear that there will be no silver bullet to reversing ecosystem and biodiversity loss. Rather a number of diverse approaches will need to be employed to preserve our remaining environmental assets and rebuild ecosystems for health, for industry, for environment and community. As many of the threats to nature are rooted in human behaviour and social systems, reversing the biodiversity crisis therefore depends at least in part on social change. Conservation is not only about biology, but about people, their values and the choices they make.

Working from the established premise that conservation is a goal that can only be achieved through influencing desired behaviours, societal interventions that speak to and involve the Australian population are essential. An important element in this is fostering what is referred to as 'engaged communities', that is communities that understand and appreciate nature and are willing to actively support its protection.

Nature experiences can provide an important basis to foster engagement and research has highlighted the key role of citizen science as a useful tool for facilitating nature experiences and environmental engagement. These experiences influence their choices, their connection with nature and appreciation, ergo their willingness to protect biodiversity. Nature-based citizen science programs provide a specific type of nature experience, where nature is viewed through a lens of science-related activities that seek to cultivate dialogue, create an understanding of the science behind it and empower local communities in the ownership, protection and management of natural ecosystem assets.

With over forty years of citizen science engagement, Earthwatch Australia's experience, illustrates how citizen science can be applied to enhance biodiversity conservation.

Fundamentally, being involved in citizen science and learning through experience allows individuals to develop an enduring passion for the topic at hand and leverages change. Collaborative learning between scientists and non-scientists, developing and utilising problem-solving skills and cooperative design of research questions, methods and interventions are more likely to enhance conservation engagement among communities.

Empowering communities to contribute to research efforts and develop the belief of making a difference fosters future conservation involvement. In a world where biodiversity is declining as a result of human activities, it is vital to broaden opportunities for communities to understand and contribute to conservation.

The main tenet of most citizen science programs is to think globally and act locally; and they do not exist in isolation. They are coordinated and promoted through recognized institutions such as Earthwatch Australia and the Australian Citizen Science Association. They are supported by the best available science and provide real and enduring impact. They feed into nationally important databases and information repositories such as the Atlas of Living Australia ([ALA, 2022](#)) where data and information becomes accessible to all who wish to further understand Australian biodiversity and ecology.

The Bush Blitz program run jointly between Earthwatch Australia, BHP and the Commonwealth Department of the Environment is an outstanding example of citizen science in action that draws on the expertise of three different sectors, and one that extends its reach into classrooms and communities.

It is estimated that [only 30% of Australia's 420,000 species have been named](#) and documented thus there also remains a major taxonomic science challenge ahead for Australia. A national biodiversity data infrastructure, supported by a distributed network of engaged communities and citizen science is fundamental to supporting such a mission to ensure Australia's current state of biodiversity knowledge is understood, is accessible and continues to be valued by all Australians. Distributed citizen science networks, coordinated and supported by existing infrastructure and initiatives provide a real opportunity to harness the groundswell for action on environment and establish a new norm in conservation management which is community led and owned.

Why use citizen science led nature-based solutions?

The core of biodiversity conservation is in behaviour change, and interventions that are specifically designed to create maximum environmental behaviour change through transformative citizen science experiences are proven to be effect. [Earthwatch Australia research](#) shows that participation in programs that involve collaborative design, decision making and action are more likely to result in enhanced environmental awareness and future conservation involvement at the individual level.

[Nature-based solutions](#) are actions to protect, sustainably manage, or restore natural ecosystems, that address societal challenges such as climate change, human health, food and water security, and disaster risk reduction effectively and adaptively, simultaneously providing human well-being and biodiversity benefits. Nature based solutions that embed citizen science can have longer term benefits for both biodiversity as well as for community engagement across the age spectrum.

Furthermore, adopting nature-based solutions through citizen science enables a scaling of solutions that may otherwise difficult to achieve solely through Government investment, outsourcing to the private sector or the not-for-profit sector.

Additionally, utilization of nature-based solutions in heavily engineered environments such as cities can support the restoration and maintenance of biodiversity in urban locations. This can not only help to protect threatened species, but also, as we have seen in other places by restoring habitats, we are able to reintroduce species that were once thought lost to particular areas.

A solutions focus

Australia has a limited window in which to address our extinction crisis, noting that this challenge is exacerbated by the immediate threats posed by climate change.

Direct involvement of community in citizen science, environmental action and habitat stewardship will be fundamental in reversing and rebuilding Australia's biodiversity loss. This will not be without significant challenge, however, some of these challenges can be overcome by establishing:

- A national framework for biodiversity and land use across the Government, private sector (including urban and agricultural settings), not-for-profit, education and most importantly communities to achieve biodiversity targets;
- Strengthening legislative and regulatory frameworks across Commonwealth and State jurisdictions to embed biodiversity protection and restoration impacts
- Adopting a 'whole of country' approach that uses systems thinking to underpin the importance of supporting biodiversity across all sectors of the community and the economy.
- Mapping the intersects between community, industry and biodiversity loss for

better environmental outcomes and valuation of natural capital – inherent and potential.

- Targeted support for communities, including indigenous owners who are engaged and willing to lead local biodiversity interventions supported by the best available science;
- National program of endemic species nurseries for restoration of local habitats; and
- Encouraging the implementation of urban biodiversity programs that embrace community ownership and stewardship

Earthwatch Australia would like to thank the committee for taking the time to consider our submission, and we are happy to place ourselves at your disposal to go into more detail.

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