

Science Strategy and Priorities Taskforce
Department of Industry, Science and Resources
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Dear Science Strategy and Priorities Taskforce,

RE: Submission on Australia's science and research priorities

The Australian Land Conservation Alliance (ALCA) welcomes the opportunity to provide a submission to the Government's consultation on *Australia's science and research priorities: conversation starter*.

Please note that ALCA is happy for this submission to be published in full.

About the Australian Land Conservation Alliance

The Australian Land Conservation Alliance is the peak national body representing organisations that work to conserve, manage, and restore nature on privately managed land. We represent our members and supporters to grow the impact, capacity, and influence of private land conservation to achieve a healthy and resilient Australia. Our fifteen members are:

- Australian Wildlife Conservancy
- Biodiversity Conservation Trust NSW
- Bush Heritage Australia
- EcoGipps
- GreenCollar
- Greening Australia
- Landcare Australia
- Nature Foundation
- Odonata
- Queensland Trust for Nature
- South Endeavour Trust
- Tasmanian Land Conservancy
- The Nature Conservancy Australia
- Trust for Nature (Victoria)
- World Wildlife Fund - Australia

ALCA member land conservation efforts have influenced over 3 million square kilometres with more than 4,000 landholders. We have over 70,000 supporters and our combined annual turnover exceeds \$280 million. Together ALCA and its members address some of the most pressing conservation issues across the country, including restoring endangered ecosystems, building the protected area estate, tackling invasive species, expanding private conservation finance, and funding and using nature-based solutions to tackle climate change.

Through their active land management, ALCA member organisations are deeply embedded in rural communities and economies, providing jobs, securing significant regional investment, and safeguarding remaining native habitat, with its many positive spill-over effects for community, wellbeing, and food security. We seek to demonstrate the role and value of private land conservation as a cornerstone of the Australian economy.

Some ALCA members are statutory entities; the views expressed in this submission do not necessarily represent the views of the Government administering those statutory entities.

Summary

The twin accelerating crises of climate change and biodiversity decline are parallel, and connected issues of national concern.

The global – and national – challenge of climate change has received great and warranted attention, nowhere better than the recent IPCC AR6 Synthesis Report¹.

However, the scale and potential impact from rapidly declining national and global biodiversity is less well understood, both by science, and the broader public.

The key findings of the Federal Government's 2021 State of Environment Report highlight the state and seriousness of the nature crisis in Australia:

*“Overall, **the state and trend of the environment of Australia are poor and deteriorating as a result of increasing pressures from climate change, habitat loss, invasive species, pollution and resource extraction. Changing environmental conditions mean that many species and ecosystems are increasingly threatened. Multiple pressures create cumulative impacts that amplify threats to our environment, and abrupt changes in ecological systems have been recorded in the past 5 years.***

*...**Our inability to adequately manage pressures will continue to result in species extinctions and deteriorating ecosystem condition, which are reducing the environmental capital on which current and future economies depend. Social, environmental and economic impacts are already apparent.**”²*

Indeed in 2021, Australian scientists confirmed evidence that already 19 of Australia's ecosystems have either collapsed or are collapsing³, and Australia has suffered the largest documented decline of biodiversity of any continent in the world⁴.

The scale and devastation that the unfolding nature crisis will have upon our collective wellbeing will dwarf all but the very biggest issues facing our nation and will rival them in importance. As per the British Government's Dasgupta Review:

“We are facing a global crisis. We are totally dependent upon the natural world. It supplies us with every oxygen-laden breath we take and every mouthful of food we eat. But we are currently damaging it so profoundly that many of its natural systems are now on the verge of breakdown.”⁵

The economic impacts from the nature crisis are expected to be devastating. According to the World Economic Forum:

“Humanity has already wiped out 83% of wild mammals and half of all plants and severely altered three-quarters of ice-free land and two-thirds of marine environments. One million species are at risk of extinction in the coming decades – a rate tens to hundreds of times higher than the average over the past 10 million years....

*Human societies and economies rely on biodiversity in fundamental ways. **...over half the world's total GDP – is moderately or highly dependent on nature and its services.**”⁶*

¹ See: AR6 Synthesis Report: Climate Change 2023; <https://www.ipcc.ch/report/ar6/syr/>

² See: 2021 State of Environment Report; <https://soe.dceew.gov.au/overview/key-findings>

³ See: Bergstrom et. al, 'Combating ecosystem collapse from the tropics to the Antarctic', *Global Change Biology*, 2021; <https://onlinelibrary.wiley.com/doi/10.1111/gcb.15539>

⁴ See: DCCCEW; <https://www.dcccew.gov.au/environment/biodiversity/conservation>

⁵ See: p1, Dasgupta, P. *The Economics of Biodiversity: The Dasgupta Review*, HM Treasury, Government of the United Kingdom; <https://www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review>

⁶ See: World Economic Forum, *Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy*, January 2020; <https://www.weforum.org/reports/the-global-risks-report-2020>

Using the same methodology, **approximately half of Australia's GDP has also been demonstrated as having a moderate to very high dependence on nature**⁷.

The United Nations System of Environmental Economic Accounting (SEEA) details which sectors' supply chains are most critically dependent upon nature. They include⁸:

- Cropping
- Grazing
- Forestry
- Wild fisheries
- Water supply
- Global climate regulation services (e.g. carbon sequestration)
- Local climate regulation services (e.g. urban cooling and agricultural cooling effects)
- Air filtration
- Soil and sediment retention services
- Solid waste remediation
- Water purification services
- Water flow regulation services
- Coastal protection services
- River flood mitigation services
- Pollination services
- Nursery population and habitat services
- Recreation-related services (including tourism)
- Visual amenity services
- Education, scientific and research services
- Mental health services⁹

The scale of our dependence and our social and economic interconnectedness with nature is increasingly apparent. However, the solutions to the nature crisis, its interrelation with the climate crisis, and the opportunities that nature-based solutions can offer to mitigate and adapt to climate change – especially within the context of Australia's unique biodiversity as well as geological and hydrological environment – are all less well-researched and investigated.

In short, the nature crisis facing our nation must be urgently researched and addressed if we are to prevent a sharp decline in Australia's social and economic wellbeing.

Expanding Federal, State and local government intervention and support will be crucially important if Australia is to effectively mitigate and adapt to climate change, biodiversity decline, and the natural disasters that accompany them.

However, also of critical importance will be the growth of community resilience in the face of rising and repeated adversity, and the mobilisation of community resources to provide local solutions – wherever possible – to mitigate and adapt to these crises. In short, the social dimension is central to any research in this thematic area.

Importantly, it should be noted that despite Australia's poor record of extinctions, our nation's environmental scientists are amongst the best in the world – they are a strength we need to maintain, build, and leverage.

⁷ See: Australian Conservation Foundation, *The nature-based economy: How Australia's prosperity depends on nature*, September 2022; <https://www.acf.org.au/how-australias-prosperity-depends-on-nature>

⁸ Largely reproduced from: p154-157 (Annex 6.1), United Nations, SEEA, *Ecosystem Accounting*; https://seea.un.org/sites/seea.un.org/files/documents/EA/seea_ea_white_cover_final.pdf

⁹ This last item has been well-documented during the COVID-19 pandemic; for example: S.M. Labib et. al., *Nature's contributions in coping with a pandemic in the 21st century: A narrative review of evidence during COVID-19*, Science of the Total Environment (Journal), 10 August 2022;

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8983608/>; and University of Western Australia research: J.N. Sneddon et. al, *The impact of the COVID-19 pandemic on environmental values*, May 2022, Sustainability Science (Journal); <https://link.springer.com/article/10.1007/s11625-022-01151-w>

Recommendations

1. **That the Government adopt “Environmental and Community Resilience” as one of its national science and research priorities**, with the aim of building Australia’s capacity – especially its community-level capacity – to respond to the interconnected crises of climate change and biodiversity decline. This may include, for example, the use of nature-based solutions for climate change mitigation and adaptation, and how communities can be mobilised to co-design and deliver such projects.

Possible research projects that would fit within this national science and research priority include, just for example:

- the use of wetland restoration to mitigate the impacts from floods;
- the use of different nature-based coastal hazard adaptations (such as living shorelines, or shellfish reef restoration) to mitigate the social and economic impacts from sea-level rise;
- further exploration of the contribution of ecosystem services for productive systems; and
- the contribution of functioning natural systems on flood/fire risk mitigation.

As a national science and research priority, “Environmental and Community Resilience” provides continuity – but also evolution – of the 2015 priority, “Environmental Change”¹⁰. It also directly connects in with one of the six CSIRO Challenges, “Resilient and Valuable Environments”, which is directed at “*Enhancing the resilience, sustainable use and value of our environments, including by mitigating and adapting the impacts of climate and global change*”¹¹.

This recommended research priority also aligns with the Federally-funded National Environmental Science Program (NESP) research priority: NESP Resilient Landscapes Hub.

Lastly, this priority accords with the seven principles set out by the Government in its Conversation Starter (discussion paper) released as part of this consultation¹².

Thank you again for the opportunity to contribute to the Government’s consultation on Australia’s national science and research priorities.

ALCA and its members look forward to ongoing engagement with the Government to ensure that our research effort reflects the increasing urgency – and social and economic importance – in halting and reversing Australia’s rapid decline in biodiversity, and its inextricable interconnectedness with both climate change and community.

Australian Land Conservation Alliance

¹⁰ See: <https://www.industry.gov.au/publications/australias-science-and-research-priorities-2015>

¹¹ See: <https://www.csiro.au/en/about/challenges-missions/challenges>

¹² See: https://storage.googleapis.com/converlens-au-industry/industry/p/prj24721dc698291384559b2/public_assets/national-science-and-research-priorities-national-conversation-starter.pdf