



Ecosystem Science Council

SCIENTIFIC ADVICE ON AUSTRALIA'S ENVIRONMENTS

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2019 Australian Election Message

A MESSAGE FROM THE ECOSYSTEM SCIENCE COUNCIL TO ALL POLITICAL PARTIES AND INDEPENDENTS

Introduction

Australia's ecosystems include natural wonders such as the Barrier Reef, forests, deserts, rivers and oceans, along with our managed landscapes so vital for production of food and fibre. The Ecosystem Science Council coordinates Australia's national ecosystem science capability towards the vision that, "by 2035, the status of Australian ecosystems and how they change will be widely reported and understood, and the prosperity and wellbeing they provide will be secure." The Council was established in 2015 to advance the national framework of *Foundations for the Future: a long-term plan for ecosystem science in Australia*¹ working with all in the ecosystem science community².

This document presents questions of specific concern and relevance to Australia's ecosystems, as an opportunity for political parties and independents to articulate their relevant policy positions. We will distribute the responses to our community and to the public for their information.

Key issues

We have identified four key focus areas for Australia's ecosystems relevant to the 2019 Federal Election:

1. Measurement of progress towards environmental goals and objectives,
2. Establishment of a national ecosystem monitoring and forecasting system,
3. Institutional reform and more effective implementation of environmental legislation, and
4. Investment of 3% of GDP in research and development.

Questions

We seek your detailed responses to the following questions, which address the key issues:

1. *What future role should Australia play in setting the international agenda and standards for the environment?*
2. *How would your party propose to integrate findings from national environmental monitoring processes into policy formulation and planning?*
3. *What priority will your party place on measuring progress towards national and international environmental goals and objectives?*
4. *How will your party address the pressing lack of reliable data on the condition and resilience of Australian terrestrial, aquatic and marine ecosystems?*
5. *What initiatives does your party propose to address the issues of land clearing, threatened species and biodiversity decline, and reef, soil and water management in Australia?*
6. *Will your party commit to the call from Science & Technology Australia, and the Australian Academy of Science, for a long-term plan to achieve investment of 3% of GDP in research and development, and how would your party ensure that ecosystem science is a part of that investment?*

1. Measurement of progress towards environmental goals and objectives

Australia cannot demonstrate that it is meeting its environmental goals because it lacks an effective system of ecosystem monitoring. Due to the paucity of long-term ecological monitoring in Australia and the disconnection with environmental reporting initiatives like the State of the Environment³ (relying instead largely on ad hoc sources of evidence^{3, 4}), we have little idea of how effective billions of dollars of expenditure have been on environmental outcomes in Australia. Our reporting against national targets as signatories to the UN Convention on Biodiversity is consequently incomplete and patchy⁴, and the international leadership we once had in setting the environmental agenda has been lost. A recent OECD report⁵ on Australia's environmental performance has noted that Australia needs to:

- Fill gaps in data on the status and trends of species and ecosystems and establish national biodiversity indicators to measure progress and identify priorities for action.
- Increase investment in biodiversity conservation and ecological restoration in line with the scale of the challenge.
- Improve monitoring of water resources, extraction and quality across river basins.

The proposed agency or national ecosystem monitoring and science system (see below) will help to address these issues but would need to be matched by a commitment from government to integrate the findings from such capabilities into policy formulation and planning.

Our community therefore wants to know:

Q1. What future role should Australia play in setting the international agenda and standards for the environment?

Q2. How would your party propose to integrate findings from national environmental monitoring processes into policy formulation and planning?

Q3. What priority will your party place on measuring progress towards national and international environmental goals and objectives?

2. Establishment of a national ecosystem monitoring and forecasting system

Australia has an advanced national data collection capability for weather and climate (principally through the Bureau of Meteorology), earth science (mainly through Geoscience Australia), agriculture (through the Australian Bureau of Agricultural and Resource Economics and Sciences), and demographics and economics (primarily through the Australian Bureau of Statistics). This essential data architecture provides critical information for governments, industry and academics, to drive innovation and advance wellbeing in Australia, and to position Australian products in the global market. However, this capability is currently hampered in several areas by a lack of reliable and appropriate data.

Data deficient areas include:

- The condition and resilience of Australian terrestrial, aquatic and marine ecosystems,
- Diagnosis of ecosystem risks and successful risk management,
- Forecasting of extremes and risks,
- Appropriateness of policies to achieve outcomes in dynamic ecosystems, and
- Appropriateness of legislation and whether it is flexible, encouraging ecosystem conservation and maintenance and compliance.

The compelling need for an advanced national ecosystem data collection capability is well accepted and has been referenced in several significant Australian Government reports over several years. The most recent of these was the National Collaborative Research Infrastructure Strategy Roadmap⁶ which identifies the need for:

“a national ecosystem observatory capability to monitor carbon, water and biodiversity. This needs to be fully integrated including modelling, to enable the prediction of future changes in carbon, water and biodiversity”.

It is critical that the capability be given long-term security because a monitoring system such as this is dependent on continuity. While we recognise the constitutional responsibility of States and Territories for our ecosystems, we recognise a great opportunity for new, nationally-led approaches. It is therefore proposed that a national ecosystem monitoring and forecasting system be established under its own legislation to either:

- Expand the remit of an existing authority through the establishment of an Ecosystems Act. Potential institutions that could house a national ecosystem monitoring and forecasting system include the Australian Bureau of Statistics within the Treasury portfolio (which operates under the Australian Bureau of Statistics 1975 and the Census and Statistics Act 1905) or the Bureau of Meteorology within the Environment portfolio (which operates under the authority of the Meteorology Act 1955 and the Water Act 2007); or
- A new independent authority introduced via an Ecosystems Act, akin to the Productivity Commission (which operates under the Productivity Commission Act 1998) or the Australian Institute of Health and Welfare which operates under the Australian Institute of Health and Welfare Act 1987).

The national ecosystem monitoring and forecasting system will:

1. Target environmental monitoring within a subset of key ecosystems across the Australian continent and develop a national strategy and network of field sites, surveillance sensors and satellite imagery that link with existing jurisdictional programs.
2. Balance monitoring efforts to meet national needs through integrated design and use scientific data analytics and modelling to forecast and manage future risks to our environment and biodiversity.
3. Build from current and previous initiatives in advancing capability in environmental information such as the government’s National Collaborative Research Infrastructure Strategy^{6, 7} and its funded capabilities such as the Terrestrial Ecosystem Research

Network, and the Department of the Environment and Energy's now abandoned Essential Environmental Measures for Australia Program.

We ask then:

Q4. *How will your party address the pressing lack of reliable data on the condition and resilience of Australian terrestrial, aquatic and marine ecosystems?*

3. Institutional reform and more effective implementation of environmental legislation

Australia has a poor record of environmental stewardship. Nearly 100 species of Australian organisms have become extinct since European settlement. Of these, 30 are mammals, accounting for 30% of the world's mammalian extinctions in the last 100 years⁸. About 1600 Australian species of plants and animals are classified as rare or endangered. Between 1996-2008, only seven countries, including Australia, were responsible for 60% of the global biodiversity decline scores in bird and mammal species, and Australia was second only to Indonesia in this list. Approximately 44% of Australian forests and woodlands have been cleared for agriculture since European settlement. Such clearing is ongoing and continues to put pressure on our plant, animal, insect and microbial species. Australia's State of the Environment Report 2011 identified habitat loss through land clearing as the primary contributor to biodiversity decline. The plight of our identified threatened species, and the state of the Reef and the Murray-Darling Basin, have all worsened in the 19 years since the Environment Protection and Biodiversity Conservation Act was introduced.

Australia spends hundreds of millions of dollars each year trying to redress past environmental damage, but this is not enough to see real environmental recovery particularly in a changing climate. Furthermore, while tens of thousands of volunteers dedicate their time, money and land to the effort, their contribution to national environmental goals is undone by the damage from land clearing. For example:

- One year of increased land clearing in Queensland has already removed many more trees than will be planted during the entire A\$50 million Australian Government 20 million trees program⁹.
- The Australian Government's Emissions Reduction Fund (ERF) is paying billions of dollars to reduce carbon emissions from industry. There was a 63% reduction in greenhouse gas emissions between 1996-2016 by Australian primary industries. But the carbon released from Queensland's land clearing in 2012-2014 alone is estimated at 63 million tonnes, far more than was purchased under the first round of the ERF (at a cost to taxpayers of A\$660 million)¹⁰.
- Under Caring for our Country and Biodiversity Fund grants, tree planting to restore habitat across Australia since 2013 was just over 42 000 ha - while 296 000 ha was cleared in Queensland alone in 2013-14.

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- The Australian Government has committed hundreds of millions of dollars to improve reef water quality, yet land-clearing in reef-draining catchments will reverse many of the gains.
 - A major impact of native vegetation clearance is the rise in water tables and increased salinity¹¹.

Clearly, we need to see cross-sectoral damage and waste such as this minimized.

The Ecosystem Science Council believes that a new framework is needed for the Department of Environment to ensure effective delivery of environmental stewardship in perpetuity. We propose ten important outcomes that would need to result from overhauling Australia's environmental institutions:

1. Independent governance that is not subject to political interference in discharging its responsibilities.
2. National coordination over all jurisdictions that have responsibility for managing biodiversity.
3. Development of national goals, indicators of change, interoperable data knowledge and infrastructure and standards for reporting.
4. Improved biodiversity monitoring through the collection and reporting of accurate data.
5. Legislation revised to require industries that extract resources from, or in any way modify the environment, to account for the resultant environmental degradation and to fully fund the remediation as part of their business plan. The public commons should not be degraded for private profit.
6. Adequate resourcing to undertake long-term research to understand what the trends in biodiversity change mean and how to mitigate adverse outcomes.
7. A national ecosystem monitoring and forecasting system to report on the state of the environment and to anticipate and prepare for future unanticipated threats to our environment.
8. Comprehensive revision of the Environment Protection and Biodiversity Conservation Act to create improved environmental legislation that prioritises ecologically sustainable development and protection of ecosystems over short-term outcomes.
9. Recovery plans for all threatened species and ecosystems, and abatement plans for all threatening processes.
10. Increased resourcing for biodiversity conservation – given the strong economic prosperity in Australia, we have a global obligation to do more for the unique biodiversity that we are fortunate to enjoy.

The ecosystem science community wishes to know:

Q5. What initiatives does your party propose to address the continued issues with land clearing, threatened species, and reef, soil and water management in Australia?

4. Investment of 3% of GDP in research and development

Science & Technology Australia, and the Australian Academy of Science, are calling for a 10-year strategic plan and a clear 5-year funding commitment to achieve an investment of 3% (currently 1.8%) of GDP in research and development. Environmental science should be a key part of this investment, because it is an important capability in Australia, and research on the Australian environment should not be undertaken by other countries on our behalf.

Therefore:

Q6. Will your party commit to the call from Science & Technology Australia, and the Australian Academy of Science, and echoed here by the Ecosystem Science Council, for a long-term plan to achieve investment of 3% of GDP in research and development, and how would your party ensure that ecosystem science is a part of that investment?

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Ecosystem Science Council

The Ecosystem Science Council works with all individuals, groups and organisations within the ecosystem science and management communities providing scientific advice and advancing the goals of the long-term plan for Australian ecosystem science, Foundations for the Future.

For further information

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