



The Ecological Society of Australia Ltd (ESA, www.ecolsoc.org.au) is the peak group of ecologists in Australia, with over 1200 members from all states and territories. Our members work in universities and other research institutions, government departments, NGOs, private industry and consultancies. We are a national not-for-profit organisation formed in 1959.

Feedback to: Future Environmental Science Program Consultation 30 June 2019

The Ecological Society of Australia (ESA) welcomes the opportunity to comment on a future Environmental Science Program. As the peak body for ecological science in Australia, we are familiar with the current National Environmental Science Program (NESP) and the work of its Hubs. Many researchers and research-users working with the current NESP Hubs are ESA members, and a large number of our members interact with the Hubs and use the outputs of the NESP.

The ESA has prepared this response as a coordinated input to your consultation on behalf of Australia's ecological community. We have separately circulated the NESP consultation survey among our members and encouraged them to make individual responses to reflect their personal opinions.

Below, we comment on the strengths of the existing NESP program, and the opportunities to enhance the program in any future iteration of an Environmental Science Program. We also provide some specific comments in response to the questions asked in the consultation survey.

The ESA stresses that:

1. The Environmental Science Program is **a vital component of our national investment in science** to inform environmental decision-making and management, and;
2. **Investment in the Environmental Science Program should be increased** to ensure the Commonwealth has the evidence base it needs to effectively address Australia's current and future environmental challenges.

1. Strengths and Opportunities

The current NESP program is recognised for its excellence in environmental science to inform land management and policy. It has been particularly influential because it:

- Prioritises inclusion of indigenous people and biocultural knowledge in decision-making;
- Enables a longer-term research approach than that enabled by traditional research grant funding schemes, and;
- Involves end-users in direction-setting.

Building upon these strengths, the ESA recommends the following opportunities are considered to enhance any future iteration of the Environmental Science Program:

- **Increase funding to the Environmental Science Program.** The latest Global Assessment of the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services [1] clearly states that more, not less, funding is required to find solutions to the pressing environmental sustainability issues facing Australia, and the world more generally. Successive national State of the Environment reports have identified a lack of data and evidence to inform environmental management as a key concern [2]. Australia has been ranked one of the worst in the world for funding biodiversity conservation, grouped among many developing countries [3]. We recommend a future Environmental Science Program have funding an order of magnitude higher than the current NESP has had.
- **The Department of the Environment and Energy ('the Department') should implement transparent and inclusive processes to work with the Australian environmental science and management community to identify the priority 'grand challenges' that the Environmental Science Program should address** to ensure that investment goes to addressing critical gaps and needs that will have the greatest impact on the environment. This process should recognise that while it administers the Program, the Department is also a key end-user of the outcomes of the Program. Thus, all relevant organisational units of the Department should be engaged in the process of direction-setting and identifying priorities for the Environmental Science Program investment. It is also key that State and Territories are meaningfully included in this process;
- **Improve transparency and accountability for investments made through an Environmental Science Program:**
 - Once priority knowledge gaps or research areas to be addressed through the Environmental Science Program are identified, implement an open call for applications to fulfil these research briefs. Such an approach would stimulate participation from a wider cross-section of Australia's environmental research community, introduce greater diversity of ideas for consideration by the Environmental Science Program, and encourage innovative responses to addressing environmental challenges; and
 - Clearly communicate what criteria and processes will be used to evaluate applications for funding under the Environmental Science Program.
- **Activities of the Environmental Science Program should be coordinated and integrated with other existing Commonwealth activities** both within the Environment portfolio and across other portfolios. The grand challenge to protect Australia's natural heritage is a cross-portfolio challenge, and a more coordinated approach can help to leverage maximum value from all investments and enhance success of outputs. For example:
 - Connect and integrate the Environmental Science Program with activities of the Department such as the Environmental Resources Information Network;

- Ensure the Environmental Science Program uses the national research infrastructure where relevant to avoid duplicating effort. Relevant research infrastructure includes the Australian Research Data Centre, Integrated Marine Observing System, Terrestrial Ecosystem Research Centre, Atlas of Living Australia, Australian Urban Research Information Network, AuScope, and National Computational Infrastructure;
 - Connect the Environmental Science Program with Commonwealth environmental activities outside the Environment portfolio such as activities across primary industries, infrastructure, biosecurity, and defence. Co-investment for the Environmental Science Program should also be sought across these portfolios.
- **Strengthen the role of indigenous people in shaping the Program**, and by participation at all levels (discussed under 3 below); and
 - **Continue to build capacity to undertake inter- and trans-disciplinary work**, intentionally involving multiple disciplines and stakeholders from program conception through to completion (discussed under 2 below). For a national environmental science program to effectively address contemporary environmental issues and inform decision-making, it must address aspects of society and governance.

2. Researchers working with research users, and Research for the big environmental management challenges

One of the strengths of the current NESP program is that researchers work with end-users of scientific information. This interaction can enhance adoption of the evidence base that scientists generate to effectively address Australia's current and future environmental challenges. This is especially true in the case of transdisciplinary research, which the NESP has aspired to, defined by Mitchell et al. (2017) as *"crossing disciplinary boundaries and unsettling the distinction between research providers and research users (such as land managers and other stakeholders) to develop integrated knowledge and theory, and solve problems for science and society."*

Key factors that can enhance this interaction, and that should be incorporated into future activities of the Environmental Science Program include [summarised from 4,5,6,7]:

- Facilitate processes for all interested stakeholders to be involved in early definition of problems and priorities,
- Facilitate mechanisms for engagement between researchers and research users and encourage co-production or co-creation of knowledge, in recognition of increased participatory approaches to environmental decision-making,
- Ensure the structure of the Environmental Science Program includes ongoing evaluation of the shared research agenda, with opportunities to revise the agenda in response to changing needs,

- Invest in dedicated communication and knowledge brokering capability to facilitate connection and exchange between researchers and research users,
- Embed scientists in research user organisations,
- Establish mechanisms to reward and recognise researchers for knowledge exchange activities,
- Promote professional development in knowledge exchange for researchers, and
- Facilitate mechanisms for research users to communicate their needs to the Environmental Science Program and access knowledge.

3. Indigenous inclusion

The NESP should be recognised for the work it has done to include indigenous people and biocultural knowledge in decision-making.

Indigenous people are providers, producers, and users of environmental science and biocultural knowledge. In remote and regional parts of Australia, traditional knowledge has been shown to fill significant gaps in knowledge about species distribution, habitat preference, diet and reproduction [8,9,10]. Recent research also found that three-quarters of Australia's terrestrial or freshwater vertebrate species cited as threatened have ranges that overlap with Indigenous lands [11].

About a third of Australia is currently regarded as Indigenous lands and a third of Australia's National Reserve System is managed by Indigenous land managers through the Indigenous Protected Area system. Therefore, Indigenous lands plays an important role in Australia's national conservation agenda.

Clearly, continued and enhanced leadership and participation of indigenous people through all elements of the Environmental Science Program is required to maximise the potential of success of the program. The specific activities identified in the Future Environmental Science Program Consultation Survey can all contribute to this and should be pursued under a future Environmental Science Program. In addition to those activities identified, continued support for Indigenous ranger programs should be implemented for undertaking environmental management on country.

References

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For further information

The ESA welcomes the opportunity to provide further information to this Consultation or to discuss our submission in more detail. Please contact policy@ecolsoc.org.au

Submission prepared on behalf of the ESA by its Policy Working Group and approved by the Vice-President (Public Policy and Outreach) and President, 30 June 2019.