

## Name of submitter: Ecological Society of Australia



*The Ecological Society of Australia Ltd (ESA, [www.ecolsoc.org.au](http://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.*

## National Research and Science Priorities review

Research is a key pillar of support for Australia's economic, social and environmental prosperity. Many of the ESA's members are academics and researchers who regularly interact with the Australian research funding system by applying for competitive grants. Given the nature of ecological science, these interactions span multiple Commonwealth Departments and funding schemes. Our submission to this Review thus represents the perspective of the firsthand 'users' of Australia's research funding landscape – the researchers themselves who navigate this landscape in order to deliver economic, social and environmental benefit for Australia.

We provide feedback to the Review based on the following questions:

1. The ARC does not target a specific proportion of funding to research in the National Science and Research Priorities—the ARC leaves it to individual applicants to determine whether to undertake research in the areas outlined in the National Science and Research Priority areas. The ARC also does not allocate a dedicated score for alignment with the National Science and Research Priority areas—it is one of the components of the selection criterion Project Quality and Innovation.
  - (a) Is this approach appropriate in the context of the ARC's role in Australia's research system?
- **ESA: Research is a critical national investment and must be invested in generously.** Australia needs to commit more resources to research with the goal of significantly increasing the capacity to undertake research. Investigator-driven fundamental and foundational research are key to advancing our knowledge economy. We believe the current approach is appropriate and serves to support Priority Areas, without necessarily limiting the funding of broader knowledge generation. Priority Areas receive 70% of the funding in the STEM sector and include the important areas of Food, Soil & Water, and Environmental Change – the Ecological Society of Australia supports investment in these areas. The Priority Areas, in their current form, are sufficiently broad to ensure scientific knowledge generation is not restricted nor does this necessarily impose limitations to

research. The current approach acknowledges that knowledge generation is the key purpose of Australian research. The ARC ensures the best research is undertaken (via rigorous peer review) within this broad framework.

(b) Are there other methods of funding research in the National Science and Research Priorities that the ARC should consider?

- **ESA: Administration of major grants should be simplified.** One option is to fund everyone eligible (within the Research Priorities framework) to apply for baseline funding. In Canada, such a system has been in operation for decades<sup>1</sup>. This then directs energy and effort to excellent and diverse research. It also enables a wider cross-section of researchers to undertake research. By channelling research funding into restricted Priority Areas, the perverse outcome may be that competition for funds increases within each Priority Area, and researchers further narrow their projects to meet these restrictions. At the highest level, competitive grants administered by the ARC are better served by encouraging the best research. This can leave open the ARC to the charge of "relevance" - are research grants relevant to the most pressing questions in Australia? Given 70% of funding already goes to Research Priority Areas, it's hard to argue that the current implementation of grants isn't already achieving its stated aims.

2. Under current arrangements, approximately 70 per cent of total funding allocated each year is allocated to research which applicants identify as being linked to the National Science and Research Priorities, with the proportion varying by year and by scheme.

(a) Is the current level of alignment of ARC funding with the National Science and Research Priorities appropriate, and in line with the Government's objective of increasing Australia's capacity for research in these areas?

- **ESA: More resources should be allocated to further scientific capacity in Australia.** The ESA recommends that rather than aligning the Research Priorities differently, competitive research funding should increase across the board. The ESA recommends that Commonwealth investment in the Science and Innovation portfolio increase to at least 3% of GDP, with clear mechanisms for funding long-term research. Under current arrangements, the Environmental Change Research Priority gets the 2nd most funding across the nine target areas. This is about 14% of all funding. The latest Global Assessment of the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services (IPBES)<sup>2</sup> 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.

The ESA believes that Australia needs to maintain foundational/curiosity-driven research. The ARC is the only major vehicle to achieve this in Australia. By targeting funding towards specific Research Priorities, more applied research is likely to be favoured. In such cases, it would be best that the Commonwealth define clear questions it needs tackled, and then establish specific investment for research into those areas that would likely be administered by other Commonwealth agencies (e.g.

the Department of Environment currently administers the targeted National Environmental Science Programme).

- (b) What would the potential benefits and costs for the Australian R&D system be if allocation of ARC funding against the National Science and Research Priorities was aligned differently?

- **ESA: Continue to support basic research.** The ESA recommends that Australia generously fund excellent foundational research rather than focus primarily on Research Priorities that appear to have immediate potential to lead to commercial applications. Fundamental basic research is the foundation behind technology, science, and opportunities that can lead to technological advances we have today. While innovation and capacity to patent or commercialise products are important outcomes of scientific research, this is not the sole benefit that science provides to our society nor can these outcomes be reliably predicted at the outset of research activities.
3. Are there other challenges or areas of priority that you consider require focus in ARC funding (by being included in NCGP research priorities) to (i) achieve the ARC's purpose of growing knowledge and innovation for the benefit of the Australian community; (ii) support an appropriate balance of research in across disciplines within the ARC's funding remit; and (iii) complement and maximise the benefits from overall existing government support for research.
- **ESA: Establish new, additional, funding programs.** The ESA recommends a new funding program that specifically funds long-term research – research on a scale of 8 – 12 years with appropriate progress checks - be added to the research investment portfolio. Most Australian funding schemes enable only short-term research (3 years or less), with novelty a key determinant of grant success<sup>3</sup>. In the multi-disciplinary field of environmental science, undertaking research to address problems important to Australian society inevitably takes time – often on the scale of decades. This is particularly true for fundamental research that addresses national Research Priorities around environmental sustainability and environmental change, both of which underpin economic and social prosperity.
  - **Funding schemes should accommodate transdisciplinary research** that bridges different disciplines in order to allow innovative and creative proposals to be supported. Whilst traditional research has been undertaken within defined disciplines, it is now common for researchers from multiple disciplines to collaborate in addressing complex questions. The emergence of greater multi- and trans-disciplinary research highlights the need to allow existing funding schemes to support cross-research priorities, or to develop new funding lines that support projects that bridge different research areas. As noted by the 2018 State of Australian University Research ERA rankings, biological sciences - which ecology falls under - was the equal third most multi-disciplinary field of 22 two-digit Field of Research codes surveyed<sup>4</sup>. Even more, researchers are crossing and combining disciplines to have a more comprehensive understanding of their work. While collaboration and transdisciplinary research provide immense outputs in foundational knowledge and product commercialisation, these

types of projects can have difficulty in being funded due to the continued siloed nature of funding Research Priorities. Current funding structures are focused around discipline groupings, and there are times when this arrangement can hamper the application process for researchers who work in transdisciplinary fields.

- **Incorporate knowledge brokering budget lines and criteria to improve information shared across research, government, and public sectors.** Foundational research underpins many of the technological advances and critical understanding of our world, yet the knowledge generated by these research projects are shared in limited ways (i.e. scientific publications). By including funding support for knowledge brokering within the ARC funding schemes, this elevates the role of research engagement with end-users such as policy makers and decision makers, and maximises the benefits of research to the Australian community.

#### **For further information:**

The ESA welcomes the opportunity to provide further information to this Inquiry or to discuss our submission in more detail. We may be contacted at [executiveofficer@ecolsoc.org.au](mailto:executiveofficer@ecolsoc.org.au)

*Submission prepared on behalf of the ESA by its Policy Working Group.*

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<sup>1</sup> Government of Canada. Guidelines for Eligibility of Subject Matter  
[http://www.science.gc.ca/eic/site/063.nsf/eng/h\\_FEE7261A.html?OpenDocument#SSHRC1](http://www.science.gc.ca/eic/site/063.nsf/eng/h_FEE7261A.html?OpenDocument#SSHRC1)

<sup>2</sup> IPBES. Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, May 2019.  
<https://www.ipbes.net/news/ipbes-global-assessment-summary-policymakers-pdf>

<sup>3</sup> Ecosystem Science Council. 'Supporting Long-Term Research'.  
<http://ecosystemscienceplan.org.au/Supporting-Long-Term-Research-pg31208.html>

<sup>4</sup> ARC. State of Australian University Research 2018-19: ERA National Report.  
<https://www.arc.gov.au/excellence-research-australia/era-reports>