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Australian Academy of Science submission to the External Review of the Australian Biological Resources Study (ABRS)

The Australian Academy of Science (the Academy) welcomes the opportunity to provide a submission to the external review of the Australian Biological Resources Study (ABRS). This submission addresses points 4-7 in the Review Committee's scope.

The Academy provides independent, authoritative and influential scientific advice on issues that impact scientific disciplines and Australia's national science capability, including taxonomy and biosystematics.

The Academy supports [Taxonomy Australia](#), a body of leaders in taxonomy and biosystematics which aims to increase the profile and understanding of taxonomy and biosystematics in the community and accelerate discovery and documentation of Australia's undiscovered species.

The Academy worked with the taxonomy and biosystematics community to develop *Discovering Biodiversity: A decadal plan for taxonomy and biosystematics in Australia and New Zealand 2018–2028* (the [decadal plan](#)), which provides a vision and actions to advance taxonomy and biosystematics in Australia and realise the benefits of taxonomic discovery and documentation. The ABRS is an important program to help achieve the mission described in the decadal plan.

The Academy submits that:

1. The ABRS is a key driver of taxonomy and biosystematics research in Australia and is a critical program that should be enhanced and expanded to support the strategic actions outlined in the decadal plan for taxonomy and biosystematics.
2. The ABRS cannot continue to accelerate the discovery and documentation of species or support building taxonomic and biosystematics capacity and capabilities in Australia without an increase in its funding, which has declined in real terms for over a decade.
3. An immediate and continuing increase in base funding for the National Taxonomy Research Grants Program is critically required.
4. A revitalisation of the ABRS must include a more significant strategic coordination role to drive systemic change and enhance the taxonomy and biosystematics workforce.

Taxonomy is a key enabling science

Taxonomic knowledge is fundamental to understanding and preserving Australia's biodiversity. Taxonomy is an important foundational science that underpins advances in many other scientific fields including ecology, genetics, earth and climate sciences, medicine, agriculture and environmental sciences.¹

Australia is a megadiverse region with species found nowhere else in the world. The majority of Australia's species have not yet been discovered and documented. It is estimated that 70% of Australia's species remain unknown.²

¹ Deloitte Access Economics (2020). *Cost benefit analysis of a mission to discover and document Australia's species*, <https://www.science.org.au/support/analysis/decadal-plans-science/discovering-biodiversity-decadal-plan-taxonomy>

² Taxonomy Decadal Plan Working Group (2018). *Discovering Biodiversity: A decadal plan for taxonomy and biosystematics in Australia and New Zealand 2018–2028* (Australian Academy of Science and Royal Society Te Apārangi: Canberra and Wellington), <https://www.science.org.au/support/analysis/decadal-plans-science/discovering-biodiversity-decadal-plan-taxonomy>

Discovering and documenting all remaining species in Australia in a generation would lead to increased skills and job opportunities across a range of STEM areas and enable Australia to protect and enhance its ecological and biodiversity assets. A cost benefit analysis found that every \$1 spent on this mission could result in benefits to Australia of \$4-\$35, in areas such as agricultural R&D, biosecurity diagnostics, biodiscovery for human health and biodiversity conservation.¹

The benefits of taxonomic knowledge can only be realised with taxonomic science that sustainably resourced and strategically directed. The ABRS directly contributes to accelerating the rate of discovery of Australia's biodiversity and building taxonomic capacity. However, it is restricted by its limited funding.

Investing in taxonomic information

The Australian Biological Resources Study is the only Commonwealth program that provides targeted funding for the discovery and documentation of Australia's species, through the National Taxonomy Research Grants Program (NTRGP).

Much of the taxonomic discovery and documentation in Australia is performed by staff in State museums, herbaria and universities. The NTRGP is essential to help fund this work and hence support national capacity for taxonomy and drive taxonomy and biosystematics research in Australia.

The ABRS is not adequately resourced to keep delivering its important functions and expand taxonomic knowledge. Funding for the NTRGP has been static at \$2 million p.a. since 2009, and this has eroded the number of projects that can be funded. Since 2000, the increase in the rate at which new species have been discovered and documented has flatlined due in part to the decreasing funding in real terms of the NTRGP.

The Academy suggests that funding for ABRS should be increased by at least \$2.5 million per annum and be increased annually. This funding should go towards an **enhanced NTRGP program** and a **taxonomy innovation grants program** to drive the uptake of new technology and innovation in taxonomy, with an explicit goal of increasing the rate of species discovery and documentation.

The successful Bush Blitz and BioBlitz programs should also be expanded as recommended in the decadal plan to provide further opportunities for species discovery.

Supporting the future of taxonomy

A revitalised ABRS could assume a more significant coordinating role with a focus on driving systemic change to transform capabilities and opportunities for taxonomic research. This role would include enhancing biodiversity infrastructure and supporting new technologies, methods and data streams, and powerful computing. The effort would be strengthened by enhanced linkages with the National Collaborative Research Infrastructure Strategy (NCRIS) facilities.

The ABRS should also look to advance priorities identified in the decadal plan such as naming hyperdiverse groups and engaging with Indigenous knowledge. Increasing the funding for ABRS would allow expansion of work to build knowledge of poorly documented taxonomic groups such as marine invertebrates, insects, fungi and bacteria.

Despite its importance to a range of sectors, there is a lack of taxonomy career opportunities for new talent and the existing taxonomic workforce is ageing. To build taxonomic capacity, the ABRS should seek opportunities to expand its support for early career researchers, initiatives to increase and upskill the biodiversity workforce, and promote new jobs and improved career prospects for STEM PhDs and those at the postdoctoral level in taxonomy.

To discuss or clarify any aspect of this submission, please contact Mr Chris Anderson, Director Science Policy at Chris.Anderson@science.org.au.