

Please note: the substantive content of the 2026 NRI Roadmap Survey begins at Question 20 (with prior questions dealing with administrative and other information).

As such all submissions that are published include the responses submitted from Question 20 onwards only.

Q20.

Part 2: Research themes

2.1 NRI comprises the assets, facilities and associated expertise to support leading-edge research and innovation in Australia and is accessible to publicly and privately funded users across Australia and internationally. We are seeking your input on possible directions for future national-level investment - i.e., where the requirements are of such scale and importance that national-level collaboration and coordination are essential.

The [2021 Roadmap](#) used a challenge framework to support NRI planning and investment. With this in mind, consider likely future research trends in the next 5 - 10 years, and with respect to one or more of the 8 challenge areas identified in the 2021 Roadmap as listed below:

- describe emerging research directions and the associated critical research infrastructure requirements that are either not currently available at all, or not at sufficient scale and
- describe current national infrastructure requirements that you anticipate will no longer fit the definition of NRI in 5-10 years.

Do not limit your commentary to NCRIS funded capabilities.

Q21.

Resources Technology and Critical Minerals Processing

Q22.

Food and Beverage

Q23.
Medical Products

Q24.
Defence

Q25.
Recycling and Clean Energy

Q26.
Space

Q27.
Environment and Climate

Q28.
Frontier Technologies and Modern Manufacturing

Q29.

2.2 The 2024 statement of National Science and Research Priorities (NSRPs) includes outcomes linked to each priority to assist in identifying critical research needed in the next 5 to 10 years.

Consider the priority statements and, with respect to one or more of the 5 priority areas as listed below:

- describe emerging research directions and the associated critical research infrastructure requirements that are either not currently available at all, or
- not at sufficient scale and describe current national infrastructure requirements that you anticipate will no longer fit the definition of NRI in 5-10 years.

Do not limit your commentary to NCRIS funded capabilities, and where relevant, refer to the underpinning outcomes and research identified in the NSRPs document.

Q30.

Transitioning to a net zero future

Q31.

Supporting healthy and thriving communities

Q32.

Elevating Aboriginal and Torres Strait Islanders knowledge systems

Q33.

Protecting and restoring Australia's environment

An estimated that 75 percent of Australia's biodiversity remains to be discovered and described (ABRS 2025). This so-called 'taxonomic impediment' is the nation's primary stumbling block to our ability to intelligently manage, conserve, and sensibly exploit our biological diversity (Environment Australia, 1998) and represents the nation's most serious biodiversity 'crisis'. This taxonomic impediment can only be properly addressed by national-level collaboration and co-ordination. Despite long-standing national acceptance (e.g. the Australian Biological Resources Study was set up ~50 years ago) that we are largely ignorant about Australia's species-level biodiversity, the current 'NSRP Priority 4' of 'Protecting and restoring Australia's environment' makes no mention of either the taxonomic impediment or our woeful lack of knowledge about Australia's species-level biodiversity. These themes are further explored in the attached notes. Cited: ABRS (2025) The Importance of Taxonomy. Australian Biological Resources Study. <https://www.dcceew.gov.au/science-research/abrs> Environment Australia (1998) The Darwin Declaration, Australian Biological Resources Study. <https://www.dcceew.gov.au/science-research/abrs/publications/darwin>

Q34.

Building a secure and resilient nation

Q35.

2.3 The case for a new NRI capability, or enhancements to existing capabilities, typically emerges through advocacy from research communities clustering around rigorously identified needs and goals. Such a concept could respond to a requirement for novel or expanded capacity within a domain, or across domains, and must be such that it could only be made available with national-level investment.

If you have identified such a requirement, briefly describe the need, the proposed infrastructure capability, the medium-term goals, impacted research communities, and the timeframe over which you advocate its establishment. Your response can include links to relevant existing reports.

In addition to its oft touted 'biodiversity crisis' (the extinction of named species), Australia has a largely-unacknowledged and far greater biodiversity predicament, one which can only be properly addressed by national-level collaboration and co-ordination. For many decades the nation has directed considerable resources into documenting (e.g. Fauna/Flora/Fungi/Algae/Zoological Catalogue of Australia series) and sharing biodiversity knowledge (e.g. the Atlas of Living Australia), plus identifying and protecting vulnerable species and habitats (e.g. via the Environment Protection and Biodiversity Conservation Act and the state wildlife agencies). The harsh reality behind this façade of 'best practice' is that much of this effort is wasteful and misguided, since we are largely ignorant of even the most fundamental knowledge required to intelligently undertake these endeavours i.e. an adequately-comprehensive inventory of our native species. In truth most of the nation's biodiversity remains 'dark' to us. To quote the Australian Biological Resources Study (ABRS 2025) "Australia is one of only 17 mega-diverse countries in the world, with a rich and unique biodiversity. An estimated eight percent of the world's plants and animals are Australian, yet only a fraction of these species are known to science. It is estimated that 75 percent of Australia's biodiversity remains to be discovered and described." This so-called 'taxonomic impediment' is the nation's primary stumbling block to our ability to intelligently manage, conserve, and sensibly exploit our biological diversity (Environment Australia, 1998) and represents the nation's most serious biodiversity 'crisis'. Historically, most of the Australia's zoological and botanical collections have been held, cared for, and studied by the various state/territory-funded museums of natural history and herbaria. Unfortunately, many of these regionally-funded institutions have suffered declines in the numbers of the collection managers and researchers/curators who together have traditionally made up a significant proportion of the taxonomists working to discover and describe (name) our native species. Unfortunately, state-funded natural history museums and herbaria typically operate under multiple limitations that hinder their ability to work in the national interest. Often anomalously placed in inappropriate state government departments (SAM is in the Department for the Arts!), they are frequently pressured to focus on their own region (whereas most taxonomically-chaotic organismal groups occur across multiple states), are usually run by boards/trustees/departments that lack understanding of or interest in the national biodiversity crisis, have ongoing public gallery/outreach obligations that attract immediate community approval (whereas biodiversity discovery provides longer-term benefits that tend to remain 'hidden' to the community), and have great difficulty attracting outside funding for pure taxonomic research. To put the current biodiversity predicament in perspective, it will take over 1000 years to produce a moderately-comprehensive inventory of all of Australia's native species at the current rate of species description (e.g. 626 species named in 2022; ~320,000 species already named (Chapman 2009), these being only ~25% of the estimated total number). In the attachment notes I have further explored the many inadequacies of our existing capability for biodiversity discovery, the reasons we need a substantial national investment in taxonomic research, and the relevance of molecular datasets and how to optimize their taxonomic value. The 2026 NRI roadmap offers an ideal opportunity to demonstrate we really are a 'clever country' by (a) publicly acknowledging the depth and consequences of Australia's taxonomic impediment, and (b) including strategies and funding that prioritize biodiversity discovery into the future. I have included below nine specific recommendations on how to optimize any national investment in biodiversity discovery. 1. Properly fund the Australian Biological Resources Study (suggestion – \$20 million annually, indexed for inflation) 2. Provide ring-fenced funding support for all state/territory Natural History Museums & Herbaria across all areas underpinning biodiversity discovery, namely collection care, facilitating researcher access to both tissue and voucher collections, carrying out and publishing taxonomic revisions, and undertaking field surveys to acquire taxonomic vouchers plus their associated frozen tissues 3. Nominate all Australian tissue collections as a national resource and provide infrastructure funding to maintain and replace ultra-cold freezers 4. Facilitate the networking of all state/territory Natural History Museums & Herbaria to minimize duplication of field collection and taxonomic effort, and to coordinate access to tissue collections 5. Undertake a contemporary survey of Australia's taxonomic capacity to identify areas of major deficiency 6. Fund a specialized open access journal for the rapid publication of taxonomic revisions on Australia's biota 7. Establish and fund a national commitment to discover and name all Australian species of vertebrate and flowering plant within the next decade 8. Include in that commitment targeted funding for comprehensive molecular datasets (e.g. SNPs) for all problematic genera within the above-mentioned groups, explicitly linked to a companion taxonomic revision 9. Liaise with the peak body groups 'Society of Australian Systematic Biologists' and 'Taxonomy Australia' to create programs for achieving the above-mentioned goals and to mentor a new generation of taxonomists Cited ABRS (2025) <https://www.dcceew.gov.au/science-research/abrs> Environment Australia (1998) <https://www.dcceew.gov.au/science-research/abrs/publications/darwin> Chapman AD (2009) Numbers of Living Species in Australia and the World, 2nd edition. Report, ABRS, Canberra.

Q36.

Part 3: Industry perspectives

This section is seeking input specifically from industry-based respondents. Other respondents can skip this section.

Recommendation 6 of the [2021 Roadmap](#) related to improvements in industry engagement with NRI. To complement work on this topic that has occurred since then, we are seeking additional advice on NRI requirements as perceived by current or potential industry-based users.

Q37.

3.1 Have you (or your organisation) interreacted with or used Australia's NRI?

☐ Yes

☐ No

Q38.

3.2 If so, please briefly outline the NRI capabilities you (or your organisation) have interacted with or used. Do not limit your response to NCRIS capabilities.

This question was not displayed to the respondent.

Q39.

3.3 Please indicate your (one or more) primary reasons for interacting with NRI:

This question was not displayed to the respondent.

Q40.

3.4 If you answered no, please indicate your (one or more) primary reasons:

This question was not displayed to the respondent.

Q41.

Part 4: Other comments

4.1 Please elaborate on any of your above responses or add any other comments relevant to the development of the 2026 Roadmap. Your response can include reference or links to existing reports that you recommend be considered during the 2026 Roadmap development process.

Q49.

4.2 Optional Document Attachment.

Note: Our strong preference is that answers are provided against the relevant questions in the survey. However, this file upload option is available for submissions in file format, where needed. Please ensure the document includes your name or organisation.

