1. What is your occupation?

- Researcher
- University Staff
- Business / Industry
- Government
- Higher Education Peak Body
- Industry Peak Body
- **None of the Above**

2. Are you responding as an individual or an organisation?

- Individual
- **Organisation**
- None of the above

3. What organisation do you work for?

Australian Academy of Science National Committee for Ecology, Evolution and Conservation (NCEEC)

4. Are the recommendations appropriate to the current NRI environment?

NCEEC especially welcomes the strongly articulated commitment to fundamental research, particularly as it applies to the documentation of Australia's unique biodiversity assets and highlighting the importance of physical collections, taxonomy and the digital representation of these biocollections. The latter would include a national barcoding initiative, coordinated through ALA, BPA, TERN and iMOS, to apply taxonomic knowledge in environmental assessment and monitoring. All this strongly aligns with the Decadal Plan for Taxonomy & Biosystematics developed by Taxonomy Australia.

NCEEC strongly supports the development of world-leading environmental and climate infrastructure (a biodiversity and ecosystem equivalent to BoM), involving expanded biodiversity monitoring and enhanced modelling (eg Eco-Commons, NEPS). This is especially important in the context of ongoing climate change resulting in changes in the distributions of species and the delivery of ecosystem services.

NCEEC also welcomes the recognition of freshwater environments as being historically under-resourced from a biodiversity perspective, and we agree with the increased capacity needs for coastal and estuarine areas in the face of sea-level rises and a changing climate.

5. Do the principles articulate the vision and key elements required of NRI, including investment?

NCEEC strongly agrees with the recommendation to provide stability and long-term operational security for existing NRIs by maintaining or increasing their funding levels. NCEEC also agrees with the importance of a highly skilled workforce development and welcomes the development of a NRI

Workforce Strategy, including the provision of appropriate training and career pathways. We specifically agree that the current skill gaps relating to the curation of collections and management of specimen data require urgent attention.

6. The NRI Roadmap has a clear focus on identifying the NRI investments required to support Australian research over the next 5 to 10 years. Are there any national research infrastructure needs missing in the draft Roadmap?

NCEEC welcomes the identification of biodiversity monitoring as a key theme and challenge in relation to the environment and climate, but we would like to see more substance given to it. First, the description of the challenge should include the fact that Australia has many obligations both nationally (e.g. State of the Environment Reporting, threatened species recovery plans) and internationally (several treaties that we have signed up to) that require effective biodiversity monitoring, but we are currently falling significantly short. Second, although better integration of existing monitoring infrastructures is required, so too is expansion of monitoring activities. This is especially the case for fauna. We have existing technology in the form of camera traps and image and sound recognition software for rolling out a nationally coordinated and to a large degree automated monitoring program for vertebrates, and there is significant potential for developing metabarcoding approaches to the monitoring of selected invertebrates (which links to the identified need for the DNA sequencing of biological collections).

7. A key priority for Australia is to enhance research translation. The 2021 NRI Roadmap identifies some reforms and investments to achieve this. What other reforms would help deliver this priority?

NCEEC identifies further development of SynBio infrastructure, perhaps in collaboration with industry, as an important contribution.

8. The Roadmap proposes that Australia could make landmark investments to drive step changes in research and innovation over the next 10 to 15 years. Do you agree with the assessment of potential areas for investment in the report? What other areas do you consider might fit the definition of landmark investment?

NCEEC especially supports the establishment of a 'biodiversity and ecosystem BoM', supported by nationally coordinated biodiversity and ecosystems monitoring programs, as a landmark investment for achieving step-change in research and innovation.

9. Please add any other comments you would like to provide to the Expert Working Group.

10. If you have a PDF (.pdf) or Word document (.doc or .docx) to share as part of your feedback, you can upload your file here. Please keep documents brief.