

Re: Submission to the Te Ara Paerangi Future Pathways Green Paper 2021 document

We welcome the opportunity to make a submission from the biological science collections funded from NSCD / SSIF infrastructure funding.

This submission is based on discussions with managers and curators of the biological collections and associated information systems held at CRIs and funded from SSIF infrastructure funding as Nationally Significant Collections and Databases (NSCDs). These are¹:

1. AgResearch Margot Forde Germplasm Centre
2. Plant & Food Research National Collection of fruit Crop Germplasm
3. Scion National Forest Herbarium
4. GNS Science National Petrology Reference Collection
5. GNS Science New Zealand National Paleontological Collection
6. Manaaki Whenua New Zealand Arthropod Collection & Nematode Collection
7. Manaaki Whenua New Zealand Fungal Herbarium
8. Manaaki Whenua International Collection of Microorganisms from Plants
9. Manaaki Whenua Nga Tipu Whakaoranga
10. Manaaki Whenua Research Herbarium for Plant Biosystematics
11. NIWA Marine Benthic Biology Collection

This submission is not to comment on Te Ara Paerangi as a whole, nor to address the specific questions that MBIE has posed per se. Rather, it is to outline the current standing of NSCDs and to invite a dialogue between key collection managers and MBIE on the future of these essential parts of Aotearoa's research infrastructure.

NSCDs have a long history stretching back to the eighteenth century and have gone through various distinct phases of development and funding, ranging from discrete collections managed by individual researchers and collectors to the current model under SSIF. While their role and function have gained recognition as important parts of the scientific infrastructure, previous high-level discussions on biological collections have centred around their applications in scientific research, principally systematics and taxonomy, and the maintenance of taxonomic capability. This has confounded and hidden the discussion that needs to be had about the physical collections, both living and preserved, and the storage and retrieval of the associated metadata in information systems.

We believe that Te Ara Paerangi provides an opportunity for the collections of Aotearoa to begin a transition into a new phase, which better places them as critical, visible and better accessible infrastructure, benefiting the scientific community, tangata whenua and the general public. It is important to note that this submission is not offering specific solutions. Instead, we would very much welcome the opportunity to work with MBIE in designing innovative ways to future-proof the management, funding, and accessibility of biological collections.

In addition, while this submission is focuses on the biological collections held at CRIs and funded as Nationally Significant Collections and Databases, as this is the focus of Te Ara Paerangi, we believe it is applicable to all biological collections across Aotearoa, including those held at other publicly funded institutions.

¹ <https://sciencenewzealand.org/our-member/nationally-significant-databases-and-collections/>

Key issues² that need to be addressed are:

Funding: Unlike other infrastructure categories which can be renewed collections are forever so require a long-term funding commitment which can only come from government.

Model: It is important to assess other models such as the New Zealand Measurement Standards Laboratory, but it should not be limited to the science sector. For instance, the National Library of New Zealand holds a large collection of objects that are maintained and made available for research and other purpose, which may serve as a starting point in establishing how a model for the much more dynamic biological collections could look.

Strategy: As government funded infrastructure the biological collections need a national strategy which unites them as a single, but physically dispersed, coherent collection for future capacity and capability planning, and to take advantage of economy of scale in operational.

Te Tiriti o Waitangi: There needs to be increased involvement of Māori in the development of a national collection strategy where taonga are concerned and in the ongoing oversight of the collection to meet our Te Tiriti obligations.

As the managers and curators of collections we look forward to further discussions with MBIE as it develops its white paper.

This submission is submitted Dr Geoff Ridley, Portfolio Leader Biota (including the five Manaaki Whenua collections), Manaaki Whenua Landcare Research, Privacy - 9(2)(a), in consultation with:

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² Chapter 4 Building and Maintaining a Robust Infrastructure in *Biological Collections: Ensuring Critical Research and Education for the 21st Century* provides a detailed overview of the challenges that biological collections face. <https://www.ncbi.nlm.nih.gov/books/NBK566265/>