

May 12, 2021

Interagency Arctic Research Policy Committee
National Science and Technology Council
National Science Foundation

Re: Comments on the Interagency Arctic Research Policy Committee Draft Arctic Research Plan

Dear Committee,

The Natural Science Collections Alliance appreciates the opportunity to provide comments on the draft Arctic Research Plan for 2022-2026. This plan presents a broad vision for research and monitoring in the Arctic over the next five years. However, we think a critically important component of this endeavor is not adequately highlighted or addressed in the draft plan. This is the critical role that biorepositories have played and need to play in Arctic research.

The Natural Science Collections Alliance is a non-profit association that supports natural science collections, their human resources, the institutions that house them, and their research activities for the benefit of science and society. Our membership consists of institutions that are part of an international network of museums, botanical gardens, herbaria, universities, and other institutions that contain natural science collections and use them in research, exhibitions, academic and informal science education, and outreach activities.

We believe that the role of biorepositories should be emphasized in multiple parts of the plan, but particularly under the section related to Monitoring, Modeling, Observing, and Predicting. The stated goal here is “increasing understanding of the natural and human components of the Arctic system as well as the degree and direction of past and future changes. It is also essential for providing actionable data, forecasts, and new research directions.”

Biorepositories, including museums, herbaria, and living collections, are specifically designed to conserve voucher specimens and associated data for all the types of research mentioned in the draft plan. We would encourage you to specifically call out their role and significance. As a relevant research example, we call your attention to:

Bond, A.L., Hobson, K.A. and Branfireun, B.A., 2015. Rapidly increasing methyl mercury in endangered ivory gull (*Pagophila eburnea*) feathers over a 130 year record. *Proceedings of the Royal Society B: Biological Sciences*, 282(1805), p.20150032.

This research, which documented increasing mercury levels in an endemic high Arctic bird, was possible because archived specimens collected in the Arctic across past decades are made accessible by museum collections. Furthermore, as a result of active efforts to digitize collections

data—funded in large part by NSF—the authors were quickly able to locate appropriate specimens to sample for this project. Many such examples demonstrate the importance of collections in enabling Arctic research.

We also encourage you to consult recent reports on the importance of biorepositories to national biodiversity initiatives:

In 2019, the Biodiversity Collections Network released a report entitled [*Extending U.S. Biodiversity Collections to Promote Research and Education*](#), which outlines a national agenda that leverages digital data in biodiversity collections for new uses and calls for building an Extended Specimen Network. This endeavor requires robust investments in our nation's scientific collections, whether they are owned by a federal or state agency or are part of an educational institution or free-standing natural history museum or another research center.

A [*2020 report*](#) by the National Academies of Science, Engineering and Medicine (NASEM), *Biological Collections: Ensuring Critical Research and Education for the 21st Century*, provides guidance to the NSF regarding the sustainability of living stock and natural history collections. The report argues that collections are a critical part of our nation's science and innovation infrastructure and a fundamental resource for understanding the natural world.

Past, present, and future collections of Arctic flora and fauna will be essential for the comprehensive monitoring, modeling, and predicting that is envisioned in the Arctic Research Plan. We urge you incorporate this important component of biodiversity research more explicitly.

Please do not hesitate to contact me at jbates@fieldmuseum.org if you require additional information or research examples that highlight the role of collections in enabling Arctic research. Thank you for your consideration.

Sincerely,



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