Biocollections Managers: Perspectives and Processes for Curating Physical Collections and their Digital Objects

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Abstract

Natural history collections retain a plethora of samples and objects for research purposes across domains. The data derived from these physical collections informs scientific discovery, but often aggregating data within even a single domain relies on navigating institutional and discipline-specific catalogs and repositories. Differing curation practices, shifts in methods for measurement, and changing theoretical and funding priorities, make the United States biocollections infrastructure a patchwork quilt of objects and their associated metadata. While the efforts of many have greatly improved the system, it still needs additional investment in these invaluable collections. In today's context of possible data reuse in AI-ready test beds and public access, building a cyberinfrastructure atop this foundation should include revisiting the existing practices in preserving, conserving, and managing the physical collections and the subsequent research data curation processes of the digital objects (Bishop and Hank 2016). Scientific domains that rely on physical collections to create knowledge and work within today's machine-actionable context need more FAIR (Findable, Accessible, Interoperable, and Resuable)-aligned data that also accounts for ethical reuse (i.e., CARE (Collective Benefit, Authority to Control, Responsibility, and Ethics) Principles for Indigenous Data Governance (Carroll et al. 2020)), as well as funding agency expectations for data that are as open as possible.

The purpose of the Institute of Museum and Library Services study is to understand the curation perceptions and behaviors of managers of physical collections across biocollections to inform cross-disciplinary research, data management services, and resources. Six focus groups were conducted with eighteen participants across six physical biocollections: entomology, two herbaria, herpetology, ichthyology, and palaeontology. Participants responded to open-ended questions about their collection overview, storage, data collection, metadata, organization, findability, and reuse. Results indicate that these natural history collection managers use global metadata and storage

standards to increase discoverability but reuse of these physical collections and associated digital objects require more investment in personnel and cyberinfrastructure to enhance reusability of these invaluable natural history collections.

Keywords

data curation profiles, natural history collections, data management, storage, metadata, organization, data discovery, data reuse

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Conflicts of interest

The authors have declared that no competing interests exist.

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