

# Application of Humboldt Extension to Real-world Cases

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## Abstract

Access to high-quality ecological data is pivotal to assessing and modeling biodiversity and its change through space and time. Inventory data (i.e., recording multiple species at specific places and times) are particularly relevant to monitoring species distributions and abundance, but their reliability for use in downstream models depends on reporting the methodology implemented and associated sampling effort and completeness. This information about the inventory processes is often either not reported or described in an unstructured manner, greatly limiting potential re-use for larger-scale analyses. In order to support the reuse of inventories and to assure better standardization of newly collected data, we developed a framework to standardize inventory data reporting that is general enough for broad use.

Guralnick et al. (2018) introduced the Humboldt Core as a proof of concept. In 2021, the [I DWG Humboldt Core Task Group](#) was established to review how to best integrate the terms proposed in the original publication with existing standards and implementation schemas. In the context of sharing data using the [Darwin Core standard](#) (DwC), different types of inventories can be represented as Events with different nesting levels. Therefore, it was deemed appropriate to develop an extension to DwC that allows capturing the details of the inventory process. The Task Group members revised all original terms, reformulated definitions, and discarded or added new terms where needed. We are developing a user guide and reaching out to the larger biodiversity community to test the Humboldt Extension with real-world case study datasets using a test instance of the [GBIF Integrated Publishing Toolkit](#) (IPT). In this presentation, we will review the development process, give an overview of how the Humboldt Extension can be used to report key information on the inventory process, and provide example cases.

After testing with real world cases, our next step will be to seek ratification of Humboldt as a Darwin Core Event extension following the [Vocabulary Maintenance Standard](#). We expect that this will help to overcome a key bottleneck in the sharing of critically important ecological data, enhancing data discoverability, interoperability and re-use while lowering reporting burden.

## **Keywords**

biodiversity inventories, standardization, Darwin Core Event

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## **Conflicts of interest**

## **References**

- Guralnick R, Walls R, Jetz W (2018) Humboldt Core - toward a standardized capture of biological inventories for biodiversity monitoring, modeling and assessment. *Ecography* 41: 713-725. <https://doi.org/10.1111/ecog.02942>