

Assessing the Current State of National Biodiversity Data Integration: An Initiative by the Taiwan Biodiversity Information Alliance (TBIA)

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Abstract

Biodiversity data that adheres to the [FAIR principles](#) (Findable, Accessible, Interoperable, and Reusable) is essential for any research and application, particularly in understanding biodiversity, valuing ecosystem services, and guiding environmental monitoring and conservation. However, most biodiversity-related projects are carried out independently, resulting in the dispersion of data across various databases from different organisations. Data users often need to search, collect, and integrate data from multiple sources, which is time consuming and labour intensive. Furthermore, the lack of unified data standards and taxonomy backbones among different databases poses additional challenges for data analysis and application. To address these issues and maximize the value of existing data, we launched a collaborative bottom-up initiative aimed at establishing a national biodiversity data portal in Taiwan. The collaboration among eight units, including research institutes, governmental organisations, and museums, has led to the formation of the [Taiwan Biodiversity Information Alliance](#) (TBIA), along with the launching of a 5-year (2021–2025) [Taiwan Biodiversity Information Action Campaign](#). Furthermore, the alliance has developed important documentation, such as the [Taiwan Biodiversity Data Standard](#) and the [Principles of Opening and Sharing Sensitive Biodiversity Data](#). These documents have played a crucial role in facilitating data integration across the various units involved by implementing a convergence mechanism that adheres to the [Darwin Core data standards](#) (Darwin Core Task Group 2009) and follows a unified taxonomy backbone aligned with the [Taiwan Catalogue of Life](#). This mechanism simplifies and expedites the information-sharing process, enabling users to access relatively comprehensive national biodiversity data. This presentation provides an introduction to TBIA and its development, illustrates recent achievements of TBIA, and provides a brief overview of the Taiwan's biodiversity data status after integration, accomplished through the efforts of TBIA. The data integration effort has resulted in a cumulative count of 19 million records, while simultaneously enriching the portal with diverse data types owing to the distinctive profession and strength of each participating

unit. For instance, integration has resulted in the incorporation of significantly more specimen records of marine and wetland species. Our future task involves promoting data use, establishing new connections with potential databases and publishing records from the integration effort in international data repositories (e.g., [Global Biodiversity Information Facility](#)), enhancing the accessibility of the data worldwide.

Keywords

bottom-up initiative, collaboration, unified data standard

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Conflicts of interest

The authors have declared that no competing interests exist.

References

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