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Conference Abstract

Biodiversity Informatics in Brazil: A personal perspective

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Abstract

Biodiversity informatics (BI) plays an important role in helping us know, protect and use biodiversity sustainably. It encompasses activities from data digitization, standardization, sharing and aggregation, to supporting decision and policy making. In a country like Brazil, with a large continental geographic area containing ca. 15% of the planet's biodiversity, the challenge is even greater: stakeholders are widely distributed over a large country and the amount of data is huge.

Brazil has been a part of the international BI community, including Biodiversity Information Standards (TDWG), for around two decades. Initially represented solely by the Centro de Referência em Informação Ambiental (CRIA), gradually other groups from universities, museums and institutions joined the arena.

Despite the broader group of stakeholders now involved, the local community is not strong enough. From a human resources point of view, the country has very good universities that train competent professionals both in information technology (IT) and in biology or related fields. Concerning the IT professionals, not surprisingly, other industries and job opportunities are usually more attractive and few people even know about BI. This is probably not unique to Brazil. Biological sciences professionals, for their part, usually have little literacy in computing and are equally unaware of BI as a field.

On the institutional level, museums, universities and other biological data owners often lack IT support for biological data management, including digitization, and systems development/maintenance. This may reflect the lack of appreciation of the importance of data and of BI as a foundation for good biodiversity science and management.

The same happens when it comes to funding. Biological collections are not adequately funded and lack more than a few episodic programs to support collection and museum maintenance and digitization. This lack of infrastructural funding highlights the tragedies of the fires at the Butantan Museum in 2010 (80,000 snakes, 180,000 spiders) and the Museu Nacional in 2018, (20 million biological specimens and objects of the Brazilian and world history and art were lost). The exception is the São Paulo Research Foundation (FAPESP), which has been supporting projects since 1999 on biodiversity and BI via its successful Biota-FAPESP program, the first to tie biodiversity projects to data digitization and sharing in Brazil. The lack of institutional engagement and support, and funding affects the sustainability of many initiatives and puts at risk the long term data availability.

Due to political reasons, Brazil only joined the Global Biodiversity Information Facility (GBIF) in 2012 as an associate (non-contributing financially and non-voting) member with a commitment to become a voting member within five years. Until recently, the Brazilian Biodiversity Information System (SiBBr), Brazil's GBIF node, was also hindered by politics from having a solid, stable national governance and funding to help "consolidate a solid national infrastructure on biodiversity data", and to unite the growing Brazilian BI community around it.

In the international scenario, while political, cultural and funding reasons may have hindered more equitable collaborations (e.g., tools development and sharing) with countries in the Global South, competing Global North-centric projects have prevailed. Although most remaining biodiversity is in the Global South, where local engagement is crucial, in many cases southern partners still often only act as data providers. Collaborative work is required with genuine co-creation, empowering all parties. Initiatives like the Living Atlases community must be recognized and welcomed as a positive shift.

Despite all of these challenges, it can be surprising how much Brazilian biodiversity science has achieved throughout the years, and it gives us hope that in the future, if some of these issues are addressed, a lot more can be done. Education and training, continued funding and institutional support, governance, and international collaboration are essential.

Keywords

biodiversity informatics, Brazil, challenges, opportunities

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