

# Missouri Botanical Garden Open Conference Systems, TDWG 2013 ANNUAL CONFERENCE

[Home](#) > [Biodiversity Information Standards - TDWG](#) > [TDWG 2013 ANNUAL CONFERENCE](#) > [General Papers](#) > [Scheunemann](#)

---

Font Size:

FOBioS: a functional ontology for biodiversity standards interoperability  
*Silvia Scheunemann, Fabiana Soares Santana, Anarosa Alves Franco Brandao*

Building: Grand Hotel Mediterraneo  
Room: Africa (formerly America del Sud)  
Date: 2013-10-29 04:15 PM – 04:30 PM  
Last modified: 2013-10-15

## ABSTRACT

The amount of biodiversity data available for scientific and technological purposes is accumulating at an increasing rate. These data have been collected worldwide by diverse people with different storage specifications and requirements. Although existing collections are often associated with heterogeneous data descriptions, these knowledge bases play important roles within the biodiversity domain, and their integration is still a problem to be solved. Our solution makes use of the absence of interoperability to provide a bridge among existing biodiversity knowledge bases. According to the IEEE (Institute of Electrical and Electronics Engineers) Glossary, interoperability is the ability of two or more systems or components to exchange and use shared information. To achieve interoperability, systems or components should be able to access, process and interpret such information. Therefore, issues related to the information heterogeneity among them may endanger the activities needed to achieve interoperability. To deal with heterogeneity on biodiversity data representation, some research groups had launched initiatives for data standardization, mainly the Taxonomic Databases Working Group, TDWG, and the Global Biodiversity Information Facility, GBIF. They had proposed standards for representation (schemes) and data transfer protocols. The ones adopted by TDWG are ABCD: *Access to Biological Collection Data* and *Darwin Core*. ABCD is a complex schema, structured in XML, to access and exchange data and observations about species. Its initial purpose was providing a broad scope and generality to be compliant with existing database schemas. Darwin Core is a set of elements identified by markers or tags that enable structured data and records of species to be shared as XML documents. It was designed to facilitate discovery, retrieval and integration of information about modern biological species. As a glossary of terms, the Darwin Core is intended to provide stable semantic definitions for the purpose of being maximally reusable in several contexts. Although they are related to the same domain and have adopted XML to structure their representations, they adopted different vocabularies to describe similar (or even equivalent) concepts. Therefore, syntactic and semantic interoperability are prevented between those biodiversity knowledge bases described by these systems. This paper presents FOBioS, a functional ontology built to serve as a common vocabulary to describe biodiversity standards. Its first version shows that ABCD and Darwin Core are compliant with it, and syntactic and semantic interoperability are provided through the alignment between concepts from both standards whenever they are described using its vocabulary.

Acknowledgement: The Research Center on Biodiversity and Computing (Biocomp) – University of Sao Paulo - Brazil and grant #2013/20620-5, São Paulo Research Foundation (FAPESP).