Biodiversity Information Standards TDWG

Taxon Concept Schema (TCS)

Definition

The Taxon Concept Schema (TCS) provides a standard for taxon names and taxon concepts in the exchange and integration of biodiversity and natural history data.

Motivation

The taxonomic component is the core of biodiversity/natural history data. TDWG identified a need to formalize the taxonomic components of biodiversity data to enable the efficient exchange of data between biological databases. The Taxon Concept Schema (TCS) addresses how taxon names and taxon concepts can be globally exchanged and integrated.

There is an important distinction between a **taxon name** and a **taxon concept**. A taxon name is defined in accordance with the rules of Biological Codes of Nomenclature. Taxon names are labels – like the genus name *Rosa* (Linnaeus) or species name *Gorilla gorilla* (Savage, 1847) where the name in brackets is the name of the person who first described the taxon, e.g. Savage first described gorilla in 1847.

Classification and the rules of nomenclature frequently cause species names to be changed or redefined. To be clear what we mean by a taxon name, we should refer to the name and the reference to the publication in which the species is described. This is called a taxon concept. For example in Mammal Species of the World 2nd edition (1993) there is one species of gorilla named *Gorilla gorilla* (Savage, 1847) described. In the 3rd edition (2005) there are two species of Gorilla described *Gorilla gorilla* (Savage, 1847) and *Gorilla beringei (Matschie, 1903)*. There are therefore two distinct taxon concepts here about *Gorilla gorilla* - *Gorilla gorilla* (Savage, 1847) *sec*. MSW1993 and *Gorilla gorilla* (Savage, 1847) *sec*. MSW2005.

There are many global databases containing taxonomic information. Some have just the taxon names while others include taxon concepts. Many of the 'fields' ('elements' or 'attributes') present in these databases will be similar, but even minor differences in the way these are stored makes data exchange difficult.

How it works

The TCS standard enables data to be transmitted in a structured format, an XML document. Each 'container' in the structured data contains a marker that describes what the container contains. When the data is displayed in a web portal, printed, or imported into another database, each container clearly identifies its contents.

TCS includes containers about taxon names, taxon concepts and relationships between taxon concepts. TCS also formalizes the format of referenced publications, the character descriptions of taxonomic concepts and the exemplar specimens used in taxonomic classifications.

Current use

TCS was ratified by TDWG in 2005 and is under constant review by the Taxonomic Names and Concepts Group.

More information

About Taxonomy and Taxonomic Names:
http://www.tdwg.org/fileadmin/subgroups/tnc/Exec_summary_TCS_Appendix.pdf
About the TCS: http://www.tdwg.org/activities/tnc/.
Biodiversity Information Standards (TDWG): http://www.tdwg.org/.

Taxon Concept Schema - A TDWG Standard