

From Catalog to Digital Fauna

A pro-iBiosphere Pilot Project

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The World Spider Catalog

The World Spider Catalog (<http://research.amnh.org/iz/spiders/catalog/>) is arguably the most essential and useful resource for araneological research. Indexing all taxonomic acts and literature and presenting them as a single exhaustive online resource has promoted rigorous scholarship and magnified productivity. The World Spider Catalog first came online in 2000 as a series of linked HTML documents. The catalog lists all spider species known to science and all taxonomic treatments of each species (including synonyms), along with references to figures, distributions, and unique identifiers, among other information and editorial judgments. Two updates are released each year. These updates are maintained by revising text documents, rather than through a database. A database version has been created, but this is based on text parsing and updates are not maintained. Now, the catalog is moving from its birthplace at the American Museum of Natural History in New York to the Naturhistorisches Museum in Bern. Once there, the text will be converted into a database, where it will be maintained for the foreseeable future.

The purpose of this pilot project is to demonstrate how taxonomic treatments parsed using TaxonX XML tags and other data can be hyperlinked through the new World Spider Catalog to make this resource even more powerful and interactive.

Digital Data and Megadiverse Taxa

The digital world is awash with biodiversity data. Why then are we advocating such an ambitious program to mark up vast amounts of taxonomic literature? To illustrate the answer, let us consider GBIF, a database dedicated to aggregating and serving specimen data through a common portal. The dominant model for getting data into GBIF involves aggregating data from a network of large institutional collections, especially natural history museums. But if we break down GBIF data by taxon, some strong patterns and biases emerge. Birds, which represent about 1% of animal species, account for more than half of all GBIF records. Less than 20% of described animal species have any data representation on GBIF, which says nothing of how complete those records are. Plants are better with nearly 60% of species represented. But the density of data for the world's more diverse taxa, including spiders, is very low. This is not because megadiverse taxa are not well represented in the world's natural history collections – far from it – it is because most of these specimen data are not available in digital form. This means that if we want to use the data available today in digital form to address questions that might be relevant to important questions like setting conservation priorities or anticipating the effects of climate change, we are limited by biases in the currently available data. The collections-based model clearly serves some taxonomic groups very well. But the complementary approach of using the taxonomic literature as a data source of specimen data may be more successful for megadiverse taxa.

The World Spider Catalog, Version 14.0
by Norman I. Platnick
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FAM. PENESTOMIDAE Simon, 1903a: 979 [unlid:amnh.org/spiderrfam:0113]
Last updated Dec. 9, 2010
N.B.: elevated from a subfamily of Eresidae and placed near the Zodariidae by Miller et al., 2010: 801.

In synonymy:
Wajana Lehtinen, 1967 = *Penestomus* Simon, 1902 [Miller, Griswold & Haddad, 2010: 6].
Gen. *Penestomus* Simon, 1902 [unlid:amnh.org/spiderrfam:03333]

N.B.: considered a senior synonym of *Wajana* Lehtinen, 1967: 275, type *W. armata* Lehtinen, 1967 [unlid:amnh.org/spiderrfam:03336] by Miller, Griswold & Haddad, 2010: 6.

m. armata (Lehtinen, 1967) South Africa [unlid:amnh.org/spiderrfam:005900]
Type locality: Alicedale, Eastern Cape, South Africa.
Type specimen depository: Musée d'Histoire Naturelle (Genève).
Wajana armata Lehtinen, 1967: 409, f. 470-471 (Dm).
Penestomus armata Miller, Griswold & Haddad, 2010: 31, f. 165, f. 18A-B, 20A-C (m). PDF

f. croeseri Dippenaar-Schoeman, 1989 South Africa [unlid:amnh.org/spiderrfam:005864]
Type locality: Grahamstown (Eastern Cape), South Africa.
Type specimen depository: National Collection of Arachnida (Pretoria).
Penestomus croeseri Dippenaar-Schoeman, 1989a: 122, f. 1-3-5 (Dm).
Penestomus croeseri Miller, Griswold & Haddad, 2010: 28, f. 165, f. 18A-B (m). PDF

m. egazini Miller, Griswold & Haddad, 2010 South Africa [unlid:amnh.org/spiderrfam:043353]
Type locality: Grahamstown Municipal Caravan Park, Eastern Cape, South Africa.
Type specimen depository: National Collection of Arachnida (Pretoria).
Penestomus egazini Miller, Griswold & Haddad, 2010: 31, f. 165, f. 18A-E, 3B, 4A-D, 5A-E, 6A-D, 7A-E, 8A-D, 9A-B, 10A-C, 11A-B, 12A-B (Dm). PDF

f. krugeri Miller, Griswold & Haddad, 2010 South Africa [unlid:amnh.org/spiderrfam:043356]
Type locality: Mid Pletten, Kruger National Park (Limpopo), South Africa.
Type specimen depository: National Collection of Arachnida (Pretoria).
Penestomus krugeri Miller, Griswold & Haddad, 2010: 25, f. 16B, 17A-B (Dm). PDF

Link to treatment (PLAZI)
Link to figures (Morphbank)
Link to open access PDF

All taxonomic treatments concerning the spider family Penestomidae were marked up using GoldenGATE and uploaded to the Plazi server. From there, content can be harvested by a range of cyber-taxonomic databases and resources (e.g., Encyclopedia of Life, SpeciesID), or accessed directly by readers. In addition, all figures from the taxonomic publications for this family were uploaded to Morphbank, v and hyperlinked to the pilot catalog. Links are also made to open access PDFs.

