

A Pan-European Species-directories Infrastructure (PESI) - Towards a Taxonomic Backbone for Europe

de Jong, Y.I., Kouwenberg, J., Boumas, L., Pedersen, H. Æ., Boegh, P., Costello, M., Nash, R., Aktaç, N., Hussey, C., Hyam, R., Bourgin, T., Guentsch, A., Geoffroy, M., Berendsohn, W., Hernandez, F., Vanhoorne, B. and Appeltans, W.

¹ Zoological Museum Amsterdam, Faculty of Science - University of Amsterdam, Amsterdam, The Netherlands; yjong@uva.nl

The correct use of names and their relationships is essential for biodiversity management; therefore the availability of taxonomically validated, standardised reference files is fundamental for biological e-infrastructures. PESI is the next step in integrating and securing taxonomically authoritative species name registers, serving to underpin the management of biodiversity in Europe, by building a Taxonomic Backbone for Europe.

PESI is a joint initiative of two Networks of Excellence: EDIT (European Distributed Institute of Taxonomy) and MarBEF (Marine Biodiversity and Ecosystem Functioning), funded by the European Commission under the Seventh Framework Capacities Work Programme - Research Infrastructures - and is led by the University of Amsterdam. It was started in May 2008 and will last three years, involving forty partner organisations from twenty six countries and several non-contracted associated partners.

PESI defines and coordinates strategies to integrate the infrastructural components of four major community networks on taxonomic indexing and their respective knowledge (social and technical) infrastructures; those of marine life, terrestrial plants, fungi and animals, into a joint work programme. These include the three main all-taxon registers in Europe, namely the European Register of Marine Species, Fauna Europaea, and

Euro+Med PlantBase in coordination with EU-based nomenclators, i.e. Index Fungorum, International Plant Names Index (IPNI), and AlgaeBase, plus the network of EU-based Global Species Databases (GSDs).

The integration of the social expertise networks results in functional knowledge systems of taxonomic experts and regional focal points, which will collaborate on the establishment of standardised and authoritative taxonomic data and the development of approaches for their long-term sustainability. The maintenance of these taxonomic expert networks is considered as the most threatening issue to PESI's success, since Europe is experiencing a decline in its number of professional taxonomists. PESI is addressing this concern by advancing the abilities of the Society for the Management of Electronic Biodiversity Data (SMEBD), by collaborating with the EDIT project and the Consortium of European Taxonomic Facilities (CETAF), as well as reaching out to non-professional taxonomists and taxonomic societies in a hope to revive this vital science. So far the established European Taxonomic Workforce (ETW), contributing to the taxonomic indexing process, consists of more than seven hundred highly qualified experts and numerous local experts connected to the regional focal points.

Regional (often national) focal points become increasingly important for the integrated and synergistic promotion of taxonomic expertise and data standards throughout Europe. With their geographical, national and regional focus, focal points differ from traditional expert networks that are organised around a taxonomic group of organisms. The PESI Focal Points contribute to the organisation and management of European biodiversity information in a different, complementary way and liaison, for example, with national governmental bodies on the implementation of European biodiversity legislations.

The technical integration of the pan-European checklists into a joint 'European Taxonomic Backbone' relies on the Common

Data Model (CDM), ensuring the conceptual mapping of taxonomic databases. This is hosted in the CDM store as a denormalised relational database management system (the so-called 'PESI data warehouse'). The CDM represents a component of EDIT's Platform for Cybertaxonomy.

PESI also contributes to the global efforts on the development of a joint strategy for the assignment of persistent identifiers to its primary checklist (name) elements and implements rudimentary mechanisms for propagating identifiers from the initial data provider to the PESI portal and web services.

PESI is involved in supporting international efforts on the development of the 'Global Names Architecture' by building a common intelligent name-matching device in consultation with principal initiatives like GBIF and LifeWatch. This provides a unified cross-reference system to all stakeholders optimising their taxonomic meta-data service functioning.

The final goal of PESI is to build a single web portal for all species in Europe, not only bringing together the relevant taxonomic details, but also information on the importance of species to human society. A pilot of the PESI web portal can be found at <http://www.eu-nomen.eu/portal/>

Links to other projects mentioned in the article

PESI <http://www.eu-nomen.eu/pesi>

Fauna Europaea <http://www.faunaeur.org/>

ERMS

<http://www.marbef.org/data/erms.php>

Euro+Med PlantBase

<http://www.emplantbase.org/home.html>

EDIT <http://www.e-taxonomy.eu/>

MarBEF <http://www.marbef.org/>

SMEBD <http://www.smebd.eu/>

CETAF <http://www.cetaf.org/>

LifeWatch <http://www.lifewatch.eu/>