

International biodiversity initiatives, with special emphasis on Fauna Europaea

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Abstract

Recently developed European projects and initiatives on the registration of taxa and their distributions and biodiversity in general are briefly outlined: Fauna Europaea, GBIF and ENBI. In all cases accessibility through the world-wide web is a main objective. The working procedures for Fauna Europaea are outlined and the supposed lack of appreciation of the dynamics of taxonomy and zoogeography are discussed. The procedures to obtain the spider data is briefly outlined.

Key words: Araneae, distribution, ENBI, Fauna Europaea, GBIF, indexing

INTRODUCTION

"Biodiversity" has obtained an international political importance since the 1992 Biodiversity Treaty of Rio de Janeiro. Mankind has re-discovered the valued existence of co-inhabitants on our planet and is aware that biodiversity is seriously threatened. Many initiatives have started since. Three of them are mentioned below: Fauna Europaea, Global Biodiversity Information Facility (GBIF) and European Network of Biodiversity Information (ENBI). They all aim at improving the accessibility of available data and sources of information.

FAUNA EUROPAEA

General outline

This European project is an initiative of the European Commission. Europe has been quite active in environmental matters over the last decades. The Bern Convention (www.ecnc.nl/doc/europellegislat/berncov.html), the Birds Directive (www.ecnc.nl/doc/europellegislat/birdsdir.html) and the Habitats Directive (www.ecnc.nl/doc/europellegislat/habidire.html) are all examples of European agreements and legislation.

Europe has developed its Community's Biodiversity Strategy and the Convention on Biological Diversity, all meant to counterbalance the purely economic drives of industries and trade.

Fauna Europaea (<http://www.faunaeur.org>) started in March 2000. The project is advertised as the "Most important advance in biodiversity indexing since Linnaeus", which is an inspiring statement. It is described as "A project to assemble a database of the scientific names and distributions of all living multicellular European land and fresh-water animals". This certainly is a high ambition level because assembling data for obscure taxa of worms is not as easily done as for well-studied and more popular taxa such as the Lepidoptera. The project is also ambitious in its time schedule. It has to be finished by March 2004, but I would not be surprised if that deadline will have to be neglected and the project will be prolonged until the list is complete. To what is "complete" we will come back later on. It has to be stressed that the project concerns the collation of published data only, and does not aim at describing more taxa.

This is not the first project on such large scale. An example of a comparable project is Flora Europaea, which is in progress since many years. There is another example which we might look upon, in the European context, as a kind of pilot project. Professor Minelli of Padova University completed a similar project on the Italian fauna, resulting in a list of all animal species occurring in Italy (Minelli et al. 1995). The spiders were listed by Pesarini (1995) and even though the list is not without mistakes and some literature has been overlooked, there is now at least a list of the spiders of Italy available. One always has to look at the positive side!

Let us look into the project in more detail and analyse its aims. The final product should be a database of the scientific names (C) and distributions (E) of all living multicellular (B) European (D) land and fresh-water animals (A). The different key words are dealt with below.

A. Land and fresh-water animals

Why land and fresh-water animals only, why this restriction? The marine organisms have already been databased by Costello et al. (2001), resulting in the European Register of Marine Species. The project is finished and probably has been used as an example for the present project. As the title indicates it provides a check-list of all organisms concerned and literature references.

B. Living multicellular animals

A restriction to the metazoans is a logical delimitation. It would simply be impossible to find sufficient expertise to include unicellular organisms. It will be difficult enough to properly cover all the metazoan taxa.

C. Scientific names

Fauna Europaea builds up a database of scientific names, an index to all scientifically named and described species. It restricts itself to described species and will not give information

on species still to be described. One distinguishes indigenous species and adventitious species. The latter category includes the species once introduced into the area or which invaded the area and have naturalised in existing ecosystems. Excluded are domesticated animals and exotic imports or casual intruders which have not established populations. It is clear that one will meet with some problematic cases here, because it may be very difficult to prove that a species has established. Also now well-established and generally considered indigenous species may once have entered a country, under their own power or imported by man, and spread throughout the region. It is difficult to clearly identify the status of each species and establish if they have settled in an ecosystem. We only have to think of cases like *Pholcus phalangioides* (Fuesslin, 1775), which spread over Northern Europe during the last century, or *Uloborus plumipes* Lucas, 1846, which apparently conquered European greenhouses more recently. Has the latter species "naturalized in existing ecosystems"? It will be only a matter of time to see it adapt and appear in houses and larger buildings.

The project, of course, follows the International Code of Zoological Nomenclature, with names of authors and dates of publication added as well as the original combination and will include all published names (available names) of species and subspecies. According to the International Code available names include *nomina dubia* but not *nomina nuda*. *Nomina nuda* do not exist in the sense of taxonomy because they were never properly described: there is no description but just a name. To my surprise in the Fauna Europaea project the inclusion of *nomina dubia* is rejected. In my opinion this is an unwise decision. Users of the Fauna Europaea index should be made aware of the existence of such doubtful species and their names. After all, these species have been described, be it insufficiently, while the original material cannot be recovered (yet) and the species cannot be rec-

ognised and properly placed. Nevertheless it is a species! Such cases need to be solved and this is not achieved by looking away and neglect the species. *Nomina dubia* are our collective sin of the past. Insufficient descriptions and loss of material make it difficult but not impossible to solve the problems caused by such dubious names.

Possible solutions for *nomina dubia* are to establish neotypes and bring the species into synonymy. Or use the species for a newly discovered species if it offers a logic solution. As an example I refer to the case of *Lepthyphantes kolosvaryi* Di Caporiacco, 1936 described from the Apennines. When checking the original material the single specimen, the holotype, appeared to be a subadult male which in my opinion (van Helsdingen 1982) belonged in the genus *Bolyphantes*. Thus it stayed dormant as *Bolyphantes kolosvaryi* (Di Caporiacco) because I could not identify it to the species and synonymise it with any of the other species of the genus in that region (*B. luteolus* (Blackwall, 1833) and *B. alticeps* (Sundevall, 1833)). When, more recently, Konrad Thaler, Christo Deltshiev and myself (van Helsdingen et al. 2001) revised the genus *Bolyphantes* we discovered the existence of a new species South of the Alps, in northern Italy and former Yugoslavia and happily decided to use the existing name for this species. We found this an elegant solution!

D. European

The project is an EU initiative but it covers the whole of Europe and not only the EU countries. In any atlas the boundaries of Europe are clearly marked, but in such an international project decisions are often steered by political forces. Some countries have possessions outside Europe and attach much importance to include such regions in the European project. Thus Spain and Portugal got their archipelago's added, the Canary Islands and the Azores, Selvagens Islands and Madeira, respectively. Luckily the French did not insist on the inclusion of their "Departement de Guy-

ana" in South America, which is, in the administrative sense, a province of France.

E. Distribution

Distribution is mostly country-wise. Distribution is simply scored as "Present" or "Absent" per species per country. Some islands are treated as separate entities, despite their administrative belonging to a specific country. Corsica and Sardinia, for instance, have to be treated separately, and of course the archipelago's Azores and the Canary Islands. Islands have clear boundaries and often have endemic faunas and regarding them as separate zoogeographical units stands to reason. Large countries are split up, viz. North European Russia, South European Russia etc., which is logical and practical. Slightly more difficult to understand is the separate treatment of pin-head-size countries like Liechtenstein, Andorra, Monaco, and Vatican City. They fit in with the zoogeographical areas of the neighbouring countries and their modest dimensions hardly merit separate check-lists. However, they are administrative distinct units and have to be dealt with accordingly. In my opinion an exception should be made for Vatican City, which is not more than a snippet of Italy and does not have any zoogeographical meaning or importance.

FINAL PRODUCT

When the project is completed and closed we will have the final product: an accessible database on the web with an index of scientific names of all living land and fresh-water animals and their geographical distribution at country level. For each species all recognised geographical or administrative units will be scored for Present/Absent.

The estimated number of species is 100,000, but nearly all coordinators mention higher numbers now the project is in progress, higher than their original estimation and we therefore will most likely end up with a total number of species which will exceed the original estimation of 100,000.

INVOLVEMENT OF SPIDERS

As to the Araneae, I have already presented an overview of the available sources for the different European countries (check-lists, catalogues, etc.) (van Helsdingen 2000). Some of these sources have become obsolete and the literature has to be scanned for new data. For some countries modern sources are not available and one has to go back to the older literature. For larger (European Russia) or zoogeographically complicated countries (Greece) the data have to be compiled for sections of a country. For nomenclature purposes the database of Platnick (2002) will be used.

CONCLUSIONS AND OBSERVATIONS

1. The database will be very stimulating. People now see the list of species occurring in their country and can compare it easily with the neighbouring countries. I expect it will stimulate people to invest more time and give more attention to their favourite taxonomic group.

Governments and higher-level officials will also use the database. One will now be able to see the present state of the art, use distributional data and hopefully can see what the status of the data is, old and out-dated or good and to be trusted. It is important that they can see where the state of our knowledge is insufficient and where they (the government officials) should stimulate and fund research to further completion of the database.

The official expectation of the project leaders is that the database will be used as a gateway to further scientific research and that it will provide, through links, access to other information sources. These are enthusiastic views on future use of the database once it has been completed.

2. One should, however, realise that the database is only an overview of existing knowledge. The added value lies in the accessibility of the total assemblage of all available data. Published errors, wrong identifications and wrong names used in publications are merely

copied, because the project does not aim at a critical evaluation of published data. A check-list of the animal species of Europe and their distributions certainly has its value as it could be the base of a much more extended database with more precise distributions (which is now very superficial) and with ecological data added. For taxonomists it would be an advantage if the existence and location of type-material or the conservation status of the species would be included.

3. Apart from this, one should realise that the database is out of date immediately after March 2004 when the project is completed. Follow up should be planned. Extended funding might be possible when the first part of the project is successfully completed. In my opinion it would be a waste of money and energy if there would be no instrument for continuous or regular updating of the assembled data and the check-list.

4. We likewise should not forget that taxonomy is a very dynamic field of scientific research. New names are published all the time, names are put into synonymy, genera and species are split up or lumped, names appear and disappear because of taxonomic activity. Moreover, we have to recognise that faunistic research continuously brings new distributional records. Neither should we forget that taxonomy and classification are highly subjective, sometimes even controversial. This is not a serious problem, it is in fact a character of science which postulates that all statements and conclusions can be falsified. A check-list, therefore, will never be really final.

5. One of the suggestions brought forward here is the necessity to solve the problem of the *nomina dubia*. The names remain available and the "species" pollute our check-list. Decisions have to be taken as to the status of such "species". A general cleaning up of the *nomina dubia* should become a priority project in the European context.

GBIF - GLOBAL BIODIVERSITY INFORMATION FACILITY

Essentially GBIF will be a network of known and available information sources on global biodiversity." Information technology tools will enable users to navigate and put to use the world's vast quantities of biodiversity information to produce national economic, environmental and social benefits." The latter is quoted from the GBIF (www.gbif.org). Like the following: "The purpose of establishing GBIF is to design, implement, co-ordinate, and promote the compilation, linking, standardisation, digitisation and global dissemination of the world's biodiversity data, within an appropriate framework for property rights and due attribution."

Of course GBIF will, as the name indicates, facilitate the use of existing knowledge, make it more easily available and accessible to all potential users. The added value lies in the stimulating effects on this field of science. Most countries now have a national GBIF-node (e.g. NL-BIF in the Netherlands). The national nodes may stimulate separate projects within the limits of the project.

ENBI - EUROPEAN NETWORK OF BIODIVERSITY INFORMATION

Network of known available European sources. Again nothing new but making accessible what is already available, showing the way, providing domain names of relevant sources on the web, in the literature and in institutions, with a restriction to Europe. The added value lies in the links provided and the possibilities for obtaining information more easily, by anyone and free. An idealistic idea!

Both these initiatives are dependent on a list of known species. They will get such a list when and if the Fauna Europaea Project has been finished. In my opinion it will be well possible that the follow-up of the Fauna Europaea Project will take place under the auspices of ENBI.

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