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04.12.2013

Ecological modellers require reliable sources of data for their analysis. Often, these sources are databases, checklists and specimen labels. Yet another rich source is the corpus of biological literature. It is estimated that there are well over 100 million pages of scientific publications and the volume grows every year. Publishing... [more](#)

EU BON WP3/WP4 kick-off meeting, Solsona, Spain

Iliyana Kuzmova 24.02.2014



A joint EU BON WP3-WP4 meeting took place on 25-27 November 2013 in Solsona, Spain. The main aim of the meeting was to officially kick off WP3 and provide forum for discussion of the planned work. The two work packages were presented with their main aims, scope and objectives.

The place of the two work packages in the broader framework of EU BON, and the cross-links between the two, were also

discussed.

In the following interview **Hannu Saarenmaa** and **Klaus Henle** share insights from the meeting:

1) WP3 'Improving tools and methods for data analysis and interface' and WP 4 'Link environment to biodiversity: analyses of patterns, processes and trends' are two of the core work packages in EU BON that are expected to accumulate a lot of genuine data and develop new tools for data analysis and interface. Can you explain in short what will your main activities involve?

HS: I can contribute to the project and these WPs a large-scale modelling technology from the [BioVeL project](#) that can process hundreds of species. This would be an engine to compute the first real Essential Biodiversity Variables (EBV).

KH: Our main activities will involve an analysis how available effort is best allocated in time and space to optimize results from monitoring. We will further assess how different sources of uncertainty influence conclusions derived from the analysis of monitoring data

2) What were the main results of the meeting in terms of the planned work and WP management?

HS: It was proposed to set up an EBV Task Force across the EU BON project. If we can do that, it would really give a thrust for the project. If we could pick up the Database of Monitoring Schemes from the [EUMON project](#), as discussed, that would give us access to some large datasets.

KH: One main result was the identification of the concrete responsibilities (e.g. data provision, data analysis for terrestrial, freshwater and marine biodiversity) within the workpackage and to identify explicitly links to other workpackages.

3) What novelty will the work in these two work packages bring and what will the major results be?

HS: If they can create a new Ecological Niche Modelling algorithm that can also deal with spatial patterns, that would be interesting. Such a model actually exists in MigClim, but it is not yet widely used.

KH: We will get recommendations how monitoring can be optimized and a more comprehensive understanding of changes in biodiversity and their underlying causes

4) What are the immediate planned activities and when can the first results be expected?

KH: The most immediate planned activities is the screening of potentially available data needed for the analysis

5) How will the WP3/4 interact with GEO BON?

HS: The proposed EBV Task Force would need to interface very closely with GEO BON.

KH: We are engaged directly with key members of GEO-BON; e.g. we have regular meetings with Henrique Perreira.

Joint Workshop Sierra Nevada LTER and EU BON

Iliyana Kuzmova 04.02.2014



EU BON site data management workshop and Memorandum of Understanding

A joint workshop of the Sierra Nevada LTER site and EU BON was held on 29-31 January 2014 in Granada, Spain and was hosted by the University of Granada. The aim of this meeting was to bring together the Spanish members of the Sierra Nevada LTER site and test site partners from EU BON (WP1, WP2 and WP5) to discuss and develop a closer relationship in exchanging datasets and experiences in site management, long-term monitoring activities and technical requirements for data management.

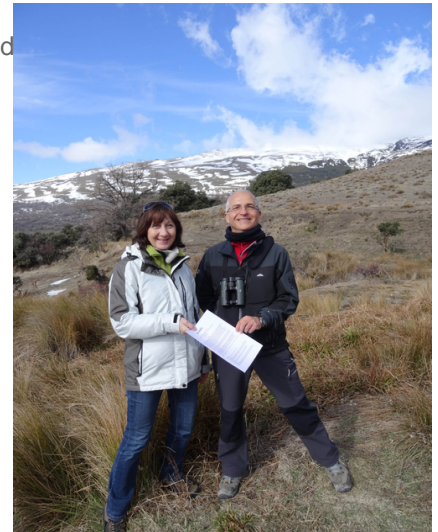
During the fi



rst day of the workshop, 19 participants from EU BON, the Sierra Nevada LTER site (e.g. Regino Zamora Rodriguez and Francisco Bonet) and guests from the remote sensing EU project BIO_SOS and GBIF Spain gave an overview of their activities to obtain information on their projects and to point out likely synergies and linkages. First, the Sierra Nevada LTER site was introduced, particularly the methodologies to monitor and evaluate biodiversity and the structure of the information system Linaria was shown. Thereafter EU BON testing sites (Doñana, Rhine-Main, Amvrakikos) outlined their current activities regarding data collection, data processing and data integration, in addition to that the results of a recently conducted gap analysis of the test sites were presented. In the afternoon session of the meeting, the planned information architecture of EU BON was explained and ways outlined of how biodiversity data could be integrated.

At the second day, the participants visited a highly monitored area located in the southern part of Sierra Nevada (Alpujarras) that is covered mainly by *Quercus pyrenaica* forests. The field trip included stops at a meteorological station, a traditional hydrological system

was visited to show former human impact in the area and the functionality of a field ND VI camera was shown. This site-trip was also used to officially hand-over the **Memorandum of Understanding**, signed between the University of Granada and EU BON, to strengthen the cooperation between the Sierra Nevada LTER and the EU BON test sites. Anke Hoffmann on behalf of EU BON handed the MoU to Professor Regino Zamora Rodriguez, the scientific coordinator of the Sierra Nevada Global Change Observatory. The University of Granada is now a new associate partner of EU BON, a consortium with currently 30 partners from 18 countries.



At the last day local scientists gave an overview of the research conducted in Sierra Nevada. After that session, the workshop aimed to discuss the functionality of the envisaged MetaCat (dataproducer for Metadata) approach for the EU BON test sites and the advantages of self-developed information system Linaria of the Sierra Nevada LTER site.

EU BON will further intensify the dialogue with the University of Granada and the Sierra Nevada LTER site. It is scheduled to have a further meeting at the upcoming General Meeting of EU BON (Greece, 30 March-2 April 2014) to strengthen the partnership with the LTER test site.

For further questions please contact Anke Hoffmann or Florian Wetzel

Presentations from the meeting:

Day 1

- [1. Zamora - Ramos - Sierra Nevada global change obs](#)
- [2. Bonet - The Linaria information system](#)
- [3. Hoffmann - Häuser - Introduction to EU BON](#)
- [4. Juan Negro - CSIC-EBD](#)
- [4. Juan Negro Donana 2](#)
- [4. Juan Negro Donana 3](#)
- [5. Stoll - test site Rhein - Main](#)
- [6. Dailianis - test site Amvrakikos](#)
- [7. Wetzel - Gap analysis](#)
- [8. Palma Blonda - BIO_SOS and remote sensing](#)
- [9. Pando - EU BON GBIF Granada 2014](#)
- [10. Kunin- EU BON Work package 3](#)

Day 3

- [1. Megia - Mendenez - Climate Change and elevational range shifts](#)
- [2. Gomez - Hybridization](#)
- [3. Villar - Argaiz - Long time series in high mountain lakes](#)
- [4. Moreno - Vegetation changes during Holocene](#)

[Workshop Agenda](#)

GEO to keep unleashing the power of open data: Mandate endorsed for another 10 years

Iliyana Kuzmova 20.01.2014



On the 17 Jan in Geneva, the Group on Earth Observations (GEO) received unanimous endorsement to unleash the power of open data for a second decade. There was agreement to continue building on the organization's first 10 years of pioneering environmental advances, which are designed to improve the quality of life of people everywhere. Fueled by open data, GEO's efforts are now evident in most regions of the world. GEO is comprised of 90 member nations, the European Commission and 77 Participating Organizations.

"GEO is successfully meeting its mandate, which is to make data and other information open, accessible and easy to discover for decision makers around the world," said Mr. Janez Potočnik, European Commissioner for the Environment. "GEO's vision is now operational, a proven force for putting sound science to work across nine essential areas: agriculture, biodiversity, climate, disasters, ecosystems, energy, health, water and weather."

GEO's mandate is to drive the interoperability of the many thousands of space-based, airborne and in situ Earth observations around the globe. Without concerted efforts to coordinate across diverse observations, these separate systems often yield just snapshot assessments, leading to gaps in scientific understanding and hampering data fusion in support of better decision making for society. GEO aims to fill such gaps by providing a comprehensive, more integrated picture of our changing Earth. GEO is accomplishing this by establishing a Global Earth Observation System of Systems, known as GEOSS, and a Portal through which data and other information can be easily accessed at little or no cost.

"Rather than snapshot assessments, GEO gives us moving pictures of a changing planet," said Mr. Cao Jianlin, Vice Minister of the Ministry of Science and Technology of China. "Our world does not work just in the sea, on land, in the atmosphere or in space, and our policies cannot reflect individual domains either." China, for example, is partnering with 46 other GEO-member nations and several of GEO's Participating Organizations to ensure that unprecedented data will be available to measure the effects of human activities and natural processes on the carbon cycle, the first such coordinated effort at the global level.

In South Africa, 22 nations and 5 GEO Participating Organizations recently launched AfriGEOSS with the goal of strengthening that continent's capabilities to produce, manage and use earth observations. "This new initiative gives us the necessary framework to support informed decisions about a range of priorities, including food security, access to clean water and sanitation, natural resources, and coastal and disaster management," said Derek Hannekom, Minister of Science and Technology, South Africa.

By increasing the utility of open data about the Earth, GEO is helping to mitigate disasters, develop water-management strategies, support citizen observatories, and strengthen food security. GEO is driving the development of new tools, such as a cholera early warning system, as well as painting fuller pictures of complex environmental processes, including through global observations of ocean acidification at the global scale and observations of atmospheric greenhouse gases from space. GEO participants are also studying the footprint of mining practices, with the aim of minimizing future impacts on nearby communities and natural habitat, and focusing on links between air quality and health. There is also focus on the far-reaching consequences of melting glaciers and other serious cold-region concerns.

"The Obama Administration continues to work to catalyze the emergence of new businesses, products and services powered by the U.S. Government's open data. Increasing access to data and data sharing, both nationally and

internationally, is crucial for unleashing innovation across our data-driven economy," said Dr. Patrick Gallagher, performing the duties of the Deputy Secretary of Commerce." GEO's collaborative work to integrate open data about the Earth continues to drive the development of new tools, services and scientific insights that are used around the world to support sound decision making."



EU BON at the 2013 International Conference on Open Data in Biodiversity and Ecological Research, Taiwan

Iliyana Kuzmova 05.12.2013



The [2013 International Conference on Open Data in Biodiversity and Ecological Research](#) took place between 20 - 22 Nov 2013, hosted by [Academia Sinica](#) in Taipei, Taiwan. With the aim to promote open data in science twelve foreign speakers introduced relevant projects and initiatives in the sphere of biodiversity informatics: AP-BON, DataONE, Ecological Research, EU-BON, Global Biodiversity Information Facility (GBIF), Japan Biodiversity Information Facility (JBIF), linked open data, National Ecological Observatory Network (NEON), Pensoft, and Thomson Reuters.



Dirk Schmeller (UFZ) and Lyubomir Penev (Pensoft), who presented EU BON at the conference, share their experience in a recent interview:



Lyubomir Penev (Pensoft)

What are the aims and main outcomes from this meeting?

LP: Taiwan has an impressive national policy with regard to data management in biodiversity sciences. The meeting summarised years of effort of Taiwanese scientists and especially of Academia Sinica to integrate data and make them publicly available. It is sufficient to mention that Taiwan has established four national nodes of the largest international biodiversity platforms, that is TaiBIF (of GBIF), TaiCOL (of Catalogue of Life), TaiEOL (of EOL) and TaiBOL (of Barcode of Life).

Were there any biodiversity data integration models presented at the meeting that can be adopted and implemented in EUBON?

LP: Perhaps not directly, however the impressive amount and quality of work and the accumulated experience of the Taiwanese and Japanese colleagues would certainly be of value for EU BON. In addition, there are well established contacts already between the FP7 project SCALES and the National University of Taiwan which could serve as a stepping stone as well, because two of the SCALES partners participate in EU BON and at the meeting (UFZ and Pensoft).

The interest to the EU BON presentation by Dirk was great. An indicator for that was that more than 120 EU BON leaflets have been picked up by the participants from the information desk.

Did you discuss any opportunities for partnership with organizations and initiatives from Asia and America, which deal with biodiversity data integration and accessibility?

LP: Yes, there were a lot of discussions how to mobilize and publish biodiversity data and most probably several data publishing projects will appear as a result of the discussions. These pilots could be used for the EU BON goals.



Dirk Schmeller (UFZ)

US National Ecological Observatory Network (NEON) has activities similar to those planned by WP4 Link environment to biodiversity: analyses of patterns, processes and trends. Is there something that EU BON can learn from the experience of its American colleagues?

DS: It is important to keep a close link with Brian Wee and NEON, as they have a head start in comparison to EU BON. I am sure that a collaboration would benefit EU BON to work efficiently.

What is your prognosis for the successful establishment of the data publishing model in scholarly literature, and more specifically in spheres such as Ecology, Genetics, Physiology and Paleontology?

DS: Most research is financed by taxpayer money and should become publicly available once the analyses a researchers has intended are completed. I see a huge potential to publish this data in scholarly literature. I, however, see also quite some difficulties to recombine relevant datasets across different sources for further going analyses. I also see difficulties in the willingness of researchers to share data, as in many cases they see these as their own.

Linked Open Data (LOD) is a new and prominent technology to publish and share data on the web. Could you please explain what exactly hides behind this concept, and how could EU BON benefit from it?

LP: The meeting in Taiwan was impressive also in the wide representation of the Resource Description Framework (RDF) technologies in integration of biodiversity data, especially from a group from the National Museum of Japan and the University of Tokyo. RDF and the OWL Web Ontology Language are definitely the way to go if we want to make diverse data sets interoperable; the implementation of RDF in a pilot phase would be of primary importance for the success of EU BON.

Taking the data out of paper

Quentin Groom & Donat Agosti 04.12.2013



Ecological modellers require reliable sources of data for their analysis. Often, these sources are databases, checklists and specimen labels. Yet another rich source is the corpus of biological literature. It is estimated that there are well over 100 million pages of scientific publications and the volume grows every year. Publishing in advanced XML-based journals, such as [Zookeys](#), [Phytokeys](#) or the [Biodiversity Data Journal](#) is recommended for new data, but what is the solution for legacy texts?

The EU FP7 project [pro-iBiosphere](#) has been piloting the mark-up and extraction of biological information from literature, which has been pioneered by Plazi (Agosti & Egloff, 2009). The EU FP7 Coordination and Support Action "pro-iBiosphere" was launched to investigate ways to increase the accessibility of biodiversity data, improve the efficiency of its curation and increase the user base of biodiversity data consumers and applications. The project addresses the technical and semantic interoperability between different forms in which data are published and analyses the sustainability issues related to the maintenance and curation of biodiversity data and derived information and knowledge. It also involves encouraging the biodiversity community to publish biodiversity data in a way that satisfies the technical requirements for an envisioned Open Biodiversity Knowledge Management System.

In order to reach these objectives three pilots for data mark-up and one for interoperability are being conducted (for detailed information on the pilots please see [here](#)). The mark-up pilots are evaluating accessibility of data within literature for a wide range of organisms and data types; and ways to facilitate extraction of biological information from literature, including observations, traits, nomenclature, habitat information and interactions between organisms. For example, one pilot is looking at biogeographic data using the species [Chenopodium vulvaria](#) as a subject. In another, trait data is being extracted from literature on tropical [mistletoes](#); while yet others are extracting data from papers on [spiders](#), [ants](#), [centipedes](#), [mosses](#) and [fungi](#).

In order to extract these data one can use either "born" digital texts or scanned texts, converted through text capture. These texts are then progressively marked up into XML documents, with tags defining the meaning of the containing text. The degree of mark-up granularity and the choice of textual elements to be marked-up depend on the type of data to be extracted and its granularity in the text. In taxonomically based literature, text is usually divided into the individual "treatments" for each species. Fortunately, most paragraph elements of these texts are in standard formats, for example, separate blocks of text contain the physical description of the organism, details of the distribution and habitat information, often separated with sub-headings.

The pro-iBiosphere pilots have used several methods for mark-up, but the main tool has been the [GoldenGate Editor](#), which combines manual and automated methods to identify key text elements. For example, an algorithm identifies Latin names and then an interface guides the user through the verification of the algorithm's results. Once marked-up, the XML document can be uploaded to the [Plazi](#) document repository. Plazi is a not-for-profit organization devoted to promoting open-access to taxonomic literature. You are free to use the data contained in Plazi's repository and if you want you can refine the mark-up for your own purposes.

Extracting data from the legacy literature can be expensive. Modern XML based publications have additional advantages of linkages via DOI identifiers, and immediate dissemination to harvesters like EOL or GBIF. Yet, digitisation and mark-up has the possibility to reanimate the data in our publications, making them almost as useful as modern linked publications.

Task 3.4 of EU-BON is to develop tools to prepare, extract and mine published biodiversity literature (led by Plazi - Donat Agosti). For this task Plazi is looking for rich sources of data from the biodiversity literature, particularly where those data can be applied within other EU-BON tasks. For further information please contact Plazi

Agosti, D., & Egloff, W. (2009). Taxonomic information exchange and copyright: the Plazi approach. *BMC research notes*, 2(1), 53. doi:10.1186/1756-0500-2-53

[Quentin Groom](#) (National Botanic Garden, Belgium) & [Donat Agosti](#) (Plazi)

