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# EU BON - NEWSLETTER

## Issue 2

*(Jun/Nov 2013)*

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20.06.2013

The Norwegian Biodiversity Information Centre (NBIC) was host to an international biodiversity informatics workshop May 29th-31st. The event was held as part of the EU-project European Biodiversity Observation Network (EU BON), where NBIC is a partner. The theme for the 'EU BON Initial Informatics Workshop' was data architectures, standards and interoperability... more

## Next-generation global e-infrastructure for taxon names registry

**Iliyana Kuzmova** 04.11.2013


***Zookeys, the first zoological journal to introduce automatic registration in ZooBank***

The latest issue of *ZooKeys* - no. 346 - has been automatically registered in ZooBank on its day of publication last Friday. This marks the successful deployment of an automated registration-to-publication pipeline for taxonomic names for animals. The innovative workflow was jointly funded by the EU FP7 funded project pro-iBiosphere and a U.S. National Science Foundation project to develop the Global Names Architecture (DBI-1062441).

The process of post-publication recording and indexing of species names has a long tradition, in some cases dating as far back as the middle of 19th century. But now in the 21st century with the advance of modern technologies and the opportunity to publish taxonomic novelties online, the process of post-publication recording brought into focus the concept of automated pre-publication registration.

Why is this important? The proportion of 'turbo-taxonomic' papers describing hundreds of new species increases. Registration of hundreds of new species is an issue, however it is even more important that the final publication data of the

pre-registered names are reported back to ZooBank on the day of publication.

Launched as an open access peer reviewed journal in 2008, to coincide and adopt from inception the International Code of Zoological Nomenclature changes for electronic publications, *ZooKeys* was the first journal to provide a mandatory in-house registration in ZooBank. Since 2008, it has contributed about one third of all names currently registered in ZooBank. With the adoption of the automated ZooBank registration, *ZooKeys* continues its mission to set novel trends in biodiversity publishing.

Implementation of automated workflows and invention of XML-based tools will facilitate the process of publication and dissemination of biodiversity information. It will pave the way for unification and streamlining the registration process, even more to building the next-generation e-infrastructure for a common global taxon names registry. Within the pro-iBiosphere project and in cooperation with Plazi that have created the TaxPub XML schema, an automated registration workflow for plants has already been established between the International Plant Names Index (IPNI) and the *PhytoKeys* journal, to be applied soon also for fungi between Index Fungorum and the journal *MycoKeys*.

## Populations of grassland butterflies decline almost 50 % over two decades

**eubon.eu** 30.10.2013

By http://www.eea.europa.eu/

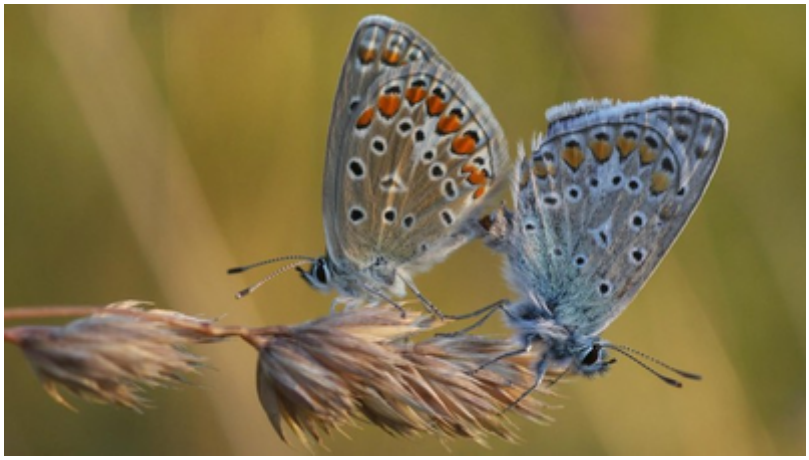
**Grassland butterflies have declined dramatically between 1990 and 2011. This has been caused by intensifying agriculture and a failure to properly manage grassland ecosystems, according to a report from the European Environment Agency (EEA).**

The fall in grassland butterfly numbers is particularly worrying, according to the report, because these butterflies are considered to be representative indicators of trends observed for most other terrestrial insects, which together form around two thirds of the world's species. This means that butterflies are useful indicators of biodiversity and the general health of ecosystems.

Seventeen butterfly species are examined in 'The European Grassland Butterfly Indicator: 1990–2011', comprising seven widespread and 10 specialist species. Of the 17 species, eight have declined in Europe, two have remained stable and one increased. For six species the trend is uncertain.

Butterflies examined in the report include the Common Blue (*Polyommatus icarus*), which has declined significantly, the Orangetip (*Anthocharis cardamines*), which seems to be stable since 1990, and the Lulworth Skipper (*Thymelicus acteon*), which shows an uncertain trend over the last two decades.

Hans Bruyninckx, EEA Executive Director, said: "This dramatic decline in grassland butterflies should ring alarm bells – in general Europe's grassland habitats are shrinking. If we fail to maintain these habitats we could lose many of these species forever. We must recognise the importance of butterflies and other insects – the pollination they carry out is essential for both natural ecosystems and agriculture." more...



## The cyber-centipede: From Linnaeus to big data

**Iliyana Kuzmova** 29.10.2013

Taxonomic descriptions, introduced by Linnaeus in 1735, are designed to allow scientists to tell one species from another. Now there is a new futuristic method for describing new species that goes far beyond the tradition. The new approach combines several techniques, including next generation molecular methods, barcoding, and novel computing and imaging technologies, that will test the model for big data collection, storage and management in biology. The study has just been published in the *Biodiversity Data Journal*.

While 13,494 new animal species were discovered by taxonomists in 2012, animal diversity on the planet continues to decline with unprecedented speed. Concerned with the rapid disappearance rates scientists have been forced towards a so called 'turbo taxonomy' approach, where rapid species description is needed to manage conservation.

While acknowledging the necessity of fast descriptions, the authors of the new study present the other 'extreme' for taxonomic description: "a new species of the future". An international team of scientists from Bulgaria, Croatia, China, UK, Denmark, France, Italy, Greece and Germany illustrated a holistic approach to the description of the new cave dwelling centipede species *Eupolybothrus cavernicolus*, recently discovered in a remote karst region of Croatia. The project was a collaboration between *GigaScience*, China National GeneBank, BGI-Shenzhen and Pensoft Publishers.

*Eupolybothrus cavernicolus* has become the first eukaryotic species for which, in addition to the traditional morphological description, scientists have provided a transcriptomic profile, DNA barcoding data, detailed anatomical X-ray microtomography (micro-CT), and a movie of the living specimen to document important traits of its behaviour. By employing micro-CT scanning in a new species, for the first time a high-resolution morphological and anatomical dataset is created - the 'cybertype' giving everyone virtual access to the specimen.

This, most data-rich species description, represents also the first biodiversity project that joins the ISA (Investigation-Study-Assay) Commons, that is an approach created by the genomic and molecular biology communities to store and describe different data types collected in the course of a multidisciplinary study.

"Communicating the results of next generation sequencing effectively requires the next generation of data publishing" says Prof. Lyubomir Penev, Managing director of Pensoft Publishers. "It is not sufficient just to collect 'big' data. The real challenge comes at the point when data should be managed, stored, handled, peer-reviewed, published and distributed in a way that allows for re-use in the coming big data world", concluded Prof. Penev.

"Next generation sequencing is moving beyond piecing together a species genetic blueprint to areas such as biodiversity

research, with mass collections of species in "metabarcoding" surveys bringing genomics, monitoring of ecosystems and species-discovery closer together. This example attempts to integrate data from these different sources, and through curation in BGI and *GigaScience*'s GigaDB database to make it interoperable and much more usable," says Dr Scott Edmunds from BGI and Executive Editor of *GigaScience*.

**Additional information:**
Pensoft and the Natural History Museum London have received financial support by the EU FP7 projects ViBRANT and pro-iBiosphere. The China National GeneBank (CNGB) and *GigaScience* teams have received support from the BGI. The DNA barcodes were obtained through the International Barcode of Life Project supported by grants from NSERC and from the government of Canada through Genome Canada and the Ontario Genomics Institute.

**Original Sources:**

Stoev P, Komeri?ki A, Akkari N, Shanlin Liu, Xin Zhou, Weigand AM, Hostens J, Hunter CI, Edmunds SC, Porco D, Zapparoli M, Georgiev T, Mietchen D, Roberts D, Faulwetter S, Smith V, Penev L (2013) *Eupolybothrus cavernicolus* Komeri?ki & Stoev sp. n. (Chilopoda: Lithobiomorpha: Lithobiidae): the first eukaryotic species description combining transcriptomic, DNA barcoding and micro-CT imaging data. *Biodiversity Data Journal* 1: e1013. DOI: 10.3897/BDJ.1.e1013

Edmunds SC, Hunter CI, Smith V, Stoev P, Penev L (2013) Biodiversity research in the "big data" era: *GigaScience* and Pensoft work together to publish the most data-rich species description. *GigaScience* 2:14 doi:10.1186/2047-217X-2-14

Watch the 3D cybertype video: http://www.youtube.com/watch?v=vqPuwKG8hE4&feature=em-upload_owner

## Advanced Open Access publishing model

**Iliyana Kuzmova** 24.10.2013

***The Biodiversity Data Journal goes beyond the basics of the Gold Open Access***

There are two main modes of open access publishing – Green Open Access, where the author has the right to provide free access to the article outside the publisher's web site in a repository or on his/her own website, and Gold Open Access, where articles are available for free download directly from the publisher on the day of publication.

Opening of content and data, however does not necessarily mean "easy to discover and re-use". The *Biodiversity Data Journal* proposed the term "Advanced Open Access" to describe an integrated, narrative (text) and data publishing model where the main goal is to make content "re-usable" and "interoperable" for both humans and computers.

To publish effectively in open access, it is not sufficient simply to provide PDF or HTML files online. It is crucial to put these under a reuse-friendly license and to implement technologies that allow machine-readable content and data to be harvested and collated into a big data pool.

The Advanced Open Access means:

- Free to read
- Free to re-use, revise, remix, redistribute
- Easy to discover and harvest
- Content automatically summarised by aggregators
- Data and narrative integrated to the widest extent possible
- Human- and computer-readable formats
- Community-based, pre- and post-publication peer-review
- Community ownership of data
- Free to publish or at low cost affordable by all

BDJ shortens the distance between "narrative" (text) and "data" publishing. Many data types, such as species occurrences,

checklists, measurements and others, are converted into text from spreadsheets for better readability by humans. Conversely, text from an article can be downloaded as structured data or harvested by computers for further analysis.

"Open access is definitely one of the greatest steps in scientific communication comparable to the invention of the printing technology or the peer-review system. Great but not sufficient!" said Prof. Lyubomir Penev, founder of Pensoft Publishers and the *Biodiversity Data Journal*. "We need to switch the focus already from making content 'available for free download' to being discoverable and extractable. Such re-usability multiplies society's investment in science".

###

**Additional information:**
The *Biodiversity Data Journal* is designed by Pensoft Publishers and was funded in part by the European Union's Seventh Framework Program (FP7) project ViBRANT.

**Source:** Smith V, Georgiev T, Stoev P, Biserkov J, Miller J, Livermore L, Baker E, Mietchen D, Couvreur T, Mueller G, Dikow T, Helgen K, Frank J, Agosti D, Roberts D, Penev L (2013) Beyond dead trees: integrating the scientific process in the *Biodiversity Data Journal*. *Biodiversity Data Journal* 1: e995. DOI: 10.3897/BDJ.1.e995

## New framework to deliver biodiversity knowledge

**Iliyana Kuzmova** 02.10.2013

**Global Biodiversity Informatics Outlook sets out key steps to harness IT and open data to inform better decisions**

Copenhagen, Denmark – A new initiative launched today (2 Oct) aims to coordinate global efforts and funding to deliver the best possible information about life on Earth, and our impacts upon it.

The Global Biodiversity Informatics Outlook sets out a framework to harness the immense power of information technology and an open data culture to gather unprecedented evidence about biodiversity and to inform better decisions.

The framework is outlined in a document and website entitled *Delivering Biodiversity Knowledge in the Information Age,* inviting policy makers, funders, researchers, informatics specialists, data holders and others to unite around four key focus areas where progress is needed.

The focus areas, each consisting of several specific components, are:

- **Culture –** promoting practices and infrastructure for sharing data, using common standards and persistent archives, backed up by strong policy incentives and a community of willing specialists;
- **Data –** addressing the need to transform all data about species, past and present, into usable and accessible digital formats; from historic collections and literature to citizen science observations, remote sensors and gene sequencing;
- **Evidence –** organizing and assessing data from all sources to provide clear, consistent views giving them context; including taxonomic organization, integrated occurrences in time and space, capturing information about species interactions, and improving data quality through collaborative curation; and

- **Understanding –** building models from recorded measurements and observations to support data-driven research and evidence-based planning, including predictive tools, better visualization and feedbacks to prioritize new data capture.

The document is being promoted through a number of upcoming events this month, including the Governing Board of the Global Biodiversity Information Facility and the Subsidiary Body on Scientific, Technical and Technological Advice of the Convention on Biological Diversity (CBD SBSTTA) where it forms part of the discussion on meeting global targets to end biodiversity loss.

The framework arose from the Global Biodiversity Informatics Conference which gathered around 100 experts in Copenhagen in July, 2012, to identify critical questions relating to biodiversity and tools needed answer them. Workshop leaders at that conference went on to draw up and author the current document.

The Global Biodiversity Informatics Outlook includes examples of projects and initiatives contributing to its objectives, and the accompanying website www.biodiversityinformatics.org invites feedback from others wishing to align their own activities to the framework.

A deck of slides for presentations about GBIO is available at
http://www.slideshare.net/GBIF/global-biodiversity-informatics-outlook

## The Biodiversity Data Journal: Readable by humans and machines

**Iliyana Kuzmova** 17.09.2013

The *Biodiversity Data Journal* (BDJ) and the associated Pensoft Writing Tool (PWT), launched on 16th of September 2013, offer several innovations - some of them unique - at every stage of the publishing process. The workflow allows for authoring, peer-review and dissemination to take place within the same online, collaborative platform.

Open access to content and data is quickly becoming the prevailing model in academic publishing, resulting in part from changes to policies of governments and funding agencies and in part from scientist's desire to get their work more widely read and used. Open access benefits scientists with greater dissemination and citation of their work, and provides society as a whole access to the latest research.

To publish effectively in open access, it is not sufficient simply to provide PDF files online. It is crucial to put them under a reuse-friendly license and to implement technologies that allow machine-readable content and data to be harvested by computers that can collate small scattered data into a big pool. Analyses and modelling of community-owned big data are the only way to confront environmental challenges to society, such as climate change, ecosystems destruction, biodiversity loss and others.

Manuscripts are not submitted to BDJ in the usual way, as word processor files, but are written in the online, collaborative Pensoft Writing Tool (PWT), that provides a set of pre-defined, but flexible article templates. Authors may work on a manuscript and invite external contributors, such as mentors, potential reviewers, linguistic and copy editors, and colleagues, who may read and comment on the text before submission. When a manuscript is completed, it is submitted to the journal with a simple click of a button. The tool also allows automated import of manuscripts from data management platforms, such as Scratchpads.

"This is the first workflow ever to support the full life cycle of a manuscript, from initial drafting through submission, community peer-review, publication and dissemination within a single, online, collaborative platform. By publishing papers in

all branches of biodiversity science, including novel article types, such as data papers and software descriptions, BDJ becomes a gateway for either large or small data into the emerging world of "big data", said Prof. Lyubomir Penev, managing director and founder of Pensoft Publishers.

BDJ shortens the distance between "narrative (text)" and "data" publishing. Many data types, such as species occurrences, checklists, measurements and others, are converted into text from spreadsheets into a human-readable format. Conversely text from an article can be downloaded as structured data or harvested by computers for further use.

A novel community-based peer-review provides the opportunity for a large number of specialists in the field to review a manuscript. Authors may also opt for an entirely public peer-review process. Reviewers may opt to be anonymous or to disclose their names. Editors no longer need to check different reviewers' and author's versions of a manuscript because all versions can be consolidated into a single online document, again at the click of a button.

"The *Biodiversity Data Journal* is not just a journal, not even a data journal in the conventional sense. It is a completely novel workflow and infrastructure to mobilise, review, publish, store, disseminate, make interoperable, collate and re-use data through the act of scholarly publishing!" concluded Dr Vincent Smith from the Natural History Museum in London, the journal's Editor-in-Chief.

The platform has been designed by Pensoft Publishers and was funded in part by the European Union's Seventh Framework Program (FP7) project ViBRANT.

###

**Original Source**

Smith V, Georgiev T, Stoev P, Biserkov J, Miller J, Livermore L, Baker E, Mietchen D, Couvreur T, Mueller G, Dikow T, Helgen K, Frank J, Agosti D, Roberts D, Penev L (2013) Beyond dead trees: integrating the scientific process in the Biodiversity Data Journal. *Biodiversity Data Journal* 1: e995. DOI: 10.3897/BDJ.1.e995

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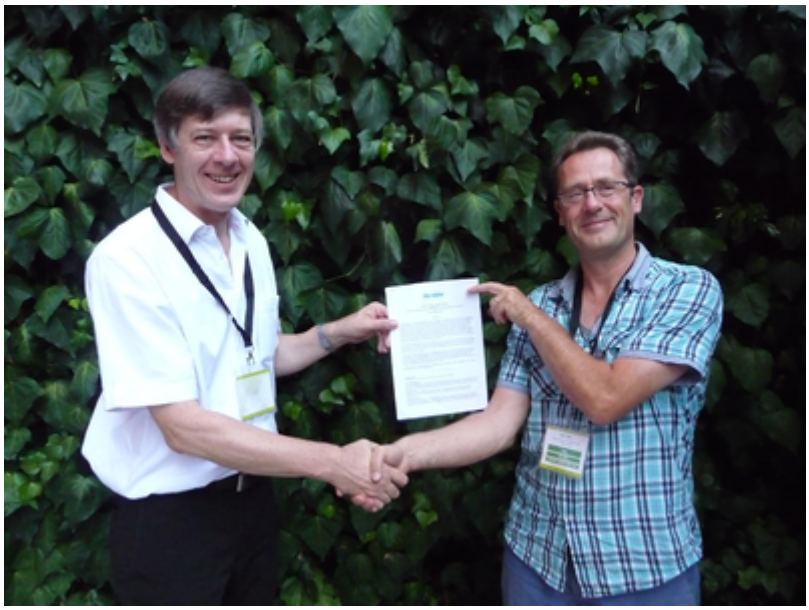
## Memorandum of Understanding signed at Bioinformatics Horizon Conference in Rome

**Iliyana Kuzmova** 10.09.2013

At the Bioinformatics Horizon 2013 Conference (3 - 6 September 2013, Rome) a Memorandum of Understanding was signed between PESI and EU BON. Christoph Häuser, on behalf of EU BON and Yde de Jong on behalf of PESI (see picture below), signed the document to strengthen the cooperation and formalise the integrating efforts of the European species infrastructures.

PESI is now a new associate partner of EU BON, a consortium with currently 30 partners from 18 countries. One of the common aims of EU BON and PESI will be to establish and sustain standard taxonomies for Europe. EU BON will support the PESI backbone developments, including its components, with a focus on Fauna Europaea and Euro+Med. Besides analyzing current gaps, new ideas will be developed to trigger expert involvement and enhance the data management systems.

In a side-meeting at BIH 2013, some ideas were discussed with available EU BON and PESI partners. Important steps will be taken to secure the sustainability of databases and expertise networks combined with the development of technical innovations for users and stakeholders and to promote the implementation of PESI as a European (INSPIRE) standard. It will be also important to further integrate the huge expertise networks, outreach to PESI Focal Points and expand the geographical scope. Furthermore, it will be important to integrate additional data types and data-resources.



## Pan-European stakeholder consultation on the intersessional process of IPBES

**Iliyana Kuzmova** 22.07.2013

From 16th to the 18th of July, a European stakeholder consultation for the Intergovernmental Platform on Biodiversity & Ecosystem Services (IPBES) took place in Leipzig (Germany). The consultation was organized by three European Biodiversity Platforms: Network-Forum Biodiversity Research Germany (NeFo), the Belgian Biodiversity Platform, and the French Foundation for Research on Biodiversity (FRB) (f

urther information on the conference: www.biodiversity.de/index.php/de/ipbes/nefo-aktivitaeten-zu-ipbes/workshops/pan-european-stakeholder-consultation).

IPBES will greatly influence future biodiversity policy and research, and EU BON is expected to provide a European contribution to IPBES. IPBES will be in particular of high interest, because it will need tools to integrate and analyse different data sources, to develop relevant infrastructure and to do assessments of state and trends of biodiversity at multiple scales.

EU BON was represented by several partners at the meeting and we acted as facilitators in the round-tables, gathered input for the project, participated in discussions and exchanged ideas with many representatives and colleagues. We provide you with a short summary of the meeting below.

The aims of the pan-European stakeholder consultation meeting in Leipzig were:

1. To reach out to stakeholders to inform people and institutes and to raise awareness of the dynamics in IPBES.
2. To discuss and obtain feedback on several IPBES-related documents that are currently being drafted. In their final form these documents will be submitted to the Panel for the IPBES 2 plenary session in 9-14 December 2013.

The meeting in Leipzig was organized around round table discussions of several draft documents of importance for stakeholders: the draft work programme, the stakeholder engagement strategy draft and the draft "Vision for pan-European IPBES support perspective". If you are interested these documents, currently for review, can be found here: http://www.ipbes.net/intersessional-process/current-review-documents-ipbes2.html .

There were several opportunities for EU BON partners to flag the potential biodiversity data and analysis requirements for

the future IPBES work program in separate discussions and to give recommendations as to what should be additionally integrated in the draft work programme.

We also brainstormed on a potential EU BON side event at the second IPBES meeting, which will be held in 9-14 December in Antalya, Turkey. Topics discussed by national delegates in that plenary will amongst other topics comprise: the first work programme, budget, stakeholder engagement, the position of observers, technical requirements and a list of thematic priorities for IPBES assessments.

Although the meeting was a success in terms of the number and diversity of participants, the consultation felt for many participants as a top down exercise. However, the importance of being involved at this stage was felt and the hope for stakeholder empowerment in the future was often voiced.


## Handling "big data" is no small feat

**Iliyana Kuzmova** 17.07.2013

Policy-makers and science and industry representatives are discussing how to make large amounts of Earth observation data accessible to a wider user community. To explore this idea, some 250 science, industry and policy-making representatives and national delegates from Europe, the US, Australia, China and Africa met at ESA's ESRIN centre in Frascati, Italy last week for ESA's first 'Big Data from Space' event.

Representatives from ESA and NASA opened the event together with the European Commission. European Commission Directorates-General for Enterprise and Industry, Research and Innovation and Communications Networks, Content and Technology, along with representatives from the European Environment Agency, the *National Oceanic and Atmospheric Administration* and the *Open Geospatial Consortium* acted as session chairs.

Javier de la Torre, representing the EU BON partner Vizzuality gave a presentation 'Global Deforestation through Timeme: Big Data Meets Scalable Visualizations,' which included some of the work Vizzuality is doing toward the EUBON project.

The event concluded with a strong call by all parties for the ability to handle and use big Earth observing data. This could potentially open new opportunities for research and international cooperation schemes such as programmatic and industrial coordination.

## Essential Biodiversity Variables - Have your say!

**Iliyana Kuzmova** 05.07.2013

The Group on Earth Observations Biodiversity Observation Network (GEO BON) is leading the development of a set of Essential Biodiversity Variables (EBVs), akin to the GCOS Essential Climate Variables (ECVs).

The recently published paper (Science 339, 18 January 2013) describing the EBV concept states that: "Reducing the rate of biodiversity loss and averting dangerous biodiversity change are international goals, reasserted by the Aichi Targets for 2020 by Parties to the United Nations (UN) Convention on Biological Diversity (CBD)…. However, there is no global, harmonized observation system for delivering regular, timely data on biodiversity change." Read Full Paper and supplementary materials on EBVs here.

GEO BON partners are thus developing (and seeking consensus around) EBVs that could form the basis of monitoring programs worldwide. For more information on EBVs please click here.

GEO BON invites anyone who would like to get involved in EBV development, to take the EBV survey which will run till 31 August 2013. The survey will help us gauge how respondents feel about current candidate EBVs and provides respondents with the opportunity to make suggestions for new/alternative EBVs. Complete survey now!

## The First EU BON stakeholder roundtable: What policy needs

**Iliyana Kuzmova** 26.06.2013

The first EU BON Stakeholder Round Table was held on 18 June 2013 at the Leibniz Association in Brussels, under the motto "Requirements for Policy".

Important topics regarding biodiversity information were discussed with political stakeholders and a variety of valuable recommendations were given for the future process of EU BON. Among the participants were members of the European policy, representatives of recent European biodiversity projects and EU BON members. At the round table, intensive discussions took place regarding what biodiversity policy needs, like which indicators and measurements are needed to answer burning policy questions. Suggestions were made to formalize Essential

Biodiversity Variables (EBV's) and Aichi targets. A future approach was set towards producing a guideline and timeline for indicators that should be established within EU BON.

The challenges of future research policy were also discussed and the collaboration of EU BON with the Group on Earth Observations (GEO) will be a substantial part of the continuous contributions to the global process. EU BON should also serve as a showcase for the European Commission in this respect. EU BON will also be responsible for answering crucial questions regarding data policy, e.g. how to establish a general repository for a long-lasting storage of data and how to handle 'big data'. Another future task will be to integrate EU relevant projects and initiatives and their data portals, datasets and metadata.

At the round table it was also discussed how public stakeholders can be involved in the future, particularly citizen scientists, so that they could be integrated in EU BON and provide useful information for scientists and researchers.

Among the participants were representatives of major biodiversity stakeholders including Gilles Ollier, Jane Shiel and Sofie Vandewoestijne - European Commission, DG Research and Innovation; Anne Teller - European Commission, DG Environment; Georgios Sarantakos - GEO Secretariat; Cigdem Adem - European Environment Agency; representatives of recent European biodiversity projects (FunDiv, BioFresh, STEP and INSPIRE) and EU BON members.

**Presentations:**
1_Häuser_EU_BON_biodiversity data.pdf (1.7MB)
2_Verheyen_FunDivEUROPE.pdf (793KB)
3_Freyhof_BioFresh.pdf (1.0MB)
4_Penev_STEP.pdf (890KB)
5_May_INSPIRE.pdf (1.1MB)
6_Galbusera_ConGRESS.pdf (2.8MB)
7_Köljag_EU BON gap analyses.pdf (379KB)
8_Secades_biodiversity indicators.pdf (1.1MB)
9_Sarantakos_GEO.pdf (1.2MB)
10_Teller_EU 2020.pdf (556KB)
11_Runnel_EU BON Citizen Science perspectives.pdf (326KB)
12_Adem_EEA and Citizen Science.pdf (2.0MB)
13_Mergen_EU-BON Biodiversity Portal.pdf (204KB)

EU BON_minutes_Stakeholder Meeting v7.pdf (479KB)

# Improved flow of European biodiversity data

**Iliyana Kuzmova** 20.06.2013

**The Norwegian Biodiversity Information Centre (NBIC) was host to an international biodiversity informatics workshop May 29th-31st. The event was held as part of the EU-project European Biodiversity Observation Network (EU BON), where NBIC is a partner.**

The theme for the 'EU BON Initial Informatics Workshop' was data architectures, standards and interoperability (improving flow of information between systems). The event gathered renowned international and national experts within data structures for biological data.

**EU-project for better data flow**

NBIC is the Norwegian partner in EU BON, an EU-project spanning 5 years where 30 institutions from 18 countries contribute. The objective is to build an infrastructure that improves the flow of biodiversity data in all of Europe. Furthermore, the project is a European affiliate to its global counterpart (GEO BON) and will contribute to the work of the newly established 'Intergovernmental Platform on Biodiversity and Ecosystem Services' (IPBES).

**Good solutions showcased**

Worldwide, a large number distinct standards and solutions for management of data on species and nature types exist, and one of EU BON's objectives is to find solutions to get all of these systems to communicate with one another. Several attendees contributed with presentations highlighting diverse standards and solutions for interoperability. Additionally, four international players in the field of biodiversity informatics presented general international initiatives, projects and services relevant to EU BON.

**What is biodiversity informatics?**

Biodiversity informatics is the field of applying IT techniques to improve management and presentation of biodiversity information, making it easier to discover, use and analyze such data.