



## GEO BON Newsletter

Since our last GEO BON newsletter in November 2014, many things happened and it's a pleasure to see GEO BON strongly increasing its activities, its visibility and recognition. GEO BON partners as well as several members of our Advisory Board played an impressive role at the World Park Congress in Sydney and GEO BON was well received from the public during several sessions, especially in sessions on biodiversity monitoring and freshwater biodiversity both chaired by GEO BON WG leads. GEO BON was well visible and contributed several times at the IPBES Plenary in Bonn and we are recognized in the Data and Knowledge Task Force. Furthermore, two very successful GEO BON workshops have been held at the GEO BON secretariat in Leipzig, about butterfly monitoring as well as about RS4EBV's. See below for many more things happened and many more great things will happen in the near future.

Jörg Freyhof

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**Jörg Freyhof**



## Welcome Walter Jetz as the new co-lead of GEO BON WG 7

Walter Jetz from Yale University joins Simon Ferrier as a co-lead in WG 7. WG 7 addresses the integration of biodiversity observations and environmental data (such as that from remote sensing) to monitor and predict biodiversity change. Walter is a member of the IPBES Task Force on Data and Knowledge and is Principal Co-Lead of [Map of Life](#) and of the new Future Earth Cluster on "Global Biodiversity Monitoring" and. Walter is broadly interested in global biodiversity science and works in multiple study system, with a particular focus on terrestrial vertebrates. His [research](#) is interdisciplinary and combines elements of biogeography, ecology, macroevolution, biodiversity informatics and conservation. His group at Yale works to integrate across scales of geographical, phylogenetic and ecological organization.



## Gary Geller responsible for Biodiversity at GEO

Gary Geller, a long-time participant in GEO BON, has moved to the GEO Secretariat in Geneva. This two year secondment from NASA to GEO has been under discussion for some time and has finally now begun. At GEO he will focus on the Biodiversity and Ecosystem Societal Benefit Areas, acting as the Point of Contact at GEO for GEO BON and facilitating GEO BON interactions with national governments, participating GEO organizations, and other GEO initiatives.



## Sino-BON on the way to become an official BON

Jörg Freyhof





GEO BON's vision is to build a robust, extensive and harmonized biodiversity observation network focused on change and covering the major biomes of the globe. To do so, national and regional BON's are a very important component. Prof. Keping Ma from the Institute of Botany, CAS Secretary General for CNC-DIVERSITAS, invited a large network of scientist from all over China for the First National Workshop on Biodiversity Monitoring. Jörg Freyhof from the GEO BON secretariat joined the workshop as well as GEO BON's Advisory Board Member Prof. Haigen Xu, Nanjing Institute of Environmental Sciences, Ministry of Environmental Protection. It was a pleasure to learn about the vast biodiversity observation network building up in China and the high engagement and commitment of the Chinese colleagues to build Sino-BON, the Chinese arm of GEO BON.

## GEO BON at the IPBES 3 plenary in Bonn, Germany

Jörg Freyhof

IPBES has made an enormous progress in 2014 and will soon produce a number of documents as important as the IPCC report. To help making IPBES a success, about 20 GEO BON experts are deeply involved in various assessments and infrastructure developments. Also GEO BON has nominated several experts in 2014 and will do so in 2015. About a dozen GEO BON people including six WG leads joined the IPBES 3 plenary in Bonn in January 2015. We had several interesting discussions, especially within the Data and Knowledge Task Force and there is great potential to collaborate also with BES-NET and the IPBES capacity infrastructures.



## GEO BON workshop on RS4EBV development

Andrew Skidmore

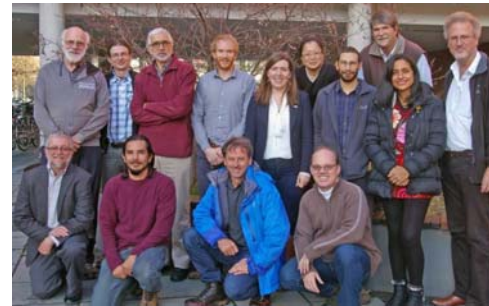




In the last week of January, twenty leading scientists from all over the world came together at IDIV (Leipzig) to review the use of Remote Sensing for Essential Biodiversity Variables and design interdisciplinary case studies aiming at a special issue on "EBVs and Remote Sensing". The meeting made good progress towards setting up a structure to build EBV's from remote sensing as well as using remote sensing for biodiversity monitoring. The participants worked towards an understanding of a common 'language' between the RS and ecological communities. The organizers of the workshop are Andrew Skidmore, Sander Muncher, Martin Wegmann and Nathalie Pettorelli. A second workshop will be held in Italy in June and aims to develop a framework for remote sensing of EBVs.

### GEO BON global butterfly monitoring workshop

Eugenie Regan & Matthew Ling



Butterflies are a key element in many ecosystems. At the 8th and 9th December 2014, 15 international butterfly monitoring experts came together at iDiv in Leipzig to discuss and develop a standardised set of global butterfly monitoring guidelines. The two days meeting at iDiv will result especially in monitoring guidelines for tropical countries. The meeting is part of one of the GEO BON projects and was supported also by UNEP-WCMC, Dutch Butterfly Conservation, and EU BON. The workshop has catalysed the process for the development of global butterfly monitoring guidelines and the creation of a new specialist butterfly monitoring group, which might qualify as a topical BON in the future. The development of an Essential Biodiversity Variable (EBV) 'butterfly population abundance' that will facilitate the harmonisation of butterfly monitoring data from different habitat types and regions is also being envisaged. The standardization of monitoring protocols that can be implemented in any country is crucial for the robust estimation of butterfly populations globally to assess progress towards the 2020 targets of the Convention on Biological Diversity (CBD). These guidelines can also provide the foundation for developing scenarios for the future of butterfly populations under different policy and management options. The outcomes of this meeting provide a clear path to increased harmonization among the efforts of global butterfly experts in different regions

and towards the establishment of a Global Butterfly Indicator.

## GEO BON at the Arctic Biodiversity Congress

Mike Gill

GEO BON was well represented at the Arctic Biodiversity Congress in Trondheim, Norway in early December 2014. The Congress involves over 450 participants focused on producing an Action Plan for the [Arctic Biodiversity Assessment](#) which was released in 2013. The Congress was run by the Conservation of Arctic Flora and Fauna (CAFF) Working Group of the Arctic Council and the Circumpolar Biodiversity Monitoring Program (one of our GEO BON regional BON's) had a great number of sessions at the Congress as it is a CAFF program.



## GEO BON at the World Park Congress

Jörg Freyhof

GEO BON was very well represented at the IUCN World Parks Congress in Sydney. GEO BON scientists show their work in many streams and several events were lead by GEO BON partners. Sessions co-organised by GEO BON and chaired by Geo BON partners were on biodiversity monitoring as well as on freshwater biodiversity. A great story for all of us having an interest in conservation!



Take a look at the [Promise of Sydney](#) which sets the direction for protected areas globally for the next decade.



## GEO BON at the CitiSci2015 Conference

Alex Mauroner

A joint poster demonstrating the [Global Freshwater Fish BioBlitz](#) project was presented by WWF-US, GEO BON, and IUCN FFSG at the [conference of the Citizen Science Association](#) in February 2014. I also discussed some of the potential outcomes, future analyses, and possible conservation implications with other scientists including the former Chair of the Citizen Science Association. I also discussed the role of those organizations that sponsor the BioBlitz, such as GEO BON, WWF-US, iNaturalist, NatureServe, and others. There was a great interest in GEO BON, our work on biodiversity databases and the future role of Essential Biodiversity Variables (EBVs) as a means of cataloging biodiversity measurements required for study, reporting, and management of biodiversity change.



## Update on the Development of GEO BON's BON in a Box

Mike Gill

### What is 'BON in a Box'?

Better information on the status, trends and drivers of biodiversity change is needed to assist governments in developing more effective and timely policy responses. There are many excellent tools, protocols and software in use that facilitate effective biodiversity monitoring but these are not easily discoverable or available to all regions of the planet. As well, current efforts to monitor biodiversity are not interoperable, thereby limiting our ability to detect change and the underlying mechanisms driving change in biodiversity. BON in a Box aims to serve as a technology transfer mechanism that allows countries access to the most advanced and effective monitoring protocols, tools and software thereby, lowering the threshold for a country to set up, enhance or harmonize a national biodiversity observing system. BON in a Box is a regionally customizable and continually updated online toolkit for facilitating the start-up or enhancement of national or regional biodiversity observation systems. BON in a BOX will give nations, regions and others a common and scientifically sound set of biodiversity variables, monitoring methods and

guidelines, mapping software, and data management, analysis, discovery and reporting tools and platforms, thereby increasing the power at not only a national but also a regional and global scale to detect important biodiversity trends and their underlying mechanisms. The development of BON in a Box is being led by the Group on Earth Observation's Biodiversity Observation Network (GEO BON) and represents a partnership of the world's major international biodiversity organizations. These tools will lower the threshold for a country or region to get started on developing or enhancing an existing Biodiversity Observation Network.

#### **Current Status**

Development of BON in a Box will happen at two scales: 1) Regional Pilot - Neotropics; 2) Global rollout via further regional capacity building engagement (e.g. West, East, South Africa, South and Southeast Asia). Global implementation will be aligned as much as possible with related capacity building efforts underway for supporting biodiversity observations (e.g. Convention on Biological Diversity and Intergovernmental Platform on Biodiversity and Ecosystem Services) and BON in a Box is being designed to support both the CBD and IPBES. The regional pilot - BON in a Box: Neotropics is well underway with the Humboldt Institute of Colombia leading its development. A survey has been developed and sent out to over 1000 recipients in central and South America to better identify the greatest capacity building needs around supporting biodiversity observations and related decision-making. The results of this survey will be analyzed in early February and beginning development of the BON in a Box prototype will begin based on these results. Regional and other representatives will be invited to a workshop in Colombia in April to review the prototype, confirm national and regional needs, identify key aspects and tools for inclusion in BON in a Box and discuss opportunities for regional cooperation for biodiversity observations. The assembly and development of tools will be directly supported by the work of GEO Bon's 9 Working Groups as well as through existing (E.g. GBIF, Earthwatch Institute, etc.) and new partnerships with key organizations in the business of supporting biodiversity observations. The first prototype for BON in a Box should be ready by late summer 2015. Global rollout and design will begin in late 2015, early 2016.

### **GBIF/EU BON training workshop on the IPT data publishing tool**

EU BON will organize several training events in data and metadata integration



strategies, use of standards, and use of data tools. The training events will be held twice a year and aim to involve a wide audience of external users. On the [Data mobilization Helpdesk](#) of the project, details of previous and upcoming training events, can be found, including agendas, presentations, didactic material and practical information regarding logistics and registration.

The 2nd EU BON training on data sharing tools will take place back to back with the [CETAF/EU BON informatics workshops](#). The event will be organized by University of East Finland and [Digitarium](#), the EU BON consortium member and work package leader, in collaboration with CETAF ISTC and other EU BON work packages.

The training workshop on the GBIF/EU BON IPT data publishing tool (still in prototype) will take place on 19th March. This updated tool is highly relevant for the monitoring programs and test sites. The Darwin Core standard has been extended to cover key elements of sample-based quantitative data and this has been implemented in the new version of the GBIF IPT[1]- one of the data sharing tools recommended for EU BON.

The workshop is also an opportunity to get a feedback on how the EU BON / helpdesk can assist interested parties with the installation, testing and putting into production of the IPT and how the network of the central EU BON IPT vs. individual IPT can be organized.

## EU survey on Earth observation in a global context

Have your say on how to make the most out of Earth observation!



The Earth's atmosphere, oceans and landscapes are changing rapidly, with human activities being a major driver. Monitoring and modelling these changes are critical because they allow governments, society and the private sector to make informed decisions about climate, energy, food security, natural hazards, health and other societal challenges.

Earth Observations (EO) are remote sensing or in situ measurements collected by a wide diversity of sensors on-board various monitoring platforms such as ships, buoys, aircrafts, balloons, drones, or satellites. They can also be ground-based or acquired by citizens using for instance their smart phones or other mobile devices. Such monitoring sensors and the related Earth observation information systems are managed by a high diversity

of public and private entities around the world.

Aiming at improving Earth observations, the intergovernmental Group on Earth Observations (GEO) provides a framework where governments and international organisations can develop new projects and coordinate their strategies and investments. GEO's main role is to develop and implement a Global Earth Observation System of Systems (GEOSS) which aims to facilitate discovery, access and integration of global Earth observations in order to improve environmental decision-making.

Why this survey?

Through this EU public consultation, the European Commission is actively seeking contributions by all those in Europe interested in the global context of Earth observation in order to help:

- estimate general awareness of and stance on Earth observations (EO), GEO and GEOSS;
- appreciate how to maximize EU benefits from an increased Earth observation coordination through GEO;
- collect views on a set of possible actions at EU level in the field of global Earth observation and GEO.

Contributions are expected until 20/04/2015. [Direct link to the consultation.](#)

## LifeWatch Marine Virtual Research Environment



The LifeWatch Marine Virtual Research Environment (VRE) portal has just been launched, bringing together several marine resources, data bases, data systems, web services, tools, etc. into one marine virtual research environment (VRE). This portal can be considered as a first bottom-up development demonstrating potential and capability emulating the LifeWatch objectives. The Marine VRE allows researchers to retrieve and access data resources holding marine biodiversity and ecosystem data, a range of data systems on species names, traits, distribution and genes. A set of online tools is available to facilitate data analysis of marine biodiversity and ecosystem data, and analysis can be performed on data from known data resources and/or data uploaded by the users themselves. Should a researcher need a specifically adapted service, the Marine VRE gives the possibility to build his/her own marine virtual lab, making use of the web

services that access and process data. Service catalogues and 'how to' manuals will guide the users during the development of their own system. The Marine VRE is already looking to the future, working to further increase the integration and interaction between its components.

Visit <http://marine.lifewatch.eu/> and find out more about its features and services.

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