GROUP ON EARTH OBSERVATIONS | GEO BON

Newsletter 1/2014

First GEO BON Newsletter

This GEO BON newsletter is the first in a series of quarterly newsletters issued by the GEO BON Secretariat at iDIV in Leipzig, Germany. Since this is the first newsletter, we welcome any suggestions you might have with regard to the format, style and content of the newsletter as we want to make it as appealing and relevant to our readership as possible. GEO BON is a fantastic network of people from across the globe working together to foster the development of a Global Biodiversity Observation Network through the establishment of national and regional networks. Some 100 governmental, inter-governmental and non-governmental organizations are collaborating through GEO BON to organize and improve terrestrial, freshwater and marine biodiversity observations globally and make their biodiversity data, information and forecasts more readily accessible to policymakers, managers, experts and other users.

All Geo BON WG, partners and their organizations are asked to contribute to the newsletter. All of you produce cool stuff as interesting products, important publications and new visions. You organize meetings and congresses or find something else relevant to the outer word. **Let us know!** This newsletter aims to increase ongoing communication and update you on biodiversity related news and events and naturally success and achievements. Please contact me for submitting to the newsletter. Please note that we may, for future newsletter editions, consider themes so as to manage and focus the

newsletter content more efficiently.

Jörg Freyhof

GEO BON chair Henrique M. Pereira

The Group on Earth Observations Biodiversity Observation Network (GEO BON) Steering Committee recently elected a new Chairman, Henrique Miguel Pereira of the German Centre for Integrative Biodiversity Research (iDiv), to a 3-year term of office. The new Vice Chairman is Mike Gill of Environment Canada. The handover between outgoing GEO BON chair Bob Scholes and the new team took place at the GEO-X Plenary & Geneva Ministerial Summit in January 14th. The GEO BON office is now based in iDiv/Germany. Dr. Pereira has more than 15 years of experience in ecology, biodiversity modeling, rewilding and ecosystem services, and has held various positions, including Director of the Peneda-Geres National Park (Portugal) and Research Group Leader at University of Lisbon (Portugal). Pereira moved to Germany in September 2013 to lead the group on Biodiversity Conservation of the German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig. During the next three years, GEO BON's primary goal is to move from the conceptual stage to the implementation stage by engaging partners around the world, including government agencies, research institutions and conservation organizations. With the secretariat at iDiv, GEO BON will be able to mobilize new resources towards this goal and establish stronger links with the international biodiversity community.

GEO BON co-chair Mike Gill

I am honored to have the opportunity to work with Henrique Pereira and the many other excellent scientists that make up the GEO BON community to further advance

the development of an interoperable, global biodiversity observing system. Along with providing overall leadership with Professor Pereira, I will be focusing my efforts on improving engagement with national and regional governments and institutes to facilitate the establishment and/or enhancement of harmonized biodiversity observations and data management. This, in combination with further development of the Essential Biodiversity Variables and related monitoring guidelines, infrastructure and standards, represents the need to provide a top-down design for a global observation system with the pragmatism of a bottom-up construction process.

Jörg Freyhof started as GEO BON Executive Director

By March 2014, Jörg Freyhof started at the GEO BON Secretariat at iDiv in Leipzig/Germany. Some of the GEO BON partners know Jörg; he was deeply engaged in the European FP 7 project BioFresh, he is a member of in the GEO BON freshwater working group, a regional chair of the IUCN Freshwater Fish Specialist Group and has an own research field in biodiversity and conservation of fishes. In his new position, Jörg will represent GEO BON at various occasions and assist the steering committee and the WGs in developing the EBVs and many other GEO BON activities.

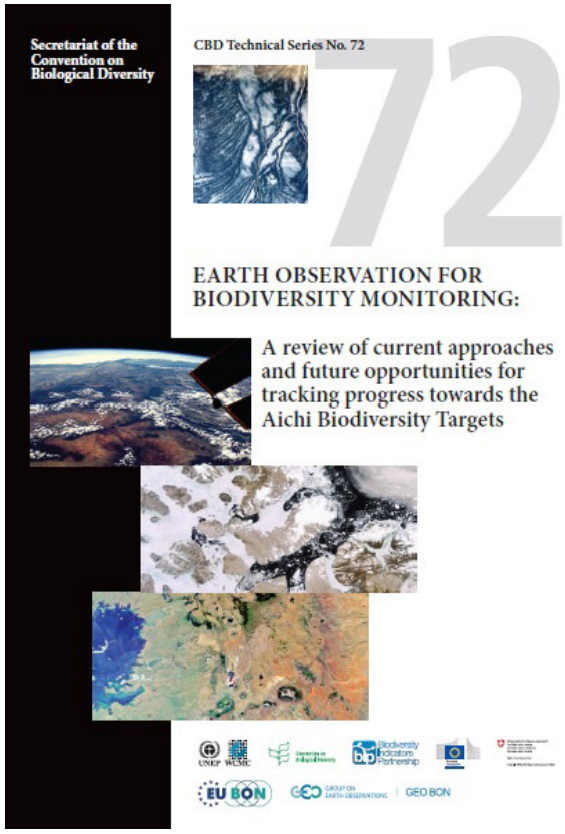
Ariane Korn starts at the GEO BON Secreteriat

By Mai 2014, Ariane Korn starts at the GEO BON Secretariat at iDiv in Leipzig/Germany. Ariane studied Spanish and intercultural studies with the focus on Spanish Literature. She worked in different cultural organizations and for an international bike sharing system. Ariane will be the angle of the GEO BON Secretariat guaranteeing rolling logistics, smooth

work flows and perfect products.

Review of the use of remote sensing for tracking progress towards the Aichi Targets

Matt Walpole



A report has recently been launched that explores how current and near future remotely sensed earth observation products could be used to create indicators to track progress towards the Aichi Biodiversity Targets adopted by Parties to the Convention on Biodiversity (CBD) in 2010. Twenty such targets were agreed, the majority with a 2020 completion date, and significant effort is underway to identify and develop appropriate indicators for these targets, many of which require biodiversity observations.

Led by UNEP-WCMC, under the auspices of GEO BON Working Group 9[1], EU BON and the CBD-mandated Biodiversity Indicators Partnership (BIP), and on the request of the Secretariat of the CBD, the review examined operational earth observation products as well as those under development, and considered their application and limitations on a target by target basis. It also assessed some national case studies of the use of remotely sensed data in various planning and decision-making contexts. With input from a wide range of interviewees and contributors, the review also considered the primary challenges to greater use of remotely sensed data and ways to overcome them.

Initial findings from the review were discussed at the GEO BON-hosted Expert Workshop on Enhancing Biodiversity Data and Observing Systems in Support of the Implementation

of the Strategic Plan for Biodiversity 2011-2020, held back to back with the 17th meeting of the CBD's Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA-17) last October. Amongst other things the workshop participants recognised the unfulfilled potential of remotely-sensed data as well as the gap that often exists between availability of raw data and processed products that can be used by decision-makers.

The remote sensing review has been published in the CBD Technical Series (#72) and can be downloaded from the CBD website (www.cbd.int/ts/). Hard copies are also available from the CBD Secretariat or UNEP-WCMC.

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[1] GEO BON Working Group 9 on Indicators was created to enhance linkages between GEO BON core activities/community of practice and the end users of biodiversity observations/information catalysed by GEO BON, specifically those decision-makers at national, regional and global scales who require biodiversity information in order to develop, implement and monitor progress towards biodiversity-related policy goals and targets

Please participate: Online survey on large scale monitoring metadata

Jean-Baptiste Mihoub & Dirk Schmeller

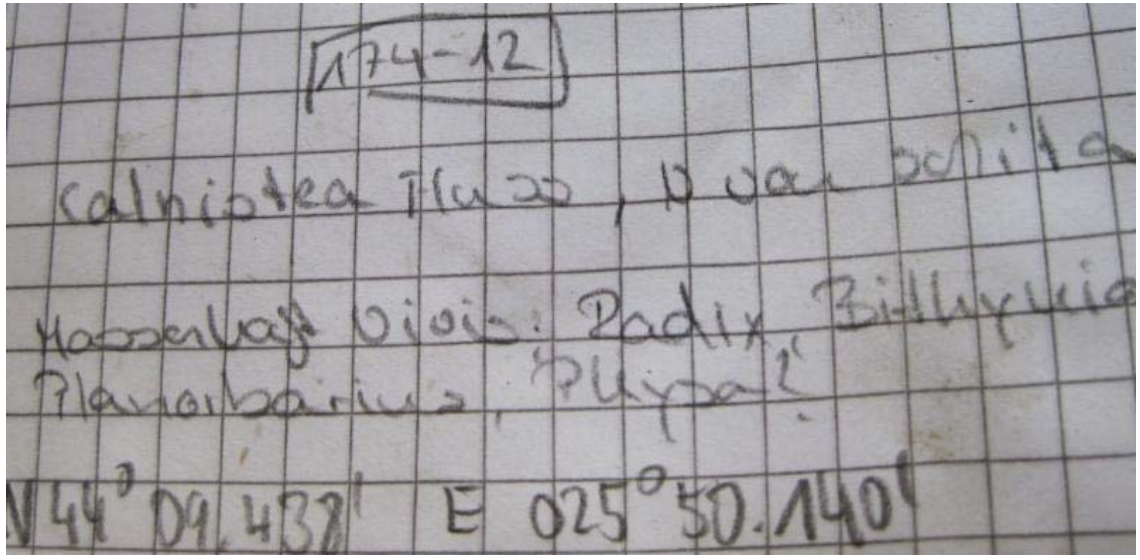
GEO BON Working Group on terrestrial species monitoring has launched a survey on nation wide/ national monitoring schemes. This survey complements the efforts of GEO BON to collect metadata on large scale monitoring programs and to help building a

network of regional BONs and large scale monitoring programs to better observe the status and the global trends of biodiversity. So far GEO BON working group 2 on terrestrial monitoring has collected 47 responses, but is far from being complete and most of the responses stem from Europe. We ask all of the wider GEO BON teams as well as the interested public to contribute to the meta database. Please, help us distribute the information as widely as possible, but bear in mind that we are interested in NATION or STATE wide monitoring programs only. If you need any help in filling out the questionnaire, don't hesitate to contact Dirk Schmeller (dirk.schmeller@ufz.de) or Jean-Baptiste Mihoub (jb.mihoub@ufz.de)

Volunteer observations of wetland extent

Eren Turak

The freshwater ecosystems change working group GEO BON is partner in a project aimed at developing a citizen science protocol to help observe change in the extent of freshwater wetlands. A trial of the protocol is being conducted in Australia by the Office of Environment and Heritage and the Earthwatch Institute as part of the Global FreshwaterWatch initiative (http://freshwaterwatch.thewaterhub.org.). Volunteers will be guided in applying the protocol by a smart phone app expected to be developed after the conclusion of the 2014 space apps challenge (https://2014.spaceappschallenge.org/challenge/track-wetland/). Ideally the app will enable volunteers to access the best local botanical resources and other information on wetlands to help them apply the protocol and upload their observations on wetland plants to a central database. These observations will help validate and calibrate remote sensing products on wetland extent.



Significant progress in biodiversity data use, management, and preservation

Hannu Saarenmaa & Wim Hugo

GEO BON Workgroup 8 has made significant progress in the last month or two in defining and documenting an overview of the standards, architecture, and best practice as applicable to biodiversity data use, management, and preservation. This document will form the basis of a chapter to be contributed to the upcoming GEO BON Handbook.

Much of the progress has been achieved through the EU BON project, which released a major deliverable on data standards and information architecture, see http://eubon.eu/documents/1/. This work builds on and extends the 2010 GEO BON document on "Principles of information architecture".

The broad discussion on best practice in respect of biodiversity is supplemented by the work done by two wide-ranging projects: Creative-B[1] has recently published its Roadmap for comment - in addition to the work already available for use - so look out for its public availability in September 2014. In addition EU-BON has recently published a comprehensive review of standards and architecture[2]. Both these projects have delivered significant value in respect of understanding and applying available standards and practices.

If you have not done so yet, also spend some time to explore the new services available from GBIF - especially the web services[3], which allow automation of many of the requests that were previously executed manually or on request.

In the next several months, GEO BON WG 8 hopes to make some progress in respect of its end-to-end demonstrator on the Essential Biodiversity Variables - keep looking for news on http://geobon.dirisa.org - where we will also be hosting a growing number of WIKI articles in support of our Handbook Chapter.

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[1] http://creative-b.eu/home
[2] http://eubon.eu/documents/1/
[3] http://www.gbif.org/developer/summary

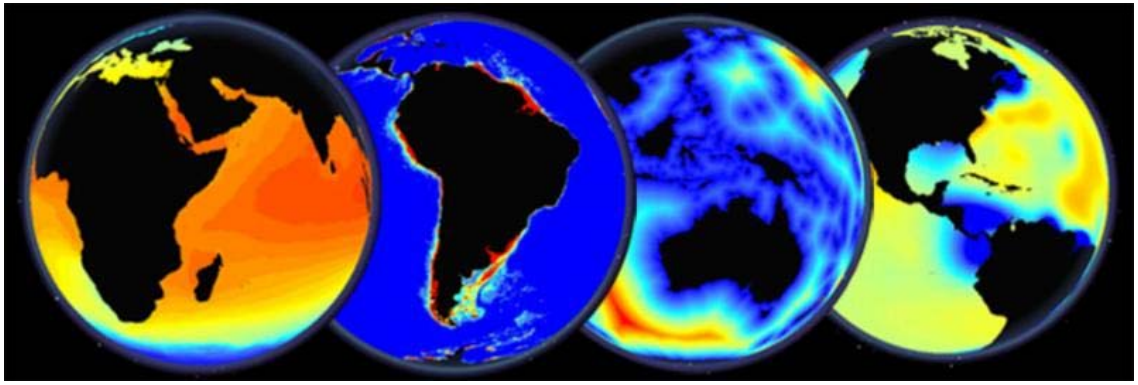
EU BON in a nutshell

Anke Hoffmann & Christoph Haeuser

EU BON - Building the European Biodiversity Observation Network (www.eubon.eu) was started on 1st December 2012.
The main objective of EU BON is to build a substantial part of the Group on Earth Observations Biodiversity Observation Network (GEO BON). EU BON's deliverables include a comprehensive European Biodiversity Portal for all stakeholder communities, and strategies for a global implementation of GEO BON and supporting IPBES. It builds on existing biodiversity databases and observation systems, in particular GBIF, the emerging

LifeWatch infrastructure, and national biodiversity data centers in Europe, as well as other environmental datasets.
EU BON will also deliver a roadmap for EU citizen science gateway for biodiversity data, an open data publishing and dissemination framework and toolkit, a policy paper on strategies for data mobilization and use in conservation, a prototype of integrated, scalable, global biodiversity monitoring schemes, strategies for EU-integrated national and regional future biodiversity information infrastructures, and a sustainability plan for regional and global biodiversity information network.
The EU BON work packages involve research topics covering data sources, data integration & interoperability, and improving tools and methods for data analysis and interface on the IT side. The approach aims to integrate social networks of science and policy and technological networks of interoperating IT infrastructures.

Have a close look at EU BON at http://www.eubon.eu/



Global marine dataset compendium for species distribution modelling and environment visualisation

Zeenatul Basher & Mark Costello

The Global Marine Environment Dataset (GMED) publishes a compilation of global climatic, biological, and geophysical environmental layers featuring present day, past and future conditions. Marine ecologists and biologists map and use modelling algorithms to predict and visualize species distributions at a global scale. However, the

environmental datasets have varying spatial resolutions and are frequently provided in different file formats, making the data assembly time-consuming part of any study. Thus, GMED provides ready to use standardised dataset with uniform spatial extent and a land mask to eliminate land areas at high spatial resolution (5 arc-minute, c. 9.2 km near equator). The compilation covers the widest range of environmental layers available, including depth from the surface to the deepest part of the ocean. The free online availability of GMED enables rapid mapping of species against past, present and future environmental conditions, such as to visualize the potential distribution of vulnerable, endangered or invasive species by Species Distribution Modelling (SDM) algorithms (e.g. Random Forest, GARP, MaxEnt).

Basher, Z., Costello, M. J., Bowden, D. A. Global Marine Environment Dataset (GMED). World Wide Web electronic publication. Version 1.0 (Rev.01.2014). Accessed at http://gmed.auckland.ac.nz on 17th March 2014.

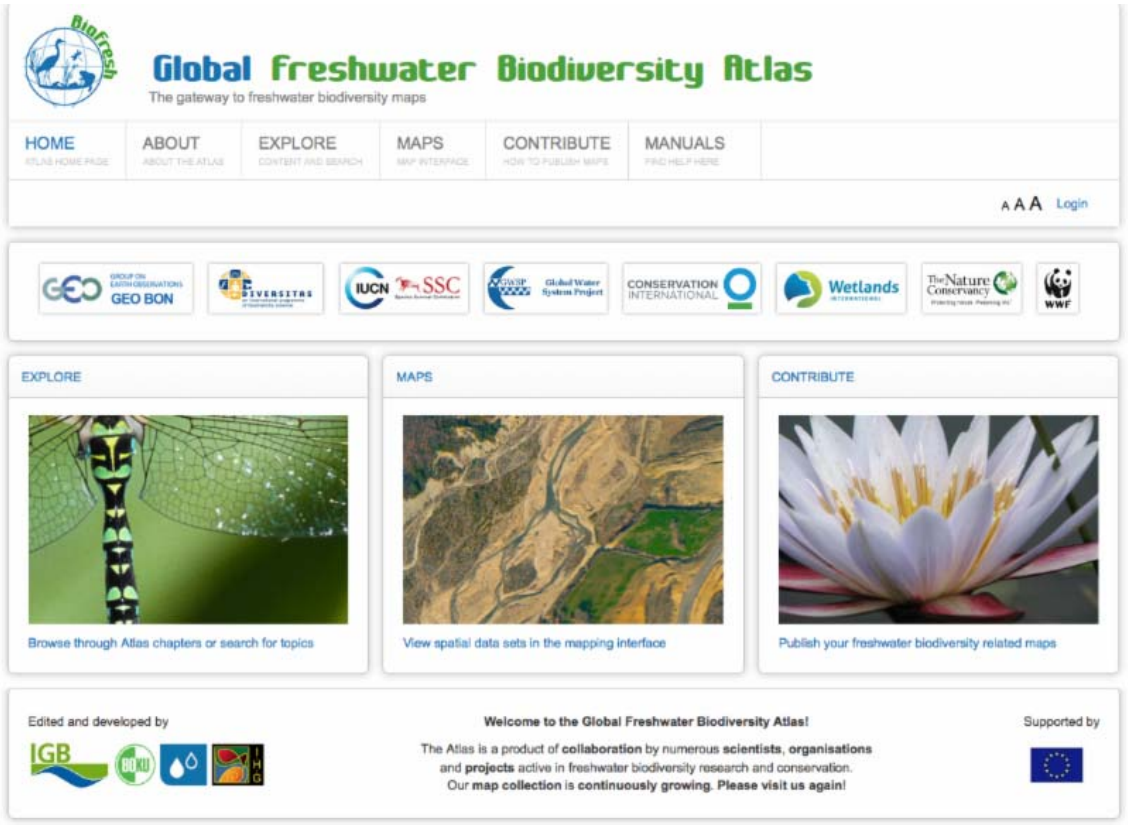
Map of Life

Walter Jetz

Geographic information about biodiversity is vital for understanding the many services nature provides and their potential changes, yet remains unreliable and often insufficient. By integrating a wide range of knowledge about species distributions and their dynamics over time, Map of Life aims to support effective and global biodiversity education, monitoring, research and decision-making. Built on a scalable web platform geared for large biodiversity and environmental data, Map of Lifeendeavors to provide uncertainty-assessed 'best-possible' species range information and species lists for any area. With data and technology provided by NASA and Google, tools under development will use remote sensing-based environmental layers to enable on-the-fly predictions of species distributions, range changes, and early warning signals for threatened species. The ultimate vision is a globally connected, collaborative knowledge- and tool-base for regional and local biodiversity decision-making, education, monitoring, and projection. For currently available tools, more information and to follow progress, go to MOL.org.

Map of Life is governed by an international Steering Committee and supported by NSF, NASA, Google, NCEAS, BiK-F/Senckenberg, GMBA/Diversitas, CU Boulder and Yale

University.



Global Freshwater Biodiversity Atlas fills major information gap

Jorg Freyhof, Vanessa Bremerich & Astrid Schmidt-Kloiber

Many stakeholders and policy makers concerned about biodiversity ask for better availability of biodiversity data and information. The European FP7 project BioFresh with support from GEO BON, DIVERSITAS, IUCN/SSC, the GWSP, Wetlands International, Conservation International, the Nature Conservancy and WWF has developed a new online atlas of freshwater biodiversity to fill this gap.
The Global Freshwater Biodiversity Atlas provides an open-access and interactive

gateway to species distribution patterns and key geographical background information on freshwater biodiversity, resources and ecosystems, pressures and conservation measures across a range of scales. The Global Freshwater Biodiversity Atlas is seen as a key resource for evidence-based decision making relating to water policy and management and an important visualization tool, facilitating the discovery and increasing the accessibility of scientific research results this field. The Global Freshwater Biodiversity Atlas is also a technologically advanced possibility for all scientists active in the field to present their scientific results as maps, articles and background information in an interactive map interface. Contents and functionalities will be constantly expanded and scientists are invited to contribute their research results to this open and collaborative initiative.

Find the Global Freshwater Biodiversity Atlas at http://atlas.freshwaterbiodiversity.eu/

see at http://geoappathon.org/

GEO BON's involvement in World Parks Congress 2014

Simon Ferrier

Sydney, Australia, is hosting the IUCN World Parks Congress in November. This landmark global forum on protected areas is held only once every ten years. The Congress will share knowledge and innovation, setting the agenda for protected areas conservation for the decade to come. Building on the theme *"Parks, people, planet: inspiring solutions"*, it will present, discuss and create original approaches for conservation and development, helping to address the gap in the conservation and sustainable development agenda.
GEO BON is part of an international consortium (led by IUCN, ZSL and UNEP-WCMC) organising, and delivering, one of the eight programme streams at the Congress - Stream 1: Reaching Conservation Goals, a Vision of Hope. This stream aims to demonstrate that a well-planned, managed and connected system of protected areas is essential to reaching conservation goals globally. The overall output from the stream will provide a comprehensive template of how Aichi Biodiversity Target 11 can be achieved, along with reporting on progress towards achieving this target to date.
GEO BON is represented on the Stream 1 consortium by Eren Turak and Simon Ferrier, both of whom are also wearing their home-agency hats in this role (NSW Office of Environment and Heritage, and CSIRO, respectively). Eren and Simon attended an initial

face-to-face meeting of the consortium in June last year (in London), and are now leading the planning of two sessions within this stream:

- "Monitoring conservation outcomes inside and outside protected areas" (led by Eren Turak) which will evaluate options for indicators and monitoring systems that can be employed in an Essential Biodiversity Variables (EBV) framework to track the state of biodiversity inside and outside protected areas, thereby informing assessments of management effectiveness.
- "Ecological representativeness of protected areas under global change" (led by Simon Ferrier) which will showcase findings from a new generation of global and regional analyses assessing observed, and projected, changes in the representativeness and adequacy of protected areas, including results from GEO BON Working Group Deliverable 7.2 - "Global model-based assessment of change in representation of terrestrial biodiversity within protected areas".

More information on the congress can be found at: http://worldparkscongress.org/

STAY CONNECTED

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