



## **GEO BON Strategic Workplan 2014-2016**

### **Towards an Integrated Global Biodiversity Observing Network for a Changing Planet**

*Mike Gill, Henrique Pereira, Gary Geller and Michele Walters*

Version 1.0, 21 March 2014

#### **Introduction**

The Group on Earth Observations – Biodiversity Observation Network (GEO BON) is one of nine Societal-Benefit-Areas of GEO, focused on developing an integrated, interoperable global biodiversity observation system that delivers enhanced biodiversity information to facilitate better decision-making at multiple scales (from local to global). Towards this end, GEO BON is focusing its efforts on the implementation and adoption of the Essential Biodiversity Variables (EBVs) and related monitoring guidelines and interoperable data management systems and through targeted capacity building efforts at the national and regional level (e.g. development of a “BON in a Box” toolkit (see below)) focused on improved observations to facilitate improved policy and decision-making. This approach reflects the need to provide a top-down design for a global observation system (e.g. EBV’s, monitoring guidelines, interoperable data systems) with the pragmatism of a bottom-up construction process (e.g. through national and regional capacity building).

To achieve an integrated and interoperable global biodiversity observation network is an ambitious task, requiring a targeted and iterative approach that builds upon successes and lessons learned, focuses on understanding and responding to user needs, and facilitates the development of national and regional biodiversity observing networks that can be sustained with existing national and regional observing capacity and expertise.

In a few short years, GEO BON has created a global network and community of practice involved in biodiversity observations. In the next phase, GEO BON will take an increasingly targeted approach, and to do this, we must stay focused on the ‘art of the possible’ and make careful, strategic decisions on where we put our limited resources to achieve success. GEO BON will narrow its focus onto several carefully selected areas, utilizing and building upon the networks and communities of practice that have already been established.

#### **A User-Driven GEO BON: Defining GEO BON’s Clients and Their Needs**

A successful and sustainable global biodiversity observation network must clearly and effectively meet ‘user’ needs. Perhaps the most important block of users is the national governments who are



responsible for reporting on the status and trends in ecosystems and the biodiversity they support to meet their national mandates (e.g. national biodiversity plans, recovering species at risk, sustaining ecosystem services) and international obligations (e.g. Convention on Biological Diversity, Ramsar Convention, Convention on Migratory Species, etc.). These users are important because, more than any other group, they have the ability to enact and change policy and then implement it; both of which are dependent upon better observations, products, and tools than are currently available. Collectively, they have the greatest access to resources to support implementation.

Another key user group of a global biodiversity observation system and the resulting data is the scientific community that needs sound and reliable data to produce and populate models, study the drivers of biodiversity change and distribution, identify new and emerging threats to biodiversity along with effective responses, and that must create scenarios and assessments of policies to facilitate decision-making (e.g. Intergovernmental Platform on Biodiversity and Ecosystem Services).

Many non-governmental (e.g. IUCN) and international organizations (e.g. Arctic Council) are actively involved in conducting biodiversity assessments to facilitate more effective conservation and sustainable use of biodiversity and ecosystem services and thus, are also reliant on high quality biodiversity data.

Currently, our collective ability to detect and understand the status and trends of biodiversity, develop sound assessments, and produce scenarios to guide more effective policy is greatly hampered by a lack of access to high quality observations. GEO BON is concerned with the development of more integrated, efficient and interoperable biodiversity observation networks that can produce more reliable, accessible and timely observations to serve these needs. Being part of the GEO network allows GEO BON the opportunity to connect with the observations and data organized in the other GEO SBA's. These cross-linkages provide an opportunity to produce value-added, integrated tools and products that facilitate more informed and effective policy - going beyond reporting on status and trends to also identifying the causal mechanisms driving biodiversity change and producing predictive models for examining future scenarios.

Considering these various clients, their needs, our current limited capacity, and opportunities from the GEO network, we must prioritize our strategic engagement and capacity building efforts. With this in mind, it is believed that the Convention on Biological Diversity's (CBD) 2020 Aichi Targets provide one impetus for improved biodiversity observations from the national to regional and, ultimately, to the global level. As such, GEO BON has identified the Parties to the CBD as key clients. To date, the CBD Parties have been engaged several times (e.g. pre-SBSTTA 17 workshop; Adequacy of Biodiversity Observation Systems to Support the 2020 Targets report) to raise the profile of GEO BON and gain a better understanding of national biodiversity observation needs with regard to developing useful National Reports and National Biodiversity Strategies and Action Plans. GEO BON will also continue to



consider opportunities for cross-linkages with the broader GEO community (e.g. other SBA's), where feasible, to ensure that integrated observations and derived data and information products are achieved. Additionally, GEO BON will continue to engage the newly formed Intergovernmental Platform on Biodiversity and Ecosystem Services, the broader scientific community (e.g. the new international programme on global sustainability, Future Earth), non-governmental conservation organizations, and other relevant biodiversity conventions (e.g. Ramsar Convention, Convention on Migratory Species). While GEO BON will focus on these various entities for efficiency and funding reasons, it must not be done at the expense of supporting useful products and information that may not be well captured by existing national legislation and international conventions, but nevertheless advance GEO BON's mission.

### **2025 Vision Statement and Goals**

GEO BON's mission is to improve the acquisition, coordination and delivery of biodiversity information and services to users, particularly decision-makers. Our vision for GEO BON is:

*By 2025, GEO BON is a robust, extensive and interoperable biodiversity observation network covering the major biomes of the globe. The observations derived from this network is contributing to effective and timely conservation, sustainable use, and mitigation and adaptation decisions regarding the world's ecosystems, the biodiversity they support, and the services provided.*

Some of the key GEO BON goals for 2025 include:

- GEO BON has facilitated the development or enhancement of at least 25 national biodiversity observation systems, representing most of the Earth's major biomes, that are coordinated and can contribute to regional and global biodiversity assessments.
- At least 10 regularly updated operational products (e.g. global change detection maps of forest cover; compendium of marine environmental databases) have been developed, providing high quality observations, information and data to scientists, decision-makers and the public at various scales; remotely sensed and *in-situ* data (based on the EBVs) are routinely used as inputs to these observation products and contribute to models that support improved policy assessments and scenarios at multiple scales.
- A strong, balanced and sustained biodiversity observation community is functioning, based on shared resources and increased capacity.

### **A strategic plan for 2014-2016**

Coinciding with the three-year Chair and Vice-Chair appointment, it is necessary to outline a strategic work-plan that covers this period. In this section, we outline a strategy for the 2014 to 2016 period—a



crucial time for GEO BON that would put us on the path to the 2025 vision outlined above. We start by outlining the importance of having a strong performance of GEO BON at the **GEO Plenary in 2015**, GEO's decadal assessment year. We identify the **products and tools** we would like to have in place for 2015 as a showcase of GEO BON's capabilities and present a **funding approach** for the next two years to develop these products and tools. We then describe our additional **goals for 2016** building on the success and momentum of the 2015 deliverables.

In order to implement this strategic plan, we believe that a **revised governance structure** for GEO BON should be adopted. A proposal for the new governance structure is detailed in a separate document.

#### *Getting to the 2015 GEO Plenary*

GEO BON has been developing as a network for some years now and, as a result, has developed a strong community of biodiversity specialists around the globe organized in nine Working Groups and four Regional Biodiversity Observation Networks. These Working Groups and Regional BONs have been actively developing a number of tools (e.g. data management systems and services), monitoring guidelines (e.g. Essential Biodiversity Variables for freshwater, marine and terrestrial biomes and other themes) and products (e.g. global ecosystem classifications, etc.) that can be used to both enhance capacity for, and interoperability of, biodiversity observations across the globe, as well as delivering existing data in useful formats (e.g. change detection maps) to raise awareness of the status and trends in biodiversity and the most important threats.

In 2015, the Group on Earth Observations will be ten years old and, as a result, will be conducting an assessment on the progress made within the nine Societal Benefit Areas. GEO BON needs to highlight many of these developing products in a compelling fashion (e.g. visualizations, media products) to raise the profile of GEO BON's successes to date, of the added value of GEO BON products for national, regional and global decision-making fora, and to secure continued and expanded support for GEO BON in the next ten years. GEO BON needs to further develop and solidify its 'brand' as a network of global and regional biodiversity organizations producing value-added and integrated products that both advance GEO BON's mission and vision whilst co-supporting and enhancing the work of the organizations within the network. This may be done, in large part, through showcasing high-profile, visually compelling results that illustrate the power and opportunity of integrating biodiversity observations to facilitate better conservation and adaptation decisions. In many ways, the 2015 GEO Plenary provides both the motivation and the platform to effect this. In addition, there is also an opportunity to better use our network of member organizations to both promote GEO BON and the work of these organizations. To do this, we need to equip our members with materials (e.g. standard power-point slides, brochures, video, etc.) to better promote GEO BON and highlight contributions from these organizations as part of GEO BON events and presentations.



#### Key Products and Tools to have in place by 2015 GEO Plenary

- A new GEO BON website that provides greater visibility to the program and our partners and useful observation products and information targeting our key users.
- A 'BON in a Box' (Biodiversity Observation Network in a Box) prototype that serves as a customizable, menu-driven toolkit for facilitating the establishment of national and regional interoperable biodiversity observation networks building upon many of the deliverables being developed by the Working Groups.
- Monitoring, metadata and data standards for some of the Essential Biodiversity Variables.
- Handbooks and monitoring guidelines for biodiversity monitoring based on the EBV's and the GEO BON Working Group themes (e.g. freshwater biodiversity, ecosystem services, etc.).
- Global and sub-global data products available via the new website.
- Metadata and data management infrastructure for managing and linking biodiversity datasets, available via a new website (linked to GEO Data Access Broker).

Additional products and tools to those above are detailed in Appendix I and a milestone calendar is presented in Appendix II. It is believed that achieving these deliverables and activities and providing a means to promote and deliver this information via the website portal and through other means (e.g. BON in a Box, application programming interfaces, visualizations of data and metadata, presentations and promotional material) will further the GEO BON 'brand' and that of its partner organizations, providing an efficient means by which to access high quality biodiversity observation-based data and metadata, information and resources as well as the expertise for supporting enhanced biodiversity observations.

#### Short-term funding approach for product and tool development for GEO Plenary in 2015

We believe that in order to have these key products and tools in such a short amount of time we need to use much of the financial resources currently available to GEO BON (approximately 200k€ for 2014-2015), as seed funding for certain targeted activities. Therefore, instead of having an "all-hands meeting" we will make a call for proposals from working groups to provide some funding for the development and delivery of key products and tools. The intent of this funding is to help ensure that, by the 2015 GEO Plenary, GEO BON has an appropriate suite of exciting products to demonstrate via its new website. This will involve a staged process for developing and refining these products. For example, for documents a solid outline, and for data products a rough zero order version delivered by January 2015, with incrementally improving deliverables following that with final products in July 2015 and supporting communications tools in place by the November 2015 GEO Plenary.

#### Goals for 2016



Considering the fact that the new Chair/Vice-Chair appointments extend beyond the 2015 GEO Plenary until the end of 2016 and with an eye on the 2025 goals, we present a forward look with some additional goals. By the end of 2016, GEO BON will have achieved the following:

- The GEO BON website provides further access to some key new products and is increasingly being used as a portal to access information on biodiversity observations and analyses linking to various projects occurring across the globe;
- Monitoring, metadata and data standards for some additional EBVs in place;
- Regional Capacity Building workshops have been organized and completed in some regions of the planet;
- A capacity-building toolkit (BON in a BOX) containing guidelines and tools, such as monitoring guidelines and database structures for EBVs, has been further developed; and,
- GEO BON has begun facilitating development and/or enhancement of national and regional biodiversity observation programs.
- GEO BON has strategically addressed key data and knowledge gaps in relation to IPBES needs.



## **Appendix I - Additional tools and activities to develop by 2016**

- Web-site based:
  - A searchable, geospatially referenced wiki-inventory of existing national and international biodiversity observation networks and programs;
  - A list of experts and a process for connecting to these experts to support the establishment of national and/or regional biodiversity observation systems;
  - Links to other products and programs of interest (e.g. China's 30m resolution Landcover Map);
- Communication material
  - A quarterly newsletter;
  - Twitter account and/or blog highlighting program developments and partner news;
  - A new logo and tag-line;
  - Standard power-point slides on GEO BON for WG members and partners to use when presenting at relevant forums;
  - A promotional video highlighting GEO BON;
  - Promotional material on how open biodiversity data can lead to better decision-making and two or three stories on how GEO BON has helped establish national and/or regional biodiversity monitoring;
  - Promotional material on key GEO BON products e.g. BON in a box, EBVs.
- A strategy on how to engage existing and establish new Regional and National Biodiversity Observation Networks; efforts to facilitate the development of these networks in priority areas will have been initiated.
- An engagement strategy that identifies the key organizations, funding sources and partners that GEO BON should be engaging; this will include a communications plan that explains how to engage these organizations, sources and partners, and raise GEO BON's profile. This will include, as part of the strategy, an approach for attracting and including new interested people, networks and organizations to GEO BON.
- Criteria for identifying and endorsing activities and programs under the GEO BON 'banner' will have been created and adopted by the Implementation Committee.
- After the 2015 GEO Plenary, an independent assessment of GEO BON's progress and an evaluation of the current Working Group structure of GEO BON.



## Appendix II - 2014-16 Calendar

The following deliverables and milestones will be achieved in 2014 and early 2015:		2.14	3.14	4.14	5.14	6.14	7.14	8.14	9.14	10.14	11.14	12.14	1.15	2.15	3.15	4.15	5.15	6.15	7.15	8.15	9.15	10.15	11.15	12.15	
GEO BON Secretariate	update Current website	█																							
	Quarterly Newsletter		█			█			█			█			█			█			█			█	
	new website			█			█																		
	new Executive Director			█																					
	new Web developer			█	█																				
	Development of web data services (portal)										█	█													
	New governance structure in place		█	█	█	█	█																		
	Advisory Board set up									█															
	meeting advisory board									█	█														
	BON in a Box		█	█																					
	fundraising	█	█																						
	Colombia workshop									█	█														
	BiaB pilot development									█	█														
	first iteration of BiaB											█													
	replicate and expand to other regions of the planet																							█	
Working Groups	Call for proposals for monitoring guidelines for the EBVs (and related data funding decisions)	█																							
	Wiki inventory of existing observing programs completed	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
	Working group deliverables (leaves time to review them, adjust them and add value added visualization where possible)	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
	EU BON funded meeting on data standards for EBVs																								
	Implementation Committee meeting (would include the Working Group and Activity leads) (1st week of June)																								

The following deliverables and milestones will be achieved in 2014 and 2015:

- Mailing lists (WG's, Implementation Committee, Management Committee, etc.) done by March;
- Current website updated by end of March;
- Call for proposals for monitoring guidelines for the EBVs (and related data products) by mid-March; funding decisions by end of April;
- Quarterly Newsletter initiated in April;
- Web developer hired by April/May;
- New Implementation Committee in place by May;
- EU BON funded meeting on data standards for EBVs in May ;
- BON in a Box – fundraising (spring);
- Implementation Committee meeting first week of June (would include the Working Group and Activity leads);
- New website (1<sup>st</sup> iteration) by July/August;
- BON in a Box Colombia workshop and development in fall 2014;
- Development of web data services (portal) initiated in the fall;



- Advisory Board set up by October with a meeting with them in October;
- Wiki Inventory of existing observing programs completed by December;
- First iteration of BiaB by March 2015; then replicate and expand to other regions of the planet in 2015/16;
- Independent, periodic review of GEO BON established in 2015;
- Initial working group deliverables delivered by July 2015 (leaves time to review, test, integrate with GCI, update, and include value added visualization where possible); and,
- Key Conventions such as CBD and Ramsar are engaged on an ongoing basis and where necessary.



### Appendix III – List of Working Group Deliverables for 2015

ID	Short Name	Description	2015?	Date Avail
0-1	Handbook for Biodiversity Observation Systems	A practical guide to establishing and refining biodiversity observation systems, geared towards biodiversity specialists	Y	2014-06
0-4	BON in a Box	A collection of materials to assist governments in establishing and refining their observation systems, including the Handbook, tools, templates, examples, and other reference material	Partial	Partial by TBD
1				
2-2.1	Species population trend dataset	A global, spatially explicit dataset of trends in species abundance	Y	2014-07
2-3.1	Policy brief on species monitoring	A policy brief on why biodiversity monitoring is essential and on how to develop a monitoring program	Y	2014-01
3-4	Global ecosystem mapping and stratification	A new map of global ecosystems at 250 m resolution built from the integration of four major ecosystem structural elements (landforms, lithology, bioclimate, and surface moisture)	Y	On-going
4-4	Citizen science wetland monitoring trial	Protocols, tools and frameworks to facilitate public participation in monitoring and scientific research in wetlands. The funded component will provide a protocol for determining wetland boundaries, a data base containing volunteer observations, and a phone app for uploading data to the database	Partial	Preliminary protocol and App by Dec 2013, final by July 2015
5-2	Compendium of global environmental data layers	Downloadable set of global marine environmental data layers at standard spatial resolution from one website	Y	Y
6-1	Framework for observing ecosystem services and change	Framework for observing ecosystem services and reporting change at the national scale published in Bioscience	Y	2012



7-1	Global estimation of biodiversity retention	Global model-based estimation of change in retention of terrestrial biodiversity as a function of observed change in habitat condition & climate	Partial	Partial by TBD
7-2	Global assessment of protected area representativeness	Global model-based assessment of change in representation of terrestrial biodiversity within protected areas	Y	2014-12
8-8	SAEON End-to-End Demonstrator: Marine Data Sets	Prototype of 5-2, downloadable set of global marine environmental data layers at standard spatial resolution from one website	Y	Partial by 2013