

Expert workshop on enhancing biodiversity data and observing systems in support of the implementation of the Strategic Plan for Biodiversity 2011-2020

12 October 2013, Montreal, Canada

Summary of Results



Executive Workshop Summary

The Expert Workshop on Enhancing Biodiversity Data and Observing Systems in Support of the Implementation of the Strategic Plan for Biodiversity 2011-2020 was held on October 12th, 2013 in Montreal, Quebec, Canada. The workshop was organized by the Group on Earth Observations – Biodiversity Observation Network (GEO-BON) and the Secretariat of the Convention on Biological Diversity and was financially supported by National Aeronautics and Space Administration (NASA) and DIVERSITAS. The workshop provided an opportunity to discuss ways in which the collection of, access to and use of, biodiversity data and observations could be enhanced to support more timely and effective conservation actions at the sub-national, national and regional levels with a view to achieving the Aichi Biodiversity Targets and corresponding national targets. Particular focus was placed on examining how the existing tools, products and approaches developed by GEO-BON could assist the Parties to the CBD to achieve these targets.

The workshop was attended by 85 participants from 50 countries representing government ministries, intergovernmental organisations, academic institutes and non-government organizations (list of participants in Appendix 1).

The main outcomes of the workshop were:

- A greater understanding of national and regional level needs and challenges with regard to establishing biodiversity observation networks and accessing and utilizing existing biodiversity data to improve conservation outcomes;
- A greater awareness of GEO-BON’s mandate and approach and how it can assist nations in enhancing biodiversity data and observation systems; and,
- A shortlist of priority capacity-building activities that GEO-BON could undertake to improve biodiversity observing and data utilization. These priorities, in order, were:
 - Develop a regionally customizable Biodiversity Observation Network in a Box (‘BON in a Box’) to assist national and regional scale biodiversity observation network establishment and enhancement;
 - Provide robust guidelines, based on policy needs, on what to monitor, how to monitor and how to develop database infrastructure, including innovative approaches (note this will be part of BON in a Box);
 - Develop strategies to combine remote-sensed and *in-situ* (ground) data to deliver useful assessments and indicators and to fill priority temporal and spatial gaps;
 - Develop economic arguments in support of biodiversity’s role in national development;
 - Assist in capacity building in devising standard formats and terminology for sustaining national biodiversity observation systems and advocate for access to funding from international sources; and,



- Establish national and regional GEO-BON biodiversity monitoring systems for oceanic states, island states and coastal states.

In regards to how GEO-BON can assist nations and regions in enhancing biodiversity data and observation systems, with a particular focus on improving access to data that help populate the Aichi Target indicators, it was recommended that GEO-BON focus on the following strategies:

- Promoting the adoption of open data policies and the benefits of sharing data;
- Developing interoperable data management infrastructure that facilitates the discovery and access to data at various scales;
- Promoting techniques for integrating different types of observations to improve our understanding of biodiversity trends and the mechanisms driving these trends;
- Providing scientifically defensible and transparent techniques for disaggregating global datasets for use at the regional, national and sub-national level and for aggregating national and sub-national datasets to the global level;
- Providing harmonized observation frameworks and approaches (e.g. Essential Biodiversity Variables and optimal sampling frameworks) that includes techniques for linking remote-sensed data with *in-situ* (ground) data to fill priority geographic gaps; and,
- Promoting new sampling techniques and technologies that facilitate more cost-effective and powerful observations.

The results of the workshop were presented to the SBSTTA 17 Plenary on October 14th, together with perspectives delivered by other international observation initiatives. For related outputs from the SBSTTA 17 Plenary, visit: <http://www.cbd.int/doc/?meeting=SBSTTA-17>. For more information about GEO-BON visit: <http://www.earthobservations.org/geobon.shtml>



Workshop Session and Breakout Group Summaries:

National Case Studies

Five nations (Cuba, Australia, Ethiopia, France and the United Kingdom) were asked to present on the challenges facing effective biodiversity observation and data utilisation. These case studies identified a number of common challenges preventing effective utilization of biodiversity information for decision-making. These challenges include: lack of human and financial capacity, fragmented and hidden datasets, lack of spatial and temporal continuity, access restrictions, and incompatible data formats and sampling methodologies.

Earth Observations and Remote Sensing:

Remotely sensed data can currently be used to measure progress towards implementing certain Aichi Targets, particularly Target 5 (By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly addressed). Although even with this target, key gaps remain in being able to effectively monitor the extent and condition of grasslands, savannahs, and deep water marine ecosystems. New methods are emerging that will allow observations at the species level, which would enable limited monitoring of invasive species (Target 9). Many barriers to effective and full use of remotely sensed data for monitoring biodiversity and ecosystems remain, including those related to the cost of acquiring and analysing remotely sensed data, the lack of pre-processing standards, limited network connectivity and bandwidth and difficulties in ensuring long-term continuity of remotely sensed observations.

In-situ Monitoring:

In-situ and, in particular, species monitoring is, in many cases, an effective way to assess the status and trends in biodiversity, monitor pressures on species and habitats and evaluate the impacts of management strategies and policy responses. However, significant gaps remain, particular in regard to spatial and temporal coverage and also with regard to major taxonomic gaps. The Essential Biodiversity Variables (EBVs), created by GEO-BON, are an important step towards establishing a common approach and framework to biodiversity monitoring. There are a number of emerging technologies and approaches (e.g. camera traps, citizen science) for in-situ monitoring, however, efforts are needed to establish statistical approaches to evaluating the data.

Crowd-sourcing/Citizen Science:

Citizen science is a growing opportunity for filling spatial and temporal biodiversity data gaps, assisting in ground-truthing remotely sensed data, and observing specific and/or extreme events. Existing citizen-science programs offer many valuable lessons with regard to effective means for establishing such programs in partnership with communities and scientists. Successful examples should be used to explore the potential of establishing pilot projects in areas with limited capacity for biodiversity observation. Emerging techniques such as crowd-sourcing require validation to address biases and ensure alignment with the needs of policy makers.



Global Tools and Data Products:

There are opportunities to disaggregate global datasets to fill national and regional data gaps, contextualize national observations and support implementation and revision of national biodiversity strategies and action plans. However, nations are currently reluctant to fully take advantage of these opportunities without a better understanding of the scalability of the global datasets and the methodologies and approaches behind the global datasets and their disaggregation. Also, in many cases, national users are not fully aware of the global tools and data products available. GEO-BON and the Biodiversity Indicators Partnership can help in this regard by establishing better connections and dialogue between the organizations behind many of the global datasets and indicators and the national agencies required to generate the CBD National Reports and NBSAPs. While opportunities exist to better utilize existing global datasets and tools, major gaps remain, particularly with regard to assessing progress towards addressing the underlying causes of biodiversity loss (Aichi Strategic Goal A), enhancing benefits of biodiversity (Aichi Strategic Goal D), and enhancing implementation through participatory planning, knowledge management and capacity building (Aichi Strategic Goal E).

National Data Availability and Needs:

Participants met in roundtable groups to discuss four questions related to data collection and access to data at the national level. The following presents a synthesis of the main outcomes of these four questions.

How has access to data supported the implementation and monitoring of national biodiversity strategies and action plans and achieving the Aichi Targets?

Access to data is important for strategic spatial planning and the identification of protected areas, measuring progress on the Aichi Targets, including defining the baselines, describing the current status of biodiversity and identifying gaps. To date, a lot of existing data has been 'retro-fitted' to measure progress on CBD Targets and indicators. There is a need, going forward, to focus on measuring the right variables at the appropriate spatial and temporal scales to answer the appropriate policy questions (e.g. the Aichi Targets). As well, there is a need to develop more efficient data collection, management and reporting mechanisms to reduce the lag time between data collection and effective decision-making.

Which additional data are needed to track indicators necessary to assess progress towards the Aichi Targets?

Additional data is needed in a number of priority areas, including marine, coastal, freshwater and dryland ecosystems, species and genetic diversity, and in areas for tracking progress on targets under Strategic Goals A, D and E. There is a need to enhance data and indicators for national accounting, and to monitor the impacts of trans-boundary trade and climate change. Efforts are also needed to make existing data and knowledge more readily available, through assimilation and aggregation of data and through the development of meta-data catalogues and linked indicators.



What are the obstacles to collecting and accessing data at the national level?

The main obstacles noted included: data fragmentation, lack of digitization, lack of credible standards, definitions and formats, and insufficient capacity to understand and measure biodiversity values over the long-term. A number of trade-offs need to be considered when making data freely available and ensuring data quality and transparency, as well as ensuring the appropriate technical expertise is deployed to properly interpret the data.

Which arguments would convince decision makers of the need to make more data available?

Data collection needs to be more directly linked and driven by policy making needs in order to ensure sustained biodiversity observations. Good examples need to be communicated to highlight the role of biodiversity data in measuring policy impact and success, minimizing risks and maximizing benefits, and providing an evidence base for difficult decisions.

Observing systems: How can GEO-BON support National and Regional Biodiversity Monitoring

The final session two case studies presented: one regarding a national biodiversity observation program (China) and one regarding a regional biodiversity observation program (the Circumpolar Biodiversity Monitoring Program). After these two case studies, the participants were organized by geographic regions to discuss the challenges facing the establishment of national and regional biodiversity observation programs. At the national level, the over-riding challenges were: lack of capacity, funding and guidance for developing observing systems; and inadequate and fragmented data. Few countries have experience in developing comprehensive observing systems and there is a need to identify the building blocks for establishing national observing networks. At the regional level, the over-riding challenges identified were: differences in methodologies and data incompatibilities; technology gaps and inequalities; lack of rationale for policy makers to invest in trans-national activities; and specific challenges for ocean observation in areas beyond national jurisdiction.



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