Contacts

Ilse Geijzendorffer

Institut Méditerranéen de Biodiversité et d'Ecologie marine et continentale (IMBE), part of CNRS, Marseille, France

ilse.geijzendorffer@imbe.fr
+ 33 (0)4 91 28 85 15

Eugenie Regan

Senior Programme Officer, Ecosystem Assessment, UNEP World Conservation Monitoring Centre, Cambridge, UK

Eugenie.Regan@unep-wcmc.org
+44 (0)1223 277314

Dirk S. Schmeller

Department of Conservation Biology, Helmholtz Centre for Environmental Research – UFZ, Leipzig, Germany

dirk.schmeller@ufz.de
+49 162 67 69 238

Neil Brummitt

Life Sciences Department, Plants Division, Natural History Museum, London, UK

n.brummitt@nhm.ac.uk
+44 (0)20 7942 5000

Publication date
05.01.2015

Designed by PENSOFT

Photos: Wikimedia commons

Outlook

The robustness of EBV use could currently not be indicated in the EBV assessments. For instance, a dataset which is able to quantify an EBV for one taxon at one location currently has the same score as a dataset which can quantify the same EBV across many taxa and over a long period of time. Coverage of datasets and indicators of various spatial and temporal dimensions and taxa have been identified as important barriers for the reporting under global instruments, but these currently remain unidentified. With regards to the development of EBVs, the ongoing work defining the appropriate spatial and temporal scales should include the potential contribution of modelling efforts to bridging spatial and temporal data gaps. Additionally, for certain policy targets, data requirements seemed to be directed at EBV class level while a relevant individual EBV was not included in the current list. For instance, ecosystem service-related targets seem to require data from the class Ecosystem Function, but apart from Biomass provision, EBVs for other specific ecosystem functions were missing (e.g., pollination or soil decomposition rates).

EBV taskforce

To advance the work on EBVs the EU-Project EU BON has created the EBV taskforce. The objective is to stimulate and coordinate work on EBVs and to develop a use case of the EBV concept with a special focus on species traits and species populations.

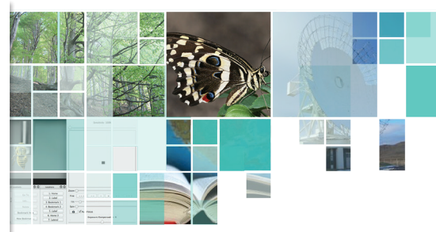
Further reading

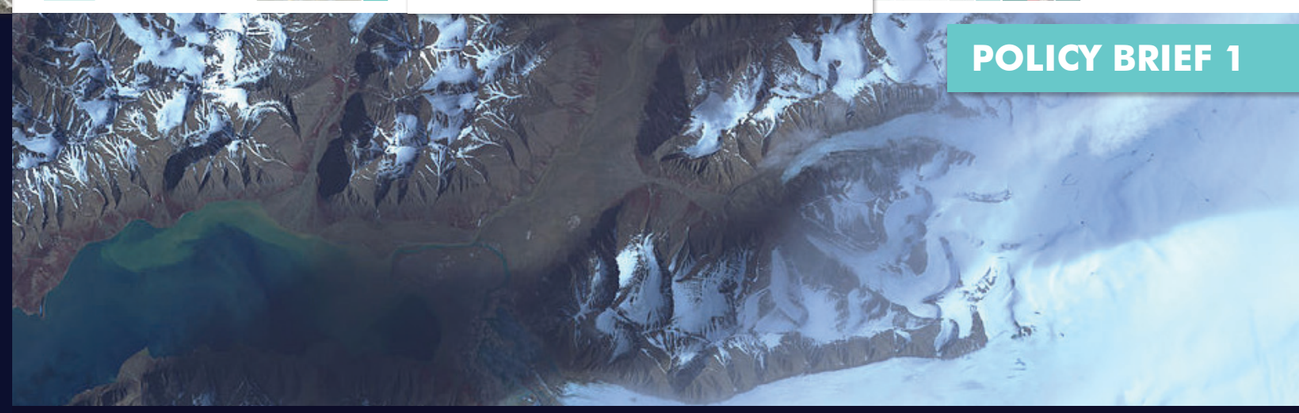
I.R. Geijzendorffer, E. Regan, H. M. Pereira, L. Brotons, N. Brummitt, Y. Gavish, P. Haase, C.S. Martin, J.-B. Mihoub, C. Secades, D.S. Schmeller, S. Stoll, F. T. Wetzel, M. Walters (accepted): Bridging the gap between biodiversity data and policy reporting needs: An Essential Biodiversity Variables perspective. Journal for Applied Ecology

EU BON

GROUP ON EARTH OBSERVATIONS

EU BON





POLICY BRIEF 1

EBVs can improve biodiversity reporting

Introduction

Globally, biodiversity continues to be lost and, due to its importance for human well-being, an increasing number of political commitments aim to halt this loss of biodiversity. This has resulted in the "greening" of existing policy instruments (e.g., in the case of the European Common Agricultural Policy), the establishment of new collaborative platforms (e.g., the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)) and the continuation of existing efforts for global biodiversity conservation (e.g., the convention on the Conservation of Migratory Species of Wild Animals (CMS)). In line with this trend, the Parties to the Convention on Biological Diversity (CBD) adopted the Strategic Plan for Biodiversity 2011-2020, which includes a shared mission and 20 targets, collectively known as the Aichi Biodiversity Targets (CBD 2010). Reporting on biodiversity changes is required for tracking and evaluating the progress of biodiversity oriented policy instruments, as well as informing decision makers of possible positive or negative side effects of other policy decisions, such as those resulting from urbanisation, land abandonment, bioenergy production or the industrialization of marine fisheries. All biodiversity-related assessments face similar challenges regarding indicator selection and data availability, leading to a gap between the information that would ideally be used to assess biodiversity trends, and the biodiversity information which actually is used.

GROUP ON EARTH OBSERVATIONS

Essential biodiversity variables

Monitoring and interpreting biodiversity trends are complex tasks. Following the example of the climate community and their Essential Climate Variables (GCOS 2003), the Group on Earth Observations Biodiversity Observation Network (GEO BON) has developed a tentative list of Essential Biodiversity Variables (EBVs). The list comprises a set of key variables for detecting major dimensions of biodiversity change. The concept of EBVs was developed to facilitate data integration by providing an intermediate abstraction layer between primary observations, indicators and assessment possibilities, i.e. providing a theory-driven rather than a data-driven approach. EBVs could potentially be used as a tool to identify existing biases in policy reporting and indicator use, through which comprehensiveness of biodiversity reporting can be enhanced. Additionally, the use of EBVs could help prioritize data mobilization and modelling efforts to facilitate data integration over large spatial scales and across a broad taxonomic spectrum, improving information on past and current biodiversity change at all biological levels (genes, populations, species and ecosystems). For example, the Population Abundance EBV refers to the raw observation data on population abundances of specific species at particular locations, whereas an aggregated population trend indicator uses the data of this EBV on trends across multiple species and locations. In this way, different countries may monitor populations of a variety of threatened taxa while allowing the observations to be aggregated into a relevant EBV (e.g. Population Abundance). This would facilitate the quantification of a biodiversity indicator regardless of which species were monitored, and will help to provide an index of national, regional and global trends in species populations.

Information gaps

A collaboration of EU BON and GEO BON has identified information gaps and demonstrated that decision makers are currently constrained by the lack of data and indicators on changes, especially in Genetic Composition and less so on changes in Species Populations. This collaborative work further showed that even when there is a requirement for specific information for reporting, the indicators used may not be able to provide all the information, e.g. current CBD indicators provide relatively little information on changes in Ecosystem Function and Ecosystem Structure. This gap could be partly closed by using existing indicators as proxies, whereas additional indicators may be computed based on available data (e.g. for EBVs in the Ecosystem Structure class). However, for the EBV class Genetic Composition, no immediate improvement based on proxies or existing data seems possible.

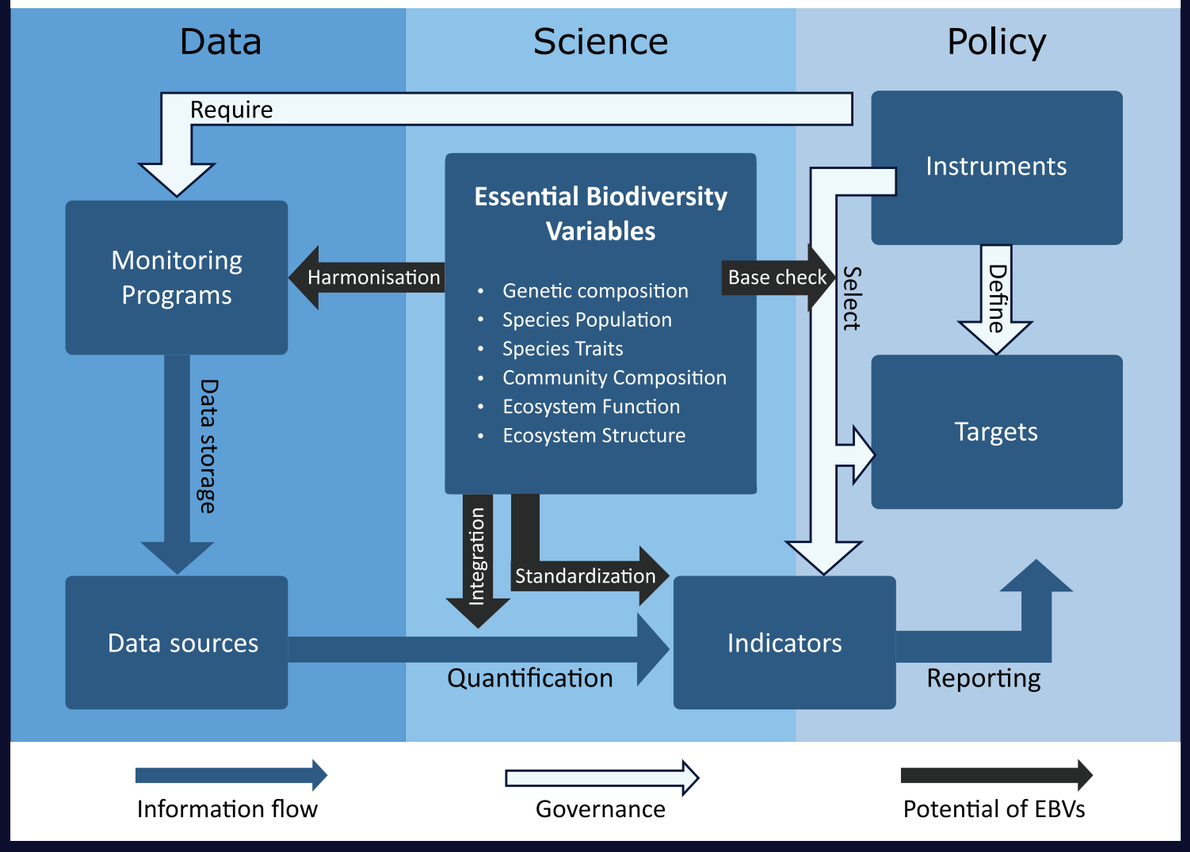


Figure 1. Representation of the information flow and the potential place and value of EBVs for biodiversity monitoring, data and policy instrument reporting. Policy instrument include targets and for the reporting on the progress towards the targets, suitable indicators are selected. To ensure primary observation data for indicator quantification, monitoring programs are required. The potential role of EBVs (composed of six EBV classes) is presented by black arrows. EBVs can be used to harmonize monitoring programs, to provide integration methods for data sources to support indicator quantification, to standardize indicator quantification methods, and to identify the base of both biodiversity targets and indicators in terms of EBVs covered. Distribution data from multiple sources could be integrated to provide robust indicators at multiple scales across realms. The collection of the necessary data could be harmonized over monitoring schemes, scales and some taxa.