



## The qualities of an integrated biodiversity observation system

**There is a recognised** need for a more comprehensive system to observe, track and compare biodiversity across the world. Three years ago a global network was established to help reach this goal. It has identified the necessary characteristics for such an integrated system and possible ways in which integration can occur.

**The need for more global** and integrated biodiversity data is exemplified by the UN Convention on Biological Diversity<sup>1</sup>, which set 21 sub-targets for reducing the rate of biodiversity loss by 2010. However, the information for many of the proposed indicators was unavailable at a global scale.

The Group on Earth Observations Biodiversity Observation Network (GEO BON)<sup>2</sup>, created in 2008, links up existing networks that observe biodiversity, including national biodiversity communities, nature conservation agencies, UN organisations and NGOs. It aims to help co-ordinate observations and harmonise methods.

GEO-BON already has an active programme of work and has identified a number of characteristics that are essential to a global biodiversity observation system. Firstly, the system should have the overarching goal of helping and protecting biodiversity alongside human wellbeing, and should be accessible to all potential users. It should be global in coverage, but with sufficient sensitivity at national and local scales, improve coverage in developing countries, which are currently inadequately represented. This more integrated system should also have comprehensive coverage of different groups of species; currently, about 1.9 million species have been scientifically described, but it is estimated that there are 5 to 30 million species in existence.

GEO-BON also suggest that the system should be cost-efficient, for example, there should be minimum duplication of observations. The data should be quality controlled with detailed information on the location and time of observation, and it should be sustained, i.e. collected continually over time.

The network GEO-BON has also identified several forms of integration that need to take place between existing observation systems. For example, it highlights the importance of linking biodiversity data across marine, freshwater and terrestrial realms. There should also be more linking between ecosystems and habitats to allow habitats to act as proxies (or substitutes) for observation of species, especially as habitats may be easier to monitor remotely through methods such as GIS (geographic information systems). GEO-BON also suggests biodiversity data should be more integrated with data that represents drivers of biodiversity change, such as climate and soil quality data.

Better integration is also needed between social and natural sciences to ensure the recognition of cultural and economic value of biodiversity, as well as ecological value. There should also be more links between data collected *in situ*, onsite, and data gathered through remote means, such as satellite observations. Lastly, more harmonisation is needed between national observation systems and those that have been independently developed with their own standards and language. This will need common data exchange standards and protocols.

To address these issues of integration, a 'co-development' process is needed that involves all stakeholders and considers their needs. GEO BON achieves this with the concept of 'Essential Biodiversity Variables' (EBVs). This consists of 24 indicators of biodiversity which will be developed through a series of workshops with key stakeholders.

1. See: [www.cbd.int/](http://www.cbd.int/)
2. See: [www.earthobservations.org/geobon.shtml](http://www.earthobservations.org/geobon.shtml)

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