



Joining European forces for site based monitoring linking EU BON and LTER-Europe

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The EU BON approach

There is an urgent demand to integrate, harmonize and standardize biodiversity information from on-ground to remote sensing data, in order to adequately address questions from decision makers. The global framework is set by the Group on Earth Observations (GEOSS) and its biodiversity section, the Group on Earth Observation Biodiversity Observation Network (GEO BON). Europe's contribution towards these goals and initiatives is currently EU BON (**E**uropean **B**iodiversity **O**bservation **N**etwork) which builds on existing biodiversity information systems and infrastructures (e.g. GBIF, LifeWatch, DataOne, LTER and national biodiversity data centres) thereby integrating access to multiple data sources.

EU BON is an integration between social networks of science and policy and technological networks, resulting in a new open access platform for sharing biodiversity data, tools as well as results from state of the art analyses. The developed tools are evaluated and refined across different ecosystems, terrestrial, freshwater and marine. Together with the latest modelling scenarios, a network of **test sites** is used to verify the observed patterns, processes and trends (Hoffmann et al. 2014).

The LTER-Europe approach



Similar to the system of systems (GEOSS), a network of network was established to link long-term monitoring and research across on a global (ILTER), regional (e.g. LTER-Europe) and national level. The overall goal is to gather long-term ecosystem data for management options. The human dimension is specifically included. LTER is a **site based infrastructure/network** which contributes to the implementation of monitoring protocols, the development of methods and testing of indicators. Furthermore, LTER is a data provider, especially for long term datasets, and also has an early warning function, i.e. early detection of new and important trends or changes in ecosystems and the respective biodiversity.

To achieve that three major products have been established: a thesaurus for common language in ecology, a database and a metadata portal with defined (open) access for research which can be used for example for modelling approaches, indicators, trends in populations or ecosystem services, etc. A network between partners institutes focusing on research is also in place (ALTER-Net).

LINKAGES

As the basic questions of both approaches have a large overlap, it is natural to search for synergies and to join forces. More specifically the following questions will be answered jointly in the near future:

- How is data integration achieved within LTER and what lessons can EU BON learn from that?
- Are there common technical problems (data upload, storage and dissemination) which can be solved in partnership? E.g. the LTER product DEIMS, the Drupal Ecological Information Management System, is already within EU BON.
 - Are there common standards (e.g. for sensor based observations, semantic harmonisations)?
- How could LTER data be more effectively linked to larger/international biodiversity information schemes (GBIF, GEOSS) and could EU BON assist?
 - The testing of tools and models is one central point in EU BON. The large site network of LTER could also contribute substantially. The benefits for LTER would be first access to EU BON products, help and direct contact to the developers and thus a direct feedback loop to keep models grounded. LTER data could be extrapolated on a regional level. The benefits for EU BON would be a large community who reviews and verifies.

The combination of the powerful abiotic (LTER) and biotic (EU BON) datasets will provide deep insights in ecosystem and biodiversity science.

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www.eubon.eu



www.lter-europe.net

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Reference: Hoffmann, A., J. Penner, K. Vohland, W. Cramer, R. Doubleday, K. Henle, U. Köljalg, I. Kühn, W.E. Kunin, J.J. Negro, L. Penev, C. Rodriguez, H. Saarenmaa, D.S. Schmeller, P. Stoev, W.J. Sutherland, E. O Tuama, F.T. Wetzel & C.L. Häuser. 2014. The need for an integrated biodiversity policy support process – Building the European contribution to a global Biodiversity Observation Network (EU BON). *Nature Conservation* 6: 49-65. doi:10.3897/natureconservation.6.6498.