

e-Science and Technology Infrastructure for Biodiversity Data & Observatories

Wouter Los, University of Amsterdam

While we are exploring other planets, it is surprising how little we still know about our own planet Earth. This is certainly true for our understanding of the living world, the biological diversity of species, and their genes and the ecosystems in which they occur. We only know a fraction of the probably millions of species, especially of the insects, microorganisms and other small species which are in different ways crucial for goods and services such as pollination, health or biotechnology. Scientific developments have already generated knowledge about some components of biodiversity, but the research community absolutely needs a **new methodological approach to understand the biodiversity system**.

LifeWatch will construct and bring into operation the facilities, hardware, software and governance structures for research on the protection, management and sustainable use of biodiversity.

Components

- facilities for data generation and processing; a network of observatories
- facilities for data integration and interoperability;
- virtual laboratories offering a range of analytical and modelling tools
- a Service Centre providing special services for scientific and policy users, including training and research opportunities for young scientists.



The architecture allows for **dynamic linkages to other resources** and associated infrastructures. As such, LifeWatch will be the first example of a new generation of research infrastructures that form a cooperating fabric.

Features & benefits

- A single portal for pure and applied researchers, policy makers, industries and the public at large



The LifeWatch infrastructure for biodiversity research addresses the huge gaps we face in our understanding of life on Earth. Its innovative design supports a large-scale methodological approach to data resources, advanced algorithms and computational capability. LifeWatch will not only serve to support the scientific research, but will also be an essential tool for local and global policy makers in the understanding and the rational management of our ecosystems.

- Discovery of biodiversity data: habitats, species and DNA sequences, geographical, climatological and ecological data; visualisation of temporal and spatial distribution
- Modelling tools to analyse statistical relationships between, among others, species occurrence data and environmental factors; creation and integration of geographic information system (GIS) map layers
- Facilitation of data access and proper citation; on-line and off-line user support
- Structuring the scientific community with new opportunities for large-scale projects
- Accelerating data capture with new technologies and institutional support; identifying priorities and knowledge gaps
- Close cooperation with existing infrastructures and facilities

International cooperation

Successfully implementing LifeWatch is only possible through international cooperation. The sheer size of the infrastructure with respect to costs, functionalities and user communities requires large-scale collaboration.

The European Strategy Forum on Research Infrastructures (ESFRI) identified LifeWatch as an essential facility to be supported by European countries.

The preparatory phase was started on February 1st 2008, and will take 3 years. It brings together – and aims to expand – a group of interested EU member and associated states in order to prepare a cooperation agreement on the construction and long term maintenance of the LifeWatch infrastructure. A Policy and Science Board - composed of the representatives of more than 18 interested partner countries and 8 scientific networks, oversees process progress.



Executive participants: Universiteit van Amsterdam | Netherlands Institute of Ecology | Norwegian Institute for Nature Research | Consejo Superior de Investigaciones Científicas | Freie Universität Berlin, Botanischer Garten und Botanisches Museum Berlin-Dahlem | Fraunhofer Institute IAIS | Cardiff University | Naturhistoriska Riksmuseet | Centre for Ecology and Hydrology | University of the West of England, Bristol | Comunitat Ambientale | Muséum National d'Histoire Naturelle | HealthGrid | Research Institute for Nature and Forest | Sven Lovén Centre for Marine Sciences, University of Gothenburg | Swedish Research Council | Finnish Environment Institute | National Research Institute for Mathematics and Computer Science in the Netherlands | The Natural History Museum in London || **Countries:** Austria | Belgium | Denmark | Finland | France | Greece | Hungary | Italy | Netherlands | Norway | Poland | Portugal | Romania | Slovak Republic | Slovenia | Spain | Sweden | Turkey | United Kingdom || **Scientific Networks:** AlterNET | BioCASE | EDIT | ENBI | EurOceans | MarBef | Marine Genomics | SYNTHESYS

LifeWatch is partially funded by the European Commission within the 7th Framework Programme (number 211372).



www.lifewatch.eu | info@lifewatch.eu