Data infrastructure for biodiversity and ecosystem community

Research on biodiversity and ecosystems deals with different kinds of data originating from a variety of systems. Infrastructures for biodiversity research must include a mature distributed data infrastructure that includes the current biodiversity data repositories around the world.

Molecular sequences, gene functions, species distributions, species assemblages, earth observation data, images, video, and sounds are some of the data types used in research on biodiversity and ecosystems. In addition, non-biodiversity data on external constraints and drivers (such as climate change and human interventions) is relevant for knowledge development. The data comes from a variety of sensor and monitoring systems, collections, human observations and data banks in many organisations. This data is required for understanding processes at the genetic, species, population and ecosystem levels, as well their scale interactions. These processes occur on different spatial and temporal scales. Infrastructures for biodiversity research are providing facilities for data generation, discovery, filtering, integration, analysis, modeling and visualization. Fast and reliable facilities in the research infrastructures are increasingly crucial to support frontier research. This starts with a mature distributed data infrastructure that includes the current biodiversity data repositories around the world.

The biodiversity and ecosystem community in EUDAT is represented by the LifeWatch research infrastructure (www.lifewatch.eu), and more specifically by the European monitoring network for Long Term Ecological Research, LTER-Europe (www.lter-europe.net). LTER-Europe is coordinating and managing large amounts of monitoring data produced by almost 100 organizations. These communities are cooperating with EUDAT to design a supporting data infrastructure that can better meet the community requirements. The involvement of LifeWatch and LTER-Europe is providing a use case with large and complex data sets from various origins.

The biodiversity and ecosystem community is looking for a data infrastructure to better manage its data (which is generated using different systems in various locations that span the globe). We expect that EUDAT will explore a range of data infrastructure services, such as automated assignment of identifiers and metadata, authentication when users (including machines, such as sensors) are operating from different interfaces (even in extreme field situations), support for data discovery, and mechanisms for fast data access, retrieval and transfer.

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Read more

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