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Further information

www.biodiversity-exploratories.de



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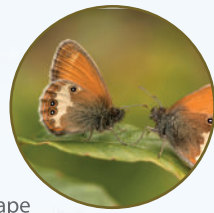
Biodiversity Exploratories

Biodiversity research in large-scale landscape



Background

Biodiversity comprises the variety of different ecosystems, their species, and their genetic diversity. Land use and management regimes strongly influence biodiversity in today's landscape and changes in biodiversity may affect many ecological processes.



The research program Biodiversity Exploratories investigates both the causes of biodiversity change and its consequences for many ecosystem processes, including important ecosystem services.

Central questions

How does land use intensity affect the genetic diversity, species richness and diversity of interactions of different organisms?

Which interdependencies exist between different organisms, for example does the diversity of soil organisms account for those of plants?

What is the role of biodiversity for ecosystem processes (e.g. carbon cycling and pollination), which provide important ecosystem services for humans?

The study regions

Field research is conducted in three large regions, the so-called Exploratories. One is located in the biosphere reserve Schorfheide-Chorin in Brandenburg, another in the national park Hainich (Thuringia) and its surrounding area, and a third in the biosphere reserve Schwäbische Alb in Baden-Württemberg. Each region comprises forests and grasslands of different management intensity.



In 2006, 100 study plots, 50 in forest and 50 in grassland, were established in each of the three regions. These plots, which continue to be managed as usual, serve for comparative studies and for experimentation among gradients of management intensity in forest and grassland.

With the 6th phase (2020-2023), further large-scale experimental plots were set up. On these plots, biodiversity is deliberately manipulated at the landscape level. The experiments are called „reduced land-use intensity experiment“ (REX) and „land-use experiment“ (LUX) in grassland, and „forest gap experiment“ (FOX) on forest plots.

Originality of the project

For the very first time, scientists covering all facets of biodiversity and of ecosystem processes, including botanists, microbiologists, zoologists, geneticists, ecophysicists, ecosystem researchers, remote sensing specialists and forest scientists, are collaborating on exactly the same research plots and on common research questions.

The range of organisms studied is as comprehensive as possible. It reaches from soil bacteria and fungi to higher plants, bryophytes, algae, lichens and to arthropods, other invertebrates, birds, bats and other mammals.

To allow the synthesis of results from all these researchers, the Exploratories have been pursuing a standardization of methodologies from the very start.

Due to its large-scale and long-term scope and its comprehensiveness the data-rich project opens exciting new opportunities for ecological science.



About 250 scientists from 40 projects are involved in the Biodiversity Exploratories program, where they comprehensively study the biodiversity of forests and grasslands.

Project structure

The Biodiversity Exploratories program comprises about 40 projects, 10 providing long-term infrastructure and basic data about land use, diversity and ecosystem functioning. About 30 projects are dedicated to more specific research questions.

Field work in each Exploratory is managed by a local management team, which collaborates closely with local authorities, land owners, land users, farmers, foresters, hunters, and the general public.

The Biodiversity Exploratories (central coordination) office BEO is located at the Senckenberg Gesellschaft für Naturforschung in Frankfurt. It provides smooth academic coordination and administration, organises events, and oversees public relations, communication and outreach.

An internal web-based data base of the Biodiversity Exploratories, hosted by the University of Jena, facilitates exchange of information and data between projects, and enables internal communication.

