

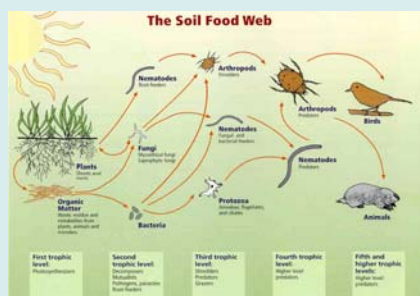
EcoFINDERS

Ecological Function and Biodiversity Indicators in European Soils

an EU FP7 project (2011-2015)

The EcoFINDERS (**Ecological Function and Biodiversity Indicators in European Soils**) project will result in:

- at the scientific level, increasing our knowledge of soil biodiversity and its role in ecosystem services across different soils, climate types and land uses;
- at the technological level, the standardization of methods and operating procedures for characterizing soil biodiversity and functioning, and the development of bioindicators;
- at the economic level, the assessment of the added value brought by cost-effective bioindicators, and of cost effectiveness of alternative ecosystem service maintenance policies.



Soil ecosystem services

Soils provide numerous essential ecosystem services such as:

- primary production (including agricultural and forestry products);
- regulation of biogeochemical cycles (with consequences for the climate);
- water filtration; resistance to diseases and pests;
- and regulation of above-ground biodiversity.

However, soils are subjected to many threats, so there is an urgent need to preserve this resource which is not renewable within Human time scale.



Photo Richard Bardget

Soil biodiversity

Soils host a huge biodiversity of which our understanding remains very limited. The soil biodiversity studied includes microbes (archaea, bacteria, fungi) and fauna (protozoa, microarthropods, nematodes, oligochaeta), and their relation with above-ground biodiversity. Our lack of knowledge is related to: the small size of the soilborne organisms; their immense diversity; the difficulty in isolating them; and the great heterogeneity of their habitats across different scales. However, recent progress in the molecular characterization of soil biodiversity offers the exciting prospect of exploring its complexity and better understanding its functioning.



Photo Anne Winding



Perspectives

Scientific and technological knowledge on soil biodiversity and functioning in relation with the ecosystem services is required to define and adopt a Soil Framework Directive by the European Commission.

This European project, coordinated by INRA, France, gathers together 23 partners from 10 European countries plus China, to harness expertise in ecology, biodiversity, environmental economy, modeling, bioinformatics and database management.

Approaches:

- description of soil biodiversity and of the relations between soil biodiversity, soil functions and ecosystem services, in long term observatories representative of soil types, climates and land uses across Europe,
- experiments to test the biodiversity patterns identified, the bioindicators developed and hypotheses related to connections between soil biodiversity and functions,
- metadata analyses to raise a biodiversity database at the European level, and modeling to decipher relations between soil biodiversity and functions, as well as putting a value on ecosystem services.



Photo Paul Henning Krogh

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