



Forest Biodiversity monitoring at European level

The *BioSoil* project

Abstract

The *BioSoil* project is a demonstration project co-financed under the Regulation (EC) No 2152/2003 concerning the monitoring of forest and environmental interactions in the Community (Forest Focus).

The aim of the project is to demonstrate how a large-scale European study can provide harmonised soil and biodiversity data and contribute to research and forest related policies. Its objectives are to:

- Collect harmonised forest biodiversity information at European level;
- Present a European forest type classification of the plots and provide a first attempt at habitat classification of the forests of Europe;
- Test selected, internationally recognised, robust and practical indicators of forest biodiversity on a large scale survey with the aim of developing a practical manual;
- Establish an improved common baseline framework to integrate other information and ongoing projects (including the soil monitoring component of *BioSoil*) on forest biodiversity;
- Design an approach to quantify European forest biodiversity and monitor changes over time and space.



Ground vegetation

The diversity and abundance of vegetation has been linked to the diversity of other faunal groups; e.g. ground beetles and butterflies.

BioSoil plots with greatest species diversity were found mostly around the Alpine region, with one plot in Italy found to contain 111 different vascular species.

Biodiversity components

Several components of biodiversity have been assessed as part of the *BioSoil* project:

General plot characteristics: location, altitude, management, forest type and stand age;

Stand structure and composition: tree species, DBH, height, survival and canopy closure;

Deadwood: an inventory of coarse woody debris including type, dimensions and state of decay;

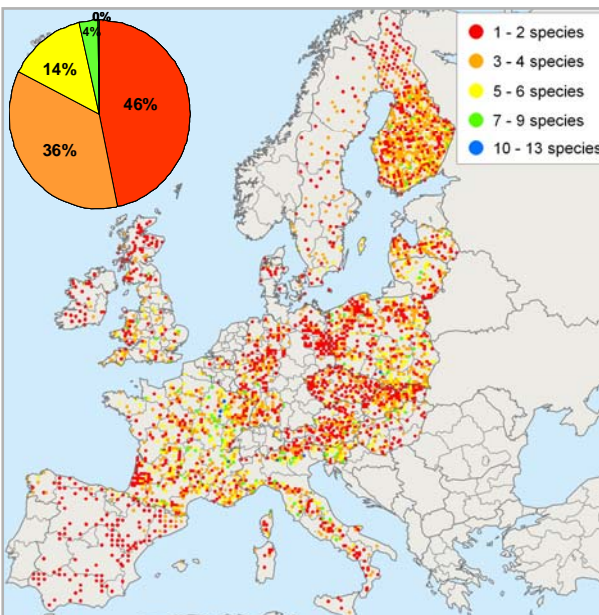
Ground vegetation: an inventory of vascular ground species and cover.





Initial findings

- 3379 plots across Europe were assessed for the *BioSoil* biodiversity project.
- 65 % of the assessed plots have been forested for more than 100 years. Only 4% were forested in the past 25 years.
- Two thirds of the plots have been managed in some way in the last ten years. The 10% of plots that show no evidence of management are mostly from mountainous regions.
- The most common age class for the trees in the plots is 41-60 years, with over 700 plots falling into this category. 300 plots were described as over 120 years old.
- A total of 110 different tree species and around 2500 ground vegetation species were recorded in the *BioSoil* plots.



Structural biodiversity

Structural diversity is enhanced through having a variety of different tree species of different ages and sizes in the woodland. In the *BioSoil* project species composition, horizontal diversity (DBH variability) and vertical diversity (number of layers) are all assessed.

In the analysis of species richness, it was found that around half the forest plots contained only one or two species. However, in 4% of the plots, 10 or more tree species were recorded within a single 2000 m² area plot.

Deadwood

Deadwood is an important constituent of the forest ecosystem. Up to a third of the species living in European forests depend on veteran trees and deadwood for their survival. As the deadwood progresses through various stages of decay, it offers a relatively cool, moist habitat for animals and a substrate for microbial and root activity.

Deadwood also provides germination spots for small seeds, regulates water flow, contributes to the nutrient cycle and builds soil.



Contact

European Commission • Joint Research Centre
Institute for the Environment and Sustainability
E-mail: forest@jrc.ec.europa.eu
<http://forest.jrc.ec.europa.eu/>