

## Forest Biodiversity in the Pan - European Monitoring System.

### **Summary.**

- both Level I and Level II data contain useful information for the assessment and monitoring of biodiversity;
- The ad hoc group on biodiversity should be given the mandate to co-ordinate actions concerning biodiversity assessment, including the promotion of collaboration with relevant organisations and programmes, and the development of a manual containing harmonised methods;
- investigations are needed to develop methods for biodiversity assessment on the basis of existing or new data.

### **Background.**

Since 1986 forest condition in Europe has been monitored by the International Co-operative Programme on the Assessment and Monitoring of Air Pollution Effects on Forests (ICP Forests) of the United Nations Economic Commission for Europe (UN/ECE) under the European Union Scheme for the Protection of Forests against Atmospheric Pollution, Regulation 3528/86. The monitoring programme has a two tiered approach, whereby large scale extensive monitoring (using harmonised methods) of crown condition, soil and foliage surveys occur on a systematically arranged network of 5,700 plots across Europe; the so called "Level I" approach. This approach is complimented by a further 860 more intensively monitored plots where information is gathered (again using harmonised methods) on crown condition, foliar condition, soil and soil solution chemistry, atmospheric deposition, tree growth, meteorological condition and ground vegetation surveys; the so called "Level II" approach. Thus, in this way information is collected on both the chemical and biological components of the forest ecosystem.

Although the monitoring programme has been designed and implemented to assess the effect of atmospheric deposition on forest condition, this unique database established over the past 15 years, may now also be used to address other issues of forest policy such as sustainable forest management, climate change and biodiversity in forests. In terms of the European Environmental Agency's DPSIR framework, atmospheric pollution may be thought of as one of the pressure indicators affecting biodiversity in forests which the monitoring programme is well equipped to address. This may be achieved by either assessing existing data collected within the programme or by including additional assessments to the current monitoring programme. It may also be achieved through co-operation and collaboration with other agencies and institutes working in this field. The purpose of this ad hoc working group is to determine the possibility and feasibility of including aspects of biodiversity assessments into the current monitoring programme.

### **1. Introduction.**

In the Expert Panel meeting on Ground Vegetation (September 2000, Lillehammer, Norway), the topic of Biodiversity was brought up. This was a result of the widening of the scope of the monitoring programme. At this meeting there was not enough time to discuss the biodiversity matters in detail. Therefore an ad hoc group was formed. This ad hoc working group was convened in Dublin (11/12 January 2001).

## **2. Objectives of the ad hoc group.**

- to investigate the possibility to include aspects of biodiversity in forests in the pan European monitoring programme;
- to formulate in general wording how to assess biodiversity in forests using available data.

## **3. Conclusions of the ad hoc group.**

- the current programme can contribute to biodiversity issues in forests;
- ground vegetation data and stand characteristics provide information on aspects of biodiversity in forests;
- the collection of new data may be necessary, e.g. dead wood or epiphytes;
- however, the monitoring programme cannot cover all aspects of biodiversity, e.g. at the landscape scale, or for specific groups, such as invertebrates etc.;
- there is a need to intensify collaboration with other programmes and activities in this field in Europe (e.g. European Environmental Agency, Joint Research Centre, BEAR project, ICP Integrated Monitoring, etc.);
- there is a need to bring together available information on biodiversity at the national and international level.

The ways in which the current monitoring programme can contribute to biodiversity issues in forests are summarised in Annex 1.

## **4. Proposals**

Set up a working group to develop methods:

- to determine specific aspects of biodiversity in forests on the basis of Level II data e.g. numerical indices of ecological value;
- to investigate the possibility of extending the results of the Level II ground vegetation monitoring to Level I.
- to set up a manual describing methods to harmonise aspects of biodiversity within the Pan-European Programme.

## Annex 1

The working group recognises that the monitoring programme can contribute to aspects of biodiversity assessment in both direct and indirect ways, i.e. directly through assessment of vegetation and other biotic factors, and indirectly through assessment of ecosystem key factors including pressure indicators.

### **Possible contribution of the Level I system to the objectives:**

#### **i) direct parameters:**

- crown condition data with accompanying information on tree species, stand age;

#### **ii) indirect parameters:**

- soil, site characteristics, co-ordinates, etc. (to be used in later in-depth studies, possibly in collaboration with other programmes or institutes):

### **Possible contribution of the Level II system to the objectives:**

#### **i) direct parameters:**

- ground vegetation
- crown condition data (with resulting information on tree species)

#### **ii) indirect parameters:**

- site characteristics: age, co-ordinates, etc.
- growth (tree height, dbh)
- stand history on parts of the plots
- soil physical and chemical properties;
- soil solution data on parts of the plots;
- meteorological data on parts of the plots;
- phenology;
- deposition data on parts of the plots;
- remote sensing data on parts of the plots (including crown projection data).

### **Possible additional useful information**

- from within the system (feasible with existing methods): epiphytes and parasites, dead wood;
- to be obtained by collaboration with other external groups and activities: e.g. fungi (including mycorrhizae), invertebrates etc.