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The EcoChange Project

Aim and Focus

The aim of EcoChange is to assess and forecast changes in terrestrial biodiversity and ecosystems. The project assesses the ability of biodiversity and ecosystems to supply humans with required goods and services and to buffer against climate and land use change.

The project concentrates on the improvement of models and the generation of new data. It also integrates the findings with socio-economic analysis. Project work is organised into six activities.

Project information

EcoChange - "Challenges in assessing and forecasting biodiversity and ecosystem changes in Europe" is an Integrated Project with 22 Partners from all across Europe. It is supported by the 6th Framework Programme of the European Union. Contract number: FP6-036866

Project duration: January, 2007 - December, 2011

The consortium of EcoChange is led by the National Centre for Scientific Research (CNRS), Grenoble, France. Project Co-ordinator: Pierre Taberlet, pierre.taberlet@ujf-grenoble.fr



Briefing Sheet Series
July 2008

Assembling and Collecting Data

Work Description of EcoChange Activity 1

Activity 1 aims at preparing all relevant data and information for later modelling and analysis activities throughout EcoChange. Necessary information and data is collected, assembled, and data gaps are filled in a wide range of scientific fields comprised in EcoChange. The activity consists of five parts devoted to data preparation in the following fields: (1) general data assembly (GIS, species, study sites, etc.); (2) land cover and change; (3) new remote sensing-based predictors; (4) climate change projections; and (5) land use change projections.

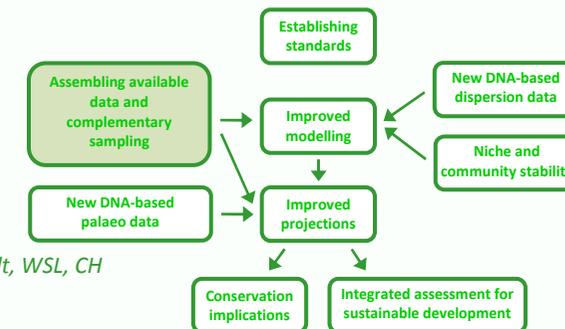
EcoChange Briefing Sheet

Activity 1

Assembling available data and complementary sampling

Activity Leader

*Niklaus E. Zimmermann
Eidgenössische Forschungsanstalt, WSL, CH
niklaus.zimmermann@wsl.ch*



Overview

The idea behind Activity 1 (A1) is to centrally assemble all necessary data, instead of having each research activity assemble basic data independently. In doing so, we intend to meet several important aspects of EcoChange, namely:

- (1) to guarantee a single standard for data generation;
- (2) to ascertain that all relevant data is available to all partners at an early stage in the project, and
- (3) to prepare the integration of results at an early stage in the project by careful data acquisition and preparation that foresees integration across activities and research fields at later stages.

The Activity itself does not generate research results directly aimed at solving important questions of EcoChange. However, several results generated during A1 are important contributions to the more analysis, modelling and synthesis oriented activities later on in the project.

E.g. the A1-results concerning land cover and its change on an EU scale represent an unprecedented level of land cover change information. The results themselves will not be novel, but existing time steps (1990, 2000 from CORINE-database) will be extended to the EU27+2 (formerly EU24) and by a 1960 time step from new sources, which represents an extended set of land cover change information for Europe.

Also, the downscaling of existing land use change projections up to 2080 represents an important set of information to researchers and managers outside EcoChange. Again, the information is not fully new, since the scenarios were already developed scientifically during the ALARM EU-project. Yet, the downscaling to a 1km spatial resolution (compared to the original 20km resolution) represents a huge step towards making such information interesting for regional applications.

Objectives

The objectives of Activity 1 are to assemble, collect and generate necessary data for later analyses, modelling and synthesis activities. These can be described as follows:

1. generate new climate change scenarios, scenario time series and improved maps of historical time series for the period of 1950-2100, including uncertainty estimates for future scenarios;

2. generate downscaled land use change scenarios for Europe at a 1km spatial resolution;
3. generate and/or assemble land cover data at 100m resolution for Europe(EU27+2) for three time slices (1960, 1990 and 2000), as well as land cover change data for the time step 1990 to 2000;
4. generate a set of new remote sensing based products (i.e. thematic maps) for input to ecological modelling, both at the scale of the EU (250-1000m resolution) and at the case study scale (5-30m resolution);
5. assemble species (traits, distribution, etc.), and auxiliary GIS data;
6. collect relevant data for case studies (socio-economic, species, climate)

Approaches

A range of different approaches is used in this Activity. Foremost, many activities involve the processing, analysis and modelling of spatial data in a GIS and in remote sensing packages (land cover, land use change, climate and climate change, new remote sensing products, GIS data preparation). Additionally, statistical downscaling techniques are used to generate data at target resolutions (climate change, land use change). Finally, literature and existing data bases are searched and data is collected from these sources (species traits, species distribution) or is collected in the field for agent-based modelling and integrated sustainability assessment in the three case study areas in Belgium, Romania and Switzerland.

Expected results

We expect a set of primarily spatial data that is then used later on in the project for a range of activities. The following products and results will be available:

- a database of distribution data for high elevation species in the Alps and in Norway for niche-based modelling and a database of species traits;
- socio-economic data and interview results for agent-based modelling and integrated sustainability assessment in three case study areas;
- land cover and land cover change products at a 100m spatial resolution for Europe;
- new remote sensing based data for modelling at the EU-scale (EU27+2) and at the scale of case studies;
- new climate change scenarios for Europe and improved historical climate maps;
- downscaled land use change scenarios for Europe.