Making well-informed policy decisions regarding biodiversity requires a user friendly tool based on a sound ecological fundament and species specific data. Assessing the possible impacts of European Community policy on biodiversity is an essential step in developing policies with the least damage to biodiversity or even to aim for positive effects.

BioScore assesses impacts on biodiversity

BioScore

ECNC

european centre for nature conservation
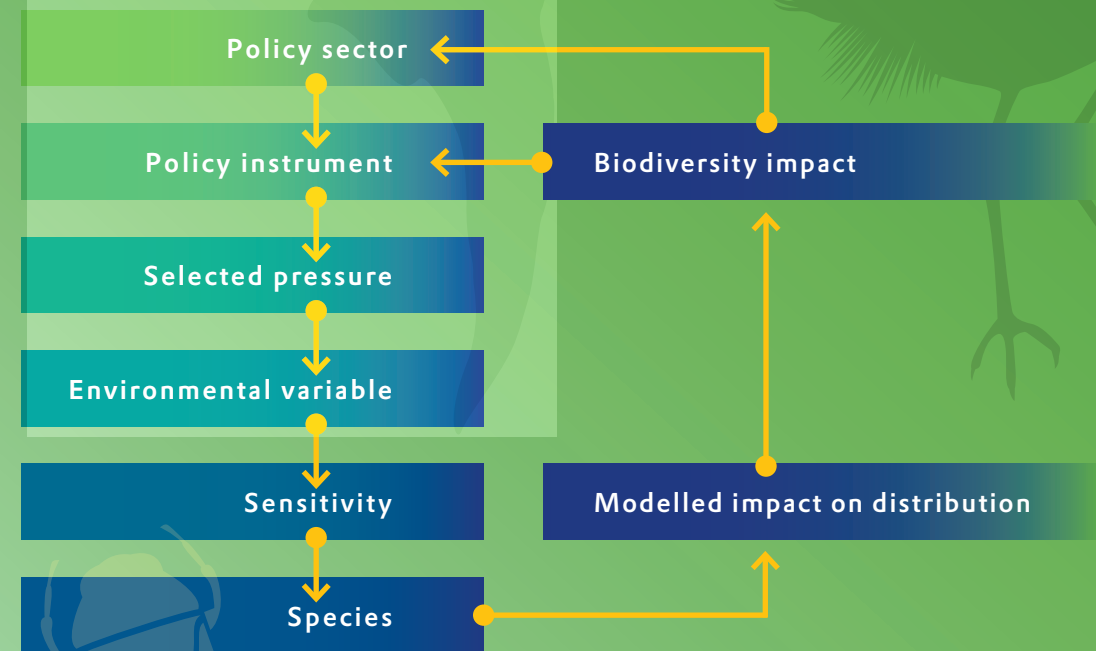
What has BioScore achieved?

BioScore has developed a cost-effective tool that allows informed users to assess the impacts of key drivers and pressures influenced by Community policies on biodiversity (species) with the ultimate aim of helping to halt the loss of biodiversity in the EU by 2010 and beyond.

BioScore has:

- built a European database with ecological preferences of individual species in relation to individual sectoral pressures and selected Community policies;
- applied the tool for assessing the impacts of EU policies on biodiversity;
- applied the tool for analysing the effectiveness of European policy responses;
- applied the tool for modelling European-wide scenarios for selected drivers;
- analysed how the tool can be integrated with biodiversity monitoring frameworks;
- proposed incentives for a wide uptake of the tool.

How has BioScore achieved this aim?

BioScore follows a unidirectional approach to relate individual policy measures to species through their sensitivity to related pressures. A feedback loop ensures that the outcome helps decision making.

Policy sector

Policy instrument

Selected pressure

Environmental variable

Sensitivity

Species

Biodiversity impact

Modelled impact on distribution

Policy sectors

The BioScore project considered those policy instruments that have a direct or indirect impact on biodiversity and covered key policy areas such as agriculture, forestry, energy, transport, environment and urban development.

Environmental variables and sensitivity

To quantify the possible impact of policy-induced pressures on biodiversity, we have identified measurable environmental variables and related these to preferences of individual species. Such explicit links between environmental variables and pressures provide the tool to relate sensitivity of a species (group) to a pressure and policy instrument.

Species

BioScore assesses effects on butterflies and dragonflies, freshwater fish, aquatic macro invertebrates, birds, vascular plants, mammals, amphibians and reptiles. In total over 1,000 species have been considered and integrated in the BioScore database, covering a wide variety of organism groups that together represent European biodiversity in general.

Using the BioScore database

The BioScore project identifies species groups likely to benefit or suffer from a certain policy measure. The results from BioScore are spatially explicit data, indicating the areas where these species will occur in Europe at biogeographical, national and regional levels.

Applications of the BioScore database

BioScore results allow well informed policy advisers to produce answers in the following format:

A predicted change of
X (environmental variable),
as a result of the proposed policy measure
will result in a likely increase of
A (number of species) and a likely decrease in
B (number of species) in each taxonomic group.
Areas of relatively high risk are located in
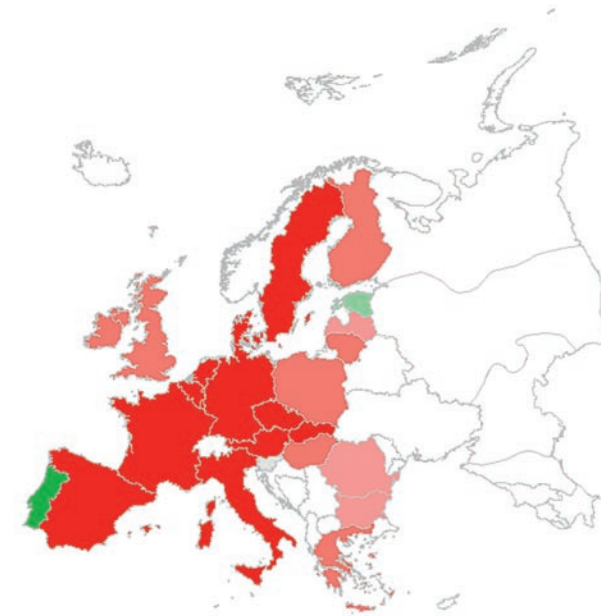Z (location)
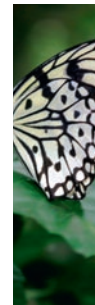
Discover what BioScore can do for you and   download the tool from www.bioscore.eu

Case studies

Three case studies were performed within the framework of the BioScore project to test the usefulness and predictive power of the tool. Two of these were retrospective and their results were compared with historical data of biodiversity change related to a change in environmental parameters influenced by an EU policy: 'afforestation' and 'air and water quality'. The third case study considered a topical subject whose possible impacts on biodiversity at present fuels some heated debates: the production of biofuels.

The case studies show that BioScore is a very valuable impact assessment tool to be used in scenario studies to assess the possible effects of EU policy changes. For the retrospective studies the results show a good correspondence between expected changes in the species composition and the observed changes reported by long term monitoring. The case studies also provided good indications for further improvements and fine-tuning of the tool.

The prospective study shows that the tool can be used for illustrating possible effects of changes in environmental variables resulting from active policy decisions on species composition and biodiversity at European level. These scenarios do allow decision makers and policy advisers to explore 'what if' scenarios.

Potential increase
- 40 to 100%
- 10 to 40%
- 3 to 10%
- 1 to 3%
- -1 to 1% (stable)
- -1 to -3%
- -3 to -10%
- -10 to -40%
- -40 to -100%
- Unknown

Potential decrease

Map from the predefined study on the impact of bioenergy plantations on biodiversity in Europe (Eggers et al., 2009) as included in the BioScore tool. Land use scenarios calculated in the context of the EURuralis project for different biofuel policy options (abolishing and doubling the current 5,75% blending target) were combined with species distribution maps as well as habitat suitability information from the BioScore database, resulting in potential habitat sizes per species. Comparing the biofuel policy options, habitat size changes were calculated and expressed as the share of species with an increase or decrease in potential habitat size. The map shows the aggregated values per country for a doubling of the current target by growing first generation biofuels.

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Partners

- **ECNC** - European Centre for Nature Conservation (Coordination)
- **PBL** - Netherlands Environmental Assessment Agency, the Netherlands
- **INBO/BC Europe** - Research Institute for Nature and Forest/Butterfly Conservation Europe, Belgium
- **WI** - Wetlands International
- **Alterra** - Green World Research, the Netherlands
- **NINA** - Norwegian Institute for Nature Research, Norway
- **UniRoma1** - University of Rome, Department of Animal and Human Biology, Italy
- **EFI** - European Forest Institute
- **EKBY** - Greek Biotope/Wetland Centre, Greece

The **BioScore Steering Committee** includes representatives from policymaking, international NGOs, data providers, science, and related European projects. It advised the project team on its direction, reviewed results and ensured sufficient linkages with other initiatives. The Steering Committee was an essential tool in the BioScore science-policy interface.

Discover what BioScore can do for you and download the tool from **www.bioscore.eu** or contact the Project Coordinator, **Ben Delbaere (delbaere@ecnc.org)**