

## HABIT-CHANGE

# **Changing Habits in Habitat Conservation - Enhancing Adaptive Capacity of the Natura 2000 Network under Climate Change**

## POLICY BRIEF – BACKGROUND PAPER

26/02/2013




## 1. Executive Summary

Climate change is already affecting Europe's biodiversity. The timing of seasonal events like first flowering date for plants and breeding date of birds have advanced and species are shifting their geographic distribution northwards or to higher altitudes. Projected future climate trends will further accelerate changes in timing and in distribution of species and ecosystems, and intensify overall biodiversity loss. Even though mitigation of climate change is of utmost importance, also the management of Europe's natural capital and heritage needs to be adapted to climate change or its impacts will lead to the degradation of habitats, the extinction of species and the loss of ecosystem services that are essential for human well-being. This is especially true for protected areas and Natura 2000 sites. But adaptation to climate change is not only a challenge; it offers a chance to reshape the future of land use and conservation strategies for the benefit of all. Both nature and society will profit from highly resilient biodiversity protection structures like a coherent Natura 2000 network and effectively managed protected areas. Most protected species and habitats can only be maintained cooperatively by protected area management and land-users. Climate change adaptation for protected areas requires an integrated approach that balances conservation goals, economic growth, and social stability. Strong cooperation and effective coordination will increase the overall resilience of the Natura 2000 network in regard to functional and spatial aspects, but also improve its economic and social benefits, and thus raise the overall adaptive capacity of European regions.

### *A Call to Action*

The project HABIT-CHANGE has evaluated how management of individual sites can be adapted to climate change. The partners of the HABIT-CHANGE project recommend several actions on EU level to foster adaptation to climate change in conservation planning, protected area management and land-use policies. The proposed recommendations build on the projects experience in the implementation of climate adapted management in Natura 2000 sites of Central and Eastern Europe and draw on a number of recent strategic initiatives in the field of climate adaptation and biodiversity conservation. The most important recommendations are:

#### **1. To enhance adaptive capacity of Natura 2000 management by**

-  Strengthening the mandate to include climate change adaptation in Natura 2000 management through EU policy papers and guidelines like the EU Adaptation Strategy.
-  Building capacity to monitor, assess, manage and report effects of climate change as well as their interaction with other pressures on site level and by ensuring adequate investment in their implementation and operation. This is especially relevant for long term monitoring.
-  Improving transnational cooperation and exchange of experience about climate adaptation in protected areas with a special focus on knowledge transfer across national borders between managers of individual sites.

- 🌱 Raising awareness to the local effects of climate change on biodiversity and ecosystem services as well as the need for adaptation and the benefits of ecosystem-based adaptations.
- 🌱 Strengthening stakeholder involvement in planning and management processes to guide autonomous or unplanned adaptation of existing land use (e.g. farming, forestry or water management) and prevent maladaptation.

## **2. To close knowledge gaps by**

- 🌱 Supporting research and applied projects that analyse the potential climate induced changes and succession of specific Natura 2000 habitats as well as species and develop a framework for management under climate change.
- 🌱 Focusing research on methods to handle multiple results from scenario analysis and methods to provide data and knowledge for evaluating potential local impacts of climate change on biodiversity and Natura 2000 sites.

## **3. To mainstream and harmonise biodiversity protection and climate adaptation in EU policies by**

- 🌱 Fostering existing efforts on EU level to mainstream biodiversity protection in other relevant sector policies and by making climate change adaptation an explicit cross-sector task of all planning procedures and to reduce existing conflicts between environmental and other policies (e.g. the Common Agricultural Policy).

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## **2. Scope of the Problem**

Climate change has already noticeable impacts on Europe's biodiversity. The timing of seasonal events like first flowering date for plants and breeding dates of birds have advanced as spring is taking place earlier in the year. Species are changing their geographic distribution northwards or to higher altitudes. In consequence, typical ecological interactions like hatching of offspring and availability of food sources are disrupted in time or in space. Projected future climate trends will further accelerate changes in distribution of species and ecosystems, and intensify overall biodiversity loss. Altered water regimes or other abiotic conditions are likely to change character of habitats and ecosystems.

The Birds and Habitats Directive, including the Natura 2000 network, have a key role to play in protecting the natural capital and heritage of the EU. Even though mitigation of climate change is of utmost importance, also the management of Natura 2000 sites and other protected areas must be adapted to climate change. Otherwise its impacts will result in the degradation of habitats, the extinction of species and the loss of ecosystem services that are essential for human well-being.

The EU biodiversity strategy as well as the proposed Environment Action Programme to 2020 recognise the importance to improve implementation, enforcement and financing of the Natura 2000 network. The HABIT-CHANGE project strongly supports this position. However, as stated in the resolution of the European Parliament of 20 April 2012, actions need to be strengthened and

specified more clearly and concrete measures have to be deployed to ensure the effective implementation of Natura 2000. This is especially true where habitats and species are threatened by climate change and nature conservation and biodiversity are crucial to the mitigation of, and adaptation to, climate change. Therefore, HABIT-CHANGE welcomes the initiative to introduce climate adaptation into the management of Natura 2000 sites through the provision of Guidelines on Climate Change and Natura 2000.

Most protected habitats can only be maintained cooperatively by protected area management and land users like agriculture and forestry. Sustainable land use requires an integrated approach for conservation goals, economic growth, social welfare and climate change adaptation. Strengthening cooperation and coordination will increase the overall coherency of the Natura 2000 network, not only spatially, but also economically, ecologically and socially, thus raising adaptive capacity of European regions. Both nature and society will profit from highly resilient biodiversity protection structures. Adaptation to climate change is not only a challenge; it offers a chance to reshape the future of land use and conservation strategies for the benefit of all.

### **3. Statement of the EU's Interest**

As biodiversity protection is an important component of a sustainable economic growth and the protection of the societal systems, climate change adaptation is to be made a coherent cross-sector task with common aims but specific measures. Climate change adaptation cannot be planned and implemented separately for biodiversity protection. It depends on the coordination with economic regulation, nature conservation and regional development.

Climate change adaptation will involve changes in land and natural asset use. All sectors and policies have to plan adaptation strategies and often these sectors will need additional areas to mitigate impacts of climate change, for adaptation measures and for nature disaster protection. As long as adaptation of different sectors is not coordinated, conflicts will arise and objectives of biodiversity and nature conservation will be harder to obtain, causing ecologic and ultimately economic damage.

The coherency of adaptation measures is a task to be pursued most efficiently by means of a common European instrument of environmental legislation for adaptation plan integration and adaptation measure enforcement. In this context, the role of nature and biodiversity protection has to be re-defined with respect to the societal and economic adaptation needs: Nature conservation (and in particular the Natura 2000 system) still relies on the separation of protection activities from other forms of land and natural asset use. A genuinely adaptive legal framework for nature protection will have to break these boundaries by integrating juxtaposed adaptation requirements to a single legal instrument of environmental law for climate change adaptation alignment.

## 4. The major obstacles to climate change adaptation in Natura 2000 sites

Natura 2000 is aimed at achieving and maintaining a favourable conservation status of protected species and habitats by protecting and managing selected areas of community interest, Natura 2000 sites. Up to now only a part of the sites is actively managed on the basis of a management plan. Often basic biodiversity data is missing, monitoring concepts are not yet elaborated and harmonized, and methods and means fail to settle conflicts with land users adequately. On site level, climate change is rarely perceived and accepted as a challenge with high priority. Applicable methods, techniques and strategies to cope with climate change in Natura 2000 sites are not available. Usually, neither management authorities nor land users and stakeholders have enough information, knowledge or incentives to plan and negotiate the necessary adaptation to climate change. It is already obvious that uncoordinated adaptation strategies of different land-users will lead to new and severe conflicts, especially concerning water resources.

## 5. Adapting Natura 2000 to the impacts of climate change

**Site level:** management must be enabled to maintain a favourable conservation status under a changing climate and allow sustainable land-use to keep protected area regions economically strong;

**National level:** strategies have to provide a legal, methodological and technical framework to foster adaptation in and between protected areas;

**European level:** policies and legislation have to support and safeguard the long-term sustainable use of natural resources and effective nature conservation in Europe.

To allow effective adaptation, all three levels have to work coordinated.

The HABIT-CHANGE project outlines “Adaptive Management of Climate-Induced Changes of Habitat Diversity in Protected Areas”. Missing links between the three levels of European and national policy-making and local management implementation have been identified. These barriers for effective and sustainable adaptation of the European Natura 2000 network are:

- Lack of basic data, especially long term monitoring data on biodiversity and climate change impacts at site level
- No availability of state- and European Union-wide accepted methodologies for climate change impact assessment
- Ineffective exchange of information between member states, national institutions, Natura 2000 sites and different land-users within protected areas
- Insufficient coordination of policies, strategies and decisions between environmental, agricultural and regional administrative bodies

- Generally insufficient implementation and partial inadequacy of environmental law, especially related to coherency of the Natura 2000 network under climate change conditions.

### *The role of European policy and legislation in enhancing the adaptation of Natura 2000 to climate change*

**Improvement of coherency of Natura 2000 network:** Natura 2000 is one of the most important strategies to protect the natural heritage and biodiversity in Europe. But Natura 2000 sites are often geographically isolated and do not yet sum up to a coherent network that would allow climate induced areal shifts of habitats and migration of species.

**Provision of practice-oriented knowledge for adaptation:** To enable the adaptation process at national and site level, the Commission should set up general directives for regional climate modelling and assessment methodologies that should be used for national strategic planning and adaptation of protected area management. Necessary network improvement requirements have to be based on common assumptions and methodologies and should be provided by EU institutions like the EEA. The Commission could then provide a common framework of reference for developing national, regional and local adaptation measures by gathering, organising and distributing data that form the basis for setting aims and choosing measures to be taken for climate change adaptation and biodiversity protection.

**Coordination and cross-compliance of regional development, agriculture, tourism, infrastructure, and other sectors with nature conservation:** The integration of biodiversity conservation goals and strategies in sectoral policies, especially regional development and agriculture will contribute much more to the functioning of Natura 2000 than improved conservation strategies and programmes focused on protected sites alone. Only such policies will result in achieving network coherence in its wider sense, i.e. not only spatially, but functionally.

### *Necessary legal, administrative, practical and financial measures at European level*

**Legal:** Climate change adaptation already is materially included in related legal provisions and can be enforced accordingly. However, it would gain relevance and impetus if it is made an explicitly mandatory task. This would provide considerable potential for more flexibility in administrative decisions following an assessment of implications for plans and projects, where severe climate change impacts are expected or monitored in future, and the possibility to enforce resilience improvement by regulating impacts of external stressors (e.g. fragmentation or land use change). Furthermore, considering the possibility to install a general legal instrument for climate change adaptation plan integration and adaptation measure enforcement in environmental law could proof rewarding.

**Administrative:** Planning and enforcing the Natura 2000 network coherency by providing a common frame of reference for regional, national and cross-border cooperation and coordination of area

management, using a uniform, web-based platform for information exchange amongst area management responsables, or even by introducing a centralised network coherency enhancement authority, would be desirable. Basis for the enforcement of network coherency is a functional analysis of the existing network and the identification of actual and potential gaps.

Concepts, guidelines and programmes to implement Adaptive Management in nature conservation should be developed and provided to member states and protected area management. The organisation of management as a learning process requires a systematic and coordinated production of knowledge about natural systems. That knowledge has to be gathered, categorised and provided for all member states. The Natura 2000 network already is an excellent prospect for studies in this respect. A framework for data collection and data management could be established by the European Environmental Agency.

The integration of unified biodiversity conservation aims in all sector policies like agriculture, forestry and infrastructure is fundamental for purposes of cross-sector coherency. The Commission ought to systematically safeguard the appropriate implementation in the member states. Creating principles for incentives and legal requirements for adaptation planning in all sectors (national and trans-sector coordinated adaptation action plans) is necessary.


**Financial:** Ensuring that financial resources are submitted by the member states directly to protected areas to enable them to fulfil their adaptation management planning to protect biodiversity and to maintain Natura 2000 under climate change. The European Commission could additionally draft funding schemes, e.g. within LIFE+, for scientifically interesting or practically challenging, severely affected Natura 2000 areas to support realizing experimental or extracurricular climate change adaptation measures.

Especially biodiversity protection and climate change adaptation is to be integrated into the Common Agricultural Policy provisions. For instance, protected area development could be integrated into programmes of regional and rural development. At the same time, support of scientific projects assessing climate change impacts and offering methodologies for adapted agricultural practice is needed.

## 6. Recommendations for action







We, the partners of the HABIT-CHANGE project, recommend initiating the following activities on EU level that could help to foster adaptation to climate change in conservation planning, protected area management and land-use policies in the member states and thus increase the Union's effectiveness in confronting regional and global environmental challenges:


### Enhancing adaptive capacity of Natura 2000 management

-  The mandate to include climate change adaptation in Natura 2000 management should be strengthened and made explicit in future regulations and guidelines. The resulting duties should be clearly formulated on national level (e.g. in national legislation or policy







strategies). In particular, we consider it useful for the EU Adaptation Strategy to include provisions to discuss and report actions for climate change adaptation in protected areas in National Action Plans to ensure coherent approaches and effective transnational cooperation.


-  The capacity to monitor, assess, manage and report effects of climate change and their interaction with other pressures must be enhanced on local and site level. Adequate investments for implementation have to be warranted, especially for long term monitoring. Training for site managers and administration is essential to be prepared for changes resulting from climate change. Capacity building should also include technical and advisory services for financing and realising projects related to climate adaptation and biodiversity conservation.
-  Transnational cooperation and exchange of experience must be improved among protected areas with a special focus on knowledge transfer across national borders between managers of individual sites. HABIT-CHANGE recognises the potential of the Biogeographical Seminar in this regard and suggests strengthening this approach. Existing efforts to foster implementation oriented projects (like HABIT-CHANGE) should be enhanced through available programmes and policies (e.g. Territorial Cooperation).
-  Dedicated action should be taken to raise awareness to the local effects of climate change and the need for adaptation. The benefits of ecosystem-based adaptation through climate adapted management in protected areas should be explored and illustrated in this regard. The potential of adaptation activities in protected areas to provide win-win situations for strengthening the environmental, economic and societal resilience on local level must be capitalised.
-  Cooperative processes based on stakeholder involvement should be strengthened to guide autonomous or unplanned adaptation of land uses (e.g. farming, forestry or water management). Existing provisions for the protection of natural resources need to be enforced and economic instruments (e.g. subsidies and rural development programmes) must be harmonised to prevent maladaptation. Climate change policies of other sectors must not become an additional threat to biodiversity.
-  HABIT-CHANGE recommends including the principles of adaptive management in the development of management plans or equivalent instruments for all Natura 2000 sites. This should include a frame of reference for all member states to enable them to provide implementation-oriented, toolbox-like management and adaptation guidelines for their site managers in national languages. The EU should ensure that the legal obligations for the development of adequate management instruments as stipulated in the Habitats and Birds Directives is met by the member states.
-  Monitoring of climate change effects on Natura 2000 sites should be harmonized on European level to provide a valid and efficient evidence base for environmental policy. HABIT-CHANGE suggests including monitoring of climate change effects as part of the monitoring obligations for Natura 2000 sites.

-  The EU Commission should initiate a process of continuously monitoring and improving network coherency between existing Natura 2000 sites in order to support climate-induced distribution shifts of species and habitats, most importantly by creating a procedural frame for network coherency assessment, network planning, and enforcing network enhancement.

### **Closing knowledge gaps**

-  Further research and applied projects should analyse the potential changes of specific Natura 2000 habitats and species because individual species will respond differently, according to their tolerances to climatic changes, their ability to migrate to new locations, their potential to alter phenology (e.g. breeding date) or their dependence on shifting food sources. A framework for climate induced changes and succession of habitats should be developed to provide guidance for management under climate change. Evaluation criteria and detailed description of conservation aims should be provided by manuals.
-  Research should be focused on the investigation of methods to handle results from multiple scenarios for future development and how to harmonize climate projections for the adaptation on local level without prescribing data. Gaps in data and knowledge about useful indicators for evaluating possible local impacts of climate change on biodiversity and Natura 2000 sites must be closed. More research activities need to be focused on analysis and methods to provide data and knowledge for evaluating potential local impacts of climate change on biodiversity and Natura 2000 sites.
-  The capacity and opportunity of the Natura 2000 network and its sites to provide locations for the analysis of climate change impacts and to study the implementation of adaptation measures and adaptive structures should be capitalised.
-  Research should be focused on the identification of the potential effects of climate change on the competitiveness of alien invasive species.

### **Mainstreaming and harmonising biodiversity protection and climate adaptation in EU policies**

-  HABIT-CHANGE recognises and supports the efforts on EU level to mainstream biodiversity protection in other relevant sector policies, such as the Common Agricultural Policy, but also in regard to tourism, infrastructure, and water resource management. Further efforts must be taken to make climate change adaptation an explicit cross-sector task of all planning procedures, and to reduce conflicts between the requirements of environmental and regional policies.

## 7. Authors and publication details

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