

Conclusions from the *European Conference on Biodiversity and Climate Change – Science, Practice & Policy* held in Bonn on 12 & 13 April 2011

In April 2011, the German Federal Agency for Nature Conservation (Bundesamt für Naturschutz), in collaboration with the ENCA Climate Change Group and the University of Greifswald, held an international conference on biodiversity and climate change. The aim of the event was to share knowledge and experiences among European scientists, conservation practitioners and policymakers, to improve both the integration of research outputs into practical conservation projects and the identification of further research needs. The event brought together 210 participants from 22 European and four non-European countries.

Talks and posters at the conference covered a wide range of topics, including impacts research, vulnerability assessment, adaptation strategies, ecological networks and ecosystem services; across a wide range of biogeographic regions and ecosystems in Europe. The conference also covered some international topics.

Based on information presented in talks and posters during the conference and in the final panel discussion, the ENCA Climate Change Group has agreed the following conclusions and recommendations. These cover three broad topics: communication and sharing information; implementing adaptation; and further research priorities. Some of these will form the basis for future work of the group.

Improving the exchange of information between and among scientists and policy makers

Although the science-policy interface has been improved in recent years, there are still deficits which should be overcome by taking into account the following points:

- a) Scientists working at the interface of biodiversity and climate change need to be aware of the political dimension of their findings. In order to provide adequate input for informed policy decisions the interdisciplinary exchange between natural scientists and scholars working in the humanities and social sciences needs to be improved.
- b) Scientists should try to improve the communication to decision makers of issues such as:
 - Possible synergies as well as possible trade-offs between different ecosystem services
 - Possible tipping points and thresholds of ecosystems and the related implications for the benefits they provide
 - How to interpret uncertainty in research results
 - The valuation of ecosystem services, particularly cultural services and non-use values of biodiversity
- c) Communication of scientific findings to decision makers could be enhanced through:

- Communicating scientific findings in a concise but precise way that focuses on key conclusions without compromising on the correctness of the information.
 - Good practice examples of good conservation, to demonstrate what adaptation for the natural environment means in practice.
 - Improved outreach and communication of the findings as an integral part of all research projects
 - More conferences and other events that bring together scientists from across the range of relevant disciplines and policy makers, with a focus on communicating information in a non-technical way
- d) Communication is a two-way process. Decision makers should be more receptive to new scientific findings and actively help identify further research needs.
- e) At an international level, Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), as a newly established body to support the science-policy interface in the field of biodiversity, can learn from the experiences of the Intergovernmental Panel on Climate Change (IPCC). IPBES should deal with the topic of biodiversity and climate change in an integrated manner.
- f) In order to improve the scientific basis in the field of biodiversity and climate change the storage, sharing of and multiple use of existing data through established platforms etc. (e.g. the Global Biodiversity Information Facility) should be enhanced.

Implementing research findings and developing adaptation strategies

- a) Implementation could be improved by:
- Making conservation research more interdisciplinary and having better links between natural and social scientists
 - Better involvement of civil society and local communities from the outset
 - Identification and communication of case studies to provide good examples of adaptation in action. Adaptation principles and concepts such as resilience and adaptive management are now reasonably well established; good examples of these concepts being applied in a rigorous way on the ground are still quite rare.
- b) There is an increasing need to consider larger scale approaches, for example:
- Conservation of whole landscapes/catchments
 - Consideration of large scale processes such as hydrology
 - Better understanding of the relative importance of protected areas versus sustainable use of the intervening matrix
 - Best practice examples and guidelines on the design and management of ecological networks, sharing ideas across the many countries that are now considering or establishing them

- Green infrastructure, as a concept comprising a variety of well established conservation measures, as well as general land-use issues in the wider landscape have to be seen in an integrated, trans-boundary context
 - An increased need for cross-border cooperation
- c) It appears likely that some conservation objectives might need to be reappraised, for example:
- the need to consider when and how to accept change (but the likely continuing importance of current important areas even if ecosystems change)
 - accepting species not previously present in an area and possibly changing management to accommodate them
 - assessing conservation value of an area if current high priority species move
 - considering whether to accept translocation of species from countries where they can no longer survive
- d) There is a need to consider economic aspects and to integrate conservation with other sectors and with other land uses such as agriculture
- e) Limited conservation resources and increased pressures are likely to require careful prioritisation of objectives and where effort is focused

Some research priorities

- a) Better understanding is needed of the variety of factors that influence individual species responses and ability to adjust to climate change, including physiological thresholds, the effects of predator, competitor and prey species, the role of different habitat features in facilitating or hampering adaptation, and the role of genetic diversity and potential for in situ adaptation in the evolutionary sense
- b) Long term monitoring of changes needs to be continued and expanded. There is growing evidence that without it changes will not be detected or interpreted appropriately
- c) The role of different habitat features in ecological networks – the relative importance of connectivity v habitat quality for different species; the balance of protected v areas in which conservation is integrated into other land uses
- d) The need to try out some different management approaches (such as altering level of habitat heterogeneity and establishing a wider range of microhabitat) and monitor the effects so we're better prepared if the time comes when new approaches are needed
- e) Better understanding and mapping of ecosystem services to inform better spatial planning and location of green infrastructure
- f) Improved understanding of the synergies between biodiversity conservation and adaptation and mitigation benefits for people