



Convention on the Conservation  
of European Wildlife and Natural Habitats

Standing Committee

**Recommendation No. 145 (2010) of the Standing Committee, adopted on 9 December 2010,  
on guidance for Parties on biodiversity and climate change in mountain regions**

The Standing Committee of the Convention on the Conservation of European Wildlife and Natural Habitats, acting under the terms of Article 14 of the Convention;

Having regard to the aims of the Convention to conserve wild flora and fauna and its natural habitats;

Recognising that climate change affects biological diversity in the territory covered by the Convention, including species, habitats and the Areas of Special Conservation Interest of the Emerald Network;

Recognising the need to adapt conservation work to the challenges of climate change so as to minimise its impacts on the species and natural habitats protected under the Convention;

Bearing in mind that uncertainties surrounding the precise nature of future climate change and its impacts on biodiversity should not delay practical conservation action;

Noting that the biodiversity of mountain regions in Europe is particularly vulnerable to climate change as many species, particularly those in the upper parts of mountains are going to experience important reductions in their distribution area as the climate warms up;

Noting that biodiversity of European mountain systems is to be more affected than other mountain ranges of the world as migration of species Northwards following temperature increase will not be possible because of their West-East orientation;

Noting that many European mountain ranges have a high degree of habitat fragmentation and can be considered “evolutionarily isolated ecosystem”, which increases the vulnerability of their biodiversity to climate change;

Recalling CBD COP 10 Decision X/33 on Biodiversity and climate change;

Recalling Recommendations No. 135 (2008) and No. 143 (2009) of the Standing Committee, on addressing the impacts of climate change on biodiversity;

Welcoming and bearing in mind the report “*Impacts of climate change on Mountain Biodiversity in Europe*” by Ms Eva Spehn [doc. T-PVS/Inf (2010) 8];

Recommends Contracting Parties to the Convention and invites Observer States to:

1. Address and communicate the impacts of climate change on mountain biological diversity and its conservation,
2. Carry out specific national and European research or, as appropriate, reinforce existing research on the mountain areas habitat types and species that will be most affected by climate change, monitoring their change and co-operating as appropriate with neighboring states in shared mountain ranges; Promote sharing of information on research carried out in different mountain ranges of Europe,

3. Develop specific climate change adaptation policies and action for mountain biodiversity, taking due account of the proposed guidance set out in the Appendix to the present recommendation;
4. Where appropriate, implement the proposed actions of the guidance in appendix to this recommendation

Further recommends Contracting Parties of the Convention on the Protection of the Alps and Convention on the Protection and Sustainable Management of the Carpathians and invites their observer States to help implement this recommendation in their respective frameworks.

## **APPENDIX**

### **Guidance**

This guidance draws on the expert report commissioned by the Council of Europe and discussed by the Group of Experts on Biodiversity and Climate Change at its meeting in 2010.

Measures that may be considered as appropriate for addressing the impacts of climate change on biodiversity, for the purposes of the application of the Convention, are listed for consideration by Contracting Parties. These measures are offered as examples of action that may be taken by authorities at all levels of governance to address this issue. Other complementary measures may be identified by governments as equally appropriate to their particular circumstances and concerns. Notwithstanding these adaptation measures, there is an urgent need for climate change mitigation actions at local, regional, country and global levels. Effective mitigation is crucial to contain climate change to levels within which we may have a reasonable chance of achieving effective adaptation. Although these recommendations focus on the adaptation to climate change, it is important to bear in mind that, on the one hand, climate change mitigation activities may be harmful to biodiversity and, on the other hand, the conservation and restoration of certain ecosystem types in particular forests and wetlands have to play an important role in the overall mitigation effort.

The effects of climate change on mountain ecosystems and their biological communities are complex. The impacts of a changing climate on the species and habitats protected by the Bern Convention may differ widely, depending on the species and the interactions with other species and/or their habitats, as well as according to location. The effects that climate change mitigation and adaptation measures, taken in other sectors, can have on species and habitats should also be considered in order to avoid negative impacts.

#### **Mountains and climate change**

Changes in the environmental factors of European mountains caused by climate change are already visible. There is a decrease in mountain glacier area, an increased annual precipitation with changing seasonality in the Alps, less predictability of rainfall and temperatures in Mediterranean mountains and a marked migration of species “uphill” as mean temperatures rise.

Mountain forest plants have been found to climb between 25 and 93 meter per decade since the 1950's and a number of other groups (carabids, fungi, birds, molluscs and spiders) have also shown a marked variation along an altitudinal gradient.

Mountain ecosystems are also naturally vulnerable because of their relatively smaller extension, the risk of erosion and the extreme conditions of many mountain habitats.

Mountains exhibit the most pronounced climatic gradients and, in evolutionary and biographical terms, they can be compared to islands, archipelagos of high elevation habitats, isolated by the lowlands. As such isolated ecosystems they host a very high proportion of endemic species that are at great risk of extinction because of the unprecedented speed of present climate change and the West-East orientation Europe's mountain ranges, which hinders North-bound migration possible in other mountain ecosystems of the world (for instance in the Americas). Particularly threatened will be species confined to summits or the plains, late successional plant species, species with small restricted population and species with relative low mobility, as some amphibians. Other species (in mix-altitudinal ranges) are also likely to see their habitats reduced as they are displaced uphill, thus becoming more vulnerable to extinction.

## **PROPOSED ACTIONS**

**Improve Protected Areas in mountains:** Re-evaluate management goals of protected areas, ensure continued protection and appropriate management of existing protected areas. Increase the effective size of the protected area where and when possible (e.g., enlarged core protection zone and buffer zone with nature-friendly land use) and/or create new protected areas. Protect altitudinal gradients avoiding further fragmentation. Cooperate to develop common approaches with adjacent or nearby protected areas.

**Connect:** The safeguard of latitudinal and altitudinal ecological continuums will be a crucial element in adaptation to changing conditions for many species and populations, mainly in areas of actual or potential tree line and in urbanised areas in the Alps. However, improving ecological connectivity also facilitates the dispersal of disease and invasive alien species along corridors. More research is needed on how ecological connectivity improves biodiversity and ecological persistence.

**Permeable landscapes:** Enhance existing incentive schemes promoting lower intensity land management and the development of greater landscape heterogeneity. Retain as many patches of “semi-natural habitats”, especially in urbanised or intensively used areas.

**Reduce anthropogenic stresses:** minimize localised human-caused disturbances (e.g. fragmentation, nitrogen addition or other pollution) that hinder the ability of species or ecosystems to withstand climatic events. It can also mean to keep traditional land use in regions where this has been the predominant management, in order to preserve species diversity and sensitive ecosystems.

**Protect key ecosystem features:** manage to maintain structural characteristics, organisms or areas that support the overall system, such as keystone organisms. Protect variant forms of a species or ecosystem so that, as climate changes, there may be populations that survive and provide a source for recovery. Maintain or establish more than one example of each ecosystem or population within a management systems, such that if one area is affected by disturbance, replicates in another area may reduce risk of extinction and provide a source for recolonisation. Sustain the slow variables (e.g., soil resources and the species’ pool) that accumulate slowly and provide buffers. Sustain both ecological legacies (e.g., old forest growth, woody debris) and cultural legacies (e.g. people’s connection to land).

**Restoration:** restore ecosystems that have been lost or degraded. Restore or facilitate recovery of missing keystone species (e.g., wolf, beaver).

**Identify refugia:** use areas that are less affected by climate change than other areas as sources for recovery or as destinations for climate sensitive migrants and maximise populations of rare and threatened species.

**Relocation:** relocate where appropriate and necessary organisms from one location to another in order to bypass a barrier (e.g. urban area). This may involve translocation of genotypes, species or soil invertebrates or microbes, if appropriate, captive breeding programs and ex-situ conservation programmes of the genetic diversity of threatened mountain plants.

**Build communication and scientist-manager-public partnerships:** Create interdisciplinary teams of economists, climatologists, land use experts and modellers with the mission to carry out integrative research combining conservation planning climate change, adaptive capacities, human livelihoods that may offer further guidance.