

Relevant instruments in the field of

Ecological networks in the Alpine region

A background report



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Preface

In nature and species conservation a paradigm shift has started in the last few years: static nature protection in isolated protected areas is not sufficient for conserving biodiversity, but approaches are needed that take the dynamic of nature and land use change into account. This change of attitudes contributed to the establishment of the model of a functioning ecological network in the Alps, which can contribute to conserve the extraordinary rich Alpine diversity.

Although this background report makes no claim to be exhaustive, it provides brief information on the most important instruments, such as conventions, legislation, regulations and programmes connected with ecological networks.

This background report is available at www.cipra.org/alpmedia, where you will also find up-to-date information on ecological networks in the Alps in the form of news, publications, events and links.

The initiative to compile an alpMedia dossier comes from a seminar “Establishment of an ecological network of protected areas”, which took place in Berchtesgaden, Germany on 7 and 8 November 2005 and was organised by the Alpine Network of Protected Areas (ALPARC).

The current version of this report was partially updated in April 2010.

Introduction

Ecological principles

The landscape of the Alps is varied and characterised by the great diversity of its surface structures. Structural features such as meadows, forests, water bodies and open spaces, along with elements connected with human use of the land, such as irrigation ditches, stonewalls, hedgerows etc., are scattered across the landscape today like a mosaic.

Throughout the course of a year or a life cycle, a vast number of different species of animals use these landscape features. Since resources (food, cover, resting places, mates etc.) are unevenly distributed across the landscape, the habitats of many species are made up of different landscape features and sub-habitats. The interconnectedness – and therefore the accessibility – of the different elements and resources thus represents an essential basis for survival. It is vital that animals are able to move over short or greater distances. A distinction must also be made here between movement between populations or within the same population.



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Illustration 1: Landscape feature: course of a stream



© Abteilung Natur und Landschaft Bozen (I) / Amt für Naturparks

Illustration 2: Landscape feature: dry stonewall

Movement within populations:

- Daily movement between sleeping place, feeding place and shelter,
- Annual migration to the breeding site (e.g. amphibians),
- Migration between summer and winter habitats.

Movement between populations:

- Dispersal: one-off migration of animals (not to a specific destination) to find new places to live or breed,
- Dissemination: animals colonise abandoned or new areas provided they are accessible.

The mosaic-like distribution of landscape elements, habitats, resources and species is now recognised as one of the driving forces underlying ecological processes (WIENS 1976). The uneven distribution patterns in the landscape are also caused by local dwindling of species at particular sites and recolonisation of other sites (island biogeography theory of MAC-ARTHUR &

WILSON 1967; Metapopulations theory of LEVINS 1969, HANSKI & GILPIN 1991; population dynamics theory of PULLIAM 1988).

In the event of a catastrophe, small isolated populations are not able to respond as well and therefore face a greater risk of extinction than large populations. If several small populations are linked up via corridors, their survival prospects are far better, since cases of local extinction can be reversed by recolonisation by neighbouring populations. The threat of genetic impoverishment and degradation due to inbreeding can be significantly reduced by the immigration (even sporadic) of isolated individuals. The term taken from population ecology “metapopulation” for a group of local populations, which are connected by emigrants, is a firm part of nature conservation research (HANSKI & GILPIN 1991). With this theory the subject of corridors and barriers gained a position of central importance (e.g. HOBBS et al. 1990).

The concept of ecological network

An ecological network is made up of different components:

Core zones, which as a rule are protected by buffer zones and linked up by ecological corridors or other connecting elements (BISCHOFF & JONGMAN 1993).

The Alpine Network of Protected Areas has over 900 extensive protected areas (over 100 hectares) of different categories registered in its database. These protected areas provide an appropriate refuge for a large number of species of plants and animals. Nevertheless, these safe havens alone cannot guarantee the survival of alpine biodiversity.

For many species of animals and plants they are too small. The protected areas do not provide enough space from them to fulfil their basic needs and be able to propagate, because the different landscape features they need are either inadequate or not available at all.

Home ranges and migration distances of different species

Home range: the entire area used by an animal during its lifetime. It includes its territory, patrol routes and migration routes. The size of the home range can be deduced from the distances between activity centres specific to the particular species and individual patterns of space usage.

Migration distance: the distance travelled by animals during their seasonal change of habitat (e.g. between summer and winter areas), during breeding migration (e.g. amphibians) or when propagating and re-colonising habitats.

Home ranges and migration distances illustrate the space needed by individual species. Due to the hunting tradition and the different monitoring programmes in the protected areas, the migration routes of many ungulates are well recorded. The seasonal movements of deer populations between the Swiss National Park and the Stifserjoch National Park are known and have been adequately studied. However, human settlements and infrastructure can interrupt these traditional migrations to some extent. Special networking measures are needed here.

When looking at this topic, it is essential that the smaller species of animals and flora are not forgotten. Particularly the insect group, which is both species rich and has high numbers of individuals, but also others such as reptiles or amphibians, are often neglected due to their size, or because they are little known or inconspicuous. But establishing appropriate connections between habitats is particularly important for these species, which often migrate seasonally. The

spotted fritillary (*Melitaea didyma*), for example, is an extremely mobile inhabitant of dry meadows: it can cover distances of 2 to 8 kilometres. For its long-term survival it needs a population of approximately 12 000 individuals and a habitat of 100 hectares (AMLER 1999). Plant species also need sufficient space if they are to survive in the long term. Studies on the Chiltern Gentian (*Gentianella germanica*) have shown that fertility is lower in small populations than in large ones. In small populations genetic diversity declines, which can lead to extinction (FISCHER 1998a+b).

Large predators are a special case. The minimum area required for a wolf population is 600 km² (REMMERT 1982); the range of action of a lynx is up to 1000 km². These species need large habitats. The landscape as a whole has to be made more conducive to their survival because protected areas are of only secondary importance for the propagation and return of these species, which have become virtually extinct in the Alps. Numerous examples prove that wolves, lynx and bears spread over large areas and are able to adapt relatively well to given conditions. Protected areas are important in that they provide the habitats for the prey populations of prey for these large predators, and in that way also contribute indirectly to their spread.

Thus, an ecological network of protected areas is primarily important for those species of animals and plants that need large areas to propagate and to satisfy their daily needs and that are less able to cope with the conditions of anthropogenically modified landscapes.

To ensure interchange between populations in the individual safe havens is possible, and thus avoid inbreeding and genetic impoverishment, connections between them must be established. It is also vital that there is enough space for their specific needs, i.e. search for food, breeding and migration. These are conditions that the protected areas as core zones alone cannot provide if they are isolated and not part of a network.

Creating an ecological network in the Alps is therefore extremely important. In terms of the example of the alpine protected areas that means specifically:

Ecological networks

Core zones

The protected areas, such as the core zone of a National Park, enjoy a degree of protection of greater or lesser stringency as a result of legislation. They therefore represent the core zone of a network. Protective measures here provide alpine biodiversity with the space it needs to survive, spread and develop. Protected areas, particularly extensive ones (>1000 hectares) and complexes of protected areas, both within the individual countries of the Alpine region and transborder ones, are the cornerstones of any network. They are the static elements of the network from which dynamic elements can be created to connect them up.

Buffer zones

The buffer zone or maintenance zone, which often surrounds the core zone of a National Park, also forms the buffer zone for the network system. Its purpose is to shield the stringently protected core zone from the direct environmental influences and to minimise the negative edge effects between the protected area and the usually intensively farmed land. This buffer effect can be achieved using particular agricultural and forest management measures. Also the appropriate

designation of protected areas with lower protection status (country parks, development zones of biosphere reserves or landscape protection areas) around especially sensitive areas can achieve this aim.

Other approaches are also possible; Switzerland's National Ecological Network, for example, talks of extension instead of buffer zones. When analysing an ecological network, buffer zones are often given the exclusive (and often unrealistic) task of protecting the core zone from degradation due to its controlled use. The term extension zone, which covers the entirety of possible usable habitats for a species to be protected, is more in keeping with an approach that aims at the sustainable development of a biotope network. Often these zones are not colonised because the core populations in the neighbouring core zone are not large enough or there are too many disturbances (hunting pressure, tourism etc.). In the Alps these extension zones, that may, for example, be forested areas or dry meadows, form a coherent continuum on the mountainsides, which is not the case with buffer zones. When designating an ecological network, it also makes more sense to define natural extension zones that include one or more core zones that are not officially protected than to confine the network exclusively to buffer zones that are connected to existing protected areas.

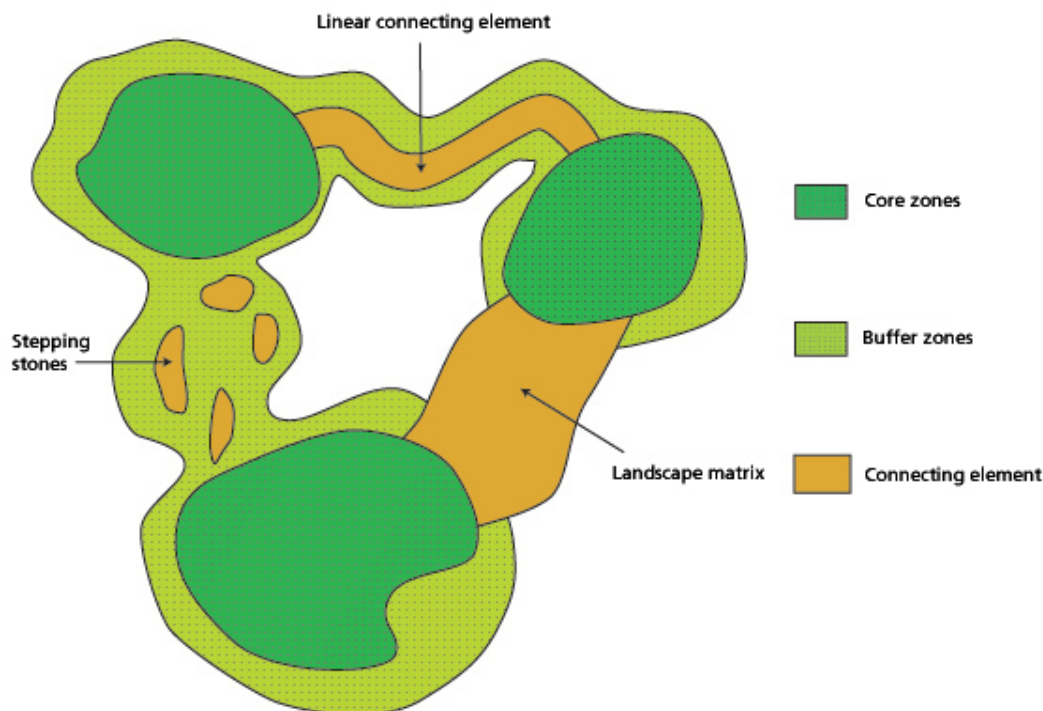


Diagram 1: Elements of an ecological network

Connecting elements

The purpose of an ecological network is to connect up these different core zones (which may differ in terms of protection status and size of area, biotic and abiotic resources) in order to ensure there is an exchange within the network. For this to be possible, the core zones have to be connected to allow propagation and migration across the usually inhospitable cultural landscape. The connecting elements are the dynamic elements in the network and have to be created and designed to meet the needs of the species in question. Since each species will place

different demands on the connecting elements it uses, a corridor cannot be defined as the only definitively demarcated “migration route” between the protected areas. It must be treated in a way that takes into account the individual needs of priority species and adapted to local conditions. This illustrates the dynamic character of these structures. It is not a question of creating additional static elements like core zones but of providing solutions that are adapted to the specific situation. This can be done using simple means such as preserving open spaces without any built structures or significant physical barriers.

The connecting elements themselves do not necessarily have to have a fixed protection status; they can be areas that are treated in a way that animals and plants can use them and pass through them. The areas between protected areas, in which exchange is important, should be made hospitable to facilitate harmonious coexistence of nature and human use. The aim is not to exclude human beings but to organise their activities and influence on the environment in such a way that mutual sustainable use is possible.

Making possible exchange between protected areas thus does not mean that the protected areas have to actually touch each other. Different kinds of connecting structures can be used to act as passages between the core zones. They can take the form of ecological corridors or linear structures, for examples. Sections of forest and forest edges, watercourses or hedge systems can act as corridors for example. “Stepping stones” can also act as connecting structures. They are small pockets between the core areas that bear the features of the different biotopes and act as “stopovers” and propagation pools between the core areas. These stepping stones are primarily meant to help connect similar biotopes. Their density must be specified according to the species in question.

“Ecological corridors” as links, the key elements in connecting up protected areas and habitats, are described in detail below.

Ecological corridors

An ecological corridor is a connecting element between habitats. However, the term “ecological corridor” also encompasses a broad range of nuances, since there is no such thing as a corridor that fulfils one single function or all functions.

Each species or group of species with similar needs has its own ecological network, uses its own corridors. What is a corridor for one species can represent an insurmountable barrier for another species. A classic example of this is the hedge: so often cited as an important connecting element, it is an important transit route for numerous small mammals such as hedgehogs or martens, but for certain butterflies it is an insurmountable obstacle. Thus corridors can have very different functions: they can represent a habitat, a place for dispersal movements, a barrier, filter, source or sink (cf. diagram 2).

Plants also use corridors, albeit - since they are not capable of locomotion - in a different way from animals. There are two major mechanisms by which plants spread: they are transported by animals or carried by the wind. Plants and seeds that are spread by animals (mammals, insects, birds) will therefore use the same corridors as the animals. Wind-borne seeds and plants can, under particular weather conditions, spread very great distances their corridors are connected to

topography and prevailing climatic conditions. But whether the areas they are carried to are hospitable is also an important factor in whether or not they are able to establish there.

It is possible to characterise and classify corridors and the movements that take place in them. Three main kinds of movement of individuals and genes along corridors can basically be distinguished (adapted from BENNETT in NOSS 1993):

- Direct movement of a single individual over a long distance (e.g. in the case of amphibians),
- Periodic movement of a single individual interrupted by breaks (typical for how wolf populations spread),
- Transport of genes by a breeding population that lives within a corridor (typical for the corridor function in plants colonising new areas).

It is important to ensure here that the movements work in both directions and that the corridor can be used regularly.

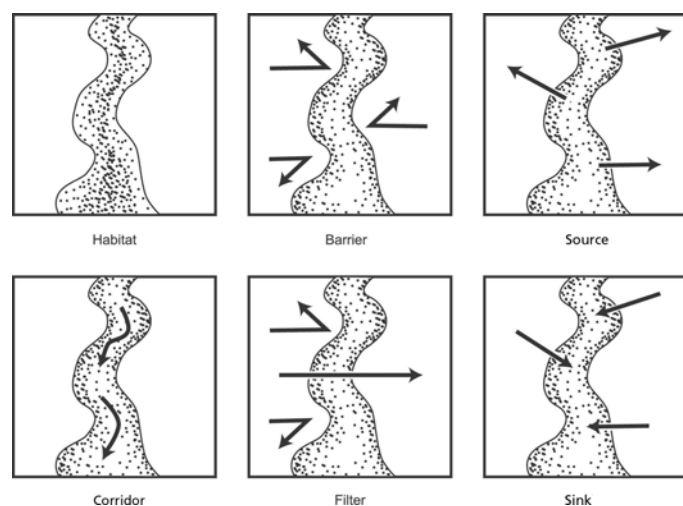


Diagram 2: The six functions of ecological corridors
(adapted from THORNE 1993)

Corridors can be characterised and evaluated by their characteristics, length, width, shape, edge zones and composition, as well as by the stepping stone biotopes they contain and by their effects as connecting elements or barriers. It is therefore possible to roughly distinguish corridors or different groups of species by the size and needs of the species. There are corridors for birds that use terrestrial structures for guidance during migration. Due to the fact that their mode of movement is flying, they are hampered only by obstacles in their air space (chimneys, overhead cables, etc.). The availability of suitable resting places is of greater importance.

In a simplified form, other corridors can also be classified for other groups of species, such as large vertebrates (often reliant on forest areas), insects, small vertebrates (fields, forest edges), amphibians, fish.

Conception of ecological networks

The approaches to designating and implementing ecological corridors can be divided into two categories that reflect two ecological approaches to nature conservation: one centred on landscape ecology and the other on species and behavioural ecology.

From the point of view of landscape ecology, a corridor is a section of the landscape (as a rule linear) that contains a certain number of natural or near-natural habitats (often comparable or similar types of habitat) and links up larger habitats of the same kind. What is important here is a continuum of certain habitats (which can, for example, be classified into the CORINE biotope categories) and the identification of habitat interruption and discontinuity. Different species can be linked to the different habitats. In this way potential habitats and corridors can be identified.

From the perspective of species and behavioural ecology, the question of whether a section of landscape is suitable as a corridor depends on the quality of the landscape for the individuals of a particular species, on whether these areas can be used for migration and dispersal movements, irrespective of their habitat characteristics. Thus, in this case it is exclusively a question of a landscape analysis from the point of view of a defined species, an evaluation of the functionality and usefulness of a section of landscape for the individuals of that species. In analysing corridors for species that have high demands in terms of the quality of their habitat, the findings can also be used for many other species with more modest demands.

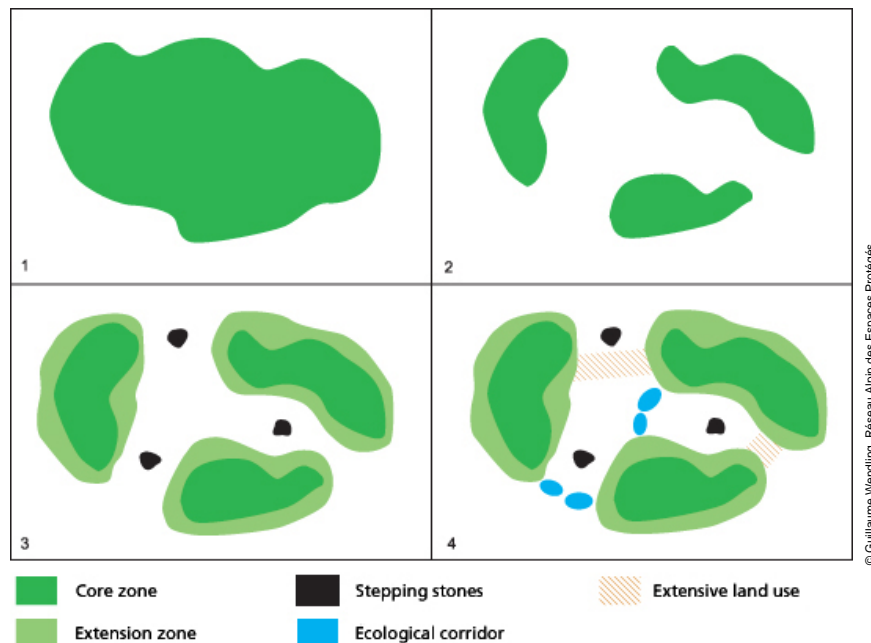
Each approach has advantages and disadvantages. The former makes it possible to identify landscape elements (e.g. vegetation alongside streams) and coherent types of habitat that form a continuum and can therefore be classified as corridors, although without taking the effective dispersal processes into account.

The second approach centres more on the process of migration and propagation, since the landscape is analysed from the perspective of the species. This makes the corridor aspect more complex, because no direct link is made to structural elements of the landscape or uniform habitat characteristics. Corridors defined in this way can only in isolated cases be used for different species, since each species has its own needs and landscape use characteristics.

The two approaches are complementary and cannot be separated from one another.

Implementing networks

Protecting individual elements is not sufficient to put in place an effective network system. Sustainable use of the land between the core areas, particularly land that is being used for forestry and agricultural activities, but also land used for leisure and recreation, must be made more conducive to exchange processes. This can occur, for example, by extensive adapted forms of use, special management programmes or the reintroduction of old structural features such as hedges, irrigation systems, stone walls etc. Programmes and measures will be discussed in a separate chapter.



1. Previous situation: the landscape consists of diverse elements that are interconnected and form a coherent structure.
2. Current situation: the landscape is fragmented, the individual parts of the landscape are isolated from one another in an intensively used cultivated landscape.
3. Interim situation: the core zones that have become isolated from one another are enlarged and stepping stone biotopes are created.
4. Future situation: the existing ecological corridors between the isolated parts of the landscape are revitalised or new ones are created. There is a change from intensive to extensive farming practices. The core zones and stepping stone biotopes can then be interconnected.

Diagram 3: Stages in reconnecting local habitats

A network of this kind cannot stop at national borders. On the contrary: intensive cooperation beyond national borders is essential. Transborder protected areas are the first step towards making exchange and networking possible beyond borders. They can act as an example for further collaboration.

Establishing an ecological network is not just about creating hedges and reinstating the banks of streams. It involves preserving and re-establishing functional connections between habitats.

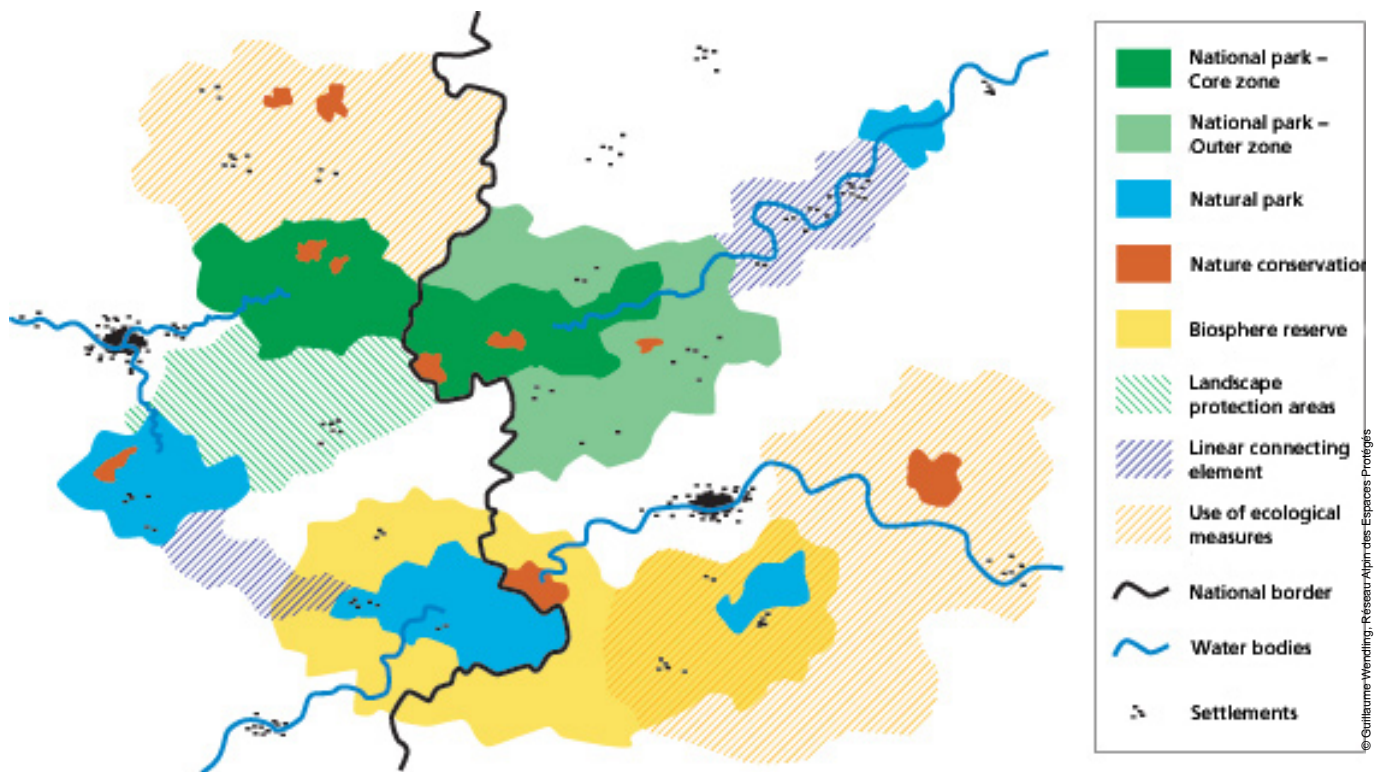


Diagram 4: Setting up a transborder network of protected areas

Source: Study 'Ecological transboundary network' (2004)
(German, French, Italian, Slovenian)

Editor: Alpine Network of Protected Areas, Gap, 2004
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Global instruments

World Summit on Sustainable Development (WSSD)

The World Summit on Sustainable Development was held in autumn 2002 in Johannesburg, South Africa. 10 years after the “United Nations Conference on Environment and Development” in Rio de Janeiro, the heads of state and government of over 190 countries adopted the “Johannesburg Declaration on Sustainable Development” and a “Plan of Implementation.” In the Political Declaration the participants recognise amongst other things that poverty eradication, changing consumption and production patterns and protecting and managing the natural resource base for economic and social development are essential requirements for sustainable development. The Plan of Implementation cites very specific target dates for a number of fields. For example, a significant reduction of the current rate of biodiversity loss is to be achieved worldwide by 2010. As one of the measures for achieving the 2010 target, the Johannesburg Plan of Implementation mentions the creation of national and regional networks and corridors. While the term “network” can be interpreted in various ways, the use of the word “corridor” makes it clear that it also applies to networks in the physical, spatial sense.

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Documents

The World Summit's Political Declaration (English):

http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POI_PD.htm

The World Summit's Plan of Implementation (English)

http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/WSSD_PlanImpl.pdf

Links

Official United Nations website for the Summit (English; no longer being updated):

<http://www.johannesburgsummit.org/>

Website of the UN Division for Sustainable Development including information on follow-up activities to the World Summit within the framework of the UN (English): <http://www.un.org/esa/sustdev/index.html>

Information website of the International Institute for Sustainable Development (IISD), Canada (English):

<http://www.iisd.ca/2002/wssd/>

Information website on the summit of the Heinrich Böll Stiftung, Berlin, (German, no longer being updated):

<http://www.worldsummit2002.de/>

Convention on Biological Diversity (CBD)

The Convention on Biological Diversity is one of the two international treaties that was opened for signature in 1992 at the United Nations Conference on Environment and Development in Rio de Janeiro. Although not as well known as its “sister,” the Climate Convention, the CBD is no less

significant. It has three aims: the conservation of biodiversity (habitats, species and genetic diversity), their sustainable use and the fair sharing of the benefits (profits) arising out of the utilization of genetic resources. In its decision on protected areas and its annexed program of work of spring 2004, the Seventh Meeting of the Conference of the Parties to the Convention on Biological Diversity makes reference to the 2010 target of the Johannesburg Summit. In line with the CBD decision, comprehensive, effectively managed and ecologically representative national and regional systems of protected areas should form a global network in order to achieve the 2010 target. An “ad-hoc open-ended working group” (i.e. with participation open to all signatories to the Convention) was set up on this subject and met for the first time in summer 2005 in Italy.

On the occasion of the 9th Conference of the Parties in Bonn in May 2008, the Alpine Convention, the Carpathian Convention and the Convention on Biological Diversity expressed their determination for co-operation on nature conservation and the creation of ecological networks in and between these neighbouring mountain regions. A Memorandum of Co-operation to this effect was signed at a side event, which was organised jointly by the chair of the Alpine Convention's platform Ecological Network and the Ecological Continuum Initiative of CIPRA, ALPARC, ISCAR and WWF.

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Links

Website of the Convention's Secretariat in Montreal (English): <http://www.biodiv.org>

The following links are part of the network of the Convention's so-called “Clearing House Mechanism” (CHM), an Internet-based system to promote the exchange of knowledge and information and facilitate networking:

CHM of the Convention's Secretariat in Montreal (English): <http://www.biodiv.org/chm/default.aspx>

CHM France: <http://www.mnhn.fr/biodiv/>

CHM Germany: <http://www.biodiv-chm.de/>

CHM Austria: <http://www.biodiv.at/>

CHM Switzerland: <http://www.ch-chm.ch/>

CHM Slovenia: <http://www.gov.si/mop/aktualno/cbd/index.html>

9. Meeting of the Conference of the Parties to the Convention on Biological Diversity (English):
<http://www.cbd.int/cop9/>

Documents

Text of the Convention (English): <http://www.biodiv.org/convention/articles.asp>

Text of the Convention (French): <http://www.biodiv.org/doc/legal/cbd-un-fr.pdf>

Decision VII/28 on protected areas of the 7th Meeting of the Conference of the Parties to the Convention (COP), February 2004 (English): <http://www.biodiv.org/decisions/default.aspx?m=COP-07&id=7765&lg=0>

Decisions of the 7th Meeting of the Conference of the Parties to the Convention (COP), including Decision VII/28 on protected areas (French): <http://www.biodiv.org/doc/decisions/COP-07-dec-fr.pdf>

Memorandum of Co-operation between the Convention on Biological Diversity, the Alpine Convention and the Carpathian Convention (English): <http://www.cbd.int/doc/agreements/agmt-alpine-2008-05-29-mou-web-en.pdf>

Convention on Wetlands (Ramsar, Iran, 1971)

The Convention on Wetlands is an intergovernmental treaty, which functions as a framework for national measures and international cooperation on the conservation and wise use of wetlands and their resources. It came into force in 1975 and by 2006 had 150 Contracting Parties and included over 1,500 sites covering a total area of 134 million hectares. It is the only environmental treaty concerned with a single ecosystem.

Ecological networks are not a particular axis of action for the measures of the Ramsar Convention. The strategy on this subject consists of working together as closely as possible with national and international initiatives to achieve ecological networking.

The specific provisions of the Ramsar Convention do not refer directly to the problem of ecological corridors, but they are implicitly covered by the Convention in cases where the Ramsar sites are catchment areas, watercourses and rivers. On the other hand, as a result of their rich biodiversity, most of the sites are integrated into national ecological networks. Following the same line of logic, the Ramsar sites also play a prominent role in the implementation of the provisions of the Pan-European Ecological Network (PEEN) (see [page 17](#))

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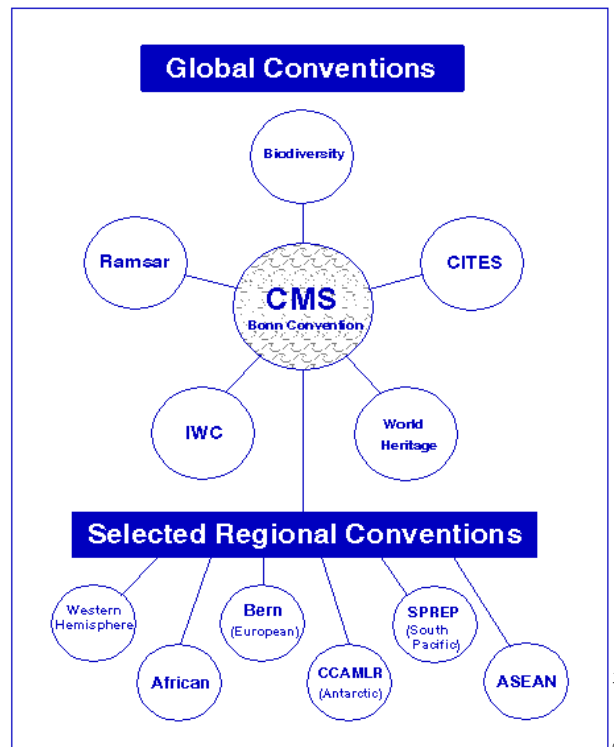
Links

Text of the Ramsar Convention: www.ramsar.org/cda/en/ramsar-documents-texts/main/ramsar/1-31-38_4000_0
Contracting Parties (English): http://www.ramsar.org/cda/en/ramsar-about-parties/main/ramsar/1-36-123_4000_0

Convention on Migratory Species (CMS)

The aim of the Convention on Migratory Species of Wild Animals, also known as the CMS or Bonn Convention, is to conserve terrestrial and avian migratory species. It is an international treaty that was concluded under the aegis of the United Nations Environment Program (UNEP). It promotes the conservation of habitats and wildlife. In November 2008, 110 states from all continents, amongst them all the Alpine states, were parties to this convention.

Article V of the Convention on Migratory Species stipulates that "Where appropriate and feasible each Agreement should provide for, but not be limited to, the maintenance of a network of suitable habitats appropriately disposed in relation to the migration routes."



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Links

Convention on Migratory Species: www.cms.int

Text of the Bonn Convention (English): http://www.cms.int/documents/convtxt/cms_convtxt.htm

International instruments in Europe

Convention on the Conservation of European Wildlife and Natural Habitats (Bern convention)

The Bern Convention was signed in 1979 in Bern (Switzerland) and entered into force in 1982. Its signatories comprise – apart from the 42 Member States of the Council of Europe, amongst them all the Alpine states – four African countries and the European Community. The aim of the convention is the comprehensive protection of flora and fauna and their habitats. It plays an important role in preparing the way for more stringent and binding regulations at European Union (EU) level. One of the ways the signatories are pursuing the goals of the Convention is by setting up the “Emerald Network” - a cross-border network of areas to be protected. This network is subject to similar standards to those of NATURA 2000, which is confined to the EU, so that it can be seen as extension of NATURA 2000 to the European countries that are not members of the EU. It is the responsibility of the individual countries to select areas for the Emerald Network and decide how to protect them. They must, however, monitor the areas and ensure that their nature conservation value is preserved.

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Links

Council of Europe website on the Bern Convention (English):
http://www.coe.int/t/dg4/cultureheritage/nature/Bern/default_en.asp

Council of Europe website on the Emerald Network (English):
http://www.coe.int/t/dg4/cultureheritage/nature/EcoNetworks/default_en.asp

Documents

Text of the Convention (English): <http://conventions.coe.int/Treaty/en/Treaties/Html/104.htm>

Text of the Convention (French): <http://conventions.coe.int/Treaty/FR/Treaties/Html/104.htm>

Information document on the Emerald Network of areas of special conservation interest (English):
<https://wcd.coe.int/ViewDoc.jsp?Ref=FS%2020&Language=lanEnglish&Ver=original&Site=COE&BackColorInternet=F5CA75&BackColorIntranet=F5CA75&BackColorLogged=A9BACE>

Pan-European Ecological Network (PEEN)

The creation of this network is the key element of the Pan-European Biological and Landscape Diversity Strategy endorsed in 1995 by 54 countries of the Eurasian continent as a follow up to the Convention on Biodiversity signed in Rio.

In 1995 it was still largely a theoretical project. Today, the network consists of numerous initiatives to set up national, regional and transregional ecological networks. That includes Natura 2000, the network established in the European Union, and the Emerald Network, which was set up on the same principles under the aegis of the Council of Europe within the framework of the

Bern Convention. Other initiatives have also developed. Thus, under the auspices of the Alpine Convention, a joint venture has been underway since 2007 as part of the Ecological Network platform between the contracting parties and with several scientific and association partners to implement an ecological network in the Alps, specifically by identifying cross-border biological corridors (see [page 31](#)). The Carpathian Convention has adopted the same approach.

At the Sixth Ministerial Conference “Environment for Europe” held in Belgrade in October 2007, a report on the implementation of the pan-European ecological network was drawn up and submitted to ministers, who reiterated their commitment to its full implementation. The report is available in English and French from Council of Europe Publishing in Strasbourg (publishing@coe.int).

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Links

Pan-European Ecological Network (English, French):

www.coe.int/t/dg4/cultureheritage/nature/EcoNetworks/Default_en.asp

COUNCIL OF EUROPE (2007): The Pan-European Ecological Network: taking stock (Nature and Environment N°146). http://book.coe.int/EN/ficheouvrage.php?PAGEID=36&lang=EN&produit_aliasid=2223

The Alpine Convention

The Alpine Convention, a framework agreement for the protection and sustainable development of the Alpine region, was signed by the eight countries of the Alpine region - Germany, France, Italy, Austria, Slovenia, Principality of Monaco, Switzerland, the Principality of Liechtenstein - and the European Union.

Article 12 of the Alpine Convention's Protocol “Conservation of nature and the countryside” calls for the establishment of “a network of existing national and transboundary protected areas, of biotopes and other protected elements or those to be protected.”

Accordingly, the transnational network of protected areas was integrated into the Alpine Conference's multiannual programme (MAP) 2005 to 2010. One of the main areas of the Program is entitled “Nature, agriculture and forestry, cultural landscape;” one of the key issues it addresses is the conservation of landscapes, habitats and species. Biotope networks are also mentioned here as a way to achieve this aim. Further steps to promote cross-border networking of protected areas and establishing links with other ecologically significant facilities are also cited as a priority area for the future work of the Alpine Conference (MAP, 2.4.).

In this context the Standing Committee of the Alpine Convention mandated the Alpine Network of Protected Areas (ALPARC) to conduct a study on the implementation of such an ecological network in the Alps. The recommendations of this study led, among other things, to the creation of the “ecological network” platform of the Alpine Convention, a group of experts who are

collaborating on the specific implementation of an ecological network across the whole of the Alps.

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Links

The Alpine Convention (English, German, French, Italian, Slovenian): <http://www.alpconv.org>

The Alpine Network of Protected Areas (English, German, French, Italian, Slovenian,): <http://www.alparc.org>

Publications

Permanent Secretariat of the Alpine Convention (2005): MAP, Das Mehrjährige Arbeitsprogramm der Alpenkonferenz 2005-2007. Permanent Secretariat of the Alpine Convention. Innsbruck. Available in four languages: German, French, Italian, Slovenian.

The Alpine Network of Protected Areas (2004): Grenzübergreifender ökologischer Verbund. Netzwerk Alpiner Schutzgebiete. Alpensignale Nr. 3. Permanent Secretariat of the Alpine Convention. Innsbruck, Austria. 240 p. Available in four languages: German, French, Italian, Slovenian.

European Academy Bozen/Bolzano (2004): Collectio Alpenkonvention. European Academy Bozen/Bolzano. 270 p. Available in four languages: German, French, Italian, Slovenian.

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, Germany (2004): Alpenkonvention konkret: Ziele und Umsetzung. Alpensignale Nr. 2. Permanent Secretariat of the Alpine Convention. Innsbruck. Available in four languages: German, French, Italian, Slovenian.

Permanent Secretariat of the Alpine Convention (2003): Die Alpenkonvention, Nachschlagewerk. Alpensignale Nr. 1. Permanent Secretariat of the Alpine Convention. Innsbruck. Available in four languages: German, French, Italian, Slovenian.

Carpathian Convention

The Framework Convention on the Protection and Sustainable Development of the Carpathian Mountains (Carpathian Convention) was adopted and signed at the Ministerial Conference "Environment for Europe" on 22 May 2003 in Kiev, the Ukraine by the Czech Republic, Hungary, Poland, Romania, Serbia and Montenegro, Slovak Republic and Ukraine.

Like the Alpine Convention, the Carpathian Convention is a model for international cooperation for the protection and sustainable development of a large, transboundary mountain ecosystem. Unlike the Alpine Convention, the Carpathian Convention explicitly regulates the creation of a network of protected areas (Carpathian Network of Protected Areas, CNPA) as an official intergovernmental implementation initiative of the Convention. The network of protected areas in the Carpathian was officially established at the end of the year 2006.

Article 4, paragraph 5 of the Carpathian Convention states that:

The Parties shall cooperate in developing an eco-logical network in the Carpathians as a constituent part of the Pan-European Ecological Network, in establishing and supporting a Carpathian Network of Protected Areas, as well as enhance conservation and sustainable management in the areas outside of protected areas.

Four out of the seven Carpathian countries (Poland, Slovakia, the Czech Republic and Hungary) have joined the European Union in 2004 and revised their national nature conservation legislation in order to prepare for EU integration.

Carpathian protected areas represent significant factors in regional sustainable development vis-à-vis the promotion of tourism linked to efficient nature conservation along-side traditional economic activities (farming and pastoral farming). They also represent a structural necessity for the preservation of the Carpathians' unique biodiversity.

Long-term collaboration between the Alps and the Carpathians is needed in order to create the possibility of ecological networks for species migrations and genetic exchange, and to facilitate the exchange of know-how and experience between the protected areas of the two European mountain ranges. In this connection, the Alpine Network of Protected Areas and UNEP (Regional Office for Europe) are accompanying a cooperation project between the Alps and the Carpathians.

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Links

Carpathian Convention (English): <http://www.carpathianconvention.org/>

Network of the Carpathian protected areas (English) : <http://www.carpathianparks.org/>

Publications

Alpine Network of Protected Areas (2004): Towards a Carpathian Network of Protected Areas. Final report. 38 p.

EURAC (2006): Implementing an international mountain convention. An approach for the delimitation of the Carpathian Convention area. 119 p. <http://www.carpathianconvention.org/>

REC/EURAC, (2007): Handbook on the Carpathian Convention. 181 p: <http://www.carpathianconvention.org>

United Nations Environment Programme (2007): Carpathians Environment Outlook 2007. 231 p.
<http://www.carpathianconvention.org/>

Ministerial Conference on the Protection of Forests in Europe (MCPFE)

As a result of its first meeting in Strasbourg in 1990, the Ministerial Conference on the Protection of Forests in Europe developed a pan-European political process to harmonise and implement sustainability principles in European forest management. The 2nd Ministerial Conference in Helsinki in 1993 focused particularly on the conservation of biodiversity in European forests, the third Ministerial Conference in Lisbon (1998) took greater account of economic aspects. The 4th Ministerial Conference in Vienna (2003), which had as its slogan "European Forests - Common Benefits, Shared Responsibilities," established principles for setting up national forest programs (NFPs), strengthening synergies for sustainable forest management in Europe through cross-sectoral cooperation, enhancing the economic benefits of forest management (e.g. preservation of rural areas), maintaining and enhancing the social and cultural dimensions of sustainable forest management in Europe (focusing, amongst other things, on its relevance to tourism. One example of this would be old infrastructure such as ropeways used in the past for transporting

materials) and conserving and enhancing forest biological diversity in Europe (taking into account the concerns of the CBD). The countryside conservation aspect was also taken into account. There are numerous objectives and resolutions that reflect the provisions of the Alpine Convention, including not only the mountain forests protocol, but also the protocols on soil conservation, tourism and conservation of nature and the countryside. Since the MCPFE's resolutions are usually reflected in national forestry policies (funding policies for example), they are of great importance for the preservation of biodiversity and for the socio-economic aspects of rural regions. The chairmanship rotates and, following the conference in Warsaw, passed from Poland to Norway, which is why the Liaison Unit is currently in Oslo.

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Links

MCPFE (English): <http://www.mcpfe.org>

Pan-European Biological and Landscape Diversity Strategy (PEBLDS)

The "Pan-European Biological and Landscape Diversity Strategy (PEBLDS)," endorsed in 1995 at the European Conference of Environment Ministers held in Sofia, Bulgaria, was developed by the Council of Europe and the United Nations Environment Program (UNEP) in collaboration with other international governmental and non-governmental organisations. In this Strategy, 55 European countries pledged to make international and national efforts to protect in the long term not only the biological diversity of nature, but also the landscape diversity of Europe.

The PEBLDS is a framework program that coordinates all existing activities designed to conserve and restore nature; it also promotes cross-border cooperation in this area. Its fundamental aim is the coherent Europe-wide implementation of the international Convention on Biological Diversity (see [page 13](#)), by involving existing networks, initiatives (e.g. Natura 2000 and the EU's Biogenetic Reserves, UNESCO's biosphere reserves...) along with national strategies. The idea is identify any gaps and initiate additional action to tackle them, in particular actions to promote connectivity across the different systems (nature, resource users, the political arena etc.). The Strategy is designed to run for 20 years (1996-2016) and is divided into five-year planning periods.

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Links

Council of Europe (English, French): http://www.coe.int/t/dg4/cultureheritage/nature/Biodiversity/Default_en.asp

Page of the PEBLDS secretariat <http://www.pebls.org>

Documents

Text of the Biological and Landscape Diversity Strategy (English):

<http://www.peblids.org/index.php?ido=20514351&lang=eng>

The role of the Pan-European Biological and Landscape Diversity Strategy: Analysis and recommendations (2003, PDF, 151 KB, English):

http://www.ceeweb.org/viewpoint/documents/from_CEEW_point_PEBLDS_analys_recomm.pdf

European Network of Biogenetic Reserves

The European Network of Biogenetic Reserves is the result of Resolution (76)17 of the Committee of Ministers of the Council of Europe of 1976. The purpose of the biogenetic reserves is to protect particular habitats or entire ecosystems (both terrestrial and aquatic) and thus contribute to preserving the balance of nature and to conserving areas that are representative examples of the natural heritage of our continent. Areas are selected on the basis of the following criteria:

- Their value for nature conservation.
- The existing protection status

A number of amendments to the original Resolution (1979, 1981, 1986, 1992) were made to reflect particular conditions and requirements. In terms of species or groups of species, mammals, birds, amphibians and reptiles, freshwater fish, butterflies, dragonflies, Hymenoptera, wood-dwelling invertebrates and vascular plants may be taken into account. Biotopes that can be considered include heathland, macchia, wetlands, dry meadows, dunes, halophile vegetation, coastlands, freshwater ecosystems, ancient forests and natural forests. For an area to be incorporated into the network it must also fulfil the requirements that it (or the habitats and species) must be unique, rare or particularly endangered.

The second requirement, that a European Biogenetic Reserve must have been designated as a protected area under the provisions of national legislation (existing protected status), is designed to ensure adequate legal protection in the long term, which is essential if areas of this kind are to be preserved permanently (e.g. prevention of building development, pollution...). Of course, in many cases it will be necessary to deploy additional contractual conservation measures (e.g. to preserve/maintain particular habitat structures). 55 protected areas in Austria currently belong to this network, of which two third are now also Natura 2000 areas. There are many parallels and synergistic effects between this system and the Alpine Convention's protocol on conservation of nature and the countryside.

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Links

Council of Europe (German, French, Italian, Slovenian, English): www.coe.int

Website of the Austrian Ministry of the Environment:

<http://www.umweltbundesamt.at/umwelt/naturschutz/schutzgebiete/biogenetische/>

The European Union's (EU) Habitats Directive and Birds Directive and the NATURA 2000 network

In order to preserve biodiversity at the European level, the EU Member States have committed to setting up a coherent ecological network of special areas of conservation at European level. This network is called "Natura 2000." The Habitats Directive (Council Directive 92/43 EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora) and the Birds Directive (Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds) are the legal basis for this.

In order to better connect the NATURA 2000 sites, Articles 3 and 10 of the Habitats Directive encourage the Member States to improve ecological coherence by maintaining, and where appropriate developing, features of the landscape that are of major importance for wild fauna and flora. Such features are those which, by virtue of their linear and continuous structure (such as rivers) or their function as stepping stones (such as ponds or small woods), are essential for the migration, dispersal and genetic exchange of wild species.

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Links

Home page of the European Commission's Environment Directorate General on NATURA 2000 (English):
http://ec.europa.eu/environment/nature/natura2000/index_en.htm

Home page of the European Commission's Environment Directorate General on the text of the Habitats Directive including its Annexes (English, with links to the different language versions):
http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

Home page of the European Commission's Environment Directorate General on the text of the Birds Directive including its Annexes (English, with links to the different language versions):
http://ec.europa.eu/environment/nature/legislation/birdsdirective/index_en.htm

Pages on NATURA 2000 at the website of the European Topic Centre on Biological Diversity (English):
http://biodiversity.eionet.eu.int/activities/Natura_2000/index_html

Home page of the Federal Agency for Nature Conservation (BfN), Germany, on NATURA 2000 (German):
http://www.bfn.de/0316_natura2000.html

Home page of the Bavarian State Environment Ministry (LfU), Germany, on NATURA 2000 (German):
<http://www.lfu.bayern.de/natur/index.htm>

Home page of the Ministry for Ecology and Sustainable Development, France, on NATURA 2000 (French):
<http://natura2000.environnement.gouv.fr/>

Home page of the Ministry for the Environment and Territory, Italy, on NATURA 2000 (Italian):
http://www.minambiente.it/opencms/opencms/home_it/menu.html?mp=/menu/menu_attivita/&m=Rete_Natura_2000.html&lang=it

Home page of the Autonomous Province of Bozen-South Tyrol, Italy, on NATURA 2000 (German):
<http://www.provinz.bz.it/natur/Natura2000/d/Pag12.htm>

Home page of the Federal Environment Agency, Austria, on NATURA 2000 (German):
http://www.umweltbundesamt.at/umweltschutz/naturschutz/schutzgebiete/natura2000_gebiete/

Home page of the state government of Tyrol, Austria, on NATURA 2000 (German):
<http://www.tirol.gv.at/themen/umwelt/naturschutz/natura2000-tirol/>

Slovenian pages on Natura 2000 (in Slovenian): <http://www.natura2000.gov.si/>

National instruments

Austria: Guideline on Game Protection

The Federal Ministry of Transport, Innovation and Technology (BMVIT) has initiated a revision of the Guideline on Game Protection (RVS 3.01), which stipulates that in transport planning, specific road planning and environmental impact assessments the ecological aspects relating to game as detailed in the Guideline must be taken into account. This Guideline sets out minimum wildlife/ecological standards for wildlife passages on roads. The Österreichische Autobahnen und Schnellstrassen GmbH (Austrian Motorway and Expressway Company) was involved in the development of the Guideline (cf. SCHWARZEL et al. 2000).

Wildlife/ecological spatial planning (German acronym: WÖRP) is an instrument developed in 1983 by the Forschungsinstitut für Wildtierkunde und Ökologie (Research Institute for Wildlife Ecology) in Vienna. It provides a fundamental wildlife/ecological concept that is used in a number of Austrian states, as well as the canton of Graubünden in Switzerland and Liechtenstein. The aim of this concept is the long-term incorporation of species of wildlife into the cultural landscape. This will be achieved by harmonising the creation of biotope networks with studies on game stocks and the carrying capacity of biotopes. WÖRP includes large-scale spatial planning (nationwide basic planning) related to the spatial distribution of wildlife populations and detailed regional planning.

Red Lists of endangered types of biotope were drawn up for Austria, with the Federal Environment Agency as lead agency.

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Documents

Document „Standards regarding wildlife passages in Austria“ (in German):
http://www.efk.admin.ch/pdf/5222BE_module_international_AutrichePublication.pdf

„Wildlife corridors in Austrian regional planning“ (in German):
http://www.kora.ch/malme/05_library/5_1_publications/M/Mauerhofer_et_al_2006_Wildoekologische_Korridore_in_d_er_Oesterreichischen_Raumplanung.pdf

France: National ecological network ‘Trame verte et bleue’

In France, the green and blue network ‘Trame verte et bleue’ is one of the great national projects that issued from the ‘Grenelle de l’Environnement’ environmental debates held in October 2007. The objective of these debates was to make long-term decisions on the environment and sustainable development, and in particular with regard to restoring biodiversity. The ‘Trame verte et bleue’ is a spatial planning tool for ecological recovery throughout France. It is the outcome of joint efforts of the government, regional and local authorities and a large number of actors from science, voluntary associations, etc.

Through this project, the concept of ecological continuity is introduced in French law. The concept will be realized over a number of years as part of a package of measures for biodiversity protection incorporated or defined more precisely in the law Grenelle II, now being drafted. Under this law, the French government is required to define national guidelines. Each region is expected to develop its own plan for ecological connectivity, based on these guidelines, before the end of 2012. The municipalities in their turn must take the regional plan into account in their own planning documents.

At the regional level, some régions develop initiatives for ecological networks. The most advanced projects are the ones of Nord-Pas de Calais and Alsace. But also the régions Rhône-Alpes, Ile-de-France and Basse-Normandie started to take actions.

Since 1996, the Isère department, which includes several important protected areas, has been working on the development of an ecological network. In 2001, a map of the departments ecological network (REDI) was produced. Since then, numerous activities have been undertaken to implement this ecological network (game bridge and tunnels, speed limits, public relations work, integration in planning processes).

The French federation of regional nature parks has developed a method for implementing ecological networks within the regional nature parks. Parks like Oise-Pays de France, Scarpe-Escout, Pilat, Caps et marais d'Opale, Haut Languedoc and Lorraine currently test this method. .

Furthermore, the nine parks in the Massif Central. want to identify the ecological continuums at the level of the massif to assure a connection between the Alps and the Pyrenees.

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Links

National ecological network „Trame verte et bleue“ (French): <http://www.legrenelle-environnement.fr/grenelle-environnement/spip.php?rubrique=282>

Project of the Isere Department “Paths of life“ (English, French): <http://www.pathsoflife.eu>

Project on the ecological network in the Central Massif (French): <http://www.trame-ecologique-massif-central.com>

Germany: Federal Nature Conservation Act

Since the amendment of the Federal Nature Conservation Act (BNatSchG) came into force in March 2002, each of Germany's states is required by law to establish an interstate network of interlinked biotopes on at least 10 % of its total area. The aim of this network, as described in Article 3 of the Act, is to protect native species and their habitats and to conserve or restore functioning ecological interrelationships. To do this, a three-stage procedure is needed to determine which areas are already contributing to the network of biotopes, ascertain the need for further suitable areas and identify suitable areas for development. In the process, it has to be taken into account that ecological interrelationships occur in extremely different spatial/geographical dimensions. For the network of interlinked biotopes required by Article 3 of the Act, the international and regional levels are significant. All areas, including those with protected status, will only be counted as being part of the network of biotopes if they are suitable for achieving the goal set out in Article 3 (2) of the Act. This means that scientific criteria for

selecting suitable areas must be developed. Recommendations on this were developed by a panel of experts representing the central government and the states (BURKHARDT et al. 2004). In applying these criteria, a research project took stock of the areas that are of national significance for an ecological network (FUCHS et al. 2007). The areas of so-called "green belt" along the former inner-German border form an important part of the national ecological network.

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Links

English: <http://europeangreenbelt.org/indoor.html>
<http://www.greenbelteurope.eu/>
 German: http://www.bfn.de/0311_biotopverbund.html
http://www.bfn.de/0311_gruenes_band.html

Federal Nature Conservation Act (BNatSchG):
 German: <http://www.buzer.de/gesetz/8972/index.htm>

References/bibliography:

BURKHARDT, R., BAIER, H., BENDZKO, U., BIERHALS, E., FINCK, P., LIEGL, A., MAST, R., MIRBACH, E., NAGLER, A., PARDEY, A., RIECKEN, U., SACHTELEBEN, J., SCHNEIDER, A., SZEKELY, S., ULLRICH, K., VAN HENGEL, U., ZELTNER, U. & ZIMMERMANN, F. (2004): Empfehlungen zur Umsetzung des Paragraphen 3 BNatSchG "Biotopverbund". - Naturschutz und Biologische Vielfalt 2, 84 p.
 FUCHS, D., HÄNEL, K., JEßBERGER, J., LIPSKI, A., RECK, H., REICH, M., SACHTELEBEN, J., FINCK, P. & RIECKEN, U. (2007): National bedeutsame Flächen für den Biotopverbund. - Natur und Landschaft 82 (8): 345-352.

BayernNetz Natur and Bavaria's biodiversity strategy

The creation of a Land-wide network of interlinked biotopes has been enshrined in Bavaria's Nature Conservation Act since 1998. It is to be implemented first and foremost as part of large-scale nature conservation projects. Precious habitats for rare species of plants and wildlife are to be created, and nurtured in several hundred BayernNetz Natur [Bavarian Nature Network] projects. BayernNetz Natur projects are characterised by the close co-operation between those involved (who include farmers, local authorities, associations, communities, etc.). The overriding principle is the voluntary nature of all the measures and the co-operative approach. BayernNetz Natur projects are financed through various subsidies drawn from Land, federal and EU funds. Foundations and sponsoring agreements provide additional financing options.

One of the four key objectives of the Bavarian Biodiversity Strategy is to make migration barriers such as roads or dams and weirs passable from an ecological viewpoint. The current biotopes of more than 100 km², which are not dissected by public roads and are characterised by low traffic density, represent a high ecological value which should be preserved. In addition roads and railway tracks as well as weirs and other structures spanning across rivers need to be made even more ecologically penetrable than before. Bavaria's biodiversity strategy is to be implemented in co-ordination with the Land's other departments and by involving those concerned, first and foremost the land users and land owners.

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Links

Bavarian biodiversity strategy (German): <http://www.stmug.bayern.de/umwelt/naturschutz/biodiversitaet/index.htm>
BayernNetz Natur (German): <http://www.stmug.bayern.de/umwelt/naturschutz/baynetznatur/index.htm>

Italy: Ecological agriculture

In Italy, agricultural development programmes are defined at regional level. Each province draws up a plan for rural development, stating the goals of its contractual measures. The agri-environmental programmes are jointly financed by the central government and the regions. Apart from purely agricultural programmes, there are also programmes targeting the cultural landscape, in which measures for landscape conservation and development are proposed. Schemes to preserve the traditional cultural landscape, particularly in mountain regions, include conservation of important historical landscape features such as dry stonewalls and hedgerows, along with other measures such as project-based payments for traditional fences and irrigation canals. Landscape conservation payments are used to conserve individual features of the cultural landscape. Landscape conservation payments are available for the conservation of particularly valuable habitats (land-related payments). The various regions develop landscape models, inventories and plans to provide guidance for individual measures and support programmes. The landscape conservation payments compensate, for example, for extra work involved in using traditional farming methods and for lower yields.

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Liechtenstein

By its incorporation into the Worldwide International Instruments and the Pan-European Instruments systems, Liechtenstein has been now fundamentally integrated into international and cross-border cooperation. For Liechtenstein, as a country with a very small land area, foreign-policy objectives are as a general principle always closely coordinated with its neighbouring states, the Austrian state of Vorarlberg, and the Swiss cantons of St. Gallen and Graubünden. Thus, even if it was not always explicitly stipulated by particular legislation or other national instruments, cross-border collaboration on matters concerning nature and the environment has always been important to us. This collaboration on nature and landscape conservation exists, for example, on matters of freshwater ecology, forest reserves, wetlands, management of wild ungulate species, species of large predators, invasive species, wildlife passages and many other areas.

2008 will see the implementation of the “development strategy for nature and agriculture” (Entwicklungskonzept Natur und Landschaft), for which extensive base data has been acquired in recent years. This strategy will involve implementing rehabilitation and networking projects in

Liechtenstein in close cooperation with agriculture. Transregional corridors will also be set up jointly with the Swiss canton of St. Gallen and the Austrian province of Vorarlberg.

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Links

Document about the the development strategy for nature and agriculture (German):
http://www.llv.li/amtstellen/llv-awnl-natur_und_landschaft/llv-awnl-natur_und_landschaft-entwicklungskonzept_natur_und_landwirtschaft.htm

Slovenia: Programme to develop Slovenia's forests

Forests are of particular significance in Slovenia. With forest covering 56.4 % of its land surface, Slovenia ranks third in Europe in terms of proportion of forested land. That proportion is increasing as agricultural land is abandoned. Slovenia's forestry policy is based on principles of sustainability, near-natural and multi-function forest management.

The "Programme to develop Slovenia's forests" of 1996 contains the key facts on Slovenian forests and their role in conserving biodiversity. The fact that the forests have a high degree of conservation, cover a significant proportion of the country's land surface and are home to many of Europe's endangered species gives them special importance in any Alpine network. Ecologically important habitats and wetlands in the forests and forest reserves enjoy special protection status.

The development programme envisages involving the forestry agency, as well as the hunting authority and hunting associations in aspects of spatial planning, in particular infrastructure plans, to ensure that habitats for game are preserved.

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Links

Homepage (in Slovenian):
http://www.zgs.gov.si/fileadmin/zgs/main/img/PDF/ZAKONI/Program_razvoja_gozdov_Slovenije.htm

Switzerland: Ordinance on Ecological Quality and Guideline on dimensions for wildlife passages

One of the conditions that farmers in Switzerland have to meet to be eligible for direct payments is that they establish ecological compensation areas (ECAs) on at least 7 per cent of their agricultural production land. Ecological compensation areas are species-rich, extensively farmed meadows and pastures, straw fields and hedgerows, along with other semi-natural habitats. Currently, ECAs account for around 10% of agricultural production land in Switzerland. Since 2001, the Ordinance on Ecological Quality (ÖQV) has provided outcome-oriented incentives

aimed not only at promoting biological quality, but also at linking up ecological compensation areas. The aim of this is to use target or reference species typical for the region to connect remaining populations that have become isolated. In the case of meadows, quality evaluation is carried out on the basis of indicator plants. For other types of habitat, additional criteria are also used; for example, for hedges they include structure, minimum width, origins of species, management. The cantons are obliged to participate financially. The allowances for link-up and quality measures are cumulative. In a short space of time, the market incentives provided by the Ordinance have – particularly in mountain regions – brought about extensive network and biological enhancement of species-rich meadows and pastureland that had become endangered by intensive farming and abandonment of pastures.

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Links

Ordinance on Ecological Quality: <http://www.bafu.admin.ch/landschaft/00522/01649/01651/index.html?lang=de>

In 2001, the Swiss Federal Department of Environment, Transport, Energy and Communications (UVEK) issued a guideline on dimensions for wildlife passages stipulating that passages along wildlife corridors with nationwide significance should be 45 +/- 5 metres wide. In the process of developing this stipulation, the Federal Highways Agency (ASTRA) and the Federal Environment Agency (BAFU) agreed to take remedial action to improve the situation for wildlife along the Swiss network of motorways and major roads. This concept includes plans to establish around 50 wildlife passages over the next few decades to increase the passability of the road network by native wild mammals. The conflict points in need of remedial action were roughly defined in the “corridor report” (SRU 326). The detailed planning – in particular the exact siting and design of the structures and their surroundings – will take place within the framework of concepts developed by the cantons. Relevant documents – either the overall strategy for the whole canton or simply relating to those corridors which are part of the above list – are already available in six cantons and are in the planning stage in others. Moreover, detailed planning for the construction of wildlife passages has started for three sites. Information from the “corridor report” – supplemented to some extent by that provided by the national ecological network, or REN, (SRU 373), including details on the location of each of the wildlife corridors and specific degree of risk – was also incorporated into the structure plans of 17 cantons, thus increasing the level of protection afforded to these important connecting axes.

Documents can be ordered at www.buwalshop.ch. The report on wildlife corridors is available in German and French under the following reference numbers: SRU-326-D/SRU-326-F; the REN report under: SRU-373-D/SRU-373-F; maps: SRU-373-TD.

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Links

Wildlife passages (German, French, Italian):
<http://www.bafu.admin.ch/biodiversitaet/07992/08332/08334/index.html?lang=de>

Examples

International activities

Green Belt Europe

The area around the former border between Eastern and Western Europe (Iron Curtain) was so remote and so little used for decades that a more or less uninterrupted ribbon of valuable habitats developed into what is now a "green belt." In many places it has remained intact even after the fall of the Iron Curtain and runs through the whole of Europe from the Barents Sea in the North to the Adriatic and Black Sea in the South. The idea is that this green belt should be preserved and developed to form the backbone of a Europe-wide network of interlinked biotopes. To this end, a process of transboundary cooperation along the entire length of the European Green Belt was launched in 2003, coordinated by the IUCN (World Conservation Union). This process offers the opportunity of stepping up collaboration on nature conservation issues amongst the Member States of the EU, the accession states and their neighbours. The Green Belt could make a contribution to implementing the Pan-European Ecological Network (PEEN, see [page 17](#)) and to improving the coherence of the system of protected areas under Natura 2000 (see [page 23](#)). However, it will only be possible to develop the Green Belt within the framework of a sustainable regional development programme that takes into account the historical, political, economic and social situation specific to each region.

Under the umbrella of the European Green Belt, a fundamental basis for international cooperation has been laid with the creation of a comprehensive GIS project plus associated database of protected areas and extensive internet platforms. In numerous bilateral and multinational projects a host of local activities are taking place: new protected areas are being prepared, projects for the protection of species are being carried out, staff are being trained to improve capacity building, information centres are being created and the development of sustainable, environmentally compatible tourist use of the Green Belt is being promoted.

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Links

English: <http://www.europeangreenbelt.org/indoor.html>
<http://www.greenbelteurope.eu>, http://www.euronatur.org/Green_Belt_Europe.370.0.html

German: http://www.bfn.de/0311_gruenes_band.html,
http://www.bund.net/bundnet/themen_und_projekte/gruenes_band/
http://www.euronatur.org/Gruenes_Band.107.0.html,
http://www.naturschutzbund.at/aktivitaeten/Projekte/gruenes_band/gruenes_band.html

References/bibliography:

TERRY, A., ULLRICH, K. & RIECKEN, U. (Eds.) (2006): The European Green Belt: from vision to reality. - IUCN, Gland, Switzerland, and Cambridge, United Kingdom, 214 pp. + 8 plates.

SCHLUMPRECHT, H. & LUDWIG, F. (2007): GIS Mapping Project. A database for the pan-European Green Belt. IUCN European Green Belt Coordination Office, 80 p. + DVD

Pan-Alpine activities

The Alps constitute a region of outstanding biodiversity. The Nature Conservation Protocol to the Alpine Convention calls for an ecological network to be established to preserve this diversity. Today, the Ecological Continuum Initiative, the ECONNECT project and the Platform “Ecological Network” of the Alpine Convention are working in close cooperation on a pan-Alpine scale to achieve this goal..

The International Commission for the Protection of the Alps (CIPRA), the Alpine Network of Protected Areas (ALPARC), the International Scientific Committee for Alpine Research (ISCAR) and the WWF’s Alpine Programme have been co-operating to preserve biodiversity in the Alps since 2002. With a pan-Alpine strategy that transcends both national borders and the boundaries of the protected areas, the four organisations developed a completely new approach to nature protection in the Alps. In doing so they provided the stimulus needed to implement the Platform Ecological Network of the Alpine Convention and the ECONNECT project, while the four NGOs themselves formed a consortium to create the Ecological Continuum Initiative.

Each of the three activities has a distinct focus. The Platform Ecological Network is targeted in particular at generating political support for a pan-Alpine ecological network. ECONNECT was established to develop a model partnership between private and public actors and is now supporting the first measures for local implementation in pilot regions. The Ecological Continuum Initiative has developed methodological and scientific foundations for all these activities, promoted co-operation with pilot regions and initiated public debate throughout the Alpine region. The partners in the Consortium are also involved in the work of the Platform and ECONNECT. They are responsible for monitoring the long-term goals, supporting and networking the various activities, and locating sources of finance for new projects.

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Links

Ecological Networks in the Alps: www.alpine-ecological-network.org/

CIPRA International (English, French, German, Italian and Slovene): www.cipra.org

ALPARC (English, French, German, Italian and Slovene): www.alparc.org

ISCAR: www.alpinestudies.ch/iscar/

WWF: www.panda.org/alps

Publications

ALPARC, CIPRA, ISCAR, WWF (2010): Restoring the web of life – Ecological networks for more biodiversity in the Alps. Brochure, 12 p., available from <http://www.alpine-ecological-network.org/> (Services/Downloads) in five languages: English, French, German, Italian and Slovene

CIPRA (2009): Schengen für Flora und Fauna - Weshalb nur vernetzte Lebensräume vielfältig bleiben. Alps insight Nr. 90. 24 p., available from <http://www.cipra.org/de/alpmedia/publikationen/3809> French, German, Italian, Slovene

The Ecological Continuum Initiative

From lynx to tamarisk, the vision is the same: all the species of flora and fauna that constitute the natural diversity of the Alps are in good condition and benefiting from a high degree of habitat connectivity. That is the goal of the Ecological Continuum promoted by the Alpine Network of Protected Areas (ALPARC), the International Commission for the Protection of the Alps (CIPRA), the International Scientific Committee for Alpine Research (ISCAR) and the European Alpine Programme of the WWF.

The four partners in the Ecological Continuum Initiative are working independently of any project deadlines or political decisions. They have laid the foundations and created a common Alps-wide framework in which people can now take measures at the local level to protect or restore corridors between the habitats of the flora and fauna.

The work of the partners is focussed on the following three targets:

- Initiating, promoting and mentoring activities: Their work and commitment have led to the establishment of the Ecological Network Platform of the Alpine Convention and the ECONNECT project.

- Providing know-how: A harmonised methodology for the whole of the Alps, a catalogue of potential measures and a databank of publications and information on relevant projects as well as experts available to help representatives of protected areas, public authorities and environmental organisations in their implementation of activities.

- Awareness-building: The partners are working to convince decision-makers of the importance of Alps-wide habitat connectivity and to persuade people to make their own contributions to ecological networking.

The four organisations have been collaborating since 2002 and their work has been funded by the Swiss MAVA Foundation for Nature since 2007.

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Links

Ecological Continuum Initiative: www.alpine-ecological-network.org/continuum

Publications

Kohler, Y., Heinrichs, A.-K. (2009): Catalogue of possible measures that can improve ecological connectivity in the Alps. 148 p., English, French, German, Italian, [http://www.alpine-ecological-network.org/\(Services/Downloads\)](http://www.alpine-ecological-network.org/(Services/Downloads))

ISCAR and the Swiss Biodiversity Forum (2008): Evaluation of approaches for designing and implementing ecological networks in the Alps. 41 p, [www.alpine-ecological-network.org/](http://www.alpine-ecological-network.org/(Services/Downloads)) (Services/Downloads)

ALPARC, CIPRA, ISCAR, WWF (2008): Glossary on the subject of ecological networks in five languages (English, French, German, Italian, Slovene). 11 p, [www.alpine-ecological-network.org/](http://www.alpine-ecological-network.org/(Services/Downloads)) (Services/Downloads)

The Ecological Network Platform of the Alpine Convention

Connecting natural spaces is of key importance for the nature protection goals of the Alpine Convention, and the Ecological Network Platform has thus been established under the aegis of the Alpine Convention with the goal of supporting the creation of a cross-border alpine network of protected areas and connecting elements.

Through the platform, alpine countries will be able to share, compare, and revise crucial information on measures and methodologies. The platform, which brings together representatives of the Alpine countries, protected areas and Alpine institutions and experts, provides an important link between policy makers, the scientific community and practitioners. It also encourages more efficient cooperation with other sectors.

Within the platform, experts are working on three key areas of concern: scientific support for the establishment of an ecological network, its project-oriented implementation, and communication and PR work. Some pilot regions in the Alps have already started work on the cross-border network. Platform activities will further support and develop their efforts.

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Links

Ecological Network Platform of the Alpine Convention: www.alpine-ecological-network.org/platform

Alpine Convention: www.alpconv.org

Publications:

Ullrich, A., Pirc, M., Righetti, A., Wegelin, A. 2009: The Ecological Network in the Alps: Defining Criteria and Objectives for Pilot Regions – Final Report. 16 p., available in English and German on <http://www.alpine-ecological-network.org/index.php/alpine-convention/pilot-regions>

Hedden-Dunkhorst, B., Kretschmar, M., Kohler, Y. (2007): Establishing an Alpine Ecological Network: Inaugural meeting of the Platform Ecological Network under the Alpine Convention. BfN-Skripten 210, 89 p., [http://www.alpine-ecological-network.org/images/stories/skript210 .pdf](http://www.alpine-ecological-network.org/images/stories/skript210.pdf)

ECONNECT: Restoring the web of life

The objective of the ECONNECT project, which was launched in 2008, is to protect, maintain and restore ecological connectivity in the Alps. For this purpose a number of pilot regions have been selected with the aim of developing a methodology that is applicable to the whole of the Alpine region. ECONNECT is thus helping to establish continuity between areas of ecological importance in the Alps which have already taken the first steps in implementing biotope connectivity in their respective regions. This process also contributes to the further development of a more dynamic approach to nature protection, which can be effective beyond the limits of the protected areas as they are defined today.

The project involves international organisations that are closely involved in the Alpine Convention as well as research institutions and local partners (management of protected areas, local authorities), who are working together to define the needs and open questions and to develop innovative instruments to improve the ecological networks of the Alps.

Work is planned on the first specific projects involving various local actors in the seven pilot regions. So as to overcome legal and administrative obstacles, a number of political recommendations will be formulated. This will also facilitate international cooperation and improved coordination of activities at the local level.

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Links

ECONNECT project: www.econnectproject.eu/

Ecological network of protected areas in the Alps

The Alpine Network of Protected Areas is an international organisation established at the initiative of France in 1995 as a platform for co-operation between the management bodies of protected areas. Since 2003 the Network has been working in support of implementation of Article 12 of the Nature Protection Protocol of the Alpine Convention, which calls for the creation of an ecological network¹.

During the German presidency of the Alpine Convention, the Network was mandated to investigate "Cross-border protected areas and ecological networking in the Alps". The study produced an overview of the status quo with regard to ecological networking in the Alps and existing projects, as well as the instruments available at the national and international levels. The results included numerous specific proposals for the creation of a pan-Alpine ecological network of protected areas, especially in the eight model regions, which were studied in greater detail.

On the basis of these results, the Alpine Convention recommended to the states parties specific steps for the implementation of such a network. In November 2005, a conference was held with official representatives of the countries of the Alps in order to discuss further procedure at the level of implementation.

In June 2007, the four big pan-Alpine organisations – the Alpine Network of Protected Areas (ALPARC), the International Commission for the Protection of the Alps (CIPRA), the International Scientific Committee for Alpine Research (ISCAR) and the WWF's Alpine Programme – launched a major initiative on the subject of ecological networking (see [page 32](#)). In March 2007, the Alpine Convention established the Ecological Network Platform (see [page 33](#)).

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¹ Article 12 of the Protocol on Nature Protection and Landscape Management of the Alpine Convention, Ecological Network:

"The contracting parties shall adopt suitable measures to create a national and international network of designated protected areas, biotopes and other objects that receive or merit protection. They shall harmonise amongst themselves the goals and measures relating to cross-border protected areas."

Links

Alpine Network of Protected Areas (English, French, German, Italian and Slovene): <http://www.alparc.org>

Alpine Convention (English, French, German, Italian and Slovene): <http://www.alpconv.org/>

Ecological Networks in the Alps: www.alpine-ecological-network.org

Publications

Alpine Network of Protected Areas (2005): Final report on the seminar on "The Creation of an Ecological Network of Protected Areas" held in Berchtesgaden (D) on 7-8 November 2005, 40 p. Available in four languages: French, German, Italian and Slovene

Alpine Network of Protected Areas (2004): Cross-border Ecological Network. Alpine Signals no. 3. Permanent Secretariat of the Alpine Convention. Innsbruck, Austria. 240 p. Available in four languages: French, German, Italian and Slovene.

Key Alpine connection areas identified in the WWF's European Alpine Programme

In 2002-2003, in collaboration with the Alpine Network of Protected Areas (ALPARC), the International Commission for the Protection of the Alps (CIPRA) and the International Scientific Committee for Alpine Research (ISCAR), the WWF involved the scientific community in the Alpine region in the development of a long-term vision for biological diversity in the Alps.

The definition of 24 priority conservation areas (PCA) for the protection of biological diversity constituted a first step. The second step is to identify the main ecological corridors in the Alps at a large-scale level (1:500,000), primarily on the basis of expert opinion. It was decided to work with two categories of connection areas: those located within the Alps themselves (between the priority areas and protected areas where necessary) and those linking the Alps with neighbouring regions. To that end, initial discussions with experts and an international workshop were held in the Swiss town of Buchs on 19 and 20 September 2005, with technical support provided by the Alterra Institute (NL) and VINCA (A). Macro-corridors were determined mainly on the basis of ecological necessity (in terms of species, habitats and landscape), although feasibility and expediency played a role in some cases. From the results of the consultations and the workshop, it was possible to determine 13 land corridors and 15 water corridors linking the Alps with surrounding regions, and 33 land corridors and another 15 water corridors that serve as internal links. These results are provisional and need to be confirmed and possible additions made by the experts.

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Project reports

WWF European Alpine Programme (2006): A Biodiversity Vision for the Alps. Proceedings of the work undertaken to define a biodiversity vision for the Alps. Technical Report. WWF European Alpine Programme, Milan (unpublished)

WWF European Alpine Programme (2006): Identification of the main potential connection areas of the Alps. Technical report (unpublished)

Ecological network of protected areas in the Alps

The Alpine Network of Protected Areas, an international institution set up on the initiative of France in 1995 to promote cooperation amongst the institutions managing the protected areas, has been working since 2003 on the concrete implementation of Article 12 of the Alpine Convention's Protocol on Nature Conservation, which calls for an ecological network².

During the German presidency of the Alpine Convention, it was commissioned to carry out a study on the subject of "Cross-border protected area and an ecological network in the Alps."

As part of this study, an overview was drawn up, detailing existing network situations in the Alps, instruments available nationally and internationally, and existing projects. Numerous concrete proposals were put forward on how to create an ecological network of protected areas throughout the entire Alpine region, in particular in eight areas that were selected as examples and studied in greater depth.

The findings of this study prompted the Alpine Conference to recommend that its signatory states take concrete steps to set up a network of this kind. In November 2005, a seminar was held with official representatives of the countries in the Alpine region to discuss and define further steps needed to implement the idea.

In June 2007, the four organisations that are active across the whole of the Alps, the Alpine Network of Protected Areas (ALPARC), the International Commission for the Protection of the Alps (CIPRA), the International Scientific Committee on Research in the Alps (ISCAR) and the Alpine Programme of the WWF launched an extensive project on ecological networking (see [page 31](#)).

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Links

The Alpine Network of Protected Areas: (English, German, French, Italian, Slovenian): <http://www.alparc.org>

The Alpine Convention (English, German, French, Italian, Slovenian): <http://www.alpconv.org/>

Publications

Alpine Network of Protected Areas (2005): Final report on the seminar "Creation of an ecological network of protected areas," 7-8 November 2005, Berchtesgaden (D), 40 p. Available in four languages: German, French, Italian, Slovenian.

Alpine Network of Protected Areas (2004): Grenzübergreifender ökologischer Verbund. Netzwerk Alpiner Schutzgebiete. Alpensignale Nr. 3. Permanent Secretariat of the Alpine Convention. Innsbruck, Austria. 240 p. Available in four languages: German, French, Italian, Slovenian.

Alpine Network of Protected Areas (2004): Towards a Carpathian Network of Protected Areas. Final report. 38 p.

² Article 12 of the protocol on "Nature conservation and the landscape management" of the Alpine Convention, ecological network:

"The contracting parties take adequate measures to establish a network of existing national and transboundary protected areas, of biotopes and other protected elements or those to be protected. They commit themselves to harmonize the objectives and applicable measures in transboundary protected areas."

The identification of main connection areas in the Alps, by WWF European Alpine Programme, ALPARC, CIPRA, ISCAR

In 2002-2003 the World Wide Fund for Nature (WWF), in cooperation with the Network of Alpine Protected Areas (ALPARC), the International Commission for the Protection of the Alps (CIPRA) and the International Scientific Committee for Alpine Research (ISCAR), involved the Alpine scientific community in the development of a long-term vision for the biodiversity of the Alps. The identification of 24 priority conservation areas (PCAs) for biodiversity was the first step. The second step is the identification of the main potential connection areas of the Alps at a coarse scale (1:500 000), mainly based on an expert approach. It was decided that two categories of connection areas had to be identified: within the Alps (among the priority areas and the protected areas, if and where they are needed) and between the Alps and adjacent regions. To this purpose, preliminary consultations were conducted with some experts and on the 19th-20th September 2005 an international workshop with experts was organised in Buchs, Switzerland, with the technical support of the Alterra Institute (NL) and VINCA (A). The identification of macro-corridors was mainly based on the ecological need (species, habitats and landscape), but feasibility and opportunity was also sometimes considered. The experts' consultations and workshop resulted in the identification of 11 terrestrial and 15 aquatic external connection areas among the Alps and adjacent regions and 21 terrestrial and 2 aquatic internal connection areas. These are only preliminary results and a second experts' consultation will take place in order to validate and complete the methodology and the results. The objectives of this project are: to harmonize this vast scale approach with the one from ALPARC and the Alpine Convention for the identification of more detailed corridors among the protected areas of the Alps, to complete the biodiversity vision, to provide a context to the local initiatives for ecological networks and for land use planning, to create synergies and know how to involve public administrations and to be used for internal strategy planning.

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National activities

Switzerland's national ecological network (REN)

The national ecological network (abbreviation: REN) was drawn up as part of a "top-down – bottom-up procedure" in close collaboration with the agencies responsible for nature and landscape conservation at canton level. It is in effect a technical/scientific report that describes the country's landscape from the point of view of its ecology. It depicts both the fragmentation of habitats and the connectivity features on 1:100,000/1:500,000 maps. They show only at the current situation but also the landscape's potential. This forward-looking and integrated vision gives an overall picture of the key aspects of the country's ecological situation. For this vision to be implemented it will have to be transposed and adapted in detail to the specific situation at any given place.

As part of its strategy to protect important and endangered species and habitats, REN provides additional details and is an important starting point, in particular with regard to the objective of

revitalising habitats. At the moment, it is used, for example, for coordinating structural planning, river engineering projects and implementing the Ordinance on Ecological Quality (ÖQV) mentioned above. It also facilitates a new kind of partnership between all the agencies with activities that are relevant to the landscape in one form or another.

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Links

Reseau Ecologique national (German, French, Italian): www.bafu.admin.ch/schutzgebiete-inventare/09443/index.html?lang=de

Documents

Documents can be ordered at www.buwalshop.ch. The report is available in German and French under the following reference numbers: SRU-373-D/SRU-373-F; maps: SRU-373-TD.

Italy's national ecological network (Rete Ecologica Nazionale – REN)

As a result of numerous European initiatives (European Commission and the Council of Europe), Italy has also passed a programme to define and develop a national ecological network. A national ecological network is an operational instrument that has great guidance and planning value for matters concerning regional policy and use of natural resources. Within this programme, the Environment Ministry therefore commissioned a study on ecological networks for vertebrates in Italy, which was completed in 2002.

The aim of this project was to depict a network or collection of areas of differing ecological quality and differing nature conservation priorities and highlight the possible connecting elements between these core areas so as to prevent further fragmentation of the habitats and breeding routes of vertebrates.

The first stage in this work was to collate the body of knowledge on the distribution and ecological situation of vertebrate species in Italy. In a second stage, models of habitat use were developed.

Finally, a number of networks were defined as part of this project:

- A global network covering all vertebrate species
- A network for each taxonomic group
- A network of all 149 endangered species on the Red List

These networks were compared with one another and with the latest map of protected areas in Italy in order to identify the qualitative, quantitative and spatial differences between the different networks. The comparison between the global network and the network of endangered species showed that the distribution of the endangered species matches very well the distribution of the areas of particular biodiversity in Italy.

The comparison with the network of protected areas in Italy produced encouraging findings. The protected areas are of great value to the ecological networks and their biodiversity, since they cover and protect important areas of the networks identified.

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Links

Agriculture and Italy's national ecological network (Italian):
http://www.legambiente.eu/documenti/2004/0503_areeProtette/Progetti/agricoltura_nella_ren.php.

GIS data on all of Italy's vertebrates (English, Italian): <http://www.gisbau.uniroma1.it/ren.php>

Working group of the ecological network of Italian administrations and the EU:
http://www.reteambientale.it/attivita/rete_ecologica.asp

Documents

Boitani L., A. Falcucci, L. Maiorano, A. Montemaggiori, 2002. "Rete Ecologica Nazionale: il ruolo delle aree protette nella conservazione dei vertebrati." Dip. B.A.U. - Università di Roma "La Sapienza", Dir. Conservazione della Natura – Ministero dell'Ambiente e della Tutela del Territorio, Istituto di Ecologia Applicata. Roma.

Regional activities

Biological corridors in the French department of Isère

The French department of Isère is a densely populated Alpine region. As a result of this population density and the intensive farming of the land, the area is highly fragmented. In 1999, the department therefore decided to commission an initial study of the ecological connectivity situation in Isère.

The basis for the department's ecological network was the Swiss REN model.

Following this model, maps were drawn up and main corridors defined.

As a result of this initial study, concrete action was taken to implement the ecological network and safeguard or re-establish the region's biological corridors.

Working to provide information and raise the awareness of the relevant actors and the public is an important part of the remit of the Conseil Général, the department's council. For that reason a document was drawn up, summarising the main findings of the study for the benefit of local decision-makers and other interested parties. Educational programmes on the topic of ecological connectivity were also carried out with young people and school classes.

The concept of ecological networks was well received by the general public and political decision-makers alike and a number of specific projects have already been implemented, including creating passages for small mammals and amphibians.

In February 2009 the Conseil général together with other partners launched another large-scale project aimed at promoting ecological corridors. 50 activities are to be implemented over the six-year term with a volume of €9 million.

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Links/Publications:

Paths of life project: www.pathsoflife.eu

Brochure on the Isère ecological network „Plaquette corridors biologiques“ (French): <http://www.isere-environnement.fr/pages/index/id/6416>

Wildlife corridors in Styria

In matters relating to designating areas for residential and industrial development, the Austrian spatial planning system gives considerable latitude to individual local authorities. In many cases these local authorities are very small and in competition with each other for inhabitants and tax revenue. This, in conjunction with the rapidly developing transport network which enjoys high status is leading to progressive fragmentation of the Austrian landscape and therefore to breaks in important regional, national and international wildlife/ecological corridors for large mammals such as bears, lynx, wolves and red deer.

While, in the case of new infrastructure projects such as major road and rail network development schemes, building green bridges to maintain the function of these corridors is already state of the art, it is still the exception rather than the rule that these important connectors between open spaces are taken into consideration in spatial planning. An example of this can be seen in the fact that green bridges that have cost a great deal of public money to construct are often degraded by new, inappropriately sited industrial or residential areas.

To rectify these shortcomings, the state of Styria has now included protecting high-ranking wildlife/ecological corridors in its Regional Development Programmes in the form of regulations issued by the state government. The structure of the Styrian spatial planning system means that the development framework stipulated by the state government is binding on the local authorities. The passability of green bridges at roads and railways is thus maintained and guaranteed in the long term beyond the narrow strip of the road or rail track itself.

These decrees also play an important role in building new infrastructure, such as high-capacity roads and railways, as the position of regional planning agencies during environmental impact assessments and procedures used to choose the layout of roads or railways. This helps to integrate the interests of habitat networks into planning and monitoring procedures at an early stage.

Regional development programmes with wildlife corridors have been decreed in 9 out of 15 planning regions in Styria as of March 2008. In all other regions revisions are ongoing.

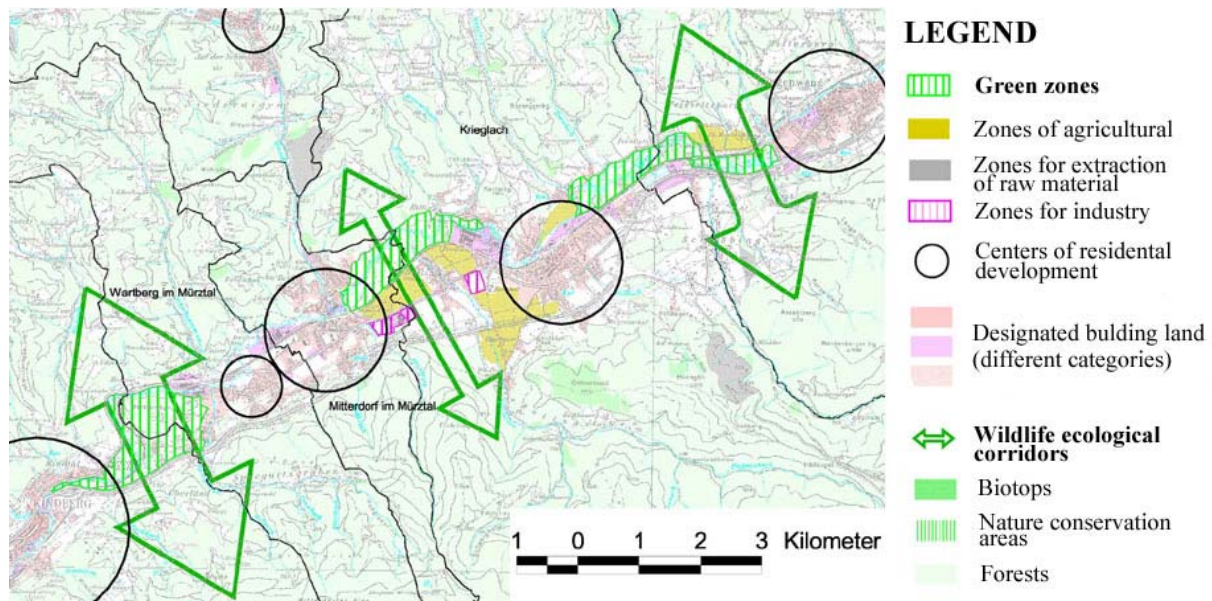


Illustration: Example taken from a Development Programme in the region of Mürzzuschlag, Styria, showing wildlife/ecological corridors
(Abteilung 16, Amt der Steiermärkischen Landesregierung 2003
<http://www.raumplanung.steiermark.at/>)

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Regional ecological network in Lombardy

In spring 2010 the Lombardy Region, Italy, officially approved the Regional Ecological Network (REN). It is an important decision for Italy, for all the Alpine countries and the projects, like the Alpine space project ECONNECT, concerning connectivity; in fact, it is the first time that an ecological network frame acquires force of law in Italy.

This pivotal decision now implies that all provinces have to align to this resolution in all successive planning stages, taking into account the areas included in the REN. These areas are included on maps as corridors, barriers and areas that have a special ecological importance. The Region, the Fondazione Lombardia Ambiente and private sponsors will additionally finance a biannual monitoring plan.

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Link:

http://www.regione.lombardia.it/cs/Satellite?c=Redazionale_P&childpagename=DG_Ambiente%2FDetail&cid=1213311300152&packedargs=menu-to-render%3D1213311310411&pagename=DG_QAWrapper (it)

Local activities

Regiobogen– a cross-border project for ecological networks

The Regiobogen project was created in 1998 at the Trinational Environmental Centre (TRUZ) in Weil am Rhein in Germany. The association, whose headquarters are very close to Basel, in the region where Germany, Switzerland and France meet, is the parent organisation of more than 50 conservation organisations, towns, municipalities, joint local authority bodies and companies. It strives to promote and support cross-border initiatives in the areas of conservation and environmental protection. In recent decades, increasing urbanisation, the establishment of new industries and the construction of settlements and industrial estates as well as new transport infrastructure have led to an ever more pronounced isolation of existing areas of unspoilt nature. The goal of the Regiobogen project is to maintain and enhance the remaining natural areas and to connect them via ecological corridors and stepping stones.

In the planning phase (2000-2002), the existing landscape was mapped. Nature hot spots were recorded and the ecological value of the entire area was assessed. On the basis of the assessment of the various types of biotope, a network strategy was developed, taking into consideration that different species have different needs. The project area covers 58 square kilometres and incorporates 14 towns and municipalities in the three countries.

The planning phase was completed with the development of a catalogue of measures for both the whole area and the eight specially identified areas of particular value (Wertgebiete) and their development areas. Measures were scheduled for six areas:

Grassland, traditional orchards, fields, gardens: more extensive land use, more extensive wine-growing, creation of ecologically-managed strips at the borders of fields, transformation of arable fields and gardens into grassland, establishment of extensively-used orchards with high-stem trees, re-humidification of grassland

Hedges, small groups of endemic trees and shrubs, trees: establishment of hedges and small groups of trees and shrubs, planting of individual trees and rows of trees

Stretches of water: development of environmentally managed riparian zones, enhancement of stretches of water and their rehabilitation, establishment of areas of standing water (ponds), enhancement of ditches

Open soil: creation of areas with virgin soil

Forest: development of forest edges, forest use adapted to the site, traditional forest use (e.g. coppice with standards, coppice forest)

General measures: Establishment of edge biotopes, suppression of non-native plants, scrub control on grassland, creation of small structures: dry stone walls, clearance cairns, heaps of branches, dead wood, caves, removal of barriers or making them permeable (fences, sealed-off areas, built-up areas, roads and railways)

Since August 2002, more than 60 different measures have been implemented, including the planting of more than 3000 shrubs and 300 trees in intensively-used areas, the revitalisation and rehabilitation of wetlands such as the rehabilitation of 3 km of Altrhein oxbow lakes of the river Rhine and the installation of more than 100 nest boxes. These measures were carried out in close collaboration with the towns and municipalities, the agencies responsible for conservation and the land owners and accompanied by intensive press and public relations activities.

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Links

Regiobogen: <http://truz.org/regiobogen/index.html>

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