

# Implementing a Pan-Alpine Ecological Network

## A Compilation of Major Approaches, Tools and Activities



Federal Ministry for the  
Environment, Nature Conservation  
and Nuclear Safety



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Federal Ministry for the  
Environment, Nature Conservation  
and Nuclear Safety



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## 1. Summary

During the last few years, major efforts have been undertaken in the Alps to maintain biodiversity by establishing a pan-Alpine ecological network. The Ecological Continuum Initiative, the ECONNECT project and the Platform Ecological Network of the Alpine Convention are active on a pan-Alpine level and have produced several important and interesting results. Various documents, publications and reports which reflect approaches, tools and activities that support the implementation of an ecological network across the Alps have been published. Some of this information had not been made available for a wide

**For the first time important results on the pan-Alpine ecological network have been compiled**

public until now. Others exist only as comprehensive independent publications. Therefore these activities and results have now been compiled and summarised in the report "Implementing a Pan-Alpine Ecological Network - A Compilation of Major Approaches, Tools and Activities" in English language in the series "BfN-Skripten".

The publication provides suggestions and support for stakeholders from different fields of activity who work for the implementation of ecological networks in the Alps: protected area managers, policy makers, scientists and representatives from administrations or non-governmental organisations. Also people from other regions in Europe and beyond who are active in the field of ecological connectivity can benefit from the experiences made in the Alps with the help of this report.

The report explains and gives ideas on the instruments, tools, measures and activities that contribute to enhance ecological connectivity in the Alpine space. As core part, each publication or tool is shortly characterised in a profile. References are given for further information. Along with the report, a CD is provided containing all information that is digitally available.

Despite the efforts of establishing protected areas, biodiversity is continuously declining in the Alps. The main reasons, as in the rest of Europe, are the destruction of natural habitats and the deterioration of cultural landscapes associated with the fragmentation of vital areas of fauna and flora. These phenomena become manifest mainly outside the protected areas. In order to maintain the extraordinary biodiversity in the Alps, the areas without a special protection status that are farmed, used or urbanised are of major importance and have

to be ecologically connected. Ecological networks allow the migration of plants and animals. They need to be implemented on a pan-Alpine scale for allowing biological exchanges between habitats. A functioning ecological network is also an important precondition to enable the shift of habitats due to the consequences of climate change. Ensuring the connection of natural spaces needs to be done in the long term. This generation-spanning task requires a common vision and must be put into practice by coherent strategies of all different actors leading to the success of the same Alpine-wide objective.

Joint efforts focussing on the Alpine massif as a whole are contributing directly to a very concrete application of an international treaty, the Alpine Convention, with its protocol on the protection of the natural environment. Representatives from research, administration and non-governmental organisations are contributing to the common goal of implementing an ecological network in this big territorial unit constituted by the Alpine massif. In addition, through this effort the Alpine countries are respecting their commitments undertaken within the

**The Alps are part of a "Green Belt" from Spain to the Carpathians**

framework of the Convention on Biological Diversity and for the establishment of the Pan-European Ecological Network.

With their common activities, the Alps have become a core element of European biodiversity: equivalently to the "Green Belt" along the former Iron Curtain, the Alps constitute the heart of a second "European Green Belt", ranging West to East from the Cantabrian mountains in Spain to the Carpathians. First contacts have been taken with neighbouring mountain ranges and some projects have been started to improve ecological connections between the Alps and their surroundings. These efforts will need to be further deepened so that it will be possible for animals and plants to migrate from the Alps to neighbouring mountain ranges: to the French Central massif and the Pyrenees, to the Jura, to the Apennines and to the Carpathians.

## Zusammenfassung

Mit dem Ziel die Biodiversität in den Alpen zu erhalten, wurden in den letzten Jahren im gesamten Alpenraum grosse Anstrengungen unternommen, um ein alpenweites ökologisches Netzwerk zu errichten. Die "Initiative Ökologisches Kontinuum", das ECONNECT-Projekt und die Plattform Ökologischer Verbund der Alpenkonvention sind alpenweit aktiv und haben hierzu eine Vielzahl wichtiger und interessanter Ergebnisse hervorgebracht. In verschiedenen Dokumenten, Publikationen und Berichten werden Ansätze, Werkzeuge und Aktivitäten dargestellt, die die Umsetzung eines ökologischen Netzwerks über den Alpenbogen hinweg unterstützen. Manche dieser Informationen waren bisher noch nicht für ein breites Publikum zugänglich. Andere bestehen nur als eigenständige umfassende

### **Erstmals wichtige Ergebnisse zum alpenweiten ökologischen Netzwerk zusammengestellt**

de Publikationen. Daher wurden diese Konzepte und Ergebnisse jetzt gesammelt und liegen zusammengefasst in dem englischsprachigen Bericht "Implementing a Pan-Alpine Ecological Network - A Compilation of Major Approaches, Tools and Activities" der BfN-Skriptenreihe vor.

Die Publikation bietet Anregungen und Unterstützung für Akteure aus verschiedenen Tätigkeitsbereichen, die sich für die Umsetzung eines ökologischen Netzwerks in den Alpen engagieren: Schutzgebietsverwaltungen, Politik, Wissenschaft, Verwaltungen oder Nichtregierungsorganisationen. Auch Menschen aus anderen Regionen Europas und darüber hinaus, die im Bereich der ökologischen Vernetzung aktiv sind, können mit Hilfe dieses Berichts von den Erfahrungen aus dem Alpenraum profitieren.

Der Bericht liefert Ideen und erläutert Instrumente, Werkzeuge, Massnahmen und Aktivitäten, die zur Verbesserung der ökologischen Vernetzung im Alpenraum beitragen. Im zentralen Teil des Berichtes wird jede Publikation und jedes Werkzeug in einem kurzen Steckbrief charakterisiert. Referenzen weisen auf weiterführende Informationen hin. Eine CD am Ende des Berichts beinhaltet alle digital verfügbaren Informationen.

Obwohl zahlreiche Schutzgebiete eingerichtet wurden, nimmt die Biodiversität in den Alpen weiter ab. Wie auch im übrigen Europa sind die Hauptursachen dafür die Zerstörung von Lebensräumen und die Verarmung der Kulturlandschaften. Hierdurch werden Gebiete zerschnitten, die Tiere und Pflanzen für das Überleben benötigen. Diese Beeinträchtigungen befinden sich insbesondere ausserhalb von Schutzgebieten. Gebiete ohne einen speziellen Schutzstatus, die land-

wirtschaftlich oder anderweitig genutzt oder besiedelt sind, sind daher besonders wichtig und müssen ökologisch vernetzt werden, um die aussergewöhnliche biologische Vielfalt in den Alpen zu erhalten.

Ökologische Netzwerke ermöglichen Wanderungen von Pflanzen und Tieren. Sie müssen alpenweit eingerichtet werden, um den biologischen Austausch zwischen Lebensräumen zu gewährleisten. Ein funktionierendes ökologisches Netzwerk ist auch eine wichtige Voraussetzung dafür, dass Tiere und Pflanzen ihre Lebensräume infolge der Auswirkungen des Klimawandels verschieben können. Die Verbindungen zwischen Naturräumen müssen langfristig sichergestellt werden. Diese Generationenaufgabe braucht eine gemeinsame Vision und kann nur dann erfolgreich umgesetzt werden, wenn alle verschiedenen Akteure mit kohärenten Strategien ein gemeinsames alpenweites Ziel verfolgen.

Gemeinsame Anstrengungen, die sich auf den gesamten Alpenraum beziehen, tragen direkt und auf sehr konkrete Weise zur Umsetzung des internationalen Vertragswerks der Alpenkonvention mit ihrem Protokoll zum Thema Naturschutz bei. Vertreterinnen und Vertreter aus Forschung, Verwaltung und von Nichtregierungsorganisationen tragen gemeinsam dazu bei, das Ziel der Umsetzung eines ökologischen Netzwerks in der grossen räumlichen Einheit des Alpenbogens zu erreichen. Darüber hinaus kommen die Alpenländer mit diesen Aktivitäten ihren Verpflichtungen gemäss des UN Übereinkommens über die biologische Vielfalt und

### **Die Alpen sind Teil eines "Grünen Bands" von Spanien bis zu den Karpaten**

für die Einrichtung eines Pan-Europäischen Ökologischen Netzwerks nach.

Mit ihren gemeinsamen Bemühungen sind die Alpen zu einem Kernbereich der Biodiversität in Europa geworden: analog zum "Grünen Band" entlang des ehemaligen Eisernen Vorhangs sind die Alpen das Zentrum eines zweiten europäischen "Grünen Bands", das sich von West nach Ost vom Kantabrischen Gebirge in Spanien bis zu den Karpaten erstreckt. Mit benachbarten Berggebieten wurden erste Kontakte geknüpft und einige Projekte gestartet, um die ökologischen Verbindungen zwischen den Alpen und ihrem Umland zu verbessern. Damit es für Tiere und Pflanzen möglich wird, zwischen den Alpen und ihren benachbarten Berggebieten wie dem französischen Zentralmassiv, den Pyrenäen, dem Jura, dem Apennin und den Karpaten zu wandern, müssen diese Aktivitäten weiter verstärkt werden.

## Résumé

Au cours des dernières années, de gros efforts ont été déployés pour mettre en place un réseau écologique panalpin afin de protéger la biodiversité dans les Alpes. L'Initiative Continuum écologique, le projet ECONNECT et la plate-forme Réseau écologique de la Convention alpine interviennent dans l'ensemble de l'arc alpin et ont produit de nombreux résultats dignes d'intérêt. Les approches, les outils et les activités utilisés pour la mise en œuvre du réseau écologique panalpin sont décrits dans divers documents, publications et rapports. Certaines de ces informations n'étaient pas encore accessibles au grand public ; d'autres ne sont disponibles que dans des publications indépendantes très détaillées. L'Office fédéral allemand pour la protection de la nature

### La première publication consacrée aux résultats notables du réseau écologique panalpin

a donc décidé de rassembler et résumer ces activités et résultats dans un rapport rédigé en anglais, publié sous le titre " Implementing a Pan-Alpine Ecological Network - A Compilation of Major Approaches, Tools and Activities ".

Cette publication est un recueil d'idées et de suggestions et un auxiliaire précieux pour tous les acteurs impliqués dans le développement d'un réseau écologique alpin : administrations des espaces protégés, acteurs politiques, scientifiques et administratifs ou organisations non gouvernementales. Elle permet également à d'autres régions en Europe et dans le monde de profiter des expériences acquises dans l'arc alpin en matière de connectivité écologique.

L'ouvrage décrit les instruments, les outils, les mesures et les activités qui contribuent à l'amélioration du réseau écologique. Dans sa partie principale, il propose une brève description de chaque publication et de chaque outil. Ces données sont complétées par des références qui permettent d'approfondir les informations. Le CD joint au rapport contient toutes les informations sous forme électronique.

Malgré la création de nombreux espaces protégés, la biodiversité continue à reculer dans les Alpes. Comme dans le reste de l'Europe, cela est dû essentiellement à la destruction des habitats et à l'appauvrissement des paysages ruraux traditionnels, associés à une fragmentation croissante des espaces vitaux pour la faune et la flore. Ces évolutions se produisent essentiellement en dehors des espaces protégés. Les zones ne bénéficiant d'aucun statut de protection particulier, qu'elles soient urbanisées ou utilisées à des fins

agricoles ou autres, sont donc particulièrement importantes et doivent être intégrées dans le réseau écologique afin de conserver la biodiversité exceptionnelle des Alpes.

Les réseaux écologiques favorisent les migrations de la faune et de la flore. Ils doivent être développés au niveau panalpin pour garantir les échanges biologiques entre les habitats. Le bon fonctionnement des réseaux écologiques est aussi une condition importante afin que les animaux et les plantes puissent conquérir de nouveaux habitats pour s'adapter aux effets du changement climatique. L'interconnexion entre les espaces naturels doit être garantie à long terme. Ce travail engagé pour les générations futures a besoin d'une vision commune, et ne pourra être mis en œuvre avec succès que si tous les acteurs poursuivent un objectif panalpin commun avec des stratégies cohérentes.

Les efforts communs s'étendent à l'ensemble de l'espace alpin et contribuent à la mise en œuvre concrète d'un traité international, la Convention alpine, et de son protocole " Protection de la nature ". Scientifiques, administrations et organisations non gouvernementales contribuent ensemble au développement d'un réseau écologique au sein de la grande unité territoriale que constitue l'arc alpin. Par ailleurs, par

### Les Alpes sont un élément de la "trame verte" qui s'étend de l'Espagne aux Carpates

ces activités, les pays concernés respectent leurs engagements dans le cadre de la Convention des Nations Unies sur la biodiversité et pour l'aménagement d'un réseau écologique paneuropéen.

Grâce à ces efforts conjugués, les Alpes sont devenues un espace clé pour la biodiversité en Europe. La première version de la trame verte européenne (la " ceinture verte européenne ") empruntait le tracé de l'ancien rideau de fer. Aujourd'hui, les Alpes sont au cœur d'une seconde " trame verte " qui s'étend d'Ouest en Est, des monts Cantabriques en Espagne jusqu'aux Carpates. Des premiers contacts ont été établis avec les régions de montagnes voisines, et quelques projets ont été lancés afin d'améliorer les connexions écologiques entre les Alpes et les régions limitrophes. Ces activités doivent être renforcées pour que la faune et la flore puissent migrer entre les Alpes et les régions de montagne voisines comme le Massif Central, les Pyrénées, le Jura, les Apennins et les Carpates.

## Sintesi

Al fine di conservare la biodiversità nelle Alpi, negli ultimi anni, nell'intero spazio alpino, sono stati intrapresi grossi sforzi per l'istituzione di una rete ecologica transfrontaliera. L'"Iniziativa Continuum Ecologico", il progetto ECONNECT e la Piattaforma "Rete Ecologica" della Convenzione delle Alpi sono iniziative a livello alpino che hanno prodotto numerosi risultati di grande rilievo e interesse. Sono molti i documenti, le pubblicazioni e le relazioni in cui vengono presentati gli approcci, gli strumenti e le attività che supportano l'attuazione di una rete ecologica nelle Alpi. Poiché parte di queste informazioni finora non era accessibile al grande pubblico o era disponibile solo in ampie pubblicazioni indipendenti, le strategie e i risultati sopracitati sono stati raccolti e pubblicati in inglese

### **Per la prima volta sono stati raccolti importanti risultati sulla rete ecologica transfrontaliera**

nel rapporto "Implementing a Pan-Alpine Ecological Network - A Compilation of Major Approaches, Tools and Activities", il quale fa parte a sua volta della serie di pubblicazioni dell'Ufficio federale tedesco per la tutela della natura "BfN-Skripten".

La pubblicazione offre impulsi e supporto alle parti interessate dei vari settori impegnate nell'attuazione di una rete ecologica nelle Alpi, come amministratori delle aree protette, politici, ricercatori, amministrazioni e organizzazioni non governative. Anche gli attori provenienti da altre regioni, europee e non, e attivi nel settore della continuità ecologica, possono beneficiare delle esperienze raccolte nel territorio alpino.

Il rapporto, che fornisce idee e illustra strumenti, misure e attività che concorrono a promuovere la continuità ecologica nello spazio alpino, è costituito da una parte centrale in cui ogni pubblicazione o strumento viene descritto in una breve scheda. Le referenze fornite rimandano a ulteriori informazioni e un CD allegato al rapporto contiene tutte le informazioni disponibili in formato digitale.

Sebbene siano state istituite numerose aree protette, si assiste a un continuo declino della biodiversità nelle Alpi, le cui cause principali, come anche nel resto d'Europa, sono la distruzione degli habitat e il degrado del paesaggio agricolo, con conseguente frammentazione degli ambienti necessari alla sopravvivenza di flora e fauna. Tali fenomeni si manifestano soprattutto fuori dalle aree protette. Le aree non protette, destinate all'attività agricola o ad altro uso oppure urbanizzate, sono pertanto di particolare rilievo e devono essere

ecologicamente connesse al fine di conservare l'eccezionale biodiversità nelle Alpi.

Le reti ecologiche, consentendo la migrazione di piante e animali, devono essere istituite in tutta la regione alpina allo scopo di garantire lo scambio biologico tra gli habitat. Una rete ecologica funzionante costituisce anche un'importante presupposto affinché flora e fauna possano spostare i propri habitat a seguito degli effetti prodotti dal cambiamento climatico in atto. Assicurare a lungo termine la continuità spaziale tra le aree è pertanto un compito generazionale che richiede una visione comune e che può essere attuato con successo solo se tutte le parti interessate, servendosi di strategie coerenti, perseguiranno lo stesso obiettivo nella regione alpina.

Gli sforzi comuni, concentrati sull'intero spazio alpino, contribuiscono direttamente e concretamente all'attuazione del trattato internazionale della Convenzione delle Alpi e del suo protocollo sulla protezione della natura. I rappresentanti della ricerca scientifica, delle amministrazioni e delle organizzazioni non governative contribuiscono congiuntamente ad attuare in modo concreto una rete ecologica nell'ampio territorio dell'arco alpino. Inoltre con le suddette attività i paesi alpini adempiono gli obblighi in conformità alla Convenzione delle Nazioni Unite sulla Diversità Bio-

### **Le Alpi sono parte di una "Cintura Verde" dalla Spagna ai Carpazi**

logica e per l'istituzione di una Rete Ecologica Paneuropea.

È in virtù dei suddetti sforzi intrapresi in maniera concertata che le Alpi sono diventate uno spazio chiave per la biodiversità in Europa: analogamente alla "Cintura Verde" lungo la ex Cortina di Ferro, le Alpi costituiscono il cuore di una seconda "Cintura Verde Europea", che si estende da ovest a est dalla Cordigliera Cantabrica in Spagna fino ai Carpazi. Al fine di migliorare le connessioni ecologiche tra le Alpi e il territorio circostante, sono stati allacciati i primi contatti e avviati progetti con le zone montane confinanti. È tuttavia approfondendo quanto finora realizzato che si permette a piante e animali di migrare tra le Alpi e le zone montane confinanti, quali il Massiccio Centrale francese, i Pirenei, il Giura, gli Appennini e i Carpazi.

## Povzetek

V zadnjih letih potekajo v celotnem alpskem prostoru številne dejavnosti za vzpostavitev vsealpskega ekološkega omrežja, ki je eden izmed ključnih pogojev za ohranitev biotske raznovrstnosti v tej gorski regiji. Iniciativa za ekološki kontinuum, projekt ECONNECT in platforma Alpske konvencije za ekološko povezanost so dejavne na celotnem območju Alp in so na področju povezovanja življenjskih prostorov dosegle veliko pomembnih in zanimivih rezultatov, med drugim tudi v obliki priprave različnih dokumentov, publikacij in poročil, ki predstavljajo pristope, orodja in ukrepe za udejanjanje ekološkega omrežja v Alpah. Nekatere izmed omenjenih publikacij širšemu krogu ljudi do sedaj še niso bile dostopne, zato smo jih sedaj zbrali v obliki poročila v angleškem jeziku, ki

### Rezultati s področja povezovanja življenjskih prostorov prvič zbrani na enem mestu

nosi naslov "Implementing a Pan-Alpine Ecological Network - A Compilation of Major Approaches, Tools and Activities" in spada v serijo internih publikacij nemškega Zveznega urada za varstvo narave.

Publikacija služi kot pobuda in podpora deležnikom z različnih področij delovanja, ki se zavzemajo za udejanjanje ekološkega omrežja v Alpah, in sicer upravam zavarovanih območij, politiki, znanosti, upravi ali nevladnim organizacijam. Tudi ljudje iz ostalih evropskih in drugih regij, ki so dejavni na področju ekološkega povezovanja, lahko s pomočjo poročila izkoristijo izkušnje iz alpskega prostora.

Poročilo daje ideje in pojasnjuje instrumente, orodja, ukrepe in dejavnosti, ki prispevajo k izboljšanju ekološkega povezovanja v Alpah. V osrednjem delu poročila je vsaka publikacija in vsako orodje faktografsko opisano. Reference opozarjajo na podrobnejše informacije. Zgoščenska ob koncu poročila vsebuje vse dokumente, ki so na voljo v digitalni obliki.

Kljub velikemu številu zavarovanih območij v Alpah, se njihova biotska raznovrstnost stalno zmanjšuje. Kot tudi v preostali Evropi so glavni vzroki uničevanje življenjskih prostorov in osiromašenje kulturnih krajin, ki presekajo območja, ki jih živali in rastline potrebujejo za preživetje. Omenjeni negativni vplivi so pogosti predvsem zunaj zavarovanih območij. Za ohranitev izjemne biotske raznovrstnosti v Alpah je nujno, da med seboj povežemo tudi območja brez posebnega varstvenega statusa, ki se uporabljajo v kmetijske ali druge namene ali so poseljena.

Ekološka omrežja omogočajo migracije rastlin

in živali. Potrebno jih je vzpostaviti na celotnem območju Alp, da bi zagotovili biološko izmenjavo med življenjskimi prostori. Delujoče ekološko omrežje je hkrati pomemben pogoj, da lahko živali in rastline zaradi posledic podnebnih sprememb poiščejo ugodnejše svoje življenjske prostore. Povezave med naravnimi območji moramo zagotoviti dolgoročno. Ta generacijska naloga potrebuje skupno vizijo in jo je mogoče uspešno udejanjiti le, če vsi različni deležniki s koherentnimi strategijami zasledujejo skupni cilj.

Skupni napor, ki se nanaša na celoten alpski prostor, neposredno in zelo konkretno prispeva k udejanjenju mednarodne pogodbe Alpske konvencije ter njenega protokola o varstvu narave. Predstavnice in predstavniki s področja znanosti, uprave in nevladnih organizacij skupno prispevajo k dosegu cilja vzpostavitve ekološkega omrežja v veliki prostorski enoti alpskega loka. Poleg tega alpske države z dejavnostmi za povezovanje življenjskih prostorov izpolnjujejo svoje obveznosti v skladu s Konvencijo Združenih narodov o biotski raznovrstnosti ter obveznosti za vzpostavitev panevropskega ekološkega omrežja.

S skupnimi naporami so postale Alpe jedro biotske raznovrstnosti v Evropi: analogno k "zelenemu pasu"

### Alpe so del "zelenega pasu", ki sega od Španije do Karpatov

vzdolž nekdanje železne zaves so Alpe središče drugega evropskega "zelenega pasu", ki se razteza od zahoda proti vzhodu od Kantabrijskega gorstva v Španiji do Karpatov. S sosednjimi hribovskimi območji so že navezani prvi stiki, začeli so se projekti za izboljšanje ekološke povezanosti med Alpami in njihovo okolico. Da bodo imele živali in rastline možnost prostega gibanja med Alpami in sosednjimi hribovskimi območji, kot so francoski Centralni masiv, Pireneji, Jura, Apenini in Karpati, je potrebno dejavnosti nadalje krepiti.

## 2. Introduction



This chapter shows why ecological networks are important for safeguarding biodiversity in the Alps. It explains the elements and functioning of ecological networks and gives an overview on current activities that are working towards the establishment of an “ecological continuum” across the Alps – a continuity of linked habitats for animals and plants across the whole Alpine arc. Finally, the concept and structure of this publication is described.

### Ecological networks for more biodiversity in the Alps

The European Alps span eight countries, from the Mediterranean shores of Southern France to Slovenia. They harbour an extraordinary diversity of habitats and species of flora and fauna and are considered one of the most important regions for the preservation of biodiversity in central Europe.

Today, the Alps are a largely protected area. In 2010, the Alpine Network of Protected Areas (ALPARC) included 900 protected areas in every category (> 100 ha), representing about 25% of the total area covered by the international agreement of the Alpine Convention. Many of these protected areas have a rather weak nature protection status, giving a higher priority to topics such as landscape or touristic activities. Nevertheless, the area of national parks and natural reserves specifically set aside for safeguard-

ing biodiversity is considerable (7% of the area of the Alpine Convention).

#### Declining biodiversity

However, despite these efforts, biodiversity is continuing to decline. The main reasons, in these mountain areas as in the rest of Europe, are the destruction of natural habitats and the deterioration of cultural landscapes associated with the fragmentation of vital areas of fauna and flora, phenomena that manifest themselves mainly outside the protected areas.

The maintenance of biodiversity can therefore not only rely on the preservation of natural habitats (areas which support the largest number of animal and plant species) and traditional practices. The areas without a special protection status that are farmed,

used or urbanised are also of major importance for allowing biological exchanges between these habitats. It is therefore important to respect the natural dynamics of the area as a whole and to implement ecological networks which allow the migration of plants and animals.

The need to develop new approaches for nature protection is even more relevant given the recent phenomenon of climate change. Climate change requires a long-term management vision, something that is also necessary in the design of ecological networks. These networks may therefore constitute an important element of the new approach required since they also imply the adoption of a similar long-term vision. With this background, activities to set up ecological networks have become more common and the Alps have been no exception in this respect over the past ten years.

### Ecological networks: a dynamic means of protecting the natural environment

An ecological network is made up of core areas or zones – in general, protected areas – that guarantee the resources necessary for the survival of the species that it supports. In an ideal situation, these

core areas are surrounded by buffer zones, creating a transitional area which limits the influence of neighbouring zones and minimises negative marginal effects. These different zones are connected with one another by linking elements such as ecological corridors or stepping stones that allow the movement of individual animals within the network as well as genetic mixing. Some of these linking elements have been shaped by traditional human activities (hedges, low walls, etc.). Ecological networks thus help maintain the four different levels of biodiversity: species diversity, genetic diversity, population diversity and habitat diversity.

Since each species has different requirements with regard to the types of links it uses, it is not possible to define a precise corridor as being a definitive migration path between different biotopes. Therefore, the needs of priority species and specific problems related to the local situation must be dealt with in an appropriate manner. This explains the dynamic character of these connection structures, which implies a certain reversibility of spatial planning. It is not a question of creating other static conservation elements like the core areas of the network (classic protection areas such as parks or reserves) but more



Map of the protected areas in the Alps which are bigger than 100 hectares.

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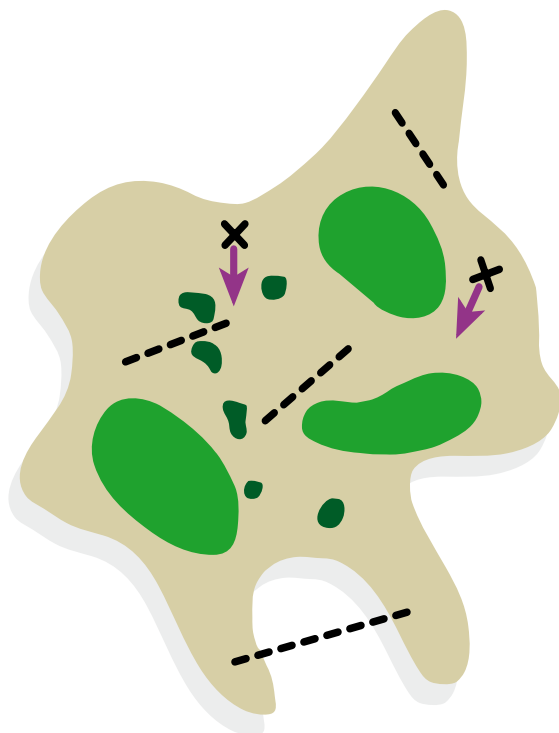
of providing solutions adapted to local problems. In the context of ecological networks, this means that it is important not to simply concentrate environmental measures along the borders of fields or hedges, or on fallow land, but rather to encourage working practices that are sustainable and respectful of the environment over the area as a whole. To ensure that ecological interconnections function correctly, the concept of ecological networks thus aims at the conservation of core areas of substantial size, stepping stones with similar characteristics to the core areas and corridors, combined with a more thoughtful use of the area.

In summary, these new concepts have been developed because it appears that the standard protection tools are not effective enough to ensure that biodiversity is maintained. With climate change, the loss of biological resources and diversity and the degradation of natural habitats, questions relating to the protection of the natural environment are becoming so important that they cannot be limited to a few protected areas. In fact, the major problems are situated outside these protected areas. What is thus required are approaches such as the establishment of ecological networks dealing with the area as a whole.



Each species has special ecosystem requirements. As lynx need large living spaces of 450 square kilometers, the species is highly dependent on ecological corridors.

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Elements of an ecological network

© ALPARC, CIPRA, ISCAR, WWF (2010)

- Ecological corridor
- x→ Migration paths
- Protected areas
- Biotopes functioning as stepping stones along the ecological continuum
- Ecological continuum

## Joint action for a pan-Alpine ecological network

At the pan-Alpine level, the topic of ecological connectivity emerged in 2004 with a study carried out in the framework of the Alpine Convention that took stock of existing experience and activities undertaken within the Alpine arc (ALPARC 2004, compare chapter 4). This study concluded that a common approach for the entire Alpine area was needed to guarantee the coherence of different national and regional approaches. Indeed, each of the Alpine countries has already adopted different approaches at different levels: for example, the Swiss national ecological network at a national level, the German initiative "BayernNetz Natur" at the regional level, or the departmental ecological network of the French department of Isère, at a more local level. However, all these activities are limited to administrative areas (countries, regions, departments, etc.), without taking into account a wider bio-geographical context. The results of this study and further experiences with the implementation process of an Alpine ecological network were deepened in the frame of expert discussions during the seminar "Establishment of an ecological network of protected areas" in November 2005 (compare chapter 4).

The importance of international cooperation in protecting the natural environment across the Alpine area as a whole has been recognised and acted upon since the 1980s. 1994 witnessed the signing of the Alpine Convention's protocol on "Conservation of nature and the countryside", an international treaty drawn up between the eight Alpine states and the European Union. Article twelve of this protocol asks for creating a "national and cross-border network of protected areas, biotopes and other environmental assets protected or acknowledged as worthy of protection".

The first coordinated trans-national projects such as the reintroduction of birds of prey (bearded vulture from 1987) or the monitoring of habitats (HABITALP Interreg project from 2002 to 2006) are evidence of this. For the implementation of ecological network projects, this cooperation was all the more important given that the species as well as the corridors and other connecting elements do not stop at administrative borders. In addition, the different Alpine regions are closely interdependent. The impact of an obstacle may be felt at a considerable distance from the obstacle's location as, for example, with a dam and its effects on areas downstream.

### The Ecological Continuum Initiative for continuity

It is for these reasons that, in 2007, the four pan-Alpine institutions, ALPARC (Alpine Network of Protected Areas), CIPRA (International Commission for the Protection of the Alps), ISCAR (International Sci-

entific Committee on Research in the Alps) and WWF (with its European Alpine programme), launched the "Ecological Continuum Initiative", its aim being to improve ecological connectivity in the Alps. Unlike the national approaches adopted by different individual states, the cross-border approach developed by these four organisations is based on an entirely new vision of protecting the natural environment of the Alpine massif as a whole, from France to Slovenia. The Ecological Continuum Initiative is financed by the Swiss MAVA Foundation for Nature.

In the first phase of its activities (2007-2008, under the name "The Continuum Project"), the Initiative focused on creating the basis for the implementation of ecological networks in the Alps. This included the production of information material, the establishment of pilot regions, the evaluation of suitable methods and the compilation of a catalogue of potential activities supporting the establishment of ecological networks. It was largely thanks to this preparatory work of the four organisations that the ECONNECT project was approved (see below). Since 2009, the Ecological Continuum Initiative is active in particular in three fields of work: initiating, promoting and mentoring activities, providing know-how and awareness building.

### Ecological Continuum Initiative

#### ECONNECT: Enhancing linked habitats

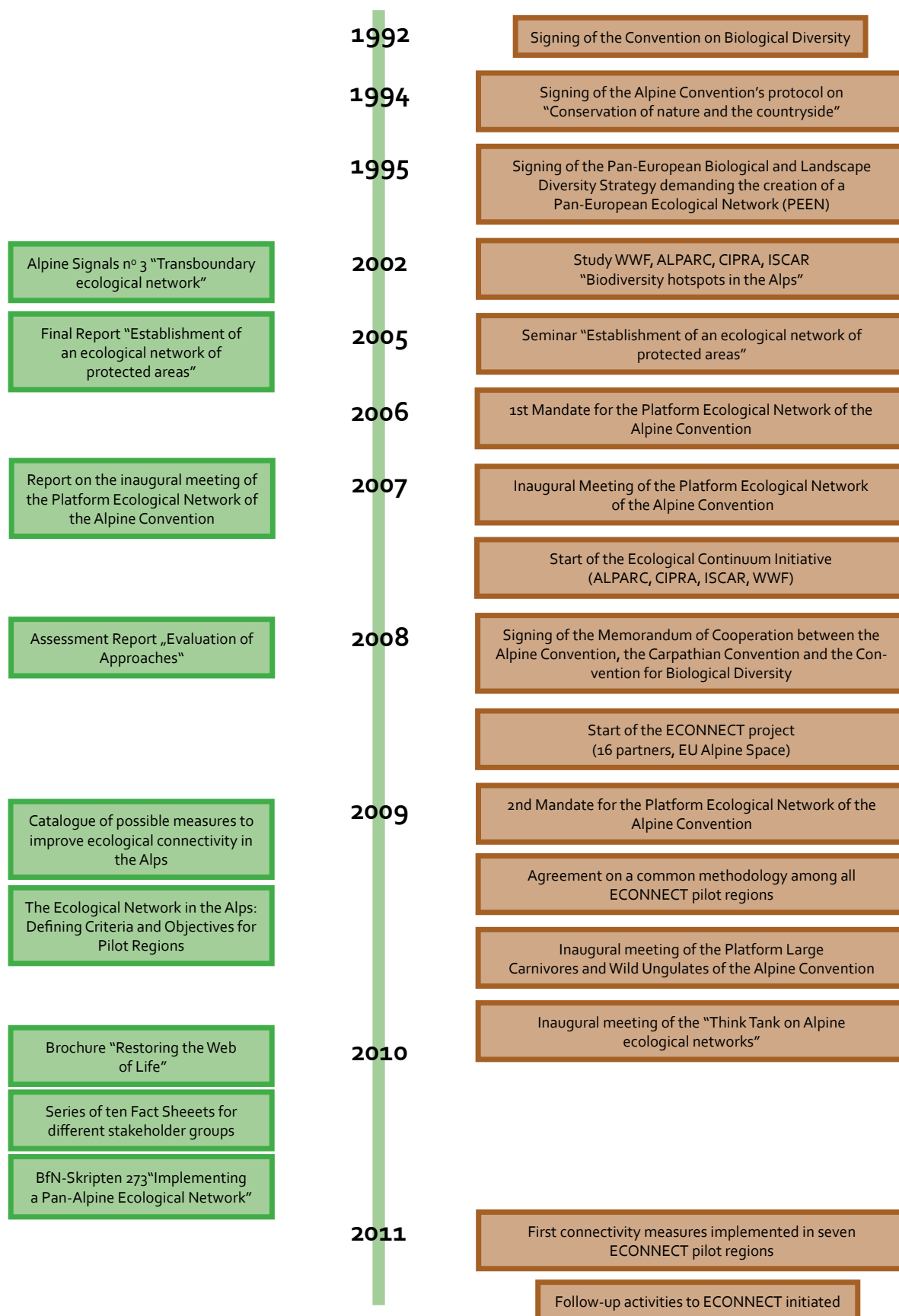
Launched in September 2008 and financed through the European Union's Alpine Space Programme, the three-year ECONNECT project – with its motto "Restoring the web of life" – is designed to promote model implementation of ecological networks in seven pilot regions. With the support of the tools and fundamentals provided by the Ecological Continuum Initiative, the pilot regions are working to show how ecological connectivity can be improved in the specific case at the local level and beyond protected areas. Additional support is also provided by ECONNECT in the form of pan-Alpine data bases and analyses of physical and legal barriers to the migration of animals and plants. In addition, the exchange of knowledge is promoted, both among the actors and with other mountain regions. The project involves sixteen partners from national and regional administrative bodies, research institutes and international networks as well as local actors for implementation.



## Milestones in implementing a pan-Alpine ecological network

### Publications

### Activities



## Alpine Convention steering the political debate

To promote cross-border co-operation in the development of ecological networks, the Platform Ecological Network of the Alpine Convention was established by the IX Alpine Conference in 2006 in Alpbach (Austria). This Platform brings together the relevant authorities in the countries of the Alps, the Alpine Convention observers and other actors from administrative bodies, the research community and the regions of the Alps. It also serves to liaise with the European Union and the Convention on Biological Diversity. As a link between the political and scientific communities and practitioners, the Platform communicates significant results from ongoing projects to the authori-

ties in the Alpine countries and encourages political dialogue with the objective of generating political support for connectivity activities in the Alps. Since 2009 the Platform exchanges continuously with the newly created Platform "Large carnivores and wild ungulates" of the Alpine Convention.



The graphic on page 13 gives an overview on all major milestones for the implementation of a pan-Alpine ecological network.

## Why and how to use this document

During the last few years, the Ecological Continuum Initiative, the ECONNECT project and the Platform Ecological Network of the Alpine Convention have produced several important and interesting results, tools and publications for the implementation of an ecological network across the Alps. Some of this information had not been made available until now for a wide public and others exist only as comprehensive independent publications. This is why all these activities and results have now been compiled and summarised in this report in English language in the series "BfN-Skripten".

The report provides suggestions and support for stakeholders from different fields of activity who work for the implementation of ecological networks in the Alps: protected area managers, policy makers, scientists and representatives from administrations or non-governmental organisations. Also people from other regions in Europe and beyond who are active in the field of ecological connectivity can benefit from the experiences made in the Alps with the help of this report. Stakeholders in the Carpathians are especially encouraged to make use of this publication. It can help to bring forward the establishment of an ecological network in this area and between the two neighbouring mountain ranges. Chapter 7 gives an overview on the activities in the Carpathians.

The report explains and gives ideas on the instruments, measures, activities and tools that can contribute to enhance ecological connectivity in the Alpine space. As core part of the report, each publication or tool is shortly characterised in a profile. References are given for further information. All information that is digitally available is finally comprised on a CD that is part of the report and can be found on the back cover.

The report is structured as follows: Chapter 1 summarises in a concise way what the report is about not only in English but also in German, French, Italian

and Slovenian, the four main languages of the Alpine space. The introduction in chapter 2 explains why ecological networks are important for safeguarding biodiversity in the Alps. It shows the elements and functioning of ecological networks and gives an overview on current activities that are working towards the establishment of an "ecological continuum" across the Alps. Chapters 3 to 6 present 19 profiles of the available tools and documents. The profiles are grouped in the chapters "Legal and Instrumental Framework" (six profiles), "Methods" (four profiles), "Implementation" (three profiles) and "Communication" (six profiles). Each profile starts with summarising the contents of the tool or document (half page to two pages). A table gives a compact overview on the following information: title in all available languages, authors/editors, target groups, key words, type of document, year of appearance and eventual updates, number of pages, format, download/contact. Each profile is illustrated with the cover or main page and further images. The introductions of these four chapters give information on additional activities or documents on each of the topics. Chapter 7 gives an insight on the activities on ecological networks in the Carpathians. This neighbour mountain range follows a similar way to what is happening in the Alps and common efforts are getting bigger to restore the ecological connection between the two massifs. Chapter 8 evaluates the results and cooperation of the different activities that are working for the implementation of a pan-Alpine ecological network, including an outlook on future priorities. Chapter 9 gives references for a selection of online and printed information that is relevant for the implementation of an ecological network right across the Alps at the international and national scale, including the documents and tools described in the profiles. Finally, the CD provides all full versions of the described tools and documents in all available languages.

### 3. Legal and instrumental framework



The outstanding necessity of functioning ecological networks for safeguarding biodiversity has been taken into account in several legal instruments on different scales. At international and European levels a large number of policies and laws such as the Convention on Biological Diversity (CBD), the Ramsar Convention on Wetlands or the Pan-European Biological and Landscape Diversity Strategy form the basis for creating a pan-Alpine ecological network. In the last decade, increasing numbers of countries have adopted ecological network protection policies and legalisation. The fact that the importance of biological interconnections is now mentioned in legal texts at all decision-making levels proves that there is a solid legal basis. The European framework is being gradually transposed at national and sub-national levels, each with its own tools and instruments that best fit local conditions and needs. The Pan-European Ecological Network provides a framework making for coherence between each of these instruments. By participating in the pan-Alpine activities for ecological networks, the States will be honouring their international obligations in a highly practical way. The whole range of this legal and instrumental framework that is important for the Alps is shown in the dossier and background report "Ecological networks in the Alpine region" published by CIPRA in its alpMedia information service (see profile below).

With signing the Alpine Convention, all Alpine countries committed themselves to support the implemen-

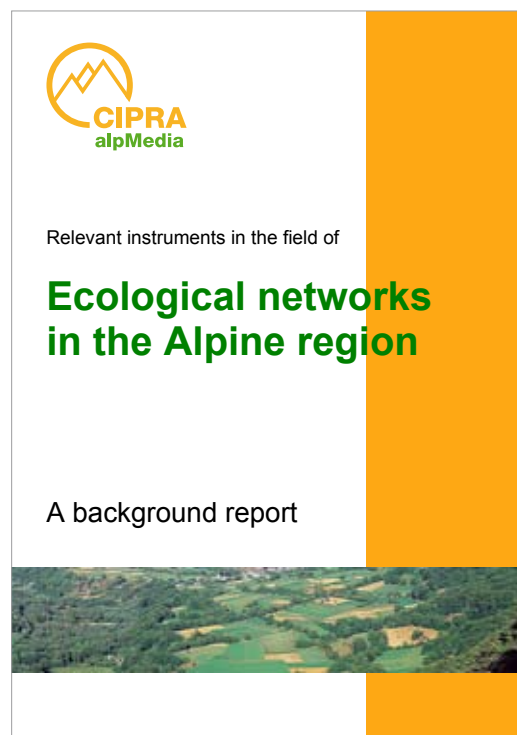
tation of a pan-Alpine ecological network. In order to bring this task forward, the Alpine Convention established a working group "Platform Ecological Network" (see profiles on the mandates, on the results of the inaugural Platform meeting, on the ongoing work with the reports to the Permanent Committee and the summary of country reports).

The Alps are not an isolated mountain range but are connected with their surrounding lowlands and neighbouring mountain massifs. The importance of the large scale ecological connection of the Alps with the Carpathians has been underlined by the signature of a Memorandum of Cooperation between the Alpine and Carpathian Conventions and the Convention on Biological Diversity (see profile).

National and sub-national laws and policies can on the one hand strengthen the establishment of a pan-Alpine ecological network but on the other hand different legal regulations can hinder cross-border cooperation. Therefore further work on the legal and instrumental framework is currently being carried out in the frame of the ECONNECT project, work package six "Legal Barriers". Under the lead of the Italian Environment Ministry, this work will deliver practical documentation giving a broad overview on legal barriers that can hinder the creation of ecological networks, with particular attention to the pilot regions and transboundary aspects. The results will be made available in 2011 on [www.econnectproject.eu](http://www.econnectproject.eu).

## Relevant instruments in the field of ecological networks in the Alpine Region – A background report

The first version of the report “Ecological networks in the Alpine region” was compiled in 2006 based on the seminar “Establishment of an ecological network of protected areas” which took place on 7 and 8 November 2005 in Berchtesgaden/D. It contains relevant background information about important instruments connected with ecological networks, such as conventions, legislation, regulations and programmes. The updated versions from 2009 and 2010 include also details about recent activities and projects in the Alps, as the Ecological Continuum Initiative, the Platform Ecological Network of the Alpine Convention, and the ECONNECT project. The document closes with a detailed bibliography of relevant literature. As the report is part of an online dossier, further and more detailed information such as news, publications, links and events in the context of ecological networks in the Alps can be found at the according website. The dossier is updated regularly. In the first part of the report the ecological principles are explained which form the basis of all considerations to support ecological networks in the Alps. In this context the concept of ecological networks is described, working out the details of its components like core and buffer zones, connecting elements as well as corridors. Also aspects of implementing ecological networks are touched, pointing out the necessity to develop comprehensive concepts beyond national borders.



The following chapter is dedicated to global instruments supporting the establishment of ecological networks. The interfaces between the World Summit on Sustainable Development (WSSD), the Convention on Biological Diversity (CBD), the Convention on Wetlands (Ramsar), the Convention on Migratory Species (CMS) and the recent efforts in the Alps are highlighted, thus showing the international relevance of the topic.

Afterwards the focus is on international instruments in Europe. Several conventions and activities are presented, showing the high importance of ecological networks in European policy. Most of current activities consider ecological networks to be essential for the conservation and sustainable use of biodiversity, e.g. the Bern Convention, the Pan-European Ecological Network, the Alpine Convention, the Carpathian Convention and the EU Habitats and Birds Directives (Natura 2000).

The next part of the report analyses the respective conditions concerning legal regulations of ecological networks for all member states of the Alpine Convention. In Austria, the Guideline on Game protection is an important document as it stipulates that ecological aspects related to game must be taken into account in several planning processes. Moreover, the Wildlife ecological spatial planning is a significant concept for Austria. In France, the aspect of ecological networks can be found in the

country's biodiversity strategy. According to this document a national ecological network is to be developed until 2020. The German Federal Nature Conservation Act of 2002 demands for a network of interlinked biotopes on at least ten per cent of the country's total area. An important instrument for implementation in Bavaria (the only German Federal State having a part in the Alps) is the "BayernNetz Natur" (Bavarian Nature Network) which is included in the updated version of 2009. It is a programme to financially support the implementation of projects facilitating a network of interlinked biotopes. In the contrary, in Italy no concrete regulation exists which allows for the establishment of an ecological network. Instead there are several programmes (e.g. agricultural development or landscape programmes) which support certain measures enhancing the connectivity of the landscape. For Liechtenstein the close cooperation with other initiatives (global and pan-European) and neighbouring countries ensures the consideration of ecological networks.

Also in Slovenia ecological networks are not explicitly mentioned in any regulation. Generally, forests are of particular significance in Slovenia so that the legislation considers them to be of high importance for the country's biodiversity. In Switzerland the implementation of measures to enhance connectivity is regulated through ecological compensation areas and the Ordinance on Ecological Quality. It provides outcome-oriented incentives aimed also at linking ecological compensation areas. Moreover, a guideline on wildlife passages considers the topic of habitat connectivity.

The last chapter of the report is dedicated to several project examples, ranging from international (Green Belt Europe) over Pan-Alpine (e.g. Ecological Continuum Initiative, Platform Ecological Network of the Alpine Convention, ECONNECT), national (e.g. the Swiss and Italian REN) and regional (French department of Isère, Wildlife corridors in Styria/A) to local projects (Regiobogen in the border triangle of France, Germany and Switzerland).


<b>Title in English</b>	Relevant instruments in the field of ecological networks in the Alpine Region – A background report
<b>Title in other available languages</b>	Relevante Instrumente zum Thema ökologische Netzwerke im Alpenraum (DE) Aperçu des instruments les plus importants au sujet des réseaux écologiques dans l'espace alpin (FR) Quadro dei principali strumenti relativi alle reti ecologiche nello spazio alpino (IT) Relevantni instrumenti na temo ekološka omrežja na območju Alp (SL)
<b>Languages</b>	English, German, French, Italian, Slovenian
<b>Authors</b>	-
<b>Editors</b>	CIPRA International
<b>Target groupss</b>	Research, administrations, NGOs, protected areas, policy makers
<b>Key words</b>	Role of ecological networks, instruments, legal regulations, implementation
<b>Type of document</b>	Report/study
<b>Year</b>	2006/2009/2010
<b>Updates/Appearance</b>	Updates of the report approx. every 2 years; the online dossier is updated several times per month
<b>Number of pages</b>	Approximately 50
<b>Format</b>	Digital
<b>Download/Contact</b>	<a href="http://www.cipra.org/en/alpmedia/dossiers/13">www.cipra.org/en/alpmedia/dossiers/13</a> (EN), <a href="http://www.cipra.org/fr/alpmedia/dossiers/13">www.cipra.org/fr/alpmedia/dossiers/13</a> (FR) <a href="http://www.cipra.org/de/alpmedia/dossiers/13">www.cipra.org/de/alpmedia/dossiers/13</a> (DE), <a href="http://www.cipra.org/it/alpmedia/dossiers/13">www.cipra.org/it/alpmedia/dossiers/13</a> (IT) <a href="http://www.cipra.org/sl/alpmedia/dosjeji/13">www.cipra.org/sl/alpmedia/dosjeji/13</a> (SL)
<b>Remarks</b>	Online dossier with relevant news, publications, links and events in EN, DE, FR, IT, SL

## Creation of an ecological network: Mandates of the Platform Ecological Network of the Alpine Convention

This chapter comprises the decisions taken at the Alpine Conferences which are of relevance for the mandate of the Platform Ecological Network. The Platform Ecological Network was officially established during the IX. Alpine Conference in Alpbach (2006), Austria. Its mandate was elaborated against the background of the growing importance the topic of Alpine ecological networks had received in recent years (e.g. study of the Alpine Network of Protected Areas 2004, seminar in Berchtesgaden 2005). Accordingly, the Permanent Secretariat of the Alpine Convention together with France, Germany and the Alpine Network of Protected Areas (ALPARC) had the task to develop the mandate of a working group on ecological networks. This process resulted in the proposal to establish a platform on this topic. The according document of the IX. Alpine Conference (Document AC\_IX\_17) contains an analysis of existing reports, processes and activities to establish an Alpine ecological network. It is recommended that the platform comprises next to ALPARC also representatives of existing activities as well as experts and observers of the Alpine Convention. The mandate of the platform covers activities towards the implementation of Article twelve of the Protocol on "Conservation of Nature and the Countryside" to the Alpine Convention. Main topics to be dealt with are the development of a common terminology and methodology, the elaboration of a catalogue of possible measures (see chapter 5), the definition

of performance indicators, cooperation with pilot regions and local stakeholders, the identification of financing mechanisms, conducting relevant studies as well as cooperation and coordination with existing projects on all levels. Meetings of the platform should take place once a year. Results of the platform's work have to be reported to the Alpine Conference as well as to its Permanent Committee in the form of a yearly work report. It was agreed upon to survey the platform's work at the next Alpine Conference and also to decide on this occasion in which form it should continue.

The mandate of the platform in the following period arises from the report of the Platform Ecological Network to the Permanent Committee of the X. Alpine Conference in Evian, France, in 2009 (Document PC 40/15, pp. 9-17). The document contains a proposal for the continuation of the platform. The proposal gives a detailed recommendation for the organisational structure of the platform which should consist of members (representatives of member states, experts on ecological networks, representatives of protected areas, pilot regions) and associated members (representatives of foundations, relevant activities and other working groups of the Alpine Convention). This organisation meets the requirements of the platform to serve as interface between different groups (e.g. experts, decision makers, local stakeholders) on different levels (local to international). Based on the first experiences

	
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TOP / POJ / ODG / TDR	<b>15</b>
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PLATFORMA »EKOLOŠKO OMREŽJE«	
A Poročilo predsedstva (Nemčija)	
B Predlog sklepa	
<u>Priloge</u>	
Priloga 1:	Minutes of the third meeting of the Platform »Ecological Network«, December 2008, Berchtesgaden, Germany
Priloga 2:	List of Participants of Platform Meetings held in 2007/2008 and List of Further Members and Associates
Priloga 3:	Summary of Country Reports
Priloga 4:	Organisational Structure of the Platform »Ecological Network«
Priloga 5:	List of Pilot Regions to be Nominated
Priloga 6:	Overview of existing Publication, further Material and Projects relevant for the Establishment of an Ecological Network in the Alps
PC40_15_sl	

of the platform its main task for the future is the facilitation of cooperation of a wide range of different stakeholders as shown in the organisation structure of the platform. The platform supports the process of establishing an ecological network in the Alps by serving as initiator and mediator for the development of new approaches and their implementation. The 2009 mandate includes also the implementation of the Memorandum of Cooperation with the Carpathian and Biodiversity Conventions. In the frame of the X. Alpine Conference, the ministers decided to prolong the mandate with the amended tasks as proposed until the XI. Alpine Conference.



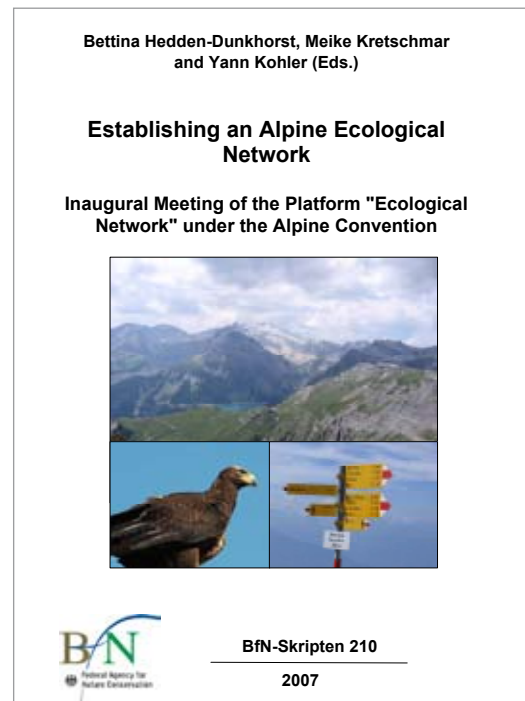
Representatives of the Alpine countries, of protected areas and other experts discussed the first results and next steps of the Platform Ecological Network in Chamonix in December 2009.  
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<b>Title in English</b>	Mandates of the Platform Ecological Network of the Alpine Convention Document PC 40/15: X. Alpine Conference, Evian/F, March 2009 Document AC_IX_17: IX. Alpine Conference, Alpbach/A, 2006
<b>Title in other available languages</b>	Document PC 40/15: Plattform "Ökologischer Verbund" (DE) Plate-forme "Réseau écologique" (FR) Piattaforma "Rete Ecologica" (IT) Platforma "Ekološko omrežje" (SL) Document AC_IX_17: Schaffung eines ökologischen Netzwerks: Einrichtung einer Plattform "Ökologischer Verbund" und Mandat (DE) Création d'un réseau écologique: Création d'une plate-forme "Réseau Écologique" et mandat (FR) Creazione di una rete ecologica: Istituzione di una piattaforma "Rete Ecologica" e mandato (IT) Ustanovitev ekološkega omrežja: Ustanovitev platforme "Ekološko omrežje" in mandat (SL)
<b>Languages</b>	German, French, Italian, Slovenian
<b>Authors</b>	Permanent Committee of the Alpine Convention
<b>Editors</b>	Alpine Conference
<b>Target groupss</b>	Policy makers, administrations, NGOs, protected areas
<b>Key words</b>	Alpine Convention, Platform Ecological Network, mandate
<b>Type of document</b>	Resolution/Decision/Agreement
<b>Year</b>	2006/2009
<b>Updates/Appearance</b>	Regular updates at Alpine Conferences
<b>Number of pages</b>	Document AC_IX_17: 9 Document PC 40/15: 43
<b>Format</b>	Digital
<b>Download/Contact</b>	<a href="http://www.alpine-ecological-network.org/index.php/alpine-convention/documents#mandates">www.alpine-ecological-network.org/index.php/alpine-convention/documents#mandates</a>
<b>Remarks</b>	-

## Establishing an Alpine Ecological Network – Inaugural Meeting of the Platform Ecological Network under the Alpine Convention

The report outlines the first meeting of the Platform Ecological Network of the Alpine Convention that has been held on 29 March 2007 in Munich, hosted by the Bavarian State Ministry of the Environment, Public Health and Consumer Protection. The establishment of the platform has officially been decided at the IX. Alpine Conference in Alpbach (Austria) in November 2006. The Platform Ecological Network aims at initiating the process of establishing a pan-Alpine ecological network, thus eventually implementing the Protocol on "Conservation of Nature and the Countryside" to the Alpine Convention.

The presidency for the first period after its establishment was taken over by Germany, with Bettina Hedden-Dunkhorst (German Federal Agency for Nature Conservation) as appointed chairperson. Delegates from Austria, France, Germany, Italy, Liechtenstein and Switzerland as well as the Permanent Secretariat of the Alpine Convention, representatives from selected areas in the Alpine region and NGOs attended the meeting. During the platform meeting an inventory of the situation with regard to ecological networks in all Alpine countries has been undertaken as well as the collection of successful best practice examples. Moreover, existing gaps and priority areas for the activities of the platform have been defined as a basis for the development of a Programme of Work. The report contains all relevant documents (e.g. agenda, background paper), abstracts and presentations and also reflects the discussions which took place during the meeting.



Bettina Hedden-Dunkhorst as chairperson gave an overview of background and history of current efforts to establish an Alpine ecological network. The presentation summarises all contributions (studies, projects, mandate of the platform) on the way to the present status and also goes into the constitution of the Platform Ecological Network based on its mandate.

Thomas Scheurer (ISCAR, Switzerland) outlined existing approaches to developing a pan-Alpine ecological network. Ecological networks follow an integrated approach including ecological aspects as well as the economic and social dimension. Manifold interactions of protected areas with their surroundings are existent which make ecological networks an appropriate measure to nature conservation. Thereby, two different approaches of ecological networks can be distinguished – structural networks are based on habitat structures whereas functional networks take into account only habitat functions. Both approaches support different objectives and require a different amount of resources (e.g. data, knowledge, expertise), so that a clear and precise definition of the objectives must be the starting point of the planning process. In order to implement a pan-Alpine ecological network a combination of both approaches is appropriate.

The inventory of existing approaches, projects and plans with regard to ecological networks in the respective countries showed that progress and conditions in terms of connectivity differ widely between the member states. But also a variety of

positive project examples were presented during the meeting.

Arnaud Callec presented the efforts of the Isère department (France). In the Alpine valleys around Grenoble existed a need for rapid intervention in order to protect these valleys as important axes of migration from massive increase of industry and settlements. Subsequent to the elaboration of a map of the ecological network numerous activities have been undertaken for implementation (e.g. game bridges and tunnels, speed limits, communication, integration into planning processes). A planned European project would bring together 50 different actors.

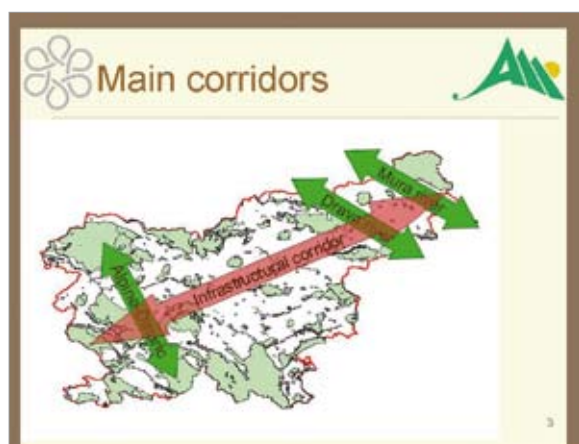
Following the study of the Alpine Network of Protected Areas a process was initiated in the region Limestone Alps – Gesäuse (Austria) to create an ecological network of protected areas. First steps were taken in 2006 as Werner Franek outlined.

The contribution of Michael Vogel highlighted the variety of transboundary cooperation between Berchtesgaden National Park (Germany) and the Austrian Land Salzburg. Activities were taking place in the course of various projects and initiatives (INTERREG project Habitalp, EU Region).

A strong cooperation partner will be the Nature Park Weissbach which had been planned adjacent to the National Park.

Hans-Dieter Schuster (Germany) referred to the inventory of data on existing protected areas which have been linked with the System for the Observation and information on the Alps (SOIA). It will support the efforts of establishing an ecological network. Strong transboundary cooperation between Austria and Germany is also taking place in the Karwendel region which is the biggest protected area in the Eastern Alps.

Potential instruments, projects and new cooperation for the implementation of an Alpine ecological network were presented by Yann Kohler (Task Force Protected Areas). According to the mandate of the Alpine Conference a catalogue of measures can be an important instrument for the implementation process. The catalogue should provide an overview of all relevant fields as well as a collection of measures which are already being undertaken in different Alpine countries. Most important areas of work comprise agriculture, forestry, nature conservation, tourism, spatial planning as well as regional policy, transport, water management and hunting.



The publication includes a report of the member state Slovenia, which, as well as the other contracting parties, reported on its existing approaches, projects and plans in the field of ecological connectivity.



A first draft of the Programme of Work 2007/08 for the Platform Ecological Network was developed during the meeting. Generally, a pragmatic approach of the platform's work is envisaged which incorporates existing activities on different levels. Three key areas for activities as specified in the mandate of the platform have been identified:

Key Area 1 comprises different activities in connection with scientific advice. This includes scientific analyses of existing documents and national approaches which will be supported by ISCAR (see profile in chapter 4). ISCAR, in close cooperation with the Permanent Secretariat of the Alpine Convention, is also offering advice on scientific issues for pilot regions. It was agreed upon incorporating data into SOIA. In Key Area 2 the project-oriented implementation of the Alpine ecological network is envisaged. Next to the elaboration of the catalogue of measures (see profile in chapter 5) each Contracting Party has to deliver a country report on already existing measures (see profile in this chapter). Also the pilot regions should support the process of collecting existing best practices and approaches. Key Area 3 refers to Communication and public relations work. In the frame of related

activities a website of the platform will be developed with support of ALPARC as a first joint internal and external communication tool (compare chapter 6). Besides, it was decided to produce an information brochure (see profile in chapter 6). All these activities have been implemented in the meantime.

<b>Title in English</b>	Establishing an Alpine Ecological Network – Inaugural Meeting of the Platform “Ecological Network” of the Alpine Convention
<b>Title in other available languages</b>	-
<b>Languages</b>	English
<b>Authors</b>	-
<b>Editors</b>	Bettina Hedden-Dunkhorst & Meike Kretschmar (BfN), Yann Kohler (Task Force Protected Areas)
<b>Target groups</b>	Research, administrations, NGOs, protected areas, policy makers
<b>Key words</b>	Alpine Convention, Platform Ecological Network, practice examples
<b>Type of document</b>	Report
<b>Year</b>	2007
<b>Updates/Appearance</b>	Not intended
<b>Number of pages</b>	86
<b>Format</b>	Digital and print
<b>Download/Contact</b>	<a href="http://www.bfn.de/fileadmin/MDB/documents/service/skript210.pdf">www.bfn.de/fileadmin/MDB/documents/service/skript210.pdf</a>
<b>Remarks</b>	-

## Reports of the Platform Ecological Network to the Permanent Committee of the Alpine Convention


According to the mandate of the Platform Ecological Network, the results of the platform's work have to be reported not only to the Alpine Conference but also in the form of a yearly work report to the Permanent Committee.

The first report of the platform to the Permanent Committee of the Alpine Convention was given in Lanslebourg (France) in May 2007 (Document PC 35/8). Main aspect in this period was the establishment of the platform in August 2007. The report contains all relevant documents in the context of the first platform meeting (e.g. mandate of the platform, summary and programme). For more information on the meeting please refer to chapter 3.

In the next period the focus of the platform's activities was on exchange with the European Commission and the cooperation with the Continuum Initiative as stated in the second report of the platform to the Permanent Committee of the Alpine Convention (Bolzano, Italy) in November 2007 (Document PC 36/8). The Continuum Initiative was financed by the Swiss Mava-Foundation whereas the consortium is a partnership of ALPARC, CIPRA, ISCAR and WWF. Another important aspect was climate change and its impacts on Alpine ecosystems. Moreover, the platform was working on developing the Programme of Work for the platform. The implementation of the platform's activities according to its mandate proceeded especially concerning the coordination of relevant methods in the transnational context and the

compilation of potential measures for the realisation of ecological networks in the Alps.

In the third report of the platform to the Permanent Committee of the Alpine Convention in Monaco in March 2008 (Document PC 37/8) the focus was on the finalisation and coordination of the Programme of Work including the definition of a set of priority areas and relevant activities. The final version of the Programme of Work can be found in the report. Other important aspects were the planning of the side-event at the ninth Conference of Parties (COP 9) to the Convention on Biological Diversity (CBD) taking place in Bonn (Germany) in 2008, coordination with the European Union and the preparation of a project in the frame of the Alpine Space programme which was conducted with strong support of the platform. The second meeting of the platform took place in April 2008 in Chambéry. During the meeting completed and planned activities were discussed. Besides, two working groups were established, one on Communication and one on Pilot Regions. Relevant activities in the fourth report of the platform to the Permanent Committee of the Alpine Convention (Innsbruck, Austria, November 2008, Document PC 38/10) were the preparation of the country reports as scheduled during the inaugural meeting (compare profile in this chapter), the side-events at COP 9 in Bonn and the IUCN World Conservation Congress in Barcelona, several communication measures as well as the continuation of already started activities such

	
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TOP / POJ / ODG / TDR	<b>8</b>
	<b>FR</b>
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OL: DE	
PLATE-FORME »RESEAU ECOLOGIQUE«	
A Rapport de la Présidence (Allemagne)	
B Proposition de décision	
Annexes :	
Annexe 1 : Décision AC_IX_17	
Annexe 2 : Ordre du jour de la réunion constitutive de la plate-forme	
Annexe 3 : Document de travail pour la réunion constitutive de la plate-forme	
Annexe 4 : Liste des participants à la réunion constitutive de la plate-forme	

as exchange with other initiatives, projects and the EU. The report contains all relevant documents like the minutes of the second meeting of the platform and some parts of the country reports which had to be elaborated based on a questionnaire.

The sixth report of the platform to the Permanent Committee of the Alpine Convention was conducted in March 2009 (Evian, France, Document PC 40/8). It comprises comprehensive information about the platform and its work in general (background, establishment, objectives). An important event of the reporting period was the third meeting of the platform which took place in December 2008 in Berchtesgaden/D. Main aim of the meeting was the exchange about ongoing and planned activities within the platform. The handing over of the platform's presidency to France and the mandate for the second phase of the platform have been discussed as well (proposal for the mandate compare profile in this chapter). The most important activities of the platform comprise the support of implementation-oriented projects (Continuum Initiative and ECONNECT project), the Memorandum of Cooperation with the

CBD and Carpathian Convention (see profile in this chapter), the cooperation with the EU (Environment Directorate-General and Pan-European Ecological Network) as well as progress in the Working Groups on Pilot Regions and Communication. The annexes of the document contain additional information, e.g. the minutes of the platform meeting and the Summary of Country Reports (see profile in this chapter).

In the seventh report of the platform to the Permanent Committee of the Alpine Convention in March 2010 (Bolzano-Bozen/It, Document 42/B1) main focus was on the progress of nominating pilot regions as well as on communication efforts. The nomination of pilot regions according to the proposal which was made during the German presidency is considered to be important in order to support the implementation of an Alpine ecological network and to honour the efforts of the regions. As regards communication the International Year of Biodiversity 2010 is an excellent occasion to present the ongoing pan-Alpine activities. The annex of the according document contains additional information about the fourth platform meeting in December 2009 in Chamonix.

<b>Title in English</b>	Reports of the Platform Ecological Network to the Permanent Committee of the Alpine Convention. Documents PC 35/8, PC 36/8, PC 37/8, PC 38/10, PC 40/15, PC 42/B1
<b>Title in other available languages</b>	Plattform "Ökologischer Verbund" – Berichte des Vorsitzes, Beschlussvorschläge (DE) Plate-forme " Réseau écologique " – Rapports de la Présidence, propositions de décision (FR) Piattaforma "Rete ecologica" – Rapporti della Presidenza, proposte di decisione (IT) Platforma "Ekološko omrežje" – Poročila predsedstva, predlogi sklepov (SL)
<b>Languages</b>	German, French, Italian, Slovenian
<b>Authors</b>	Presidency of the Platform Ecological Network
<b>Editors</b>	Permanent Committee of the Alpine Convention
<b>Target groupss</b>	Policy makers, administrations, NGOs, protected areas
<b>Key words</b>	Alpine Convention, Platform Ecological Network, activity report
<b>Type of document</b>	Technical report
<b>Year</b>	2007/2008/2009/2010, ongoing
<b>Updates/Appearance</b>	Regular reporting as scheduled
<b>Number of pages</b>	PC 35/8: 24, PC 36/8: 11, PC 37/8: 13, PC 38/10: 24, PC 40/15: 43, PC 42/B1:19
<b>Format</b>	Digital
<b>Download/Contact</b>	<a href="http://www.alpine-ecological-network.org/index.php/alpine-convention/documents">www.alpine-ecological-network.org/index.php/alpine-convention/documents</a>
<b>Remarks</b>	-

## Summary of Country Reports

The Summary of Country Reports is part of the sixth report of the platform to the Permanent Committee of the Alpine Convention (Annex 3, compare also profile in the same chapter) that has been delivered in March 2009. It contains information about national and cross-border activities to support ecosystem connectivity of all contracting parties of the Alpine Convention. Details about the respective activities for each country were gained on the basis of six questions.

The first question aims at the legislative frameworks which are of relevance for ecological networks on the international as well as the national scale. The answers show that in most countries national regulations concerning connectivity are existent next to several international and regional commitments and frameworks. In the second question countries were asked to outline projects and programmes which are explicitly targeted on enhancing ecological connectivity. Thereby the different levels large scale, local and transboundary had to be considered. According to the given answers, the number as well as the extent of respective programmes differ widely between the countries.

In order to gather more details of possible measures to enhance ecological connectivity, countries were asked to describe examples of concrete measures in the third question whereas the fourth question collects information on potential funding

sources. In the following question suggestions for future activities were queried. Finally, additional information with regard to ecological networks on national level could be given.

Annex 3	
Summary of Country Reports	
The following summary lists the information obtained from contracting parties of the Alpine Convention on activities related to ecological networking. The information was recorded on the basis of the following six questions.	
Question 1: Legislative framework applied that are relevant to ecological networks	
A	B
on international scale (that applies in your country, e.g. agreements, EU directives and similar international commitments)	on national scale (what national law applies and is relevant to establishing ecological networks)
<b>Austria</b> * NATURA 2000 network * Habitats Directive * Birds Directive * Water Directive * Berner Convention * Ramsar Convention * CBD * resolution H-2 MCPFE * PEEN	* Federal law: Forest, water and road law; * Country law: execution of nature conservation, hunting, fishing, spatial planning
<b>France</b> -	-
<b>Germany</b> Federal	Bavaria: * State Development Plan (LEP), objectives and principles BI – Bavaria-wide biotope network; * Art. 1a Para. 2 No. 3 – Networking of habitats of animals living in the wild and plants; * Art. 1a Para. 2 No. 4 – Protection of the Bavarian Alps; * Art. 13 Bavarian Nature Conservation Act – Biotope network as well as species and biotope protection programme
<b>Italy (preliminary)</b> * Creation of the Natura 2000 Network, as provided by Directive 92/43/EEC of the Council of 21 May 1992 on the "Conservation of natural habitats and of wild fauna and flora", commonly known as the "Habitats" Directive. The Directive was translated into Italian law in 1997 by means of Presidential Decree No. 357 of 8 September 1997, amended and supplemented by Presidential Decree No. 120 of 12 March 2003. * activities undertaken are intended to improve existing knowledge of the natural environment across the country	* Programme launched to define and develop a national ecological network * Within the framework of this programme the Ministry of the Environment commissioned a study on the Ecological Network of Italian vertebrates (concluded in 2002) * Mapping of a network of areas possessing different ecological characteristics and differing nature conservation priorities, and the highlighting of any connections between these key areas, for the purpose of preventing any further fragmentation of the habitats and proliferation routes of vertebrate animals
<b>Liechtenstein</b> * The Alpine Convention * Ramsar * Bern * CBD * Member in Interreg projects of the EU * Links to EU legislative framework and network Note: Liechtenstein is not member of the EU, so the implementation differs from the one in EU countries	* Law of Nature- and Landscape Protection * Law on Forests * Agricultural legislation
<b>Monaco</b> This question is not relevant at the scale of MONACO	This question is not relevant at the scale of MONACO



<b>Title in English</b>	Summary of Country Reports Annex 3 of the Sixth report of the Platform to the Permanent Committee of the Alpine Convention (Document PC 40/8)
<b>Title in other available languages</b>	-
<b>Languages</b>	English
<b>Authors</b>	National representatives, compilation by Christelle Otto (BfN)
<b>Editors</b>	-
<b>Target groups</b>	Policy makers, administrations, NGOs, protected areas
<b>Key words</b>	Alpine Convention, Platform Ecological Network, national frameworks and regulations, funding sources
<b>Type of document</b>	Technical report
<b>Year</b>	2009
<b>Updates/Appearence</b>	Not intended
<b>Number of pages</b>	5
<b>Format</b>	Digital
<b>Download/Contact</b>	<a href="http://www.alpine-ecological-network.org/images/stories/Annex%20Summary%20of%20Countryreports(1).pdf">www.alpine-ecological-network.org/images/stories/Annex%20Summary%20of%20Countryreports(1).pdf</a>
<b>Remarks</b>	-

## Memorandum of Cooperation between the Convention on Biological Diversity and the Alpine Convention and the Carpathian Convention

During the side-event "The Alpine Ecological Network" at the ninth meeting of the Conference of Parties (COP) to the Convention on Biological Diversity (CBD) on 29 May 2008 in Bonn (Germany), a Memorandum of Cooperation was signed between the Convention on Biological Diversity, the Alpine Convention and the Carpathian Convention.

The memorandum stresses interfaces between the CBD and the Alpine and Carpathian Conventions as legal instruments for sustainable development of mountainous regions and the synergies which can be facilitated through close cooperation. It is underlined that especially the Protocol on "Conservation of Nature and the Countryside" to the Alpine Convention and the Protocol on "Conservation and Sustainable Use of Biological and Landscape Diversity" to the Carpathian Convention (ratification of member states in progress) reflect the principles and orientations of the CBD. Therefore, enhanced cooperation will lead to a better implementation of the CBD and ultimately support the efforts to meet the CBD biodiversity target 2010.

Accordingly, strong cooperation is envisaged in different fields of work. Institutional cooperation comprises respective invitations to relevant meetings, information on cooperative activities, cooperation in promoting exchanges of experiences and best practices on issues of relevance for their mandates as well as cooperation in the framework of the Mountain Partnership. Moreover, an exchange of information

and experiences is planned in the following matters of mutual relevance: scientific and technical information, technical guidance to the Conventions and to sustainable mountain development in general, components of the programmes of work implemented under the Conventions that are of mutual interest (e.g. programme of work on protected areas, adaptation to climate change, programme of work on mountain areas), and activities related to monitoring status and trends of relevant components of biodiversity regarding global and European targets. The Secretariats commit themselves to close collaboration on the implementation of the Conventions and their respective Programme of Work. An important focus of cooperation is the Programme of Work on Mountain Biodiversity (e.g. fundraising for joint projects on training and support, collecting, reviewing, evaluating and sharing existing information) in order to facilitate its effective implementation. Another focal point is the creation of continuity and connectivity of natural and semi-natural habitats. The implementation of the Memorandum is to be reported to the respective governing bodies according to scheduled procedures.





Representatives of the Convention on Biological Diversity, the Alpine Convention and the Carpathian Convention at the side-event "The Alpine Ecological Network" of the 9. Conference of Parties (COP) of the CBD.  
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<b>Title in English</b>	Memorandum of Cooperation between the Convention on Biological Diversity and the Alpine Convention and the Carpathian Convention
<b>Title in other available languages</b>	-
<b>Languages</b>	English
<b>Authors</b>	-
<b>Editors</b>	CBD, Alpine Convention, Carpathian Convention, Mountain Partnership, UNEP
<b>Target groups</b>	Policy makers, administrations, NGOs
<b>Key words</b>	Cooperation, conservation of biodiversity, mountain regions, convention
<b>Type of document</b>	Resolution/Decision/Agreement
<b>Year</b>	2008
<b>Updates/Appearance</b>	Not intended
<b>Number of pages</b>	6
<b>Format</b>	Digital
<b>Download/Contact</b>	<a href="http://www.alpine-ecological-network.org/images/stories/memorandum_cbd_alp_carp.pdf">www.alpine-ecological-network.org/images/stories/memorandum_cbd_alp_carp.pdf</a>
<b>Remarks</b>	-

## 4. Methods



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Implementing an ecological network is a long-term and complex task. No global recipe exists that explains how this can be successfully done. According to the individual context, scale and objectives, different methods can be applied.

Nature conservation and spatial planning are the fields that have the highest involvement in the creation of ecological networks. The ecological network concept is becoming a framework that facilitates synergies between protection of biodiversity and sustainable social and economic development. It applies at different geographical scales, from local to international. Approaches by countries or regions in designing ecological networks differ depending on their historical tradition in land planning as well as on their biogeographical context.

Although the relevance of ecological networks is increasingly acknowledged for the protection of habitats and species, connectivity requirements vary greatly from species to species. Practical relevance and viability is therefore considered highest if a network focuses on specific species or habitats. According to recommendations contained in the Pan-European Biological Diversity Strategy and in the Alpine Convention, the application of ecological network concepts must also be considered at pan-European and pan-Alpine scales.

In 2002 WWF, ALPARC, CIPRA and ISCAR made a proposal how regions with a high biodiversity can be connected among each other on a pan-Alpine scale (Arduino, Mörschel, Plutzar 2006). With its study "Transboundary Ecological Network" in 2004 and the

following seminar "Establishment of an ecological network of protected areas" in 2005, ALPARC put the focus on the role of protected areas for the creation of an ecological network across the Alps (see profile). On a smaller scale and where data is available, the Swiss approach of the National Ecological Network REN can be an option (Berthoud, Righetti, Lebeau 2004). At the continental level, the Pan-European Ecological Network is promoted by the Council of Europe (Bonnin et al. 2007). The Ecological Continuum Initiative assessed these different approaches and explained in what contexts each of the approaches can be helpful (see profile).

On a pan-Alpine level, some regions are particularly motivated to contribute to the realisation of functioning ecological networks. A study commissioned by the German Federal Agency for Nature Conservation shows how "Pilot Regions" can be appointed based on objective criteria (see profile).

For the implementation of the pan-Alpine ecological network, the partners that are involved in the ECONNECT project have agreed on a common methodology. This methodology includes the choice of a set of eight species that are relevant on the pan-Alpine scale and the commitment to harmonise data in order to show connectivity problems and potentials. Nevertheless, the seven ECONNECT pilot regions have the freedom to choose the species and habitats that are most important according to the local context for the decision on the connectivity measures they are going to implement.

## Alpine Signals 3: “Transboundary ecological network”

Main objective of the study “Transboundary ecological network” was to analyse the situation of ecological connectivity in the Alps. It was conducted against the background of the Protocol on “Conservation of Nature and the Countryside” to the Alpine Convention which envisages the implementation of an Alpine-wide ecological network. The study was published in 2004 on behalf of ALPARC and can be seen as the foundation of following activities to establish an Alpine ecological network.

The study contains a comprehensive analysis of all protected areas and the respective situation of connectivity in the regions. It also includes a description of relevant strategies, measures and legislations with regard to establishing connections between Alpine protected areas. Based on the analysis of the status-quo, recommendations are given how the connectivity between Alpine protected areas can be improved.

The first chapter contains an introduction to the topic and relevant information about the investigation area and methods which have been applied in the course of the study. Existing problems due to the increasing fragmentation of the Alpine landscape are outlined and the ecological principles with regard to ecological connectivity are explained as well as the design of ecological networks and their main components.

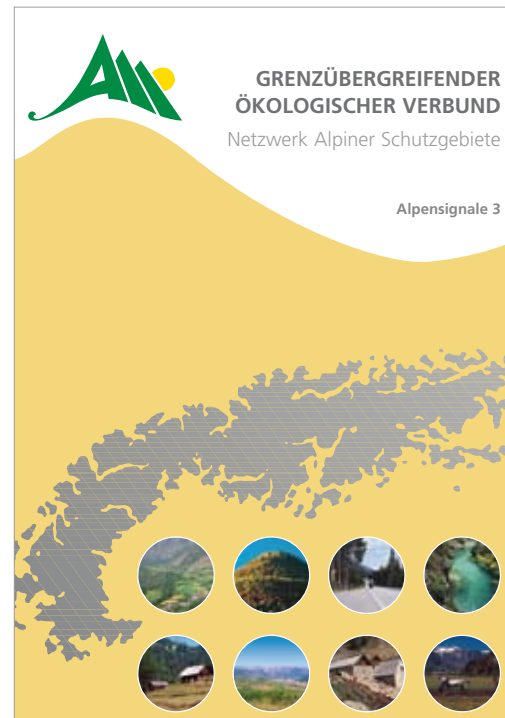
The analysis of the situation of connectivity in the whole Alpine arc is carried out in several steps. As the Alpine protected areas are considered to serve as

core areas of the ecological network, transboundary and national complexes of protected areas with a size of at least 1'000 ha have been compiled in the first step. For each identified area a short assessment has been prepared.

In the second step a literature analysis has been undertaken to collect all programmes and measures which can contribute to the establishment of an Alpine ecological network. Interviews with relevant institutions have also been accomplished.

The following in-depth analysis focuses on eight example areas in which more detailed investigations were conducted. The selection of the eight areas is due to their distribution in the Alpine arc as well as to the study which has been undertaken by WWF, ALPARC, CIPRA, and ISCAR in 2002. For each of the eight example areas the cooperation between protected areas, the political framework, and the actual implementation were analysed. Moreover, for each area the potential for improving the ecological connectivity was examined.

The in-depth analysis in the example areas follows a certain procedure for which a set of indicators has been defined. They are presented and explained in the second chapter. Some of the indicators are designed specifically for the study whereas some are derived from existing documents in the frame of the Alpine Convention (working group on “Mountain Environmental Quality Targets”). Altogether 13 indicators have been applied, giving



information about protected areas and their quality, infrastructure, land use, and agriculture in order to allow for the evaluation of the respective suitability of the example areas to serve as elements of an ecological network.

The following chapters contain the results of the study. In chapter three all defined complexes of protected areas are described in detail. For each protected area of the complex a portrait has been completed. Several maps support the presentation of the inventory. Chapter four outlines existing measures and programmes which can support the establishment of an Alpine ecological network. Agriculture, forestry, tourism, spatial planning, and traffic are considered as main relevant sectors and are described in detail. Besides, the analysis contains international guidelines and legislations, like the Alpine Convention, the Pan-European Ecological Network (PEEN), the Ramsar Convention, Natura 2000, Emerald, and the European Water Framework Directive. A more detailed survey has been undertaken for each Alpine country. Here aspects like organic farming, the status-quo of ecological networks and according legislations, nature-oriented forestry, and protected area legislation are discussed and positive examples of ecological network planning are presented.

In chapter five follow the results of the in-depth analysis of the following eight example areas:

- 1) Mercantour National Park (F), Alpi Marittime Nature Park (I), Alta Valle Pesio e Tanaro Nature Park (I)
- 2) Vercors Regional Nature Park (F), Chartreuse Regional Nature Park (F), Massif des Bauges Regional Nature Park (F), Les Ecrins National Park (F)
- 3) Vanoise National Park (F), Gran Paradiso National Park (I), Mont Avic Nature Park (I), Espace Mont Blanc (CH/F/I)
- 4) Protected Areas in the cantons Bern, Freiburg and Vaud (CH)
- 5) Swiss National Park (CH), National Park Stilfser Joch (I), Adamello Nature Park (I), Adamello Brenta Nature Park (I)
- 6) Hohe Tauern National Park (A) Nature Park Zillertaler Hauptkamm (A), Nature Park Rieserferner Ahrn (I), protected area Walsertal (A), Nockberge National Park (A)
- 7) Berchtesgaden National Park (D), protected area Kalkhochalpen (A)
- 8) Gesäuse National Park (A), Kalkalpen National Park (A), Nature Park Steirische Eisenwurzten, Nature Park Eisenwurzten (A), protected area Wildalpener Salzatal (A)

The analysis of these areas comprises aspects like the current situation of connectivity as well as the

potential for the future, covering details about existing connections in the landscape, nature protection measures which are already being implemented, and cooperation of existing protected areas. Besides, a set of recommendations is given. Every description is accompanied by detailed maps of the region.

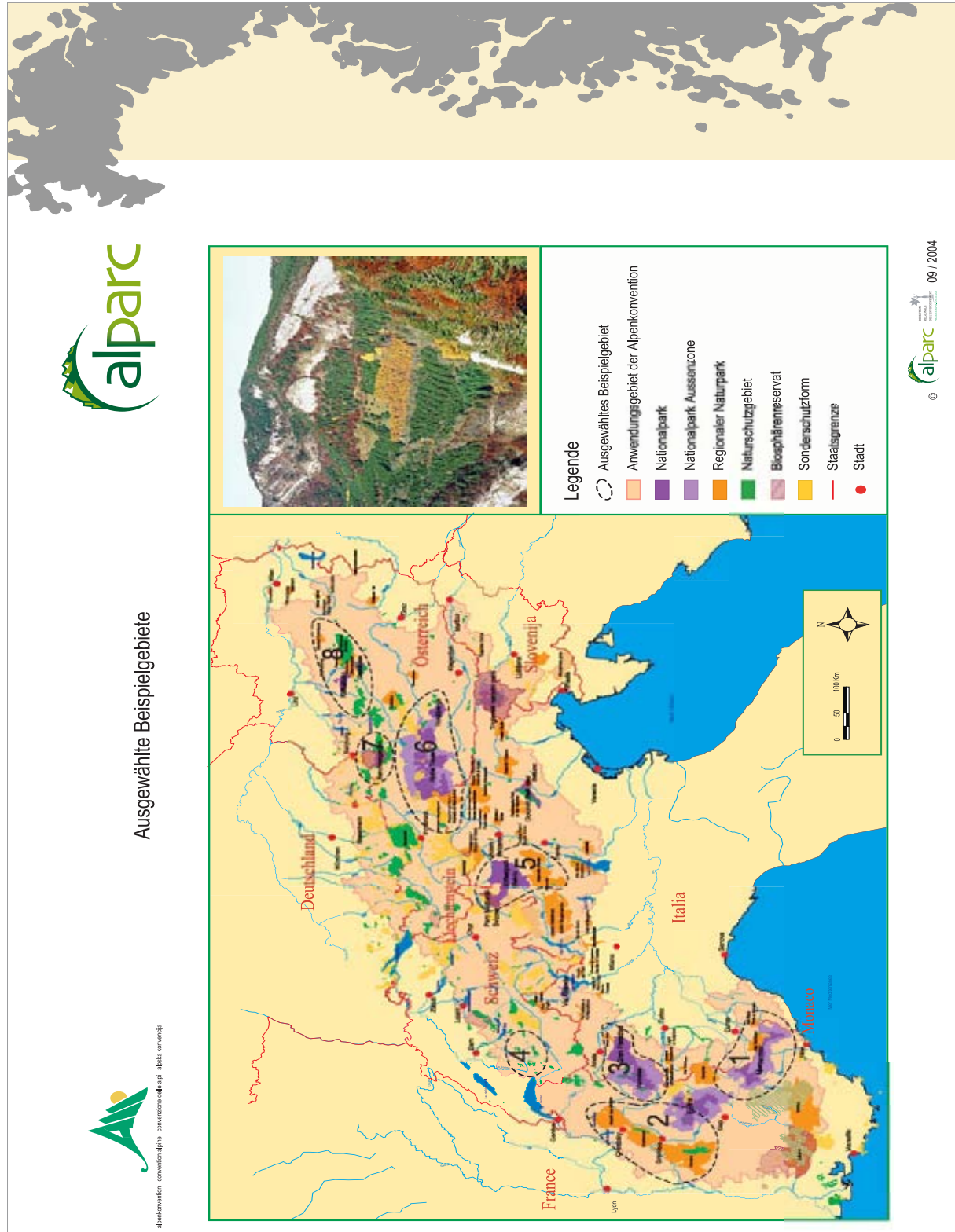
Chapter six includes recommendations for the process of establishing an Alpine ecological network and a scenario for the next steps. Generally, the creation of an ecological network should be based on existing transboundary complexes of protected areas which should be enlarged and connected with the surrounding landscape. Therefore, a strong cooperation and coordination of different institutions is necessary, e.g. concerning the varying objectives of different types of protected areas.

In order to establish an ecological network in the Alps, the first step should be a detailed analysis to define barriers as well as corridors and other connecting elements. Further planning and implementation steps can be conducted on the basis of a detailed cartographic description of the elements of the ecological network. It is intended that the Alpine ecological network should be built up of several smaller local networks. For the successful implementation of the pan-Alpine vision local transboundary networks are crucial as they secure the connections between national systems.

The report closes with a critical discussion of the study and its results. The conclusions give a short summary of the report as well as an outlook into the following process of establishing an Alpine ecological network. In the Appendix several additional information and documents can be found, like the questionnaire for experts and the project proposal for the study.

Eight example areas in the Alps were chosen to analyse the cooperation between protected areas, the political framework, and the actual implementation to examine the potential for improving ecological connectivity.

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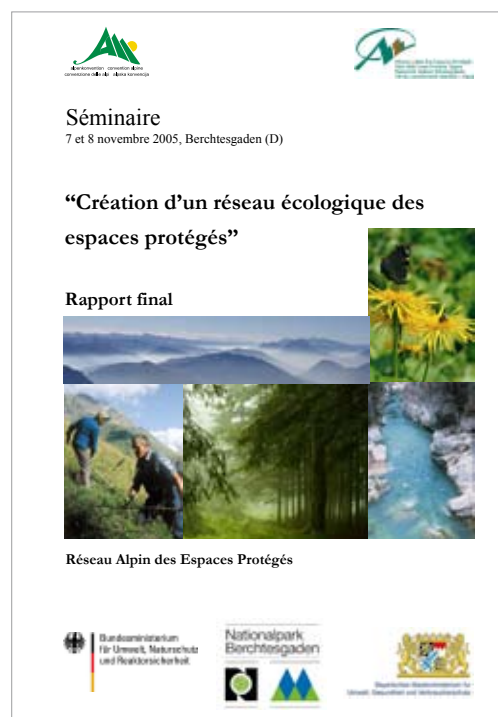


<b>Title in English</b>	Alpine Signals 3: Transboundary ecological network
<b>Title in other available languages</b>	Alpensignale 3: Grenzübergreifender Ökologischer Verbund (DE) Signaux Alps 3: Réseau Écologique Transfrontalier (FR) Segnali Alpini 3: Rete Ecologica Transfrontaliera (IT) Alpski signali 3: Čezmejna ekološka povezanost (SL)
<b>Languages</b>	German, French, Italian, Slovenian
<b>Authors</b>	ALPARC
<b>Editors</b>	ALPARC
<b>Target groups</b>	Research, administrations, NGOs, protected areas, policy makers, public
<b>Key words</b>	Connectivity analysis, indicators, complex of protected areas, recommendations, cross border cooperation
<b>Type of document</b>	Study/Report
<b>Year</b>	2004
<b>Updates/Appearance</b>	Currently not intended
<b>Number of pages</b>	240
<b>Format</b>	Print and digital
<b>Download/Contact</b>	<a href="http://www.alpconv.org/documents/Permanent_Secretariat/web/AlpineSignal3/AS3_de.pdf">www.alpconv.org/documents/Permanent_Secretariat/web/AlpineSignal3/AS3_de.pdf</a> (DE) <a href="http://www.alpconv.org/documents/Permanent_Secretariat/web/AlpineSignal3/AS3_fr.pdf">www.alpconv.org/documents/Permanent_Secretariat/web/AlpineSignal3/AS3_fr.pdf</a> (FR) <a href="http://www.alpconv.org/documents/Permanent_Secretariat/web/AlpineSignal3/AS3_it.pdf">www.alpconv.org/documents/Permanent_Secretariat/web/AlpineSignal3/AS3_it.pdf</a> (IT) <a href="http://www.alpconv.org/documents/Permanent_Secretariat/web/AlpineSignal3/AS3_sl.pdf">www.alpconv.org/documents/Permanent_Secretariat/web/AlpineSignal3/AS3_sl.pdf</a> (SL)
<b>Remarks</b>	Printed copies can be ordered at: <a href="mailto:info@alparc.org">info@alparc.org</a>

## Final Report of the Seminar “Establishment of an ecological network of protected areas”

The report contains the results of the seminar “Establishment of an ecological network of protected areas” which took place on 7 and 8 November 2005 in Berchtesgaden/D. Main objective of the seminar was to discuss the implementation process of an Alpine ecological network with experts. During the two days of the seminar the participants analysed existing approaches and suggestions and developed a procedure for the next steps. The seminar was organised by ALPARC in cooperation with the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, the Bavarian Ministry for the Environment, Health and Consumer Protection, and Berchtesgaden National Park. In the Appendix all relevant documents can be found, like the programme of the seminar, the list of participants, and the decision of the participants. The CD-version also includes the presentations of all speakers, decisions of the Alpine Conference, and the discussion paper.

The introduction of the report includes most important facts about the topic like relevant background information about the establishment of an Alpine ecological network according to the Protocol on “Conservation of Nature and the Countryside” to the Alpine Convention. It also summarises previous activities of the Alpine Conference and ALPARC to develop a basis for the establishment of an ecological network, like the feasibility study “Transboundary ecological network” (please refer to chapter 4).



The ongoing activities were also discussed in the light of international instruments connected with ecological networks, such as conventions, legislation, regulations and programmes. Silvia Reppe (German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety), Rudolf Specht (German Federal Agency for Nature Conservation), Michael Vogel (Berchtesgaden National Park), Guido Plassmann (Task Force Protected Areas), and Henri Jaffaux (French Ministry for Ecology and Sustainable Development) contributed to the introduction.

In the following chapter measures and best practices of all Alpine countries are presented. Hans-Dieter Schuster (Germany) outlined the Interreg IIIB Project “Living Space Network” which took place between 2003 and 2005. Main aim of the project was the establishment of transboundary cooperation between administrations, scientific institutions, NGOs, and private persons with regard to ecological networks. Focuses of the project were riverine systems and bats. The project was seen as a model project for further transboundary activities in this field of work.

Guy Berthoud (Switzerland) presented the Swiss Ecological Network (REN) and its regional adaptation in the French Isère department. In the following participants discussed the actual implementation of the REN in spatial planning and other fields of work. Also the data needs and its collection were discussed as well as the role of protected areas for

the implementation of ecological networks and funding possibilities. The role of public involvement in the planning process was emphasised.

Andreas Maier (Germany) gave an insight into the project PACE (Protected Area Connectivity East-Alps). In this project the connectivity between the adjacent protected areas Berchtesgaden National Park in Germany and Protected Area of the Northern Limestone Alps was investigated. Main aim of the project was to develop a basis for planning a transboundary regional ecological network.

Jurij Dobravec (Slovenia) and Stefano Santi (Italy) summarised an Italian-Slovenian Interreg IIIA Project aiming at improving transboundary cooperation and allowing for the development of a common management plan of protected areas in the Julian Alps. The project supported a common vision to connect protected areas in the transboundary region and improved the cooperation of administrations.

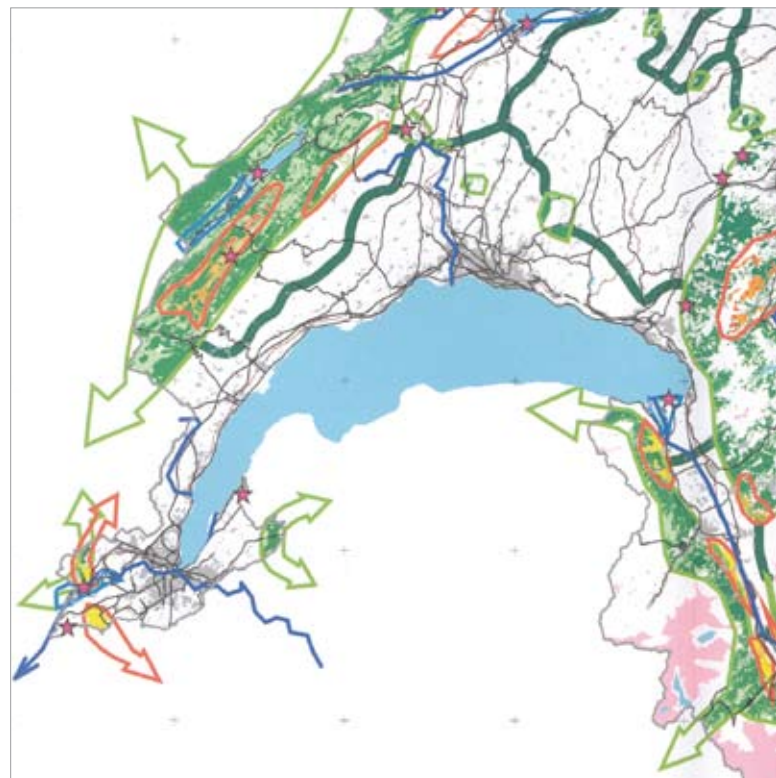
Arnaud Callec (France) presented a more detailed overview about the activities in the French Isère department. Based on the Swiss REN, most important regional corridors of an ecological network had been identified and first measures implemented. Information and awareness raising were important aspects of the implementation process.

Michael Proschek (Austria) presented the results of the identification of most important connecting elements in the Alps which had been conducted by WWF European Alpine Programme, CIPRA, ISCAR

and ALPARC during an expert workshop in 2002. In the following discussions participants stressed the importance of different data qualities and levels which can bring about problems. Generally, different levels and scales are difficult to integrate into a whole Alpine ecological network. It is also seen to be necessary to select certain species and species groups for the identification of corridors and connecting elements.

In the following the discussions which have taken place during the seminar are summarised. One important aspect was the selection of pilot areas to investigate existing corridors and further elements of an ecological network. It was agreed upon to keep the areas which have been suggested in the feasibility study of ALPARC (see chapter 4). Also funding opportunities for local studies and the implementation of projects in pilot areas have been discussed. Important possibilities seemed to be European programmes like Interreg or LIFE+. With regard to existing international and European programmes, initiatives, and conventions the establishment of an Alpine ecological network is seen as an integrative attempt to bring together all aspects in a pragmatic approach. However, a key to success is to define this approach not only as a scientific but also as a social and political challenge. For the implementation process the cooperation with existing programmes, like NATURA 2000 is seen as crucial. Moreover, it is necessary to define a common

The Swiss Ecological Network (REN) is showing the living spaces and their connectivity axes on maps. REN is an important instrument at different scales for the spatial planning process in Switzerland.  
© Detail from the REN map 1:500'000



model as well as terminology. Other important aspects to consider were the participation of local stakeholders and partners and the cooperation with other mountain ranges like the Carpathians.

ALPARC drafted a paper as basis for discussion which was presented during the seminar. It contains proposals for projects in pilot areas and a methodological approach. According to the paper all efforts to produce maps and to analyse the situation of ecological connectivity should be based on already existing data. Measures and actions are to be planned and implemented on the basis of in-depth analyses. As envisaged in the forefront of the seminar participants agreed on a common procedure and defined the next steps of the implementation steps.

It was also agreed upon that ALPARC will coordinate and guide the follow-up process. ALPARC will support activities in the pilot areas and serve as an interface between different activities on different levels. Following the seminar first steps towards the establishment of an Alpine ecological network are to be taken as agreed upon in the various discussions.

<b>Title in English</b>	Final Report of the Seminar "Establishment of an ecological network of protected areas"
<b>Title in other available languages</b>	Seminar "Schaffung eines ökologischen Netzwerks der Schutzgebiete" – Abschlussbericht (DE) Séminaire "Création d'un réseau écologique des espaces protégés" – Rapport Final (FR) Seminario "Creazione di una rete ecologica di aree protette" – Rapporto conclusivo (IT) Seminar "Vzpostavitev ekološkega omrežja zavarovanih območij" – Zaključno poročilo (SL)
<b>Languages</b>	German, French, Italian, Slovenian
<b>Authors</b>	-
<b>Editors</b>	Yann Kohler (Task Force Protected Areas)
<b>Target groups</b>	Research, administrations, NGOs, protected areas, policy makers
<b>Key words</b>	Alpine Convention, international instruments, best practices, discussion, decisions
<b>Type of document</b>	Report/Study
<b>Year</b>	2005
<b>Updates/Appearance</b>	Not intended
<b>Number of pages</b>	40
<b>Format</b>	Digital (download, CD)
<b>Download/Contact</b>	Will be published on <a href="http://www.alparc.org">www.alparc.org</a>
<b>Remarks</b>	The CD can be ordered at: <a href="mailto:info@alparc.org">info@alparc.org</a>

## Evaluation of approaches for designing and implementing ecological networks in the Alps – Assessment Report

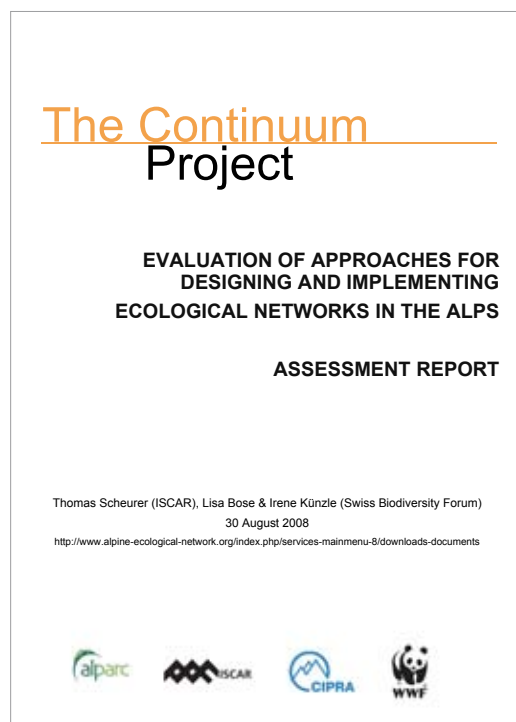
As part of the Ecological Continuum Initiative (at that time "Continuum Project") an evaluation of existing approaches for designing and implementing ecological networks in the European Alps has been conducted. Four approaches have been selected and compared according to different aspects. These were the WWF Ecoregion approach, Connectivity between Protected Areas by ALPARC, Pan-European Ecological Network (PEEN), and Swiss Ecological Network (REN). The approaches had been chosen due to their large spectrum of possible applications, existing documents or their close relation to the Alpine space. The evaluation was undertaken by 18 selected experts (scientists and national representatives of the Platform Ecological Network of the Alpine Convention) concerning aspects like scale, data requirements, use for implementation, and possible combinations of all four approaches. Additionally, in the according questionnaire experts gave their input about necessary actions in order to implement the Alpine ecological network. During a workshop with the expert group a procedure for pilot regions has been developed to apply existing approaches to design coordinated concepts for Alpine and regional ecological networks.

The Assessment Report contains the results of the evaluation based on the questionnaire as well as on the discussions during the workshop. In the first three chapters a summary of the expert's opinions is given whereas chapter four includes the developed

procedure for establishing ecological networks in pilot regions. In the Appendix the complete answers to the questionnaire can be found (only available in the full report).

According to the experts, main concerns for conserving and improving ecological connectivity in the Alps are fragmentation by urban development and intensive land and water use concentrated in valleys as well as issues of environmental and climate change (e.g. changing habitats and migration patterns). Overcoming institutional and scientific gaps is essential for improving connectivity in the Alps. The experts also defined in which type of regions measures for establishing ecological networks should be implemented with priority: areas with high biodiversity value, riverine systems, densely populated areas in low altitude, and areas with high pressure through intensive human utilisation are considered as priority areas for implementing measures. When it comes to setting aims for improving connectivity, experts agreed that improving both habitat connectivity and connectivity for specific species or populations should be given the highest priority of general aims. Identifying and overcoming important ecological barriers and focusing on connectivity in and between protected areas and priority conservation areas are considered to be most important specific aims.

Experts were also asked to describe their vision of main achievements of a mid-term connectivity project. According to the experts most important results



are to establish and improve pan-Alpine databases for application in cartography, conceptual work and monitoring, to identify main problem areas on a pan-Alpine level, to focus on main concerns such as areas with high pressures and areas with high biodiversity, and to build-up awareness of the public, stakeholders and policy makers.

The main goal of the evaluation was the assessment of the four selected approaches (WWF, ALPARC, PEEN and REN) regarding their application in the Alps. The four approaches can be distinguished concerning their different focuses and objectives. However, all four approaches can support projects focusing on ecological connectivity with a specific profile. The WWF approach is suitable for analysing corridors for specific species on regional and pan-alpine scale. It takes into consideration biodiversity hot spots (PCA) in the context of the Alpine Ecoregion. ALPARC emphasises on analysing landscape and land-use structures from a connectivity perspective on a regional level as it has a focus on ecological linkage in and between protected areas. Because

of using general but easily available data, this pragmatic approach delivers not very precise but low-cost results. PEEN is particularly appropriate for analysing connectivity on large scale (highland-lowland, several mountain ranges) and between areas of European importance. The Swiss REN is the best developed approach on regional and local level whereas the mapping of REN is ambitious and data and cost-intensive. REN maps provide a good basis for planning measures at regional and local level and it is also possible to break down the concept on analysing obstacles.

During the expert workshop a procedure was developed and tested for establishing ecological networks regarding different types of areas and specific aims. The proposed procedure includes four main steps and is especially suitable to support the planning process in pilot regions. The report contains the results of discussions during the expert workshop which are structured in a matrix. They are an important guideline for the pilot regions.

<b>Title in English</b>	Evaluation of approaches for designing and implementing ecological networks in the Alps – Assessment Report
<b>Title in other available languages</b>	-
<b>Languages</b>	English
<b>Authors</b>	Thomas Scheurer (ISCAR), Lisa Bose & Irene Künzle (Swiss Biodiversity Forum)
<b>Editors</b>	Ecological Continuum Initiative
<b>Target groups</b>	Protected areas, policy makers, administrations, NGOs
<b>Key words</b>	Comparison, implementation, experts, procedure for pilot regions, approaches
<b>Type of document</b>	Report/Study
<b>Year</b>	2008
<b>Updates/Appearance</b>	Currently not intended
<b>Number of pages</b>	41 Report, 96 Full report including Appendix
<b>Format</b>	Digital
<b>Download/Contact</b>	<a href="http://www.alpine-ecological-network.org/images/stories/081016FinalWPA%281%29%281%29.pdf">www.alpine-ecological-network.org/images/stories/081016FinalWPA%281%29%281%29.pdf</a> (report without Appendix) <a href="http://www.alpine-ecological-network.org/images/stories/081016FullFinalreportWPA%281%29.pdf">www.alpine-ecological-network.org/images/stories/081016FullFinalreportWPA%281%29.pdf</a> (full report with Appendix)
<b>Remarks</b>	-

## The ecological network in the Alps: Defining criteria and objectives for pilot regions – Final report

The Platform Ecological Network of the Alpine Convention aims to promote the establishment of a cross-boundary ecological network in the Alps. Pilot regions which are actively involved in the improvement of ecological networks are of great importance for the implementation process (compare chapter legal frameworks and relevant decisions). Some Alpine regions are highly motivated and already started intense activities in order to improve the ecological connectivity situation in their area. In order to honour their efforts at an international level, they proposed a recognition by the Alpine Convention. This is why the mandate of the platform foresees a close collaboration with and an official nomination of these pilot regions. In order to fulfil this obligation, the platform set up a nomination process for “pilot regions of the Alpine Ecological Network” supporting an ecological network in the Alps and promoting sustainable development in these regions. According to the mandate, the nomination is based on indicators showing the performance of the implementation process.

The nomination procedure was developed in the course of a research and development project financed by the German Federal Agency for Nature Conservation during the German presidency of the platform. In the project the selection criteria as well as the selection process for the nomination of pilot regions have been defined. Also the potential benefits which are linked to the nomination as

pilot region have been elaborated. The project team was supported by a group of experts. Up to now the developed nomination procedure has not been implemented yet. In 2009 a test run has been conducted and showed that five pilot regions meet the criteria for nomination. First official nominations of “pilot regions of the Alpine Ecological Network”, however, will take place at the earliest during the next Alpine Conference in 2011.

The procedure developed in the project envisages nominating pilot regions at each Alpine Conference. The decision to appoint a certain pilot region is taken based on a questionnaire which has to be completed by every applying region meeting the basic requirements. The criteria which have been set up gather details both on the region's ecological characteristics and its active contribution to sustainable development, as well as on concrete projects and measures supporting and promoting the ecological network in the Alps. The completed questionnaire is evaluated according to a points system. A region must gain a specified minimum number of points and/or, depending on the final point score, must have singularity status in order to be designated. The nomination is valid only for a limited duration but the regions can apply for it repeatedly.

For the first nominations five regions filled in the questionnaire. These areas are already pilot regions of the ECONNECT project or Ecological Continuum Initiative (Alpi Marittime/Mercantour, Berchtesgaden

### THE ECOLOGICAL NETWORK IN THE ALPS: DEFINING CRITERIA AND OBJECTIVES FOR PILOT REGIONS



FINAL REPORT

APRIL 2009

– Salzburg, Département de l'Isère, Inn – Etsch/En – Adige, Nördliche Kalkalpen/Eisenwurzen/Gesäuse/Dürrenstein). The evaluation showed that all five regions meet the criteria for nomination as pilot regions under the Platform Ecological Network of the Alpine Convention.

For the official nomination of pilot regions it is suggested that the respective regions receive a certificate, a leaflet on their region with details about the special values of the area, and a press kit which are handed over during a ceremony. All products can serve both as official documentation and for advertising and information purposes.

Being an officially nominated pilot region can be beneficial for the region both concerning socio-economic and ecological aspects. For instance, the nomination can increase the region's added value and

enhance media response by serving as an advertising vehicle, or through exchange with other pilot regions. In addition, being labelled as a "pilot region" could improve access to financial support through existing instruments that contribute to promoting the ecological network.

The annexes of the German report contain several additional documents with regard to the project. The questionnaire is accompanied by explanations and a summary about the advantages of the nomination for pilot regions in the four main Alpine languages. A proposal for the design of the certificate and a draft of the press kit are provided as well as the leaflets of the five pilot regions which already showed that they meet the requirements and wait for their nomination.

<b>Title in English</b>	The ecological network in the Alps: Defining criteria and objectives for pilot regions
<b>Title in other available languages</b>	Ökologischer Verbund in den Alpen: Festlegung von Kriterien und Zieldefinitionen für Pilotregionen – Abschlussbericht (DE)
<b>Languages</b>	English, German, questionnaire, explanations and information on benefits also in French, Italian and Slovenian
<b>Authors</b>	Aurelia Ullrich & Mateja Pirc (CIPRA International), Antonio Righetti & Annalina Wegelin (PiU GmbH)
<b>Editors</b>	Federal Agency for Nature Protection (BfN)
<b>Target groups</b>	Research, administrations, NGOs, protected areas, policy makers, public
<b>Key words</b>	Nomination, questionnaire, certificate, benefits, pilot region
<b>Type of document</b>	Report/Study
<b>Year</b>	2009
<b>Updates/Appearance</b>	Currently not intended
<b>Number of pages</b>	68
<b>Format</b>	Digital
<b>Download/Contact</b>	<a href="http://www.alpine-ecological-network.org/images/stories/Final%20report%20in%20English.pdf">www.alpine-ecological-network.org/images/stories/Final%20report%20in%20English.pdf</a> (EN) <a href="http://www.alpine-ecological-network.org/images/stories/Abschlussbericht%20BfN_Pilotregionen_Alpen.pdf">www.alpine-ecological-network.org/images/stories/Abschlussbericht%20BfN_Pilotregionen_Alpen.pdf</a> (DE) <a href="http://www.alpine-ecological-network.org/images/stories/GeneralitesQuestionnaireUtilite.pdf">www.alpine-ecological-network.org/images/stories/GeneralitesQuestionnaireUtilite.pdf</a> (FR, only the annex) <a href="http://www.alpine-ecological-network.org/images/stories/SpiegazioniQuestionarioBeneficiil.pdf">www.alpine-ecological-network.org/images/stories/SpiegazioniQuestionarioBeneficiil.pdf</a> (IT, only the annex) <a href="http://www.alpine-ecological-network.org/images/stories/PojasnilaVprasanikPodatki.pdf">www.alpine-ecological-network.org/images/stories/PojasnilaVprasanikPodatki.pdf</a> (SL, only the annex)
<b>Remarks</b>	-

## 5. Implementation



All legal, theoretical and methodological work will be of no use if on the ground nothing concrete is done to enhance ecological connectivity. This challenging task needs the cooperation of a very wide range of different stakeholders that can give their support by many ways. Action is demanded not only by political decision makers, but also from concerned sectors such as transport and forestry. Even every single inhabitant and visitor of the Alpine region can make its small but valuable contribution to the pan-Alpine ecological network by measures such as maintaining a near-natural garden, joining environmentalist organisations in order to help amphibians cross roads or buying products that support the local traditional mountain agriculture with its particular habitats for plants and animals.

Functioning ecological networks require ecologically compatible action across the entire space, particularly outside protected areas. The landscape can be enhanced through targeted measures and support programmes which focus on nature conservation. These can contribute to the implementation of an ecological network by facilitating the connectivity of habitats and protected areas. Different measures and actions, even minor changes can be taken to create, conserve or restore areas and structures so that they

act as connecting elements within an ecological network. Often the functionality of individual spaces can be greatly enhanced without prohibitions or restrictions needing to be imposed.

The Ecological Continuum Initiative compiled 69 possible measures to improve ecological connectivity in the Alps in its "Measure Catalogue". The contents of this document can also be browsed and searched according to the individual needs by the means of a database (see profiles). The report of the Pilot Region Workshop in Val Müstair gives an example how the implementation process can be started in a region (see profile). The steps that are undertaken in this region are coordinated with the other six pilot regions in the frame of the ECONNECT project. This common approach should guarantee that all activities that are undertaken in the single regions can contribute to the shared goal of a pan-Alpine ecological network. It is based on the "Strategic implementation guidelines" developed by the Ecological Continuum Initiative ([www.alpine-ecological-network.org/index.php/services-mainmenu-8/downloads-documents](http://www.alpine-ecological-network.org/index.php/services-mainmenu-8/downloads-documents)). These guidelines have been further developed, described in detail and are continuously updated according to the experiences made by the ECONNECT project.

## Catalogue of possible measures to improve ecological connectivity in the Alps

The catalogue of possible measures to improve ecological connectivity has been elaborated in the frame of the Ecological Continuum Initiative (at that time "Continuum Project"). It lists a number of exemplary measures from the various Alpine countries that can contribute to the implementation of ecological networks. The development of a catalogue of measures was one important part of the mandate of the Platform Ecological Network of the Alpine Convention (compare Mandate of the platform).

The catalogue of measures has been developed mainly as a tool to support the work in the pilot regions of the Ecological Continuum Initiative and the ECONNECT project, but it can also be used by other stakeholders. The catalogue is intended to offer different stakeholders in the field of ecological connectivity examples and ideas and also provides practical information such as the names of contact persons and references. In addition, the descriptions of the various measures include a brief evaluation of economic and ecological aspects.

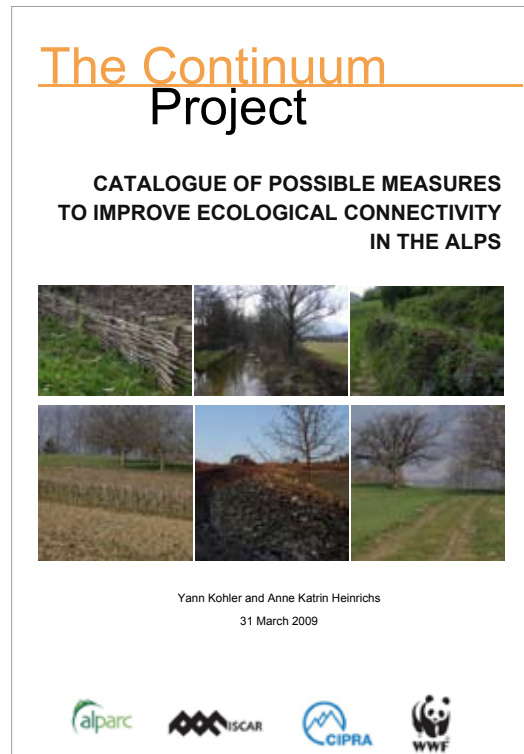
A key characteristic of the catalogue is its practical approach. Its content should therefore not be regarded as a scientifically-based research, but as a source of inspiration that will bring users closer to the topic of "ecological networks". It identifies practical examples and can thus act as a valuable source of ideas for users in the pilot regions. The catalogue also provides an overview of the various sectors and areas in which measures to improve ecological connectivity

could be beneficial.

The catalogue of measures is structured in different core elements. First a brief explanation is given of the various sectors that are particularly relevant to measures aimed at improving ecological connectivity. Besides stakeholders from the field of nature conservation also agriculture, forestry, tourism, spatial planning, hunting and fishing, water resources management, traffic and infrastructural planning and environmental education can be important partners to establish an ecological network.

The next part of the catalogue comprises a list of all measures including a brief description. A more detailed description of the individual measures is given in the form of a profile, including the evaluation of the measures according to various social, technical, ecological and economic criteria. The profiles comprise the most important information about each measure and its effects in terms of ecological connectivity. Thus it can serve as an important source of information if the implementation is envisaged in a pilot region or elsewhere. Moreover, contact persons, project websites or institutions are included which can provide more information if necessary.

All measures are also summarised in an Excel table, which can be used as a database and tool for the targeted selection of individual, situation-appropriate measures. A short introduction into the table and its functionalities is provided in the text of the catalogue of measures. The table is described separately in a



profile in this chapter.

The catalogue is not intended to be a complete and definitive document; on the contrary, it should be supplemented and enhanced on an ongoing basis with new examples, especially those based on practical experience gained in the individual regional projects being implemented in the pilot regions. Therefore, it is intended to revise the catalogue of measures in 2010 and to make it more user-friendly, e.g. as an online database. Considerations of possible revisions can be found in the last chapter of the report.

Finally, the Annex of the catalogue of measures includes detailed descriptions of a selection of measures which are particularly interesting in terms of innovative approach, originality or exemplary implementation. Also here references to specific examples or projects are indicated. Several photos give an idea how certain measures could look like in practice.



The conservation measures for mixed orchards, which form very richly structured habitats, should include arrangements for mowing, fertilising, management and maintenance, the preservation of ageing trees, etc.

© Yann Kohler

<b>Title in English</b>	Catalogue of possible measures to improve ecological connectivity in the Alps
<b>Title in other available languages</b>	Katalog möglicher Massnahmen zur Verbesserung der ökologischen Vernetzung im Alpenraum (DE) Catalogue de mesures susceptibles d'améliorer la connectivité écologique dans l'espace alpin (FR) Catalogo delle possibili misure per l'ottimizzazione delle reti ecologiche nelle Alpi (IT)
<b>Languages</b>	English, German, French, Italian
<b>Authors</b>	Yann Kohler (Task Force Protected Areas), Anne Katrin Heinrichs (National Park Berchtesgaden)
<b>Editors</b>	Ecological Continuum Initiative
<b>Target groups</b>	Research, administrations, NGOs, protected areas, policy makers, public
<b>Key words</b>	Sectors, descriptions, best practices, measures, implementation
<b>Type of document</b>	Study/Report
<b>Year</b>	2009
<b>Updates/Appearance</b>	The first update is being undertaken currently
<b>Number of pages</b>	148
<b>Format</b>	Digital
<b>Download/Contact</b>	<a href="http://www.alpine-ecological-network.org/images/stories/eMeasureCatalogueContinuum.pdf">www.alpine-ecological-network.org/images/stories/eMeasureCatalogueContinuum.pdf</a> (EN) <a href="http://www.alpine-ecological-network.org/images/stories/dMassnahmenkatalogKontinuum.pdf">www.alpine-ecological-network.org/images/stories/dMassnahmenkatalogKontinuum.pdf</a> (DE) <a href="http://www.alpine-ecological-network.org/images/stories/fCatalogueMesuresContinuum.pdf">www.alpine-ecological-network.org/images/stories/fCatalogueMesuresContinuum.pdf</a> (FR) <a href="http://www.alpine-ecological-network.org/images/stories/iCatalogoMisureContinuum.pdf">www.alpine-ecological-network.org/images/stories/iCatalogoMisureContinuum.pdf</a> (IT)
<b>Remarks</b>	-

## Database of possible measures that can improve ecological connectivity in the Alps

This database is an Excel table that summarises all measures of the "Catalogue of possible measures to improve ecological connectivity in the Alps" (compare chapter 5). It allows for the targeted selection of individual, situation-appropriate measures. Several additional information and assessments can be found which are not included in the profiles of the measures in the measure catalogue. The table is a very comprehensive document which should primarily be used as a digital version. When printed out in its entirety, the table is somewhat unwieldy and its contents are difficult to navigate unless queries are carried out. A short introduction into the table and its functionalities as well as important aspects to be considered when working with the table can be found in the text of the catalogue of measures.

The table is structured in line with the layout of the profiles of each measure. The categories are set out as columns and are shown in the header of the table. The table is principally conceived as a digital tool that enables users to obtain an overview of the individual measures and select them according to specific aspects. The "Recherche" ("search") function can be used to combine criteria in different ways in order to select measures that fulfil certain conditions.

The table contains highly condensed information. This must be taken into account when using the "Recherche" function since the data in the table have gone through several stages, with the complexity of the information being reduced in each one. The entire

range of possible forms of the individual aspects, even in relation to a single measure, is therefore no longer visible. Although the respective profiles contain more detailed information on the measures, even these are sometimes based on individual project examples in which complex issues had to be summarised in a very simplified way. Users should therefore always work with the underlying information in the profiles as well, and should view the data in the table more as a source of ideas and inspiration. In any case, the planning and practical implementation of measures will require further research.

It is intended to update the table and provide it as a more user-friendly online-database in 2010. As the table of measures is part of the catalogue of measures, also this document should be supplemented and enhanced on an ongoing basis with new examples. News examples should be integrated especially based on practical experience gained in individual regional projects in the pilot regions of the ECONNECT project.

### The Continuum Project

#### V TABLE

The table is a very comprehensive document which should primarily be used as a digital version. When printed out in its entirety, the table is somewhat unwieldy and its contents are difficult to navigate unless queries are carried out. Therefore in this document, in order to explain how it works, the table is only shown in sections, e.g. by means of sample queries.

The table is essentially structured in line with the layout of the profiles. The categories are set out as columns and are shown in the header of the table. On the whole, the table is self-explanatory and requires no additional clarification. Figure 1 shows an image of the table in Excel format.

The screenshot shows an Excel spreadsheet with a header row containing various categories such as 'Measure', 'Description', 'Location', 'Priority', 'Status', and 'Contact'. Below the header, there are several rows of data, each representing a different measure. The table is quite large and contains a lot of text, making it difficult to read in detail from the image.

Figure 1: Table relating to the catalogue of measures

#### 1. Sample evaluations

##### 1.1 Stakeholders

A total of eight stakeholders have been identified for this catalogue as initiators of ecological network measures, and some six different stakeholder groups have also been included under "other". Nature conservation and agriculture appear to be the most important stakeholders for the majority of measures, and many measures can also be implemented with the

Catalogue of measures							
evaluation and search tool							
No.	name of measure	main sector	habitat/species approach	main effects on	main area of application	other priority areas	altitude level
		agriculture forestry water conservancy hunting land use planning tourism nature conservation traffic other	habitat approach species approach habitat and species approach	1: small mammals 2: large mammals 3: reptiles 4: amphibians 5: birds 6: insects 7: fish	Priority Conservation Areas densely populated areas river catchment periphery of protected area large forest areas areas under pressure from agriculture, residential areas etc.	1: Priority Conservation Areas 2: densely populated areas 3: river catchment 4: periphery of protected areas 5: large forest areas 6: areas under pressure from agriculture, residential areas etc.	low altitude medium altitude high altitude low and high altitude
		Recherche...	Recherche...		Recherche...		Recherche...
5.1.2.	corridors for small animals	traffic	habitat and species approach	1, 3, 4, 6	areas under pressure from agriculture, residential areas etc.	1, 2, 4, 5	low altitude
3.3.2.	agricultural field margin projects	agriculture	habitat and species approach	1, 3, 4, 5, 6	areas under pressure from agriculture, residential areas etc.	1, 2, 4	low altitude
5.1.1.	measures for seasonal amphibian migration	nature conservation	species approach	4	densely populated areas	1, 3, 4, 6	low altitude
3.3.1.	programme for species-rich grasslands	agriculture	habitat approach	6	areas under pressure from agriculture, residential areas etc.	1, 2, 4	low and high altitude
4.3.1.	conservation of ecologically significant trees i.e. trees with holes	forestry	habitat and species approach	1, 5, 6	large forest areas	1, 4	low and high altitude
2.2.2.	grazing projects - landscape conservation with sheep	agriculture	habitat and species approach	6	areas under pressure from agriculture, residential areas etc.	1, 4	low and high altitude
1.2.4.	species conservation measures: beaver	water conservancy	species approach		river catchment	1	low altitude
11.1.2.	biotope management on power line routes	other: energie	habitat and species approach	1, 2, 3, 4, 5, 6	areas under pressure from agriculture, residential areas etc.	1, 2, 3, 4, 5	low and high altitude
6.2.1.	creation of fish ladders and other migration aids	water conservancy	habitat and species approach	6, 7	river catchment		low altitude
5.1.4.	wildlife bridges and crossings	land use planning	habitat and species approach	1, 2, 3, 4, 6	densely populated areas	1, 6	low altitude
7.1.2.	information campaigns in cities and small communities	nature conservation	habitat and species approach	1, 3, 4, 5, 6	densely populated areas	6	low altitude

**Title in English** : Database of possible measures that can improve ecological connectivity in the Alps

**Title in other available languages** : Datenbank möglicher Massnahmen zur Verbesserung der ökologischen Vernetzung im Alpenraum (DE)

**Languages** : English, German

**Authors** : Yann Kohler (Task Force Protected Areas), Anne Katrin Heinrichs (National Park Berchtesgaden)

**Editors** : Ecological Continuum Initiative

**Target groups** : Research, administrations, NGOs, protected areas, policy makers, public

**Key words** : Search, filter, measures, implementation

**Type of document** : Database/Excel file

**Year** : 2009

**Updates/Appearance** : The first update is being undertaken currently

**Number of pages** : Excel file

**Format** : Digital

**Download/Contact** : [www.alpine-ecological-network.org/images/stories/090330eMeasureCatalogueContinuum.xls](http://www.alpine-ecological-network.org/images/stories/090330eMeasureCatalogueContinuum.xls) (EN)  
: [www.alpine-ecological-network.org/images/stories/090330dMassnahmenkatalogKontinuum.xls](http://www.alpine-ecological-network.org/images/stories/090330dMassnahmenkatalogKontinuum.xls) (DE)

**Remarks** : -

## Report of the Pilot Region

### Workshop in Val Müstair, 27-28

### October 2008

In October 2008 a workshop took place in Müstair (CH) with the main objective to present the results of the Continuum Initiative to the experts in the pilot region "Inn – Etsch/Rhaetian triangle", which is also one of ECONNECT's pilot regions. The following discussion was aiming at ensuring the adjustment of the outcomes of the Continuum Initiative to the specific conditions of the region and identifying key areas of work for ECONNECT.

The participants of the workshop represented all countries having a share in the pilot region (Italy, Austria and Switzerland) and were mostly representatives from authorities but also staff of protected areas and NGOs. Also people being actively involved in forestry and agriculture have been invited to the workshop.

First, the results of the Continuum Initiative were presented. Thomas Scheurer (ISCAR) summarised the outcomes of the report "Evaluation of approaches for designing and implementing ecological networks in the Alps" (compare chapter 4) which has been conducted in the course of the Continuum Initiative. Afterwards Yann Kohler (Task Force Protected Areas) was going into details concerning the catalogue of measures and its additional value (compare profile in this chapter). Sina Hölscher (WWF European Alpine Programme) presented several communication tools which have been developed in the course of the initiative's activities. The material can be used by all interested people even though it is especially

suitable to be applied in ECONNECT and other ongoing activities in the Alps.

Afterwards, ongoing regional projects were presented and discussed. Several projects offer points of contact for further activities in the process of establishing an ecological network. The "Connectivity Projects Kanton Graubünden" concentrate on farmers to implement connectivity with support of subsidies from the Swiss Federation. The initiative "XEROS" based on a cooperation of WWF Graubünden, Division Nature and Landscape (Authority of Southern Tyrol), and Nature Park Kaunergrat concentrates on dry habitats. Dry grasslands are also the focus of the project "Success on the field" where farmers are important partners. But also companies are being involved for habitat management tasks, contributing to communication and awareness rising. "INSCUNTER" is another initiative taking place in the pilot region "Inn – Etsch". It is a model project for establishing a network of different partners in the region. In the course of the initiative the foundation "Pro Terra Engiadina" was established in order to secure the implementation of the project's aims after the termination of INSCUNTER itself.

In the following discussions several ideas have been collected for possible activities on different levels which can be undertaken in the course of the project ECONNECT, like e.g. mainstreaming ecological networks, fostering cooperation, analysing legal



and physical barriers. Altogether six fields of action were identified: Implementation of the "Strategic implementation guidelines" of the Continuum Initiative, improving habitat connectivity, dry grasslands, river management at Rombach, apple cultures in the Vinschgau, cooperation with Trentino.

The Annex of the report contains additional information and documents. The "Strategic implementation guidelines" which have been developed in the frame of the Continuum Initiative support the implementation of an ecological network by recommending a procedure for pilot regions. Moreover, a list of participants can be found as well as a list of all projects taking place in the pilot region "Inn – Etsch" which are related to ecological networks.



Species-rich mountain meadows in Ramosch: In the pilot region "Inn – Etsch/Rhaetian triangle" connecting living spaces has a high priority.

© Markus Jenny

<b>Title in English</b>	Report of the Pilot Region Workshop in Val Müstair, 27-28 October 2008
<b>Title in other available languages</b>	Kurzbericht über den Pilotregionen Workshop in Val Müstair, 27-28 Oktober 2008 (DE) Rapporto workshop regione pilota Val Müstair, 27-28 ottobre 2008 (IT)
<b>Languages</b>	German, Italian
<b>Authors</b>	Thomas Scheurer (ISCAR), Sina Hölscher (WWF), Ruedi Haller (Swiss National Park), Angelika and Walter Abderhalden (Arinas)
<b>Editors</b>	Ecological Continuum Initiative
<b>Target groups</b>	Administrations, NGOs, protected areas, policy makers, public
<b>Key words</b>	Workshop, local stakeholder integration, focus activities, implementation
<b>Type of document</b>	Report
<b>Year</b>	2008
<b>Updates/Appearance</b>	Not intended
<b>Number of pages</b>	24
<b>Format</b>	Digital
<b>Download/Contact</b>	<a href="http://www.alpine-ecological-network.org/images/stories/Bericht_Workshop_Mustair(3).pdf">www.alpine-ecological-network.org/images/stories/Bericht_Workshop_Mustair(3).pdf</a> (DE) <a href="http://www.alpine-ecological-network.org/images/stories/081127iRapportoContinuumEconnectMustair.pdf">www.alpine-ecological-network.org/images/stories/081127iRapportoContinuumEconnectMustair.pdf</a> (IT)
<b>Remarks</b>	-

## 6. Awareness raising and communication



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Connectivity is a crucial element of biodiversity. However the ideas, concepts and notions that are behind connectivity can be difficult to grasp for the general public and certain stakeholders. Moreover they are sometimes impervious to even some of the actors that are essential in ensuring that connectivity is safeguarded. Therefore communication is strategically important to explain why connectivity is important. People who realize the significance of connectivity will be more easily moved to action.

On the one hand, making the general public more aware of the importance of connectivity (and how it relates to biodiversity as a whole) can help create a favourable environment for the connectivity activities that are underway at the different levels from local to international. On the other hand, targeted communication can help bring about the conditions for stakeholders, politicians and planners to make more concerned and connectivity-conducive decisions.

As the previous chapters have shown, ecological networks can only be successfully implemented if many different actors contribute to this shared objective. Communication and awareness raising are indispen-

sible to explain to all these actors the importance of ecological connectivity and the role they can play to improve it. Different communication tools have been developed to do this.

The brochure "Restoring the web of life" explains this especially to non experts in an easily understandable way in five languages (see profile). On their websites and by the means of the respective newsletters in English language, the three pan-Alpine activities give up-to-date information on what they are doing (see profile). The most important milestones are communicated to the media via press releases in five languages. The website [www.alpine-ecological-network.org](http://www.alpine-ecological-network.org) offers many documents for download and access to databases that list experts, projects, publications, links and events that are related to the topic of ecological connectivity.

Compact information in printed format is available on ECONNECT with its project flyer in five languages (available on [www.econnectproject.eu](http://www.econnectproject.eu)). Stakeholder specific information is offered to different stakeholder groups from tourism to land owners in three languages by the "Fact Sheets" of the Ecological

Continuum Initiative (see profile). CIPRA's information bulletin "AlpsInsight" nr. 90 explains in several articles "Why only connected habitats stay diversified". The articles range from basic information on the concept of ecological networks to interviews with key persons, examples from single regions, an overview on the main pan-Alpine activities and up-to-date research work. The bulletin is available in four languages (see profile).

In order to support clear and precise communication on ecological networks in the different languages, the Ecological Continuum Initiative has compiled a glossary with English definitions and translations of the most relevant terms in German, French, Italian and Slovenian (see profile). Persons who want to communicate on the topic are offered tools such as several posters (with only little – “the eye catcher poster” –

or more text on the general topic of ecological networks in the Alps and a poster in five languages on the ECONNECT project) and templates with standard contents for power point presentation on the three pan-Alpine activities and on ECONNECT.



To move people to action we have to make them realize the significance of ecological connectivity. A poster exhibition can help people understand the topic and the possibilities of their contribution.

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## Restoring the Web of Life – Ecological networks for more biodiversity in the Alps

The attractively designed and colourful brochure is a useful tool for the communication with non experts. The format of the content is especially aiming at different stakeholder groups and the wide public who are important partners for the successful establishment of an ecological network. The brochure can e.g. be used to accompany exhibitions, information events or other meetings. It can also be displayed in information centres of protected areas or other administrations, in particular in the pilot regions.

The brochure contains important information about ecological networks in the Alps and summarises all recent activities which are undertaken to restore the Alpine web of life. It comprises a short outline of main characteristics of the Alpine biodiversity before going into detail about species migration, fragmentation and connectivity. The influence of the intensification of human activities is explained which changes the landscape and leads to increasing fragmentation thus affecting species and their migrating possibilities. Also the impact of climate change is described as well as the need to consider different levels of intervention in order to develop effective strategies to improve ecological connectivity.

After this introduction the focus is turned to recent efforts in the Alps to establish an ecological network. The activities of Alpine countries are summarised in the light of global and European initiatives like the Convention on Biological Diversity and the pan-



European ecological network. As communicating the value of connected habitats and ultimately taking action on the ground are the most important factors for the successful establishment of an ecological network, all sectors which are essential for the planning and implementation process are described in detail. It is explained which share politicians, land use and traffic planning, agriculture, hunting and forestry, waterways as well as individuals have in enhancing ecological connectivity.

Even though ecological connectivity has to be considered in all disciplines as well as for all landscape types, protected areas play a major role for the establishment of an ecological network. Due to their high ecological value they serve as important core areas and are starting points for initiating the planning process. A map of the Alpine arc shows all protected areas and the pilot regions which are currently working on the establishment of an ecological network in the course of several activities.

The Ecological Continuum Initiative is promoted by ALPARC, CIPRA, ISCAR and WWF and aiming at preserving the natural diversity of the Alps as well as a high degree of habitat connectivity. Initiating, promoting and mentoring activities, providing know-how and building awareness are the priorities of the initiative. The Platform Ecological Network of the Alpine Convention brings together representatives of the Alpine countries, protected areas, Alpine institutions and other experts in order to support the

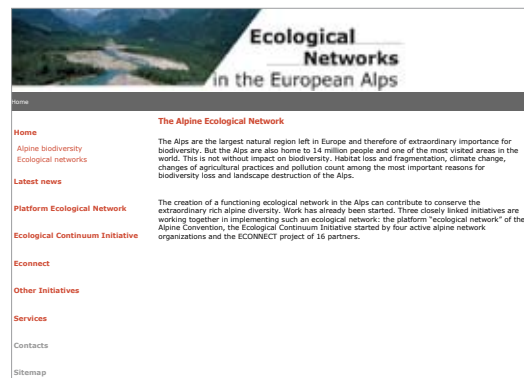
creation of a cross-border alpine network. Thus the platform puts into practice the nature protection goals of the Alpine Convention. The ECONNECT project applies first outcomes of the Continuum Initiative as well as of the platform's work on the ground and takes first steps in implementing ecological connectivity in several pilot regions in the whole Alpine arc.

The conservation of species and ecosystems is the main objective of current activities in the Alps. Enhanced ecological connectivity also serves humankind as it provides a variety of ecosystem services – from protection of flooding and avalanches to the attractiveness of landscapes for tourism and its value for local identity. Finally, mountain ecological networks are not only important in the Alps but also in the adjacent mountain ranges like the Carpathians, the Balkan Mountains and the Pyrenees as well as in the landscape in between.

<b>Title in English</b>	Restoring the Web of Life – Ecological networks for more biodiversity in the Alps
<b>Title in other available languages</b>	Natur ohne Grenzen – Ökologische Netzwerke für mehr Biodiversität in den Alpen (DE) Nature sans frontières – Des réseaux écologiques pour une plus grande biodiversité dans les Alpes (FR) Natura senza confini – Reti ecologiche per rafforzare la biodiversità alpina (IT) Narava brez meja – Ekološka omrežja za večjo biotsko raznovrstnost v Alpah (SL)
<b>Languages</b>	English, German, French, Italian, Slovenian
<b>Authors</b>	-
<b>Editors</b>	Ecological Continuum Initiative
<b>Target groups</b>	Administrations, NGOs, protected areas, policy makers, public
<b>Key words</b>	Communication, biodiversity conservation, mobility of animals, stakeholder, protected areas, ecosystem services
<b>Type of document</b>	Communication tool/Brochure
<b>Year</b>	2010
<b>Updates/Appearance</b>	This brochure is a revised and updated version of a brochure issued in 2008.
<b>Number of pages</b>	12
<b>Format</b>	Digital and print
<b>Download/Contact</b>	<a href="http://www.alpine-ecological-network.org/index.php/services-mainmenu-8/downloads-documents#brochure">www.alpine-ecological-network.org/index.php/services-mainmenu-8/downloads-documents#brochure</a>
<b>Remarks</b>	Printed versions can be ordered at: <a href="mailto:info@alparc.org">info@alparc.org</a>

## Website Ecological Networks in the European Alps

The website Ecological Networks in the European Alps ([www.alpine-ecological-network.org](http://www.alpine-ecological-network.org)) contains all information in the context of current activities to establish an Alpine ecological network. The information on the various pages of the website is issued jointly by the consortium of the Ecological Continuum Initiative (ALPARC/CIPRA/ISCAR/WWF) and the presidency of the Platform Ecological Network of the Alpine Convention. The consortium and the presidency share the responsibility for the content of the website. The website contains sections about the ongoing activities Platform Ecological Network, "Ecological Continuum Initiative", and "ECONNECT". Moreover, the section "Latest news" presents a wide range of up-to-date information in the context of ecological networks. In the section "Other initiatives" visitors can follow a link to the CIPRA alpMedia dossier on ecological networks which gives an overview on instruments such as conventions, legislation, regulations and programmes that play an important role in the establishment of ecological networks at global, pan-European, European and national level (compare chapter 3). The core of the website is, however, the section "Services" where information on research projects, experts and relevant publications are provided through a database which can be browsed by full text search, by topics and by countries. Moreover, all electronic documents that have been produced by the Platform Ecological Network and the Ecological Continuum Initiative such



as reports, newsletters and brochures can be found and downloaded. As the ECONNECT project has its own independent website, no detailed information on this project is given.

### Platform Ecological Network

The specific information about the Platform Ecological Network (more information about the platform can be found in chapter 2) is provided by the presidency of the platform and comprises the following sections:

- About the Platform "Ecological Network": the mandate and establishment history of the platform is outlined according to the Alpine Convention (see also chapter 3)
- Country reports: At the first meeting of the platform in March 2007 the representatives of member states agreed to compile country reports on the status of ecological networks in their countries. The reports should inform other bodies of the Alpine Convention in regards to ecological network activities and enable the platform to take decisions on priorities of its work. The summary of the reports can be downloaded in this section (compare chapter 3).
- Pilot Regions: Protected areas and their surroundings are key elements for the establishment of an ecological network in the Alps. Therefore, the Platform Ecological Network aims at identifying and nominating pilot regions, consisting of protected areas and their surroundings. Pilot regions are the first to implement innovative measures and thus

motivating other regions to get engaged in ecological networking. To take advantage of the title “pilot region” for marketing and advertising, an official nomination concept has been developed in the frame of an R&D project, supported by the German Federal Agency for Nature Conservation. The final report of the R&D-Project can be downloaded in this section (compare chapter 4).

- **Announcements:** This section gives an overview of current activities and meetings, like meetings of the Platform Ecological Network or the release of new information material.
- **Documents:** In this section information material as well as official documents of the Platform Ecological Network can be found and downloaded.
- **Contact:** Contains contact details of the Platform Ecological Network under the current French Presidency.

### Ecological Continuum Initiative

The specific information about the Ecological Continuum Initiative (more information about the initiative can be found in chapter 2) is provided by the consortium and comprises the following sections:


- **Partners:** This section contains short descriptions of the four partners who initiated the Ecological Continuum Initiative.
- **Think tank:** As the Continuum Initiative decided to focus on further connectivity activities with long-term issues, the Continuum partners are now aiming at the preparation of follow-up projects beyond ECONNECT to ensure that the fundamentals built up during this project can be used for further concerted implementation projects. Such new projects have to be developed referring to the existing expertise on ecological networks and followed up by integrating available scientific and practical experts into such a process. In this context, the Continuum Partners have established a think tank on ecological networks which gathers most of the available expertise in Alpine countries. The think tank is a pool of experts who cooperate in a problem and result oriented way and is opened for new contributions.

The concept on think tank is available in this section of the website, as well as the details on the three think tank workshops. Their results will also be published here.

- **Methods:** In order to provide a methodological support for all connectivity activities in the Alps, the Continuum Initiative evaluated existing approaches and methods for designing and implementing ecological networks. A small group of scientists and practitioners has compared four different approaches to find the most efficient application of these methods and assess the reliability of available results. The outcomes of this study are summarised in the assessment report “Evaluation of approaches for designing an implementing ecological networks in

the Alps” which can be downloaded from the website (compare chapter 4).

- **Measures:** In the frame of the Ecological Continuum Initiative a catalogue of measures has been elaborated which lists 69 possible measures from all Alpine countries that can contribute to the implementation of ecological networks. The measures show how elements of an ecological network can be created, conserved or restored. The catalogue of measures has been developed mainly as an instrument to be used by the pilot regions of the Continuum Initiative and the ECONNECT project but of course it can also be used by other stakeholders. An excel table with summarised descriptions of all measures is part of the catalogue. It can be used as a database in order to select single measures that are suitable for different situations. The report and the database can be downloaded from the website (compare chapter 5).
- **Pilot regions:** The Continuum Initiative has initiated and set up the work in four pilot regions. Since 2008, this work is deepened and continued with the view of implementing ecological connectivity on the ground in the frame of the ECONNECT project. Three more pilot regions have been associated to ECONNECT. The initial four pilot regions are described with their main characteristics in this section. Moreover, relevant information can be found like the Strategic implementation guidelines and several documents of the first pilot region workshop in Val Müstair, 27-28 October 2008 (compare profile in chapter 5).
- **Communication:** One important aspect of the Ecological Continuum Initiative is communication to raise the public’s awareness of the importance of protecting biodiversity and establishing an alpine ecological network. Several communication materials have been developed in the course of the initiative which can be downloaded from the according section (compare profiles in this chapter). 2010 will be a special year for communication purposes as the UN-mandated Year of Biodiversity particularly enables mainstreaming the topic of ecological connectivity.



**Ecological Networks in the European Alps**

Home > Ecological Continuum Initiative

**Ecological Continuum Initiative: Catalysing and Multiplying Alpine Connectivity**

**Home**

**Latest news**

**Platform Ecological Network**

**Ecological Continuum Initiative**

- Partners
- Think Tank
- Methods
- Measures
- Pilot regions
- Communication

**Econnect**

**Other Initiatives**

**Services**

**Ecological Continuum Initiative**

In June 2007 ALPARC, CIPRA, ISCAR, and WWF have initiated the Ecological Continuum Initiative to lay the foundations for the long-term implementation of a coherent ecological network in the Alps. A joint alpine set of methodologies for connecting important areas and a catalogue of possible measures to enhance connectivity have been developed. In addition, four pilot regions have been chosen across the Alpine arc to carry out first concrete implementation actions. These activities will include, for example, zoning measures, protected area enlargement based on the needs of ecological systems, creation of ecological corridors and sustainable use agreements with farmers, foresters, hunters or tourism operators.

One crucial part of the efforts is to be seen in informing decision makers at the local, regional, national and international level on the importance of the ecological continuum. This is a pre-condition for considering biodiversity aspects appropriately in planning and policy decisions. For this, a profound and coherent communication strategy has been prepared. Ultimately, the Continuum Initiative provides the foundation for the work of the Platform "Ecological Network" of the Alpine Convention to further develop regional and cross-boundary connectivity projects within the Alps.

In 2009, the emphasis of the Ecological Continuum Initiative lay on the preparation of awareness raising activities in the UN year of Biodiversity 2010, on the further development and dissemination of already existing instruments and results as well as on the conception for an Alps-wide competence network. Close cooperation with the Platform Ecological Network of the Alpine Convention and with the ECONNECT project continued playing an important role. The Consortium partners will also integrate with the national initiatives like "Trame verte et bleue" in France or REN in Switzerland.

The Ecological Continuum Initiative is financed by the Swiss MAVA Foundation for Nature.

The common website of the presidency of the Platform Ecological Network of the Alpine Convention and the Ecological Continuum Initiative keeps up to date with information, events and expertise on ecological connectivity topic in the Alps.

<b>Title in English</b>	Website Ecological Networks in the European Alps
<b>Title in other available languages</b>	-
<b>Languages</b>	English
<b>Authors</b>	Consortium Ecological Continuum Initiative/CIPRA (Aurelia Ullrich), Platform presidency/ French Ministry of Ecology, Energy, Sustainable Development and the Sea (Marie-Odile Guth)
<b>Editors</b>	Ecological Continuum Initiative, Presidency of the Platform Ecological Network
<b>Target groups</b>	Research, administrations, NGOs, protected areas, policy makers, public
<b>Key words</b>	Ongoing activities in the Alps, database, download
<b>Type of document</b>	Communication tool/Website
<b>Year</b>	Since March 2008
<b>Updates/Appearance</b>	The website is being regularly updated
<b>Number of pages</b>	-
<b>Format</b>	Website
<b>Download/Contact</b>	<a href="http://www.alpine-ecological-network.org">www.alpine-ecological-network.org</a>
<b>Remarks</b>	-

## Website of the ECONNECT project

The website [www.econnectproject.eu](http://www.econnectproject.eu) is the official web presence of the project ECONNECT (details about the project can be found in chapter 2). Information is available in English and in the languages of the project (French, German, Italian and Slovenian).

The website contains all relevant information about the project. In the section "Home" a short description of the project is given. A more detailed summary can be found in the section "About the project" where the main project objectives as well as the methodological approach are described. As ECONNECT's emphasis is on the implementation of measures in pilot regions all seven pilot regions are characterised in the respective section. Additionally, a map for each Pilot Region will be included to allow visitors to locate the areas where the project is focusing on.

The work load of the project is organised in eight different Work Packages which are explained in the section "Work Packages". A short overview of the according tasks and the Work package leader's contacts are given. The strong cooperation of partnership which allows for the successful implementation of the project is outlined in the section "Partners & Observers" where all project partners as well as observers are described.

The section "News & Events" contains news about the project itself and other activities related with ecological networks; it is updated at least weekly or more often if an interesting news comes out. Also a calendar tool can be found where all relevant events

concerning project meetings (internal and external) and ecological networks across the Alps are included. In addition, the website offers also the possibility to follow a link to CIPRA's infoservice alpMedia to stay informed about recent activities. Moreover, it is possible to subscribe to the ECONNECT newsletter, which can also be consulted in the download area, and to ECONNECT RSS.

Relevant documents like press releases can be downloaded in the according section whereas the section "Links" includes a collection of other relevant websites.





One of the important communication and awareness raising tools of the ECONNECT project is the website which is available in English, German, French, Italian and Slovenian language.

<b>Title in English</b>	Website ECONNECT: Restoring the web of life
<b>Title in other available languages</b>	-
<b>Languages</b>	English, German, French, Italian, Slovenian
<b>Authors</b>	WWF Italy
<b>Editors</b>	-
<b>Target groups</b>	Research, administrations, NGOs, protected areas, policy makers, public
<b>Key words</b>	Pilot regions, work packages, partners, calendar, downloads
<b>Type of document</b>	Communication tool/website
<b>Year</b>	Since October 2008
<b>Updates/Appearance</b>	The website is being regularly updated (the news and the calendar sections are updated at least weekly or whenever is needed, the other parts every three months)
<b>Number of pages</b>	-
<b>Format</b>	Website
<b>Download/Contact</b>	<a href="http://www.econnectproject.eu">www.econnectproject.eu</a>
<b>Remarks</b>	-

## Fact Sheets

The Fact Sheets have been developed and published by the Ecological Continuum Initiative and are addressed to a wide range of different target groups. They summarise the most important facts in terms of ecological connectivity for each target group. At the moment the following Fact Sheets exist:

- Nature protection
- Local communities
- Agriculture
- Forestry
- Hunting
- Spatial planning
- Landowners
- Transport
- Water management
- Tourism

Main objective of the Fact Sheets is to outline how the particular stakeholders can contribute to an ecological network in the Alps. Each Fact Sheet contains information about the importance of

ecological networks in general. Moreover, existing links between the target groups and ecological connectivity are analysed, giving examples of possible contributions of each target group. A set of potential measures is presented which can be undertaken in order to enhance ecological connectivity. One best practice example which has been implemented in the Alps is described in detail.

By raising awareness of the topic and giving concrete examples on how an improvement of the situation is feasible the respective target group is being motivated to take action and contribute to an ecological network in the Alps.



A good practice example at the back side of each Fact Sheet illustrates successful implementation of ecological connectivity measures.

Comment y contribuer ?

✓ **Aménagement d'éléments paysagers**

- Maintien ou création de différents éléments structurels paysagers et agricoles (haies, jachères, prairies extensives, arbres fruitiers à haute tige, arbres isolés, murs de pierres sèches, etc.,
- Enherbement hivernal, bandes enherbées, bordures de champs et surfaces fleuries
- Semis riches en espèces sauvages sur les surfaces en jachère, etc.
- Mise en place de surfaces de compensation écologique dans les territoires exploités de manière intensive.

✓ **Mesures d'entretien**

- Entretien des éléments structurels paysagers et agricoles pour assurer le réseau écologique à long terme
- Débroussaillage des surfaces d'intérêt écologique (pelouses sèches, etc.).

✓ **Exploitation plus extensive et plus écologique**

- Extensification de l'exploitation pour maintenir le paysage rural avec ses biocénoses typiques
- Promotion de l'agriculture biologique pour éviter et réduire les atteintes environnementales

- Réduction ou utilisation ciblée des engrais, des pesticides et des herbicides
- Réduction de la fréquence des fauches, fauches plus tardives et utilisation de techniques de fauche adaptées dans les prairies
- Rotation culturale extensive et diversifiée et réduction de la densité d'ensemencement des céréales dans les terres arables
- Interruption de l'exploitation lors des périodes de reproduction des oiseaux indigènes
- Maintien et promotion de l'agriculture extensive existante, et mesures pour empêcher les abandons d'exploitation.

Ces mesures ne doivent pas être mises en œuvre de manière isolée, mais intégrées dans une stratégie de création de réseaux écologiques. Pour en savoir plus, consulter le catalogue de mesures présenté sur le site [www.alpine-ecological-network.org/index.php/the-ecological-continuum-initiative/measures](http://www.alpine-ecological-network.org/index.php/the-ecological-continuum-initiative/measures) (en)



**Les trésors des prairies à monticules**  
Pendant des siècles, les zones à monticules ont été exploitées en tant que prairies. Pour faciliter cette exploitation, de grands espaces ont été nivelés. C'est aux alentours de Mittenwald/D qu'existent les plus grands résidus de prairies à monticules de tout l'espace alpin. On en trouve aussi dans le Parc national du Triglav/SI.  
Les prairies à monticules de Mittenwald ne constituent pas seulement une spécificité paysagère, elles présentent aussi une très grande diversité d'espèces. Plus de 200 espèces végétales croissent sur ces sols acides et pauvres en nutriments, notamment la gentiane de Koch, qui est particulièrement protégée.  
Pour conserver ces prairies de grande valeur, on a renoncé à les niveler et à leur apporter de l'engrais, et on ne les exploite désormais plus que de manière extensive. [www.alpenallianz.org/de/good-practice/43](http://www.alpenallianz.org/de/good-practice/43) (de, it)



<b>Title in English</b>	Available Fact Sheets: Nature Protection, Local communities, Agriculture, Forestry, Hunting, Spatial planning, Landowners, Transport, Water management, Tourism
<b>Title in other available languages</b>	Example for Nature Protection: Naturschutz und ökologische Netzwerke im Alpenraum (DE) Protection de la nature et réseaux écologiques dans les Alpes (FR) Protezione della natura e reti ecologiche nelle Alpi (IT)
<b>Languages</b>	German, French, Italian
<b>Authors</b>	CIPRA
<b>Editors</b>	Ecological Continuum Initiative
<b>Target groups</b>	Policy makers, administrations, NGOs, public
<b>Key words</b>	Stakeholder, information, action
<b>Type of document</b>	Communication tool/Fact Sheet
<b>Year</b>	2010
<b>Updates/Appearance</b>	Currently not intended
<b>Number of pages</b>	2
<b>Format</b>	Digital and print
<b>Download/Contact</b>	<a href="http://www.alpine-ecological-network.org/index.php/services-mainmenu-8/downloads-documents#factsheets">www.alpine-ecological-network.org/index.php/services-mainmenu-8/downloads-documents#factsheets</a>
<b>Remarks</b>	-

## AlpsInsight No. 90: Schengen for Flora and Fauna – Why only connected habitats stay diversified

The periodical "AlpsInsight" is published four times a year by CIPRA International. The focus of the issue from April 2009 is on the role that connected habitats play in terms of biodiversity conservation.

In the first contribution Yann Kohler describes the paradigm change which took place in nature conservation in the last years. As protected areas fail to halt the loss of biodiversity new strategies evolved taking into account the existing interdependencies and exchanges between protected areas and its surroundings. Protected areas as isolated islands in an intensely utilised landscape in which natural ecosystems are destroyed and fragmented heavily are not able to conserve biodiversity in the long run. This concept of nature conservation neglects that most species are mobile and moving far beyond designated protected areas and even national borders. Dynamic strategies, however, consider connections in the landscape as crucial elements to allow for migration and exchange between populations. These connecting elements constitute the ecological network together with protected areas as core zones.

The following text by Yann Kohler outlines the status quo of ecological networks – in the Alps the pressure is mainly on the valleys where human activities are most intense. But protected areas in the Alpine arc are mainly situated in higher regions thus not covering the heavily utilised lower areas in the valleys. For the establishment of an ecological network these critical areas have to be included in conservation strategies.



This concept is already being implemented in the Isère department in the French Alps. Here a comprehensive concept was elaborated which is currently put into practice with support of the European Union. The focus is on the conservation of wetlands as they provide important structures for different amphibians. The Isère department is leading in terms of ecological connectivity not only in France but in the whole Alps. Ecological networks and intact ecosystems are not only important for species but also for humankind. Robert Home and Marcel Hunziker explain how a project at the ETH Zurich investigated why many people spend their free time in nature. In this context the researchers also found out that connectivity is only being noticed if people are aware of its functionality and the value of structural diversity in the landscape. Accordingly, communication is a key factor for successfully establishing the understanding of the importance of ecological networks among the key actors. The project "Enhance" which is currently being conducted at the ETH tries to evaluate the benefit ecological networks have for experiencing nature.

Ecological connectivity is not only important for the famous large carnivores like bear and wolf but also for several other smaller animals and even plants. Their biggest problems are increasing numbers of barriers like roads, dams and the deterioration of natural habitats. For several birds, fishes, insects, mammals and plants in the Alps these aspects are

severe threats, how the overview by Fabian Lippuner and Mateja Pirc in AlpsInsight shows.

Rivers are also important parts of ecological networks as they serve as natural connecting elements due to their dendritic geometry. The Tagliamento is the last natural unspoiled river in the Alps connecting the Alpine region with the Mediterranean Sea. But the river is in danger as plans are getting concrete to build constructions for flood protection. The authors Barbara Wülser, Leopold Füreder conclude that only due to the efforts of the WWF and some researchers the pressure has become so high that it is getting unlikely that the plans can be put into practice.

An interview by Carola Renzikowski with Michael Vogel, director of Berchtesgaden National Park and president of ALPARC, underlines how important

nature conservation generally, and ecological networks in particular, are for the future. Michael Vogel also stresses the role politicians and politics play in reaching the ambitious goals of global nature conservation.

However, a strong network of reliable partners supports current efforts for the establishment of an Alpine ecological network, as shown by the article from Aurelia Ullrich and Mateja Pirc. The Ecological Continuum Initiative, ECONNECT and the Platform Ecological Network of the Alpine Convention are working hand in hand in order to conserve the biodiversity of the Alpine Space (compare chapter 2).

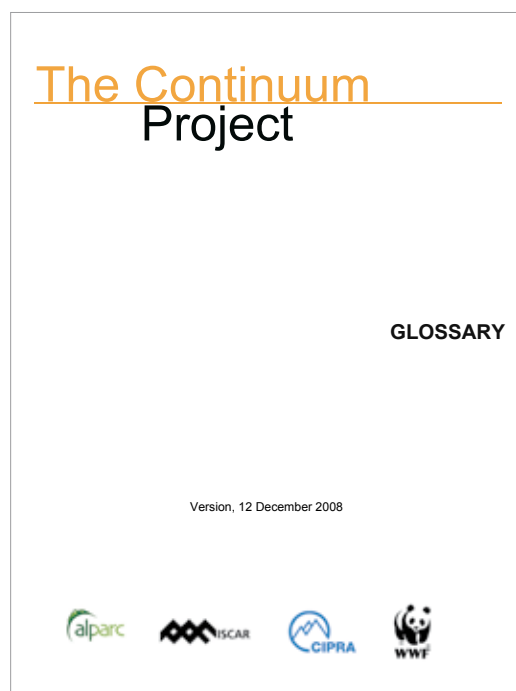
<b>Title in English</b>	AlpsInsight 90: Schengen for Flora and Fauna – Why only connected habitats stay diversified
<b>Title in other available languages</b>	Schengen für Flora und Fauna - Weshalb nur vernetzte Lebensräume vielfältig bleiben (DE) Schengen pour la faune et la flore - Pourquoi seuls les habitats en réseau restent diversifiés (FR) Schengen per flora e fauna - Perché la biodiversità resiste solo in habitat senza confini (IT) Schengen za favno in floro - Zakaj le povezani življenjski prostori ostajajo raznovrstni (SL)
<b>Languages</b>	German, French, Italian, Slovenian
<b>Authors</b>	Fabian Lippuner, Mateja Pirc, Barbara Wülser, Aurelia Ullrich (CIPRA International), Mario Broggi, Silvia Reppe (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety), General Council of Isère department, Leopold Füreder (Institute of Ecology, Innsbruck University), Robert Home & Marcel Hunziker (Swiss Federal Institute for Forest, Snow and Landscape Research), Yann Kohler (Task Force Protected Areas), Carola Renzikowski
<b>Editors</b>	CIPRA International
<b>Target groupss</b>	Research, administrations, NGOs, protected areas, policy makers, public
<b>Key words</b>	Dynamic strategies of nature conservation, ecosystem services, policy, network of partners
<b>Type of document</b>	Communication tool/Periodical
<b>Year</b>	2009
<b>Updates/Appearance</b>	Not intended
<b>Number of pages</b>	24
<b>Format</b>	Digital and print
<b>Download/Contact</b>	<a href="http://www.alpine-ecological-network.org/index.php/services-mainmenu-8/downloads-documents#alpsinsight">www.alpine-ecological-network.org/index.php/services-mainmenu-8/downloads-documents#alpsinsight</a>
<b>Remarks</b>	Printed copies can be ordered at <a href="http://www.cipra.org/de/alpmedia/publikationen/3809">www.cipra.org/de/alpmedia/publikationen/3809</a> (DE) <a href="http://www.cipra.org/fr/alpmedia/publications/3809">www.cipra.org/fr/alpmedia/publications/3809</a> (FR) <a href="http://www.cipra.org/it/alpmedia/publicazioni/3809">www.cipra.org/it/alpmedia/publicazioni/3809</a> (IT) <a href="http://www.cipra.org/sl/alpmedia/publikacije/3809">www.cipra.org/sl/alpmedia/publikacije/3809</a> (SL)

## Glossary

The glossary contains relevant terms in the context of ecological connectivity in English and the respective translation into the four major Alpine languages (German, French, Italian and Slovenian). A short text in English explains each term without claiming to be a truly scientific definition.

The glossary is aiming at facilitating the communication within the Alps as it serves as a baseline and supports a common understanding and terminology. Thus it can be of help for all people being involved in the process of establishing an Alpine Ecological Network. This is especially true for transboundary pilot regions or other cases of strong cross-border cooperation, where communication is sometimes difficult due to language barriers and misunderstandings. The glossary can also support the work of translating processes in the whole Alpine arc.

The document is a “work in progress” so that it is being updated in irregular intervals. Any suggestions, being it corrections, amendments, or any other remark can be addressed to CIPRA (see “Remarks” in the table on the right).



Terms	Definition	German	Italian	French	Slovenian
<i>barrier</i>	An area of unfavorable habitat, or other physical obstacle, that separates two areas of favorable habitat, e.g. oceans in the case of terrestrial organisms, or a cereal monoculture in the case of woodland organisms.	Barriere	barriera	barrière	bariera
<i>biodiversity</i>	Variation of life at all levels of biological organization. Biodiversity is a measure of the relative diversity among organisms present in different ecosystems. "Diversity" in this definition includes diversity within a species and among species, and comparative diversity among ecosystems.	Biodiversität	biodiversità	biodiversité	biološka raznovrstnost
<i>biotope</i>	A biotope is an area of uniform environmental conditions providing a living place for a specific assemblage of plants and animals.	Biotop	biotopo	biotope	biotop
<i>biotope network</i>	The target of biotope network is the protection, regeneration and development of functioning ecological interactions in the territory. Thereby the ecological and spatial-functional requirements of native species to their living space are in the foreground. Network systems shall provide genetic exchange between populations, animal migration as well as natural spread and recolonisation. <sup>1</sup>	Biotopvernetzung	rete di biotopi	réseau de biotopes	mreža biotopov
<i>buffer zone</i>	The buffer zone surrounds the core area and is intended to protect the strictly protected core area against immediate outside influences.	Pufferzone	zona cuscinetto	zone tampon	tamponsko območje
<i>bypass flume</i>	Bypass flumes are built to avoid a obstruction in a river or a waterway, like a dam in a relative wide-ranging way. They are designed as near-natural waterways to ensure the migration of fishes and other water animals.	Umgehungsgrinne	canale d'aggiramento	canal de contournement, canal de dérivation	prehodni kanal
<i>climate change</i>	Climate change refers to the variation in the Earth's global climate or in regional climates over time. It describes changes in the variability or average state of the atmosphere over time scales ranging from decades to millions of years. These changes can be	Klimawandel	cambiamento climatico	changement climatique	podnebna sprememba

Each term is explained in English and translated into four languages.

<b>Title in English</b>	Glossary
<b>Title in other available languages</b>	-
<b>Languages</b>	English, translations of the terms in French, German, Italian and Slovenian
<b>Authors</b>	-
<b>Editors</b>	Ecological Continuum Initiative
<b>Target groups</b>	Research, administrations, NGOs, protected Areas, policy makers, interpreters/translators, public
<b>Key words</b>	Communication, baseline, common terminology
<b>Type of document</b>	Guideline/Handbook
<b>Year</b>	2008
<b>Updates/Appearance</b>	Regular revisions are intended to keep the document up to date
<b>Number of pages</b>	11
<b>Format</b>	Digital
<b>Download/Contact</b>	<a href="http://www.alpine-ecological-network.org/images/stories/glossary(2).pdf">www.alpine-ecological-network.org/images/stories/glossary(2).pdf</a>
<b>Remarks</b>	Suggestions for the glossary can be sent to <a href="mailto:mateja.pirc@cipra.org">mateja.pirc@cipra.org</a>

## 7. A look to the neighbour mountain range – ecological networks in the Carpathians



The Carpathian mountain range covers about 209'000 km<sup>2</sup> of Central and Eastern Europe. It extends from Austria to Serbia, covering most of Slovakia, Romania, as well as parts of the Czech Republic, Hungary and Ukraine. The extraordinary natural and ecological diversity make the Carpathians one of the main natural habitats in Europe, sheltering, among others, the largest European population of large carnivores. The Carpathians form a natural bridge between western and eastern Europe for species migration and genetic exchange.

During several centuries nature friendly human activities resulted in the maintain of natural and in the creation of semi-natural habitats. In contrast, the last decades were marked by negative human influence, which is less respectful towards ecosystems. Nowadays some areas are overindustrialized, in other parts big ski resorts have been developed, often very near or inside a protected area. Intensive farming and forestry make excessive use of chemical fertilizers. Moreover, the landscape fragmentation by roads, highways and railways makes more difficult the ge-

netic exchange of many animal species.

As an answer to this evolution, protected areas have been created. Today, around 18 % of the area of the Carpathian Convention is protected with 300 parks of different protection statuses. These parks often represent connected bilateral or even trilateral (Bieszczadzki NP/PL – Poloniny NP/SK – Uzhans'kyi NP/UA) entities. Similar as in the Alps and other parts of Europe, in the Carpathians during the last years protected areas are considered as insufficient to preserve biodiversity. Connections between high biodiversity areas have to be maintained, restored or improved with the aim of establishing a functioning ecological network.

## Legal and instrumental framework

The legal basis for the development of ecological networks in the Carpathians is very strong. Article 4.5 of the **Carpathian Convention** emphasizes the importance of nature protection and encourages the parties to develop an ecological continuum that could be a constituent part of the Pan-European Ecological Network.

The **Biodiversity Working Group** of the Carpathian Convention is implementing the Protocol on Conservation and Sustainable Use of Biological and Landscape Diversity, in which the continuity and connectivity of natural and semi-natural habitats is stressed as one of the objectives (Objective 10.). The main tasks of this working group are the support activities, more than the direct implementation.

The **Carpathian Network of Protected Areas (CNPA)** has been established by the relevant ministries during the 1st Conference of Parties of the Carpathian Convention in 2006 as one of the most important implementation tools of the Carpathian Convention. The creation of CNPA and its further development are regularly supported from the Alps in particular by the Alpine Network of Protected Areas (ALPARC), Germany and the Principality of Monaco. To frame the activities of the CNPA, a **Medium Term Strategy** has been adopted by the CNPA Steering Committee in May 2010 with four main objectives:

1. Promotion of cooperation on protection, restoration of nature and sustainable use of natural resources, preservation and promotion of the cultural heritage of the Carpathians;
2. Promotion of sustainable livelihoods and sustainable development of the Carpathians;
3. Implementation of the relevant provisions of the Protocol on Conservation and Sustainable Use of Biological and Landscape Diversity;
4. Implementation of decisions and recommendations undertaken by the bodies established under the Carpathian Convention as well as of other applicable relevant international legal instruments.

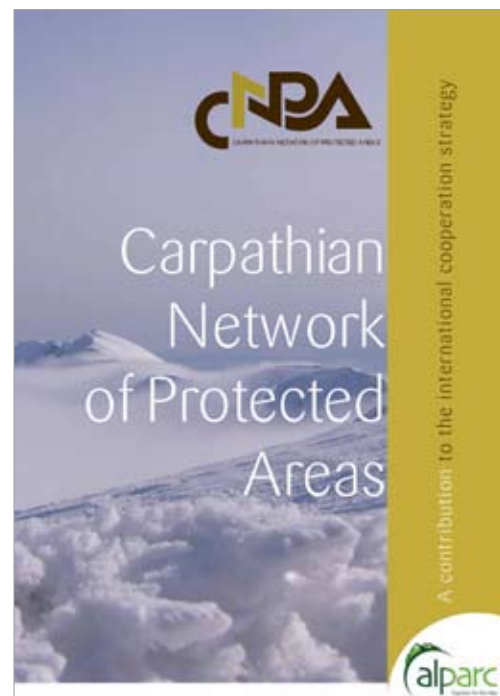
Within these objectives, action 1.6 focuses on the expansion and/or creation of new protected areas as well as on the establishment of an ecological network. As stressed in the Medium Term Strategy, the CNPA should cooperate with all relevant bodies and organizations for the creation of an ecological network of protected areas beyond their borders and biotope connections. By 2015, results in following fields are expected: gap analysis and definition of priority connecting corridors, key mainstays and migratory routes; development of a methodology for the creation of the ecological network and creation of a catalogue of measures and, finally, the designation of and work with pilot areas.

In 2006, representatives of the Carpathian and Al-

pine Convention officially declared their willingness to cooperate with the signature of a Memorandum in the frame of the IX. Alpine Conference. The Memorandum of Understanding foresees a collaboration in the field of protected areas especially by enhancing the networks of protected areas in the Alps (ALPARC) and in the Carpathians (CNPA) as well as the ecological linking-up between the two mountain ranges. Both Conventions should work closely together on the issue of conservation and sustainable use of biological and landscape diversity.

In 2008, the contribution of the work done in the Carpathians and in the Alps for the preservation of biodiversity on a world wide level was affirmed by the signature of a Memorandum of Cooperation between the Convention on Biological Diversity, the Alpine Convention and the Carpathian Convention (see p. 27). Among other topics, the Memorandum foresees the creation of continuity and connectivity of natural and semi-natural habitats.

One chapter of the publication "**Carpathian Network of Protected Areas: A contribution to the international cooperation strategy**" (ALPARC, 2009) is dedicated to the relationships of the CNPA with other mountain areas. The cooperation themes are focused on the principal aims and challenges that protected areas in the Alps and in the Carpathians have to face. Among the ten fields of cooperation, the establishment of an ecological continuum between the Alps and the Carpathians is of high priority.



Establishing an ecological continuum between the Alps and the Carpathians is a major topic for international cooperation between the two mountain ranges.

## Methods

Organizations working mainly on the Carpathian ecological network such as the WWF Danube-Carpathian Programme and the Carpathian Ecoregion Initiative are establishing a methodology for the ecological network. The analysis of satellite images and the definition of potentially suitable and potentially unsuitable zones for migration are core parts of this methodology. Zones of resistance to the natural migrations of species are also defined, and further work is envisaged in these zones. The first step is essentially based on a GIS mathematical model evaluation which is set up on the ecological requirements of large mammals. The red deer (*Cervus elaphus*), is the basic species of the model. During the second step, the zones chosen in the GIS model are more deeply explored in the field and consequences of further actions are verified.

This methodology is applied especially for the project of creation of Alpine-Carpathian ecological corridor in the region of Bratislava (SK) and Vienna (A) and for some other projects on regional scale. In the future, the establishment of a common methodology for the protected areas in the whole Carpathian mountain range should be the priority of the CNPA.

## Implementation

In 2008, the CNPA Steering Committee and participants of the 1st CNPA Conference contributed to a proposal for the **Work plan for the CNPA, 2010-2015**. 27 main working themes grouped in four fields of action are presented in this document. The institutional development, the thematic networking and the communication networking are the main themes of cooperation within the CNPA. The ecological networking, which would ensure a more dynamic nature protection and conservation of the Carpathians, completes the list of main fields of activities of the CNPA. The actions within this issue are divided into two phases. The first phase consists in identifying cross-border parks and large structures of protected areas, which would serve as basis for the establishment of an ecological continuum. Simultaneously, the CNPA shall identify all Carpathian projects improving ecological connectivity, in order to ensure a close cooperation with the main leading organisations. Identifying and defining the pilot areas is the last task of the first phase.

In the second phase, a methodology for creating an ecological network in the whole Carpathian range will be elaborated together with the pilot areas and partners. According to this methodology, a catalogue of measures will be proposed to the stakeholders, decision makers, and protected areas administrations, in order to improve ecological connectivity. The last

stage is the implementation of these measures and the work inside the pilot areas.

As a result of common efforts by non governmental organizations and administrative bodies, a project has been started to contribute to the reestablishment of the migration corridor between the Carpathians and the Alps. The "Alpine-Carpathian Corridor" project is funded by the EU and will run until the summer of 2012. Under the overall responsibility of the Austrian Land Lower Austria, eleven project partners from Austrian and Slovakia in the areas of administration, research, nature conservancy and infrastructure cooperate in the project.

## Communication

The **CNPA website** [www.carpathianparks.org](http://www.carpathianparks.org) is the most important communication tool for the Carpathian Network of Protected Areas. It was developed in 2007 and provides general information about the CNPA and the Carpathians. The website is used mainly by the protected area managers for the exchange of information. In the future, the website will be extended with descriptions of specific projects.



**[www.carpathianparks.org](http://www.carpathianparks.org) provides information in all seven Carpathian languages and in English.**

In order to inform the large public about the Carpathians and about the activities and missions of the CNPA, an **information brochure** has been published by ALPARC together with the website in 2007. Besides the background and history, the brochure explains the main themes of cooperation for the protected areas. Among the main tasks – thematic networking,

## Conclusion and outlook

The creation and maintain of ecological continuity is of big importance for the countries of the Carpathians. Some of them have even the legal obligation to develop and conserve the ecological stability of the ecosystems (i.e. Territorial System of Ecological Stability in Czech Republic and Slovakia) and the creation of new ecological connections is very strongly stressed in the text of the Carpathian Convention. Therefore, a common strategy for the whole Carpathians is needed and its elaboration should be one of the priorities of the CNPA. A first step in this sense would be the creation of a Carpathian working group on ecological networks that has been proposed by the Carpathian Convention.

Nevertheless, until now, the major part of the activities of the CNPA is ensured by Alparc, by the WWF - Danube Carpathian Programme and the Interim Secretariat of the Carpathian Convention with the support and/or contribution of the CNPA Steering Committee. In order to make work on this issue efficient and coherent on the Carpathian scale, a CNPA Coordination Unit needs to be established.

The Alps and the Carpathians cooperate on many themes since several years, but the cooperation on the ecological network issues is still not much developed. For a successful and efficient work towards a functioning ecological network within and between both mountain ranges it is crucial to strengthen exchange and cooperation. The first big step towards this active cooperation will be made in September this year. A joint meeting of the Alpine and Carpathian specialists, protected areas' managers, ministries' and representatives of both conventions will be organized by the Presidency of the Platform Ecological Network and the German Ministry for the Environment together with the Federal Agency for Nature Conservation in Mikulov, on the Czech-Austrian border, aiming to present current activities in both mountain ranges and to allow active exchanges between them.



The Task Force Protected Areas of the Permanent Secretariat of the Alpine Convention supports the communication work of the Carpathian Network of Protected Areas.

facing climate change and awareness raising activities – ecological networking plays a crucial role. The creation of an ecological continuum in the Carpathians is proposed as the most adapted solution to the requirements of a more dynamic nature protection. Special importance is also given to the necessity of cooperation between the Alps and the Carpathians in the field of ecological network creation and in the establishment of a corridor between both mountain ranges, which would allow the natural migration between them.

## 8. Conclusion and outlook



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Joint efforts focussing on the Alpine massif as a whole are contributing directly to a very concrete application of an international treaty, the Alpine Convention, with its protocol on the protection of the natural environment. For the first time in Europe, many different actors from research, administration and non-governmental organisations have committed themselves to join their efforts in order to contribute to the common goal of implementing an ecological network in this big territorial unit constituted by the Alpine massif. This positive and innovative process initiated by and with the Alpine actors may open up the way for other similar actions. In addition, through this effort the Alpine countries are respecting their commitments undertaken within the framework of the Convention on biological diversity (CBD).

Through this common approach focussing on the Alpine area as a whole, the Alps are also contributing to the establishment of the Pan-European Ecological Network (PEEN). This project offers European countries a theoretical vision of a very large-scale ecological network. For the first time in Europe, thanks to the Platform Ecological Network of the Alpine Convention, there is an official commitment from several Alpine countries to translate the theoretical concept of this pan-European network into practical projects on the ground. The Platform requires that national actions are taken in accordance

with the pan-Alpine approach and promotes also an opening up to areas outside the Alps.

With their common efforts, the Alps have become a core element of European biodiversity: they constitute the heart of a second "European green belt", ranging West to East from the Cantabrian mountains in Spain to the Carpathians. First contacts have been taken with neighbouring mountain ranges and some projects have been started to improve ecological connections between the Alps and their surroundings. These efforts will need to be further deepened so that it will be possible for animals and plants to migrate from the Alps to neighbouring mountain ranges: to the French Central massif and the Pyrenees, to the Jura, to the Apennines and to the Carpathians.

Discussions and measures undertaken on the topic of ecological connectivity have given rise to a completely new perception of practices to protect the natural environment: the place and role of protected areas within their region are being redefined, placing them in a wider territorial context. Furthermore, the Natura 2000 sites must also be considered as important structuring elements. The new networks resulting from such discussions and research and the different projects and cooperative agreements – the spatial networks as well as the networks of actors – are providing new perspectives

that will facilitate reaction to future environmental challenges, in particular to the intensive use and continuing fragmentation of the landscape as well as climate change. Nature, and above all ecological processes, are playing an increasing role in planning and developing an area.

Although ecological networks in the Alps and beyond are set up at the spatial level, the temporal aspect should not be forgotten: indeed the measures in question should be implemented on the ground over a long-term period. Thus, the ecological networks approach is both spatial and temporal and, in a certain sense, even cultural since it reorganises relations between users of the area and encourages new actors to co-operate with one another in a new common vision. This long-term common vision needs to be further deepened and put into practice by coherent strategies of all different actors leading to the success of the same Alpine-wide objective.

The first experiences from the work carried out in the pilot regions of the ECONNECT project indicate that this new approach strikes the right chord. The approach aims at getting local actors involved and making them responsible for the different aspects of protection relating to the daily lives of the local population. The involvement, also financial, of numerous actors is indispensable and needs to

be supported by adequate target group oriented communication with the general public. An ecological network project can thus facilitate co-operation between different areas by providing the possibility of formulating problems and identifying a common solution. Given that the bases of the ecological network concept are relatively easy to communicate and understand, and offer the possibility for each actor to contribute at his particular level, this may lead to a real change in methods to protect the natural environment.

## 9. Further information



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Apart from the documents that are described as profiles and that are cited in the text, this chapter provides a selection of links and publications that are relevant for the implementation of an ecological network right across the Alps at the international and national scale. You can find references of further links and publications on [www.cipra.org/en/alpmedia/dossiers/13](http://www.cipra.org/en/alpmedia/dossiers/13). In each language version of this website different publications and links are listed.

### Online information

If a website is available in several languages, this is indicated in the following way: d = German, e = English, f = French, i = Italian, s = Slovenian

### Europe and beyond

Carpathian Network of Protected Areas (CNPA)  
[www.carpathianparks.org](http://www.carpathianparks.org) (e plus the seven Carpathian languages)

Convention on Biological Diversity (CBD)  
[www.biodiv.org](http://www.biodiv.org) (e, f)

EU project Alpine-Carpathian Corridor  
[www.alpenkarpatenkorridor.at](http://www.alpenkarpatenkorridor.at) (d)

IENE – Infra Eco Network Europe [www.iene.info](http://www.iene.info)

Memorandum of Understanding for the cooperation between the Alpine Convention and the Carpathian Convention  
[www.alpconv.org/NR/rdonlyres/EADFF944-BA7A-4318-8025-98BE6EC7A83B/o/AC\\_IX\\_15\\_MoUCarpathians\\_fin.pdf](http://www.alpconv.org/NR/rdonlyres/EADFF944-BA7A-4318-8025-98BE6EC7A83B/o/AC_IX_15_MoUCarpathians_fin.pdf)

NATREG project: Managing Natural Assets and Protected Areas as Sustainable Regional Development Opportunities [www.natreg.eu](http://www.natreg.eu)

Pan-European Biological and Landscape Diversity Strategy (PEBLDS) [www.coe.int/t/dg4/cultureheritage/nature/Biodiversity/Default\\_en.asp](http://www.coe.int/t/dg4/cultureheritage/nature/Biodiversity/Default_en.asp)

Protection of nature and biodiversity: Natural habitats (Natura 2000) [www.ec.europa.eu/environment/nature/natura2000/index\\_en.htm](http://www.ec.europa.eu/environment/nature/natura2000/index_en.htm)

The Pan-European Ecological Network  
[www.coe.int/t/dg4/cultureheritage/nature/EcoNetworks/Default\\_en.asp](http://www.coe.int/t/dg4/cultureheritage/nature/EcoNetworks/Default_en.asp)

Towards a green infrastructure for Europe: integrating Natura 2000 sites into the wider countryside  
[www.green-infrastructure-europe.org](http://www.green-infrastructure-europe.org)

TransEcoNet - Transnational Ecological Networks in Central Europe [www.transeconet.eu](http://www.transeconet.eu)

## Alps

Alpine Network of Protected Areas [www.alparc.org](http://www.alparc.org) (e, d, f, i, s)

CIPRA's alpMedia dossier on ecological networks in the Alps [www.cipra.org/en/alpmedia/dossiers/13](http://www.cipra.org/en/alpmedia/dossiers/13)

ECONNECT project [www.econnectproject.eu](http://www.econnectproject.eu) (e, d, f, i, s)

Platform Ecological Network of the Alpine Convention and Ecological Continuum Initiative [www.alpine-ecological-network.org](http://www.alpine-ecological-network.org)

## National and regional scale

### Germany

BayernNetz Natur [www.bayernnetznatur.de](http://www.bayernnetznatur.de)

Biotopverbund, Bundesamt für Naturschutz [www.bfn.de/0311\\_biotopverbund.html](http://www.bfn.de/0311_biotopverbund.html)

### Italy

Biocorridoio Alpi – Appennini [www.wwf.it/client/render.aspx?root=812&content=0](http://www.wwf.it/client/render.aspx?root=812&content=0)

National Ecological Network / Rete ecologica nazionale [www.gisbau.uniroma1.it/ren.php](http://www.gisbau.uniroma1.it/ren.php) (e, i)

Rete Ecologica Regionale della Lombardia [www.regione.lombardia.it/cs/Satellite?c=Redazionale\\_P&childpagename=DG\\_Ambiente%2FDetail&cid=1213311300152&packedargs=menu-to-render%3D1213311310411&pagename=DG\\_QAWrapper](http://www.regione.lombardia.it/cs/Satellite?c=Redazionale_P&childpagename=DG_Ambiente%2FDetail&cid=1213311300152&packedargs=menu-to-render%3D1213311310411&pagename=DG_QAWrapper)

### France

Corridors of life – European project for the restoration of biological corridors in the Grésivaudan / Couloirs de vie - projet européen de restauration des corridors biologiques du Grésivaudan [www.corridors-isere.fr](http://www.corridors-isere.fr) (e, f)

Trame écologique du Massif central [www.trame-ecologique-massif-central.com](http://www.trame-ecologique-massif-central.com)

Trame verte et bleue [www.legrenelle-environnement.fr/grenelle-environnement/spip.php?rubrique=282](http://www.legrenelle-environnement.fr/grenelle-environnement/spip.php?rubrique=282)

### Slovenia

Ecology Atlas / Atlas okolja [gis.arso.gov.si/atlasokolja/](http://gis.arso.gov.si/atlasokolja/) (e, s)

Naravovarstveni Atlas

[www.naravovarstveni-atlas.si/ISN2KJ/](http://www.naravovarstveni-atlas.si/ISN2KJ/)

### Switzerland

Nationales ökologisches Netzwerk REN [www.bafu.admin.ch/schutzgebiete-inventare/09443/index.html?lang=de](http://www.bafu.admin.ch/schutzgebiete-inventare/09443/index.html?lang=de)

Projet Les corridors biologiques : pourquoi et comment les prendre en compte ?

[www.pronatura.ch/ge/index.php?lang=3&mz=5](http://www.pronatura.ch/ge/index.php?lang=3&mz=5)

Réseau écologique national [www.bafu.admin.ch/schutzgebiete-inventare/09443/index.html?lang=fr](http://www.bafu.admin.ch/schutzgebiete-inventare/09443/index.html?lang=fr)

Rete ecologica nazionale [www.bafu.admin.ch/schutzgebiete-inventare/09443/index.html?lang=it](http://www.bafu.admin.ch/schutzgebiete-inventare/09443/index.html?lang=it)

## Printed information

The publication list contains in particular publications that are praxis oriented and those that have appeared during the last approximately ten years. Purely scientific publications are not included. The publications have been selected according to their relevance on the international and national levels. The list makes no claim to be exhaustive. Further publications are listed on [www.cipra.org/en/alpmedia/dossiers/13](http://www.cipra.org/en/alpmedia/dossiers/13). In each language version of this website different publications are listed.

The documents that are marked with "\*" are described as profiles in the previous chapters. If a document is also available in other languages than the listed one, this is marked in the following way: d = German, e = English, f = French, i = Italian, s = Slovenian.

\*ALPARC (ed.) (2004): Réseau écologique transfrontalier. Collection Signaux Alps n°3, Secrétariat permanent de la Convention alpine, Innsbruck. 240 p., languages: d, f, i, s

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\*ALPARC, 2007: The Carpathian natural and cultural heritage: A wealth to be protected on an international level. Chambéry. 12 p.

\*ALPARC, 2009: Carpathian Network of Protected Areas: A contribution to the international cooperation strategy. Chambéry. 12 p.

\*ALPARC, CIPRA, ISCAR, WWF (2010): Restoring the web of life – Ecological networks for more biodiversity in the Alps. 12 p., languages: e, d, f, i, s

ALPARC, CNPA (2009): Large carnivores in the Alps and Carpathians: Living with the wildlife. Chambéry. 24 p., languages: e, d, f, i, s

Arduino, S., Mörschel, F., Plutzer, C. (2006): A biodiversity vision for the Alps. Proceedings of the work undertaken to define a biodiversity vision for the

Alps (technical report incl. CD). Milano. 128 p.

Battisti, C. (2004): Frammentazione ambientale, connettività, reti ecologiche - Un contributo teorico e metodologico con particolare riferimento alla fauna selvatica. Roma. 250 p.

Bennett, G., Mulongoy, K. J. (2006): Review of Experience with Ecological Networks, Corridors and Buffer Zones. CBD Technical Series No. 23, 100 p.

Berthoud, G., Righetti, A., Lebeau, R-P. (2004): Nationales ökologisches Netzwerk REN – Schlussbericht. Bern. Schriftenreihe Umwelt 373. 131 p., languages: d, f

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Boitani, L., Falcucci A., Maiorano L., Montemaggiore, A. (2002): Rete ecologica nazionale – Il ruolo delle aree protette nella Conservazione dei Vertebrati. Roma. 88 p.

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\*CIPRA (2009): SzeneAlpen 90: Schengen für Flora und Fauna - Weshalb nur vernetzte Lebensräume vielfältig bleiben. Schaan. 24 p., languages: d, f, i, s

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\*CNPA, 2008: Draft Proposal for the Work plan for the Carpathian Network of Protected Areas 2010-2015. 30 p.

Conseil général de l'Isère (2005): Prendre en compte les corridors biologiques. Grenoble. 39 p.

Di Giulio, M., Holderegger, R., Bernhardt, M., Tobias, S. (2008): Zerschneidung der Landschaft in dicht besiedelten Gebieten. Bristol-Schriftenreihe Nr. 21, Haupt-Verlag, Bern. 90 p.

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\*Hedden-Dunkhorst, B., Kretschmar, M., Kohler, Y. (2007): Establishing an Alpine Ecological Network - Inaugural Meeting of the Platform Ecological Network

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Hilty, J., Zander Lidicker, W., Merenlender, A., Dobson, A.P. (2006): Corridor ecology: the science and practice of linking landscapes for biodiversity conservation. Island Press, 323 p.

Jäger, J. (2002): Landschaftszerschneidung - Eine transdisziplinäre Studie gemäss dem Konzept der Umweltgefährdung. Ulmer-Verlag, Stuttgart. 447 p.

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