European Alpine Programme

Ecoregion Conservation Plan for the Alps

Prepared by WWF

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Eight years ago, WWF initiated a programme to halt the loss of biodiversity worldwide. Over 200 areas of the globe were recognized as being especially significant for maintaining biodiversity. The Alps are one of these ecoregions.

The Alps are the largest and highest mountain system in Western Europe and can be considered a bio-geographical unit. But it is only in the last few years that political authorities have begun to recognize the Alps as a coherent structure and thus were able to carry out a pan-Alpine policy. In 1991, the eight Alpine countries and the European Union signed the "Alpine Convention", an agreement for the conservation and sustainable development of the Alps.

In the Alpine Convention, the contracting parties commit to cross-border cooperation aimed at preserving the rich natural heritage of the Alps. The UN Convention on Biological Diversity, which all Alpine Countries have ratified, pursues the same goal.

With its ecoregional approach, WWF shows that the goal of these international agreements can be reached. To preserve the biological diversity of the Alpine region, we need concrete activities, both at a pan-Alpine level and in those areas within the ecoregion that have a high conservation priority.

Over the last few years, together with the pan-Alpine networks of scientific research (ISCAR), protected areas (ALPARC) and NGOs (CIPRA), WWF has laid down the necessary foundations for this work to progress. Today, we know which areas in the Alpine Region deserve special attention with regard to their biodiversity.

But knowledge alone is not enough. We need concrete measures and action to halt the daily loss of biodiversity and to preserve the natural resources in the long term. WWF has therefore developed an Ecoregional Action Plan and will contribute to its implementation.

The goal of preserving biodiversity cannot be reached by any single NGO. The Action Plan is therefore primarily an invitation to everyone, whether living and working in the Alps, using alpine resources or coming here as a visitor. Let us address this challenge together! The unique natural richness of the Alps and their beautiful landscape hearten us to do so.

*Andreas Weissen**

Andreas Weissen was the president of CIPRA international for nine years and chair of the Steering Group of the WWF European Alpine Programme for four years.

Description of the Alps Ecoregion

The Alps are one of the largest and highest mountain ranges in the world, forming an arc of 1200 km in length from Nice to Vienna and covering about 191 000 km² (the Alpine Ecoregion was delineated according to the application area of the Alpine Convention). This territory is shared by eight different countries: France, Monaco, Italy, Switzerland, Liechtenstein, Germany, Austria and Slovenia. One of the most intensively exploited mountain ecosystems in the world, the Alps also represent one of the richest biodiversity hot spots in Europe.

Landscape

The high level of biodiversity is mostly due to the small-scale horizontal and vertical structure of the Alps. The marked differences in altitude, geology and climate result in a multitude of different habitats. However the ecological patterns are not only determined by these abiotic environmental factors. They also reflect historical events such as the Pleistocene glaciations and human presence dating back to Neolithic times.

Geomorphology

The mountainous terrain is highly fragmented and topographically varied, leading to great habitat diversity. The Alps are one of the youngest mountain systems in the world; they have developed from the Tertiary period to the present through collision, upheaval and erosion. Deep valleys were carved by rivers while sediments deposited in the lowlands, forming today an envelope of young sedimentary rocks. The step-like morphology was shaped by the Pleistocene glaciation periods, when most parts of the Alps were covered by an enormous ice cap. Only in the south, the southwest and the east large areas were free from continuous ice-cover. Valley glaciers shaped the contours of the slopes and left massive moraine deposits in the valley floors.

The geologic substrata are very varied and form a mosaic pattern in some places. The bedrocks can be divided into two major types: calcareous and siliceous. As a general rule, the enveloping outer chains are built of calcareous while the inner ranges are made of siliceous materials. The composition of the bedrock significantly influences soil formation and ultimately the plant cover. As some plants prefer calcium-rich soils, while others grow better in soils poor in calcium, pronounced differences occur between the vegetation inhabiting the various substrata, even when climatic conditions are almost identical. Alpine soils are in very different stages of development depending on the altitude, slope, exposure and age of the deposits.



Climate

The Alps are an interzonal mountain system situated between the temperate life zone of central Europe with deciduous (broad-leafed) forests and the Mediterranean life zone with evergreen forests. With the exception of the south-westernmost Alps and some sheltered spots along the southern fringe, most of the area is influenced by a cold temperate climate, characterized by precipitation during the warm periods and winters cold enough to induce vegetation dormancy. The climate varies remarkably from the outer regions to the valleys of the interior and from east to west. Inner valleys can be very dry; the northern and southern slopes, however, receive a relatively large amount of rain in summer and snow in winter.

Altitude

Annual air temperature mean values decrease by 0,55°C with every 100 m of increasing altitude. On the other hand, solar radiation is significantly stronger at high altitudes. Therefore soil and vegetation receive more heat, even though air temperature is considerably lower. Sharp thermal contrasts and major temperature fluctuations make strong demands on plants, their water budget being particularly affected. Moreover, winds are particularly strong at high altitudes, thus increasing evaporation in plants. Strong nocturnal heat emission in the mountains exposes plants to frost danger throughout the year. The duration of snow cover also increases with altitude. Flowering plants can only grow in places that are snow-free at least for a brief period.

Due to these striking changes in climate with increasing altitude, the vegetation of the Alps is divided into more or less sharply defined altitudinal belts. Summergreen broad-leafed trees characterize the low colline belt. The montane belt is mostly made of mixed stands of coniferous trees. The forest line, i.e the superior limit of closed-canopy forests, defines its uppermost boundary, . Above this line lies the subalpine belt, the transition between the montane and the alpine belt. It is characterized by open forest stands and krummholz (trees whose growth is stunted by the harsh climate). The alpine belt starts above the tree line and consists of dwarf scrub and grassland. Its uppermost boundary is defined by the limit of the closed grass-cover. The subnival belt reaches up to the climatic snow line. It consists mainly of isolated patches of grass and cushion plants. In the topmost nival belt, flowering plants occur only on local warm rock niches.

The level of each altitudinal belt is higher in the central Alps than in the outer ranges. In the daytime in summer large massifs warm up more than isolated mountain groups. Plants living in the central Alps must therefore endure starker temperature contrasts than species inhabiting the outer Alpine ranges. On the other hand, vegetation can reach higher altitudes because diurnal temperatures rise higher.



Right up to the present day, human activities have dictated the altitude of the tree line. The Alps were probably one of the first ecosystems where important areas were cleared to allow grazing during the Neolithic Age. Alpine meadows were extended downwards and the timberline was often lowered by a few hundred meters to obtain more land for pastures.

Dynamic processes

Avalanches, rock falls, foehn-storms and periodic flooding by mountain stream are distinctive for this ecoregion. These natural processes are important because they incessantly create new habitats for plants and animals therefore representing a driving force for biodiversity. For example, plant diversity in avalanche tracks is significantly higher than in the surrounding forests. Avalanches break or uproot dominating trees and small plants profit from the increased light. Water and soil nutrients are also more abundant and many different environmental conditions are created by the varying dynamics of snow movement in the tracks. The more frequent the avalanches, the higher the plant diversity gets.

Human influence

Mankind has influenced the high-mountain ecosystems of the Alps since Neolithic times. Longstanding farming and livestock grazing activities in many parts of the Alps have resulted in a characteristic cultural landscape, which also plays an important role in maintaining biodiversity. About a quarter of the plant community diversity is man-made or depends on particular forms of agriculture. This is especially true for the many types of mountain meadows. With up to 80 plant species on 80 m2, the extensive mown meadows between 1800m and 2200m belong to the most diverse plant communities in Europe.

Despite the high level of human impact, the Alps are still home to wilderness areas, especially in the alpine belt. The Alps include some of the last remaining pristine areas in central Europe. A recent study on Alpine areas completely unaffected by human infrastructure found a total of 831 remote areas, of which 69 are larger than 100 km². Most of these remote areas are found in high, inaccessible mountain zones.

Human impact decreases with altitude. Above the low montane belt, more than two thirds of the forests are only moderately altered, close to natural or natural; in the subalpine belt more than half of the forests are natural or close to a natural state. The degree of naturalness is highest in the central Alps. It is still fairly high in the northern and southern Alps but rather low in the forelands.



Flora

Due to the mentioned mosaic of different habitats caused by marked differences in altitude, micro-climate and soil, the Alps are one of the regions with the richest flora in Europe, second only to the Mediterranean region. The Alps host 4500 different vascular plant species. The flora diversity varies regionally: in the eastern Alps, there are 1.5 times more species on the southern than on the northern edge. In the western Alps this difference is even more noticeable. The irregular distribution of plant species richness is due to the climatic history, the intensity of the Pleistocene glaciations and the location of glacial refuges.

As mentioned before, the Alps are situated between different bio-geographic zones which makes for particularly diverse flora. On sheltered spots at the southern foot of the Alps, evergreen Mediterranean trees grow, while in the alpine and nival zones, arctic-alpine plants exist that are adapted to the extreme climatic conditions.

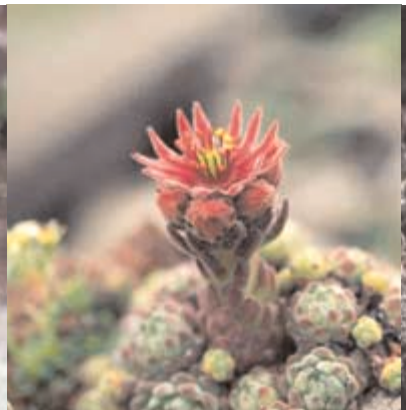
During the Quaternary climatic fluctuations, plants migrated to the Alps. They were coming from mountainous areas in central Asia, southern Europe and Africa, as well as from the Arctic. During cold periods for example, the Arolla Pine (*Pinus cembra*) came from Siberia, the Edelweiss (*Leontopodium alpinum*) moved in from the Asian steppes while the Dwarf Birch (*Betula nana*) made the long trip from the Arctic. When the climate warmed up again, these plants did not disappear but simply retreated to the upper montane and alpine belts.

Thanks to the dry climate, steppe plants also often inhabit lower altitude sites in the central Alps. During periods of strong glaciation, some plants survived in so-called refugia i.e. sheltered spots in the southern Alps. Through the topographic and climatic isolation of different mountain areas, new species emerged which are still endemic to the Alps.

There are 417 endemic vascular plants in the Alps. Some of these are exceedingly rare, for example *Berardia subacaulis*, which can be found only in some areas of the French Alps. Endemic species are distributed very unevenly. Centres with a high proportion of endemics are located in the southwestern and southeastern Alps, due to the location of refugia during the glaciations.

The number of endemic and rare plants increases with altitude. Many are restricted to subalpine and alpine altitudes where harsh conditions limit plant growth. Plants had to adapt to major fluctuations in temperature, to the danger of desiccation caused by wind and frost and to the lack of nutrients in the shallow soils. Most plants above the forest line are small and grow in flat cushions, rosettes or carpets to protect themselves from the wind and to resist the pressure of heavy snow layers (e.g. *Silene acaulis, Androsace Helvetica, Veronica bellidioides*). Many have large root structures and ample underground organs that function as water and nutrients storage systems and






as anchorage in the soil. The Net-Leaved Willow (*Salix reticulata*), the smallest tree in the world, is barely 10 cm tall but has roots several meters long. Other plants protect themselves through dense hairiness, like the Edelweiss, or leathery leaves, like the Cow Berry (*Vaccinium vitis-idaea*).

Fauna

The exact number of animal species in the Alps is unknown, though estimates place that number at about 30 000. In the western Alps only, more Carabidae (ground beetle) species have been counted than on the entire Scandinavian Peninsula and at least one third of them are endemic. Approximately 200 different breeding bird species can be found in the Alps, and just as many are known to migrate trough, or spend the winter in, the Alps. There are 21 species of amphibians and 15 species of reptiles, including one endemic species, the Large Alpine Salamander (*Salamandra lanzai*). Amphibians and reptiles are especially threatened, as many wetland habitats have been destroyed in the past century and roads have cut off migration routes.

About 80 mammalian species live in the Alps, most of them small ones like bats, shrews, mice and voles. None of them are strictly endemic. Some typically alpine animals like the marmot (*Marmota marmota*), the ibex (*Capra ibex*), the mountain hare (*Lepus timidus*) and the snow vole (*Microtus nivalis*) however, are genetically different from equivalent populations of other mountain systems in Europe or in the Arctic. Though all typical alpine mammals exist in the Alps, many of their populations have been reduced in size or have been disintegrated into small subpopulations. This is especially true for the large carnivores: the brown bear (*Ursus arctos*), the wolf (*Canis lupus*) and the lynx (*Lynx lynx*). All large herbivores, such as the red deer, the roe deer and the ibex, are nowadays widely distributed. The ibex was once on the brink of extinction but was reintroduced in the 19th century and the population is now considered secure. The otter, who is an indicator of good quality of river system habitats, is still present but has a very localized distribution. For example, it has completely disappeared from Switzerland.

With increasing altitude, living conditions are harsher and in the alpine belt a lot of species, especially birds and mammals, altogether disappear. The remaining species have shown different forms of adaptation to the difficult environmental conditions. The Alpine salamander (*Salamandra atra*), for example, does not lay eggs like most other reptiles but gives birth to fully developed young. Birds and mammals have thicker feathers or pelts and their feet or paws are perfectly adapted for treading on snowy surfaces. The mountain hare (*Lepus timidus*) and Ptarmigan (*Lagopus mutus*) change their brown coats to white in winter. Many animals hibernate during the coldest months of the year while others, like the alpine chamois (*Rupicapra rupicapra*) and rock



partridge (*Alectoris graeca*) migrate over more or less long distances or descend to lower altitudes. The ibex, instead, climbs to very steep slopes where the snow slides off and some food can still be found in winter.

There are about 80 fish species living in alpine lakes and rivers. The type of fish living in larger rivers such as the Danube, Rhine, Rhone and Po, and their alpine tributaries, is very much determined by the fish fauna of their destination and are therefore very distinct in this regard. Many of the small lakes higher up in the Alps are originally almost devoid of fish or harbour only a few, specialised fish species. These two aspects - the convergence of fish fauna from distant sea regions up alpine rivers and a highly specialised fish fauna in small lakes and streams - make freshwater habitats in the Alps unique.

The comeback of large carnivores and bearded vultures

During the 18th and 19th centuries, the human-caused decline of mountain forest areas, the ensuing disappearance of natural prey (large herbivores) for the lynx and the wolf and the strong increase of farming and livestock aggravated the conflicts between large carnivores and humans. Seen as dangerous competitors the lynx and the wolf were exterminated in the Alps. The brown bear was almost hunted to extinction.

Today mountain forests have recovered and their areas have grown again. Large herbivores came back spontaneously or were re-introduced by man. The natural basis for large carnivores is in wide parts of the Alps intact again. As a result of the 1970s programmes for the re-introduction of the lynx, the species is once-again present in all Alpine countries. However, the populations are not yet secured. Wolves spread back into the Italian and French Alps from a surviving population in the Abruzzi region of Italy. Brown bears from the Balkan are returning to the Austrian Alps and are being re-introduced into the Italian Alps to back up a small autochthonous population.

Seen as a success by conservationists, these comebacks are not without any problems. The Alps are densely populated, and wherever large carnivores get close to human settlements, harsh disputes ensue. In particular, livestock damage caused by wolves has recently sparked controversy. Still, WWF is convinced that cohabitation between humans and large carnivores is possible. It can be achieved by the implementation of effective damage prevention measures and the conservation of sufficiently large natural habitats.

Bearded vultures became extinct in the northern Alps in 1885 and in the Southern Alps in 1913. There were several reasons for their demise. Food sources (wild ungulates such as deer but also domestic animals, particularly sheep) became scarce in the mountains. Bearded vultures were highly prized as trophies and the rarer they became the more sought after they were. Bearded vultures were also killed by sheep farmers who considered them a pest; they were accused of flying off with lambs picked from flocks.

The reintroduction of the bearded vulture (*Gypaetus barbatus*) into the Alps is a good example of how long conservation programmes can take before success is achieved. The re-introduction programme started in the 1970's but it wasn't until 1997 that the first chick was hatched in the wild. It will be many years yet before the population of Alpine bearded vultures is considered self-sustaining. Until 2004 129 bearded vultures have been released from zoological breeding programmes and 20 young birds were hatched in the wild.

Socio-economic description

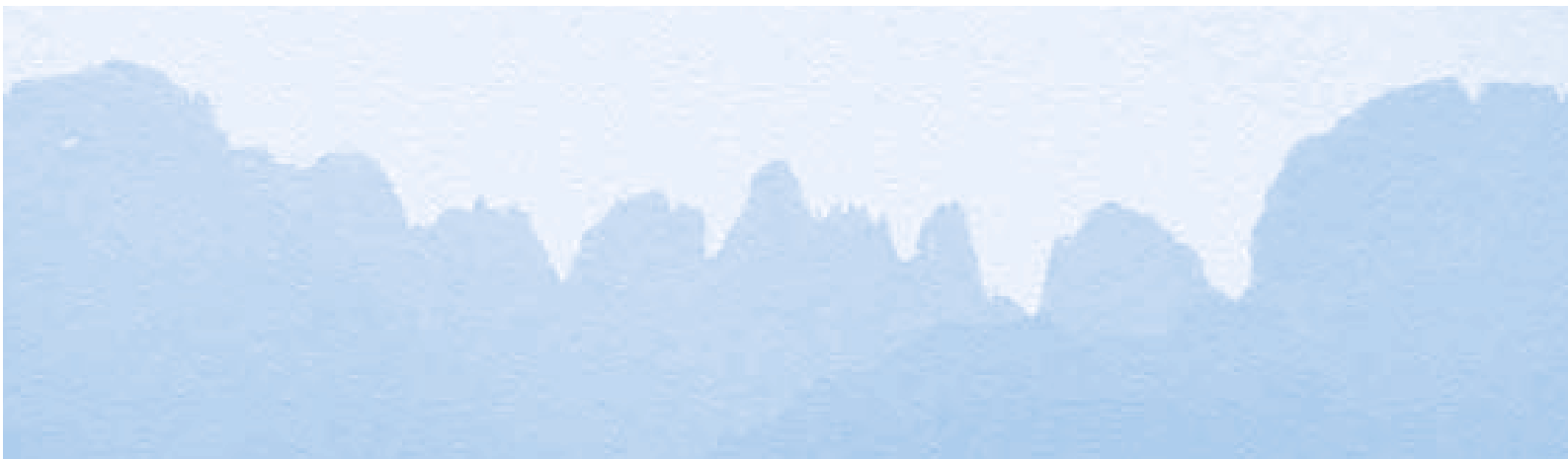
The Alps are shared by 8 states and are home to many different cultures and languages. This diversity, and a strong orientation towards the dominating cities lying outside the Alps, entails that no common Alpine conscience exists among people living in the ecoregion. An often strong local identity exists instead. Socio-economic trends differ dramatically from region to region. As a rule regions within the Alps are rather heterogeneous and can not be described, studied or managed without regard for their socio-economic particularities.

The Alps are home to about 13 million people distributed over approximately 6100 communities. Since 1970 population in the Alps has grown significantly more than the European average. However, the distribution is very irregular. The population increase almost exclusively concerns the comfortably accessible main valleys, while remote side valleys have seen major depopulation take place. As a whole, however, the Alpine population is growing, especially in easily reachable areas in the western Alps and in the western portion of the eastern Alps. The southwestern and southern Alps, on the other hand, are heavily affected by depopulation, with the remaining inhabitants concentrating in the most easily reached valley floors.

Most people in the Alps live in cities (58%) where the majority of jobs are found (66%). A few cities within the Alps are growing along the broader valleys in a linear pattern. They are well connected to large cities outside the Alps: the trend is set for Alpine cities to become suburbanized to metropolitan cities lying outside the Alps. The concentration of working places in Alpine cities forces many people to commute. Additionally, adjacent metropolitan areas (e.g Munich, Vienna, Zurich, Milan) are sprawling into the Alps. Both tendencies lead to a dominating influence of non-Alpine cities on Alpine issues.

The most accessible main Alpine valleys experienced industrial development between 1848 and the 1970s, with a peak in 1970-1975. From 1980, the Alpine industry started to collapse. From the early '70's the economic importance of agriculture began to decrease, even though farming still represents the most important type of land use, forestry being the second, mostly thanks to the large forest cover.

Since the 1970s, economic cycles throughout Europe have been subjected to profound changes. This has led to the end of local or regional Alpine economic cycles, which are being replaced by pan-European or global economic dynamics. In the transition period between 1955 and 1980, mass tourism started to develop but is now stagnating suffering from strong competition by non-Alpine destinations. As a consequence, there is a drive today towards structural change. Traditional decentralized tourism is being abandoned for highly concentrated tourism centres and huge ski resorts straddling several valleys.



Threats

Since prehistoric times, human activities have altered the habitats of many plants and animals. Human impact, however, has never been so severe as to completely destroy the beauty and richness of the Alps. Today, unfortunately, global climate change, air pollution and land-use change are negatively affecting the Alps with increasing intensity. The loss and fragmentation of habitats are currently the major threats to Alpine biodiversity. Spreading settlements destroy living space; road networks and river dams interrupt migration corridors; water and air pollution reduce the quality of natural ecosystems while sustainable forms of land use disappear.

Urbanization

Elevated areas in the main Alpine valleys were the first places settled by humans because, in the past, they were more easily accessible than valley floors or isolated side valleys and offered the best conditions four housing and farming. Settlements grew along main valleys and slowly spread to side valleys. This is why the easily reachable Rhône, Rhine, Inn and Adige rivers valleys have by now lost most of their biodiversity value. The continuing expansion of cities, towns, villages and hamlets has led to the urbanisation and degradation of the countryside. The natural habitats typical of valley floors, like riverbeds, riverside forests, mires, alpine steppes etc. have been destroyed by expanding settlements. The transport infrastructure of the highly urbanized main valleys represents an insurmountable barrier for many species, preventing the functioning of ecological corridors.

The average living space occupied by a person has doubled since 1950. A sharp rise in the number of residential properties took place even in places with stagnating or small population growth. While most Alpine communities lie below 1000 m, some cities, mostly tourist centres, are situated at higher altitudes: Their growth is not linear (as can be observed for urban centres on the floors of main valleys) but rather tends to follow a circular pattern. Holiday homes are being built everywhere. Apartment complexes or residential tourism buildings are particularly significant in tourist areas and they strongly contribute to the rising level of urbanization.

Climate change

The global warming observed over the last century has already caused all Alpine glaciers to recede and has led to an upward migration of alpine plants at a rate of 0,5 - 4 m per decade. In the long term, lowland plants will displace alpine species to ever-higher altitudes until they will have nowhere to go at all. This will be especially true in the less elevated outer ranges . Many of the highly specialized and often endemic plants that still enrich the Alpine region will then become extinct. Other foreseeable impacts of climate change are the dissemination of exotic species from parks and gardens, as can already be observed in the southern Alps where evergreen trees (even palm trees!) are invading the natural forests. The invasion of southern pathogens no longer held off by the Alps, will also be a consequence of global warming.. Furthermore, the species composition of plant communities might change with consequences yet unknown for the whole food chain.

Global warming will most likely bring about not only increased temperatures but also changes in rain- and snowfall patterns (with implications for the water balance) and the increased frequency of extreme weather events, such as floods and avalanches. Higher temperatures will also degrade the permafrost layers causing slope instability with such phenomena as rock falls and landslides.

Glaciers are melting faster than expected

A new study of the University of Zürich based on satellite data produced alarming results. Between 1985 and 2000, the alpine glaciers lost 22% of their surface. From 1973 to 1985, they had diminished by only one percent, showing that glaciers are melting faster and faster. The current remaining glacier surface corresponds to what was expected for 2025. And these figures do not even include the effect of the record temperatures of 2003. The ice receded by three meters during that summer alone!

Freshwater

Only about 10% of all Alpine rivers are (at least partly) in a natural or near-natural condition. Throughout the Alpine valleys, rivers and streams have been dammed, straightened and regulated. Plans for new hydropower plants threaten the few remaining wild rivers in the Alps. The diverting of streams and the construction of large storage reservoirs destroy vital space. Riparian areas have been cut off and converted to agricultural land or urban areas. With the disappearance of natural riverbanks, the flood regulation function they performed is all but gone.

Hydroenergy

The Alpine region has an important role in producing electric power for all central Europe. The economic gain yielded by energy productions comes at an enormous environmental cost: disruption of the river continuum, significant decrease of the water flow, lack of water for some periods of the year, impoverishment of the original ecosystems and species, decrease of the capacity of auto-purification. The production of hydro energy requires storage structures that can affect rivers and lakes as well as groundwater systems in different ways (shifts in pattern of discharge volume, changes in water temperature regime, changes in suspended solid loads), with negative impacts propagating downstream along the water course.

Many rivers have also been diverted. Very often this implies the drainage of large areas along the rivers so that only traces of the former flood plains remain nowadays. In some cases water is also diverted across national borders. Small-scale hydropower plants (up to 10 MW) are also typical of the Alps and they are of, now being subsidized by various countries due to the implementation of the Kyoto protocol. But their lesser size does not make them "environmentally friendly". In fact they cause a lot of damage. In addition it must be stressed that these mini power stations generate a very small amount of electricity , proportionally much less than is produced a large hydropower station. Both large and small hydropower stations threaten not only aquatic species. Even species living above the water line can be seriously affected because all these life forms are dependent on the natural flow fluctuations of free-flowing rivers.

Additionally, water bodies are also polluted by agricultural, industrial, domestic waste and acid rain. New, highly persistent organic pollutants are found even in isolated mountain lakes and glaciers, where they deposit from the atmosphere contaminating the fish fauna. Lastly, the introduction of foreign fish species into many Alpine water bodies disturbs the highly specialized and endemic invertebrate fauna and the autochthonous fish population.



Flood control

According to the European Environment Agency (EEA), the main driving forces behind floods are climate change, soil sealing, land use changes in the catchment areas and flood-plains, urbanisation, roads and railways and hydraulic engineering measures.

This is also true for the Alpine region, where some of the largest European rivers have their sources and from where they flow towards the urbanized plains. Indeed as almost everywhere in the western world, the space left for the rivers is often inadequate. To maintain the high biodiversity typical of floodplains and to protect people from flood events, enough room for the rivers must be guaranteed. Wherever possible, sufficient area for the dynamic processes that reshape the flood plain must be provided. Flooding is the dominant type of natural disturbance along most river corridors. Therefore, the strategy should be to manage flooding - which are natural events - in an ecologically responsible manner through sustainable catchment planning.

Drinking water

The Alps are the most important water reservoir in Europe and that exposes them to strong interests from the outside. Water usage is the part of the Alpine economy that is most strongly controlled by extra-Alpine forces. All cities bordering the Alps and also numerous far-off urban centres rely on the Alps for their drinking water supply and hydropower whose control is mostly situated outside of the Alps. Nowadays, big international corporations like Coca Cola, Nestlè and Danone are establishing a strong position in the water market to secure their access to drinking water. The privatisation of springs and waterways is a real threat to the sustainable use of water resources.



Agriculture

Traditional Alpine farming has undergone a radical change during the last 50 years: on one hand there was widespread abandonment of unfavourable farming locations; on the other agriculture was intensified in favourable areas. Both trends brought a decrease in species and community diversity. Intensive agriculture is applied ever more intensely in broad valleys and on easily accessible slopes, with negative effects caused by the massive use of fertilizers, grading and drainage. This kind of agriculture results in homogenisation wiping out a traditionally diverse range of areas being farmed in many different ways. In the inner Alpine dry zones, vegetables, fruits and grapes are cultivated intensively. In the upper reaches, few big farms with very large numbers of cattle convert mountain meadows and pastures into heavily fertilized "green deserts". Traditional, labour-intensive farming is dying out as the older generations disappear and more and more alpine pastures are being abandoned. This often entails a loss of biodiversity, as a thick bush cover replaces species-rich meadows. On the other hand, forests can eventually reappear. The general trend aims at fewer, larger, intensive farms on the valley floors, fewer but very extensive cattle operations in favourable areas of the mountains and fallows and bush land in between.

Forestry

Forestry is the second most important type of land use in the Alps. However, most forests in valleys, including in particular valuable riparian forests, have already been lost to settlements, infrastructure and river regulation. The remaining forest areas are mainly restricted to mountain slopes where they still cover large areas. Although these forests are exploited throughout the Alps, special care is taken to maintain them as protection against avalanches and rock slides. However, the management techniques necessary to maintain these protective forests hinder the continuity of natural dynamics. The few, pristine forests left in the Alps (about 665 ha) are found mostly in remote areas where building road forests is still considered too expensive.



Transportation

Road building is one of the major causes of habitat fragmentation. Air pollution in the Alps originates mainly from motor traffic. While the levels of sulphur dioxide have decreased, nitrogen dioxide emissions have grown, causing damage to forests through acid rain and depositing nutrients into naturally nutrient-poor sites that provide most of plant species diversity.

The Alps constitute a natural barrier especially to transit traffic. Nonetheless, transalpine traffic, especially by road, is continuously increasing. It is mainly concentrated on a very few Alpine valleys and is exacting a heavy toll through space-eating traffic infrastructure, noise and air pollution. Additionally, the ever growing commuting distance and the ever increasing functional interlock between Alpine towns and extra-Alpine cities result in the extreme intensification of domestic traffic, which now constitutes the bulk of all Alpine traffic. Domestic traffic is distributed over many different roads, so that all main valleys and most larger side valleys are heavily polluted. The ecological consequences are often no less serious than those affecting major transit routes.

Tourism is another important cause of traffic in the Alps, especially to remote areas. It often spreads to particularly elevated locations like tourist resorts and scenic secondary roads. The air-polluting effects are even more remarkable, due to the high altitude of these areas.

Alpine transport in figures

- Nearly 150 million people cross the Alps every year, 83% by road and only 17% by rail

- Trucks crossing the Alps cover 1.3 billion km per year

- Inside the Alps, cars cover 70 billion km per year

- Between 1963 and 1993, the number of areas larger than 1500 km² untouched by major transport infrastructure decreased from 31 to 14.

Tourism

Tourism activities pose very direct threats to biodiversity: Foremost is the wildlife disturbance , especially by modern adventure outdoor sports (mountain-biking, canyoning or paragliding) or motor-based leisure activities which often occupy areas previously untouched by tourism. However, the most ecologically devastating form of leisure industry is winter ski tourism. Currently there are about 300 ski areas throughout the Alps, with a trend towards larger concentrations. About 10,000 transport facilities serve more than 3400 km² of ski areas with many more being planned. The construction of ski runs causes irreparable damage to the landscape. The increasing use of artificial

snow from snow-canons causes additional problems brought about by their use of water, energy - and in some countries - chemical and biological additives.

In a more indirect way, tourism is a strong driving force behind urbanization: Tourist buildings and infrastructure but also the growing number of inhabitants and their need for space and services make for more extended settlements even in relatively remote areas. Large tourist resorts have an area-consumption rate far greater than that of a non-tourist community. The worst indirect tourism-related threat is the increase in motor traffic, especially in remote and sensitive elevated areas.

Fair play for nature?

The character of major winter sports events, like Olympic games and world ski championships, has changed significantly over the last years. These events have taken on huge proportions, boosted by media attention and economic interests. But the habitats and landscapes in which these mega-events are set cannot be expanded at wish. The ecological impact is catastrophic. For the 1992 Olympic winter games in the French region of Savoie, one million cubic meters of rocks and soil were blasted and moved, 33 hectares of forest were cleared and an area of 3,300 hectares was built up. Forty-two water reservoirs were installed to supply drinking and snow cannon water; land use was changed on a total of 100 hectares. And although by now, a sufficient number of facilities exist, sporting events are continuously shifted from one location to another. The Bormio, Italy 2005 World Ski Championships set another negative example: more than 3'000 trees were felled, huge cement structures were built, as was a cable car with over-size capacity. And almost all of this happened in the Stelvio National Park area, which is supposedly under strict legal protection. Besides the environmental damage, the social and economic costs for the communities are not taken into account. After the event, they are left with a disrupted local structure, degraded landscapes, over-size facilities that cannot be sufficiently put to use and burdensome financial commitments.

The Root Causes of Biodiversity Loss

After identifying the direct threats to biodiversity, it was necessary to "scale up" the analysis to understand the underlying factors behind these threats. This approach involved addressing a variety of social, economic and political factors that operate at regional, national and international level. These factors are the socio-economic Root Causes of biodiversity loss: they truly drive biodiversity loss, but their distance from the actual incidences of loss, either in space or in time, makes them a challenge to identify and remedy.

In an effort to tackle these factors more effectively, the WWF and its partners have developed a practical methodology, the Root Causes Analysis, which has been tested in various ecoregions over the last years. Its main goal is to answer three essential questions:

- What are the underlying socio-economic forces and circumstances driving biodiversity loss?

- How are these root causes interlinked?

- Which factors are key at local, regional, national or international level?

The answers to these questions are summed up in a Conceptual Model. The model, in the form of a flowchart, shows the direct, indirect and root causes of biodiversity loss at the different levels and the linkages between them.

A Conceptual Model for the Alpine Ecoregion (see Annex I) was elaborated in November 2004, during an international workshop with socio-economic experts form different fields and WWF staff. The participants were provided with an initial model showing the direct causes of biodiversity loss in the Alps. The goal of the workshop was to complete the model, moving up the chains of explanation from the direct causes to the more indirect factors and finally to the socio-economic root causes of biodiversity loss in the Alps.

Cheap energy prices

Low energy prices were identified as an important factor linked to different causes of biodiversity loss. Most obviously, they drive the increasing consumption which in turn spurs the increase in the production of energy, with negative environmental impacts. More indirectly, low energy prices make transport costs drop, which results in an increase of transport, especially motorized transportation. This in turn entails a series of consequences like accelerated urban sprawl, unsustainable forms of tourism, etc... More generally, cheap energy prices are one of the factors influencing a change in lifestyle patterns, towards a consumption-oriented lifestyle with an unsustainable use of natural resources.

Agricultural policy/ Technical advancement

The main focus of the discussion was on the drop of the prices of agricultural products and its effects on highland (mountain) agriculture. These prices are in turn influenced by the global and national economic system, and by policies at the different levels. Special epmhasis was put on the Common Agricultural Policy of the EU and of WTO policies. The low prices of agricultural products and the increasingly globalized market are exacerbating the competition between lowland and highland husbandry, with a clear disadvantage for the latter. They are therefore a root cause for the abandonment of traditional, labour-intensive mountain farming and the intensification of agriculture in favourable areas.

As soon became evident, the drop of prices does not account for all the changes in Alpine agriculture. Technical progress also has a significant impact on farming and has permitted the intensification of agriculture.

Institutional system and governance

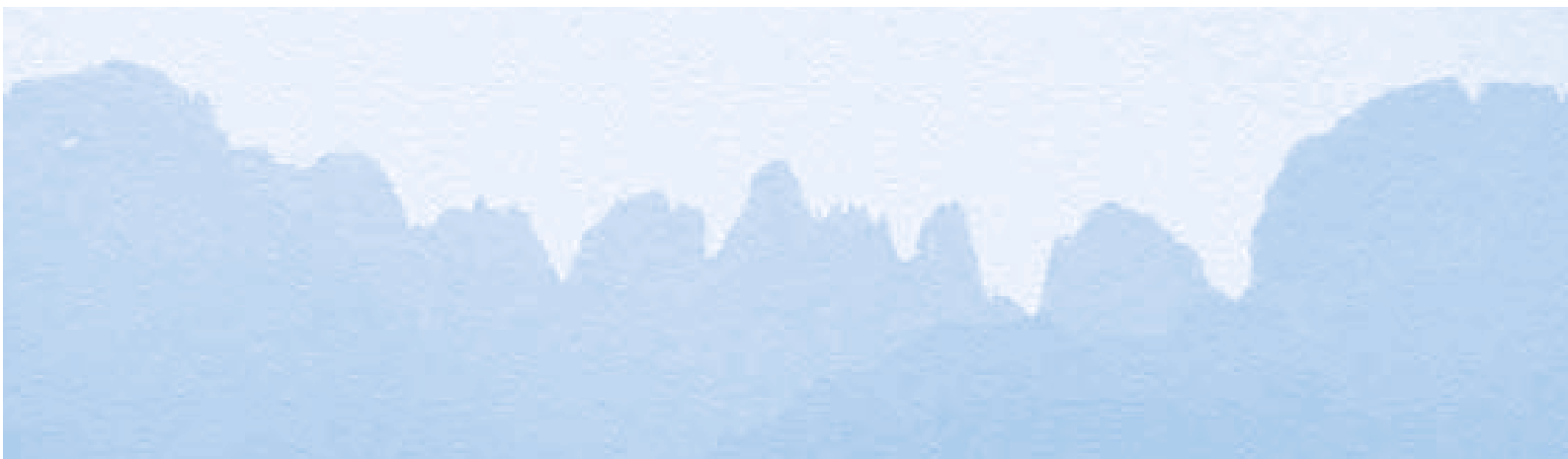
At policy level, the different EU policies were considered especially meaningful as they have a major influence on the Alpine region. Of course, EU policy is also linked to international policies and mechanisms such as the WTO and more generally the global economic system. In some cases, regional or national policies may have a more significant influence. A few EU policies were mentioned more specifically as having an influence on biodiversity loss: Subsidies for commodities transport, the infrastructural EU policy and the new regional funds have consequences on spatial planning, transport and the building of infrastructure. These policies could also be a major point of leverage for future action.

Economic system

This root cause places itself at a somewhat higher level. The economic system influences policies and public finances at international, EU and national level. Political pressure towards liberalization and deregulation strongly influences all levels of the decision-making process with regard to the use of natural resources.

Culture, education, habits

Traditional and modern habits, culture and education affect the lifestyle and behaviour of people living in or visiting the Alps. Lack of identification with nature and space leads to unsustainable consumption of natural resources, unsustainable activities for example in tourism, and trends towards urbanization.



Policy Framework

Generally, Alpine countries are dominated by strong sectoral policies (agriculture, economy, energy, etc.) and have only weak integrative policies. However, in the long term it will be important to bring biodiversity conservation into integrative policies. Austria, Switzerland, Italy and partly also Germany (Bavaria) have integrated "mountain area policies" which are very important for biodiversity conservation. The lowest political organization level throughout the Alps is the local community, which is often very autonomous .

In **Germany** all matters regarding the Alps and Alpine policy fall under the jurisdiction of the federal state of Bavaria. Besides local communities, three planning regions in the Bavarian Alps are also constitute the basis for the implementation of the Alpine Convention.

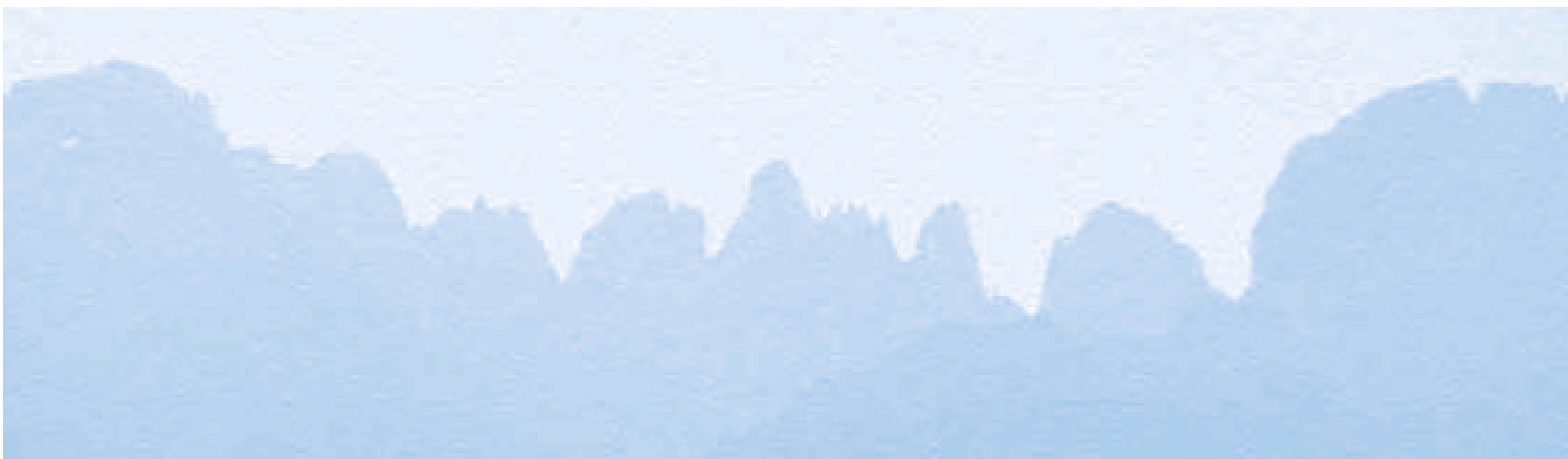
Austria was among the strongest supporters of the Alpine Convention and is the country that best represents Alpine interests within the EU. Planning regions and "Bundesländer" (federal states) are the most important political levels besides communities.

Switzerland established planning regions to support mountain areas. These planning regions have accumulated the highest amount of experience in regional development. The cantons have the greatest room for manoeuvre to frame their regional development independently.

Italy historically has had a centralistic structure, with the Alps playing only a minor role in national politics. The state is still responsible for major sectoral policies (e.g. traffic). Local communities are often very small, so that the "Comunità Montana" (Mountain Community) is the next political level of importance after local communities. The "Comunità Montana" is the administrative unit for the Italian "mountain area policy" and an important level at where to address biodiversity conservation. Additionally, the "regioni" are also very important to implement biodiversity conservation as well as sectoral policies. At the national level, the Union of Mountain Communities ("UNCEM") lobbies intensively for Italian mountain regions.

France is also politically a very centralized country. Communities in the Alps are very small. "Départments" are the next larger political unit of competence. The French Alps are shared by two regions ("Régions") whose political centre of gravity lies outside the Alps. Only recently have mountain communities been combined into two "massifs": "Alpes du Nord" and "Alpes du Sud". The effectiveness of this new political level remains to be seen.

In **Slovenia**, the municipalities are the smallest political entity. The national state is the next level, without any intermediate regional administrations.



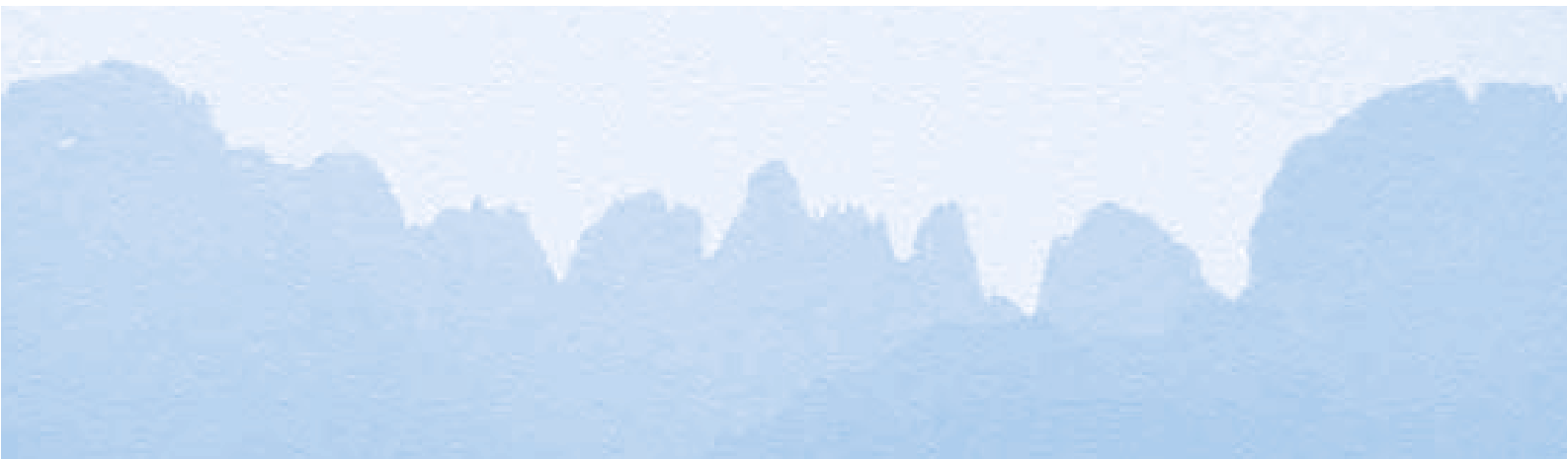
The Alpine Convention

The "Convention on the Protection of the Alps" (also known as "The Alpine Convention") was signed in 1991 and became operative in 1995. At the time it was the first multilateral treaty specifically aimed at trans-boundary cooperation in a mountain area. The contracting parties (Austria, France, Germany, Italy, Liechtenstein, Monaco, Slovenia, Switzerland and the European Union) commit themselves to the protection of the Alpine region and to its sustainable development. The Convention recognizes the special natural and cultural diversity of the Alps and the need to address the tensions between economic and ecological issues.

In the convention protocols, concrete action has already been devised for eight thematic areas such as nature protection, land use planning, transport, mountain agriculture, energy, mountain forests, soil and tourism. The contracting parties regularly publish reports documenting their progress towards the full implementation of the Convention. Unfortunately, some signatory states are still delaying the ratification of the protocols thereby jeopardizing the progress achieved to date. Liechtenstein, Germany, Austria and Slovenia have ratified all protocols. France and Monaco have ratified some of the protocols and Switzerland, Italy and the EU have yet to ratify any protocol. In addition, some of the mentioned protocols have not been written yet as is the case for the "Water management" ,"Air", "Waste" and "Population and culture" protocols.

Although the Alpine Convention is not binding, WWF supports the treaty as the farthest-reaching conceptual framework to date for the sustainable development of the Alpine region and an excellent foundation for pan-Alpine cooperation. One of the Convention's most significant contributions is to promote cooperation between Alpine countries and to enhance the awareness among the peoples of the Alps of belonging to a common region with a precise and shared identity. The international treaty could be a powerful tool if all contracting parties finally ratified and implemented the protocols.

The biodiversity vision developed by WWF in cooperation with CIPRA (International Commission for the Protection of the Alps), ISCAR (International Scientific Committee for Alpine Research) and ALPARC (Alpine Network of Protected Areas) and with the contribution of the scientific community will make an important contribution to the Alpine Convention. By presenting a map of areas with high biodiversity value, it shows where to act first, supplementing the protocols of the Convention that stipulate which measures should be applied. Moreover, the targets and milestones of the WWF Ecoregion Action Plan are thematically very close to the protocols of the Convention.



The Natura 2000 and Emerald network

In 1992, in response to the significant ongoing deterioration of many habitat types and the growing number of threatened or rare species, EU member states adopted the Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (CE/92/43), also known as the "Fauna-Flora-Habitat Directive". The directive aims to protect biodiversity by setting up a European network of protected areas in which to effectively defend threatened species and habitats. It complements the 1979 Birds Directive, which establishes protected areas for threatened bird species. This new network of protected areas is called "Natura 2000".

The Natura 2000 site selection process is based on bio-geographic regions. The EU is divided into seven bio-geographic regions, one of them being the Alpine region. Member States proposed to the Commission a list of sites in which to safeguard the habitats and species listed in the annexes of the Habitat Directive. The Commission evaluated the proposal and adopted a final list of Sites of Community Importance (SCI) constituting the Natura 2000 network. The sites host a representative sample of each habitat type and species. Through the implementation of appropriate conservation measures, a favourable conservation status must be maintained.

Member states carry the main responsibility for the implementation of the Natura 2000 network. It's up to them to implement site management plans in order to avoid the deterioration of habitats and the disturbance of species. In addition, all development plans and projects likely to affect a Natura 2000 site will have to be subjected to an impact assessment with regard to the site's conservation objectives. However, the designation of a Natura 2000 site does not lead to a total ban on development, provided it is ecologically sustainable.

The Emerald network is the equivalent of Natura 2000 in Non-EU European countries, like Switzerland. It was created to complete the European network and is legally based on the Bern Convention. Unlike the EU-directive, it is not legally binding.
http://europa.eu.int/comm/environment/nature/home.htm

Emerald network: www.edena.net/wwf

The Convention on Biological Diversity

The Convention on Biological Diversity (CBD), signed in Rio in 1992, is viewed as the key international mechanism for delivering on biodiversity conservation and the '2010 target'. In Kuala Lumpur (Feb. 04) the Conference of the Parties adopted the Programme of Work on Protected Areas (PoW). The POW is the most important tool for reaching the Convention's overall target 'to achieve by 2010 a significant reduction of the current rate of biodiversi-

ty loss'. The overarching objective of the PoW PA is to establish 'by 2010 for terrestrial and by 2012 for marine areas, comprehensive, effectively managed, and ecologically representative national and regional systems of protected areas."

Under the CBD Programme of Work on Protected Areas, governments are committed to:

- As a matter of urgency, by 2006, take action to establish or expand protected areas in any large, intact or relatively unfragmented or highly irreplaceable natural areas;

- As a matter of urgency, by 2006 terrestrially and by 2008 in the marine environment, take action to address the underrepresentation of marine and inland water ecosystems in existing national and regional systems of protected areas;

- By 2006 complete protected area system gap analyses at national and regional levels;

- By 2009, designate the protected areas as identified through the national or regional gap analysis;

- All protected areas to have effective management in existence by 2012;

- Conduct a national-level study by 2005 of the effectiveness in using existing financial resources and of financial needs related to the national system of protected areas and identify options for meeting these needs;

- By 2008, sufficient financial, technical and other resources to meet the costs to effectively implement and manage national and regional systems of protected areas are secured;

- By 2008, establish and begin to implement country-level sustainable financing plans;

- Implement management effectiveness evaluations of at least 30 percent of each Party's protected areas by 2010.

The WWF Ecoregions are taking advantage of the CBD for their work. The program is called "The Living Planet 2010 Initiative". WWF's role is to provide national governments with examples on how to implement the CBD, placing the work already done into a broader framework. WWF would also function as a monitoring body keeping a "watchful eye" on governments, all the while offering good examples. It is also important to influence future decisions of the CBD (new PoW i.e. on forests). Special campaigns will be started, showing big wins, scorecards of countries, a to-dos' yardstick, etc.

The CBD can offer the Alpine Programme an additional instrument for lobbying on national and EU level for a representative network of protected areas, for example by using the Priority Conservation Areas as a blueprint for the gap analysis that states have to perform, and for finding sustainable ecoregional financing mechanisms. www.biodiv.org

The Water Framework Directive

The EU Water Framework Directive (2000/60/EC) is in force since the 22nd December 2000. Its purpose is to establish a framework for the protection of all waters (inland surface waters, transitional waters, coastal waters and groundwater). To this end, the Directive compels member states to prevent further deterioration, enhance and restore the status of aquatic and terrestrial ecosystems as well as wetlands directly depending on aquatic ecosystems. The aim is to achieve "good ecological and chemical" status by 2015. The aquatic ecology - flora and fauna - in undisturbed natural conditions provides the benchmark (reference) for this objective.

For the first time an EU directive addresses not only the "chemical" aspects of water protection but also its ecological characteristics (e.g. flow regime, aquatic organisms, etc.). This means that the WFD will help, for example, rivers to "be" and "function" like rivers, instead of being mere water canals as they are in many parts of Europe. To do so, the WFD considers the river basin (i.e. the geographic area that drains all surface water to a single point) its functional unit, which is the ecologically correct approach to water management. Thus, the directive promotes integrated river basin management as the most efficient way to achieve sustainable water use. This requires the coordinated planning of land and water resources usage within the entire basin, accounting for all surface, coastal and ground waters as well as for land use activities.

There are three central elements to the Water Framework Directive:

- The quality of water, threatened by man-made pollution, including from industrial chemicals (fertilizers, pesticides), urban or industrial wastewater (detergents, surfactants, pharmaceuticals), or cooling water from power generation, etc.

- The quantity of water (the volume and flow - hydrological regime), threatened by abstractions, drainage, dredging, canalization, damming, and polders for all kinds of human activities, (power generation, transport, industry and agriculture)

- The aquatic habitat (the morphology of rivers, lakes and coasts; the sediment structure and composition; meandering of rivers etc…), threatened by intensive land use, soil erosion, infrastructure works etc…

Quality, quantity and habitat are equally important in the achievement of "good ecological status", i.e. the condition necessary for the support of aquatic biodiversity close to undisturbed conditions, of all water-dependent ecosystems and all legitimate human water uses. http://europa.eu.int/comm/environment/water/water-framework/index_en.html

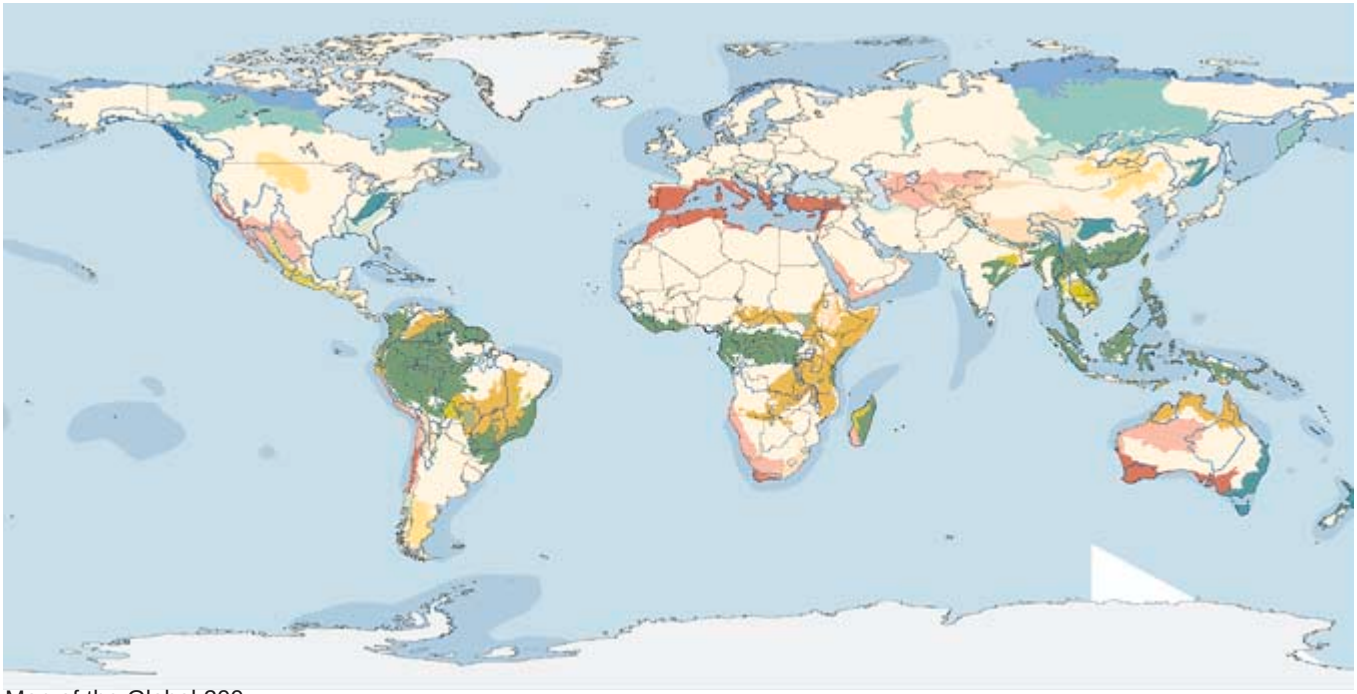
Ecoregion Conservation

The global 200

Biodiversity is not evenly distributed across the Earth but follows complex geographical patterns determined by climate, geology and the evolutionary history of the planet. These patterns are called "ecoregions". In 1997, WWF embarked on ecoregion conservation as a response to the ever-increasing pace of degradation of the world's endangered habitats and species. To begin with, WWF identified the 238 most valuable and sometimes vulnerable ecoregions in the world which best represent the breadth of biodiversity and ecological processes. This list of priority ecoregions is known as "The Global 200 Ecoregions".

The Global 200 recognize the fact that, although tropical forests and coral reefs harbour the most biodiversity and are therefore the traditional targets of conservation organizations, unique manifestations of nature are also found in temperate and boreal regions, in deserts and in mountain ranges like, for example, the Alps. These natural treasures occur nowhere else on Earth and risk being lost forever if they are not conserved.

Ecoregions are defined in biological terms and, as such, are logical units for conserving biodiversity. Moving from geographically - or politically - defined sites to biologically-defined ecoregions makes it easier to assess what is necessary to maintain the full array of biodiversity. The ecoregional approach helps ensure that we will not overlook areas of particular significance or particularly endangered. Because ecoregions often transcend political boundaries, managers, decision-makers and other players must widen their thinking and planning in order to prepare for trans-boundary action.



Map of the Global 200

Ecoregion Action Programmes

From the Global 200, WWF has selected a subset of ecoregions where it is best placed to carry out conservation programmes at ecoregional scale. The Alps are one of these ecoregions, for each of which an Ecoregion Action Programme (EAP) is launched.

An EAP is based on an ambitious, broad-scale, long-term and integrated approach that aims to conserve, and, where necessary, restore the biological diversity of an entire ecoregion. This does not mean that every individual of every species must be protected. It rather implies that both strategies and actions work towards achieving the broad goals of biodiversity conservation:

- Representation of all native habitat types, plant and animal communities across their natural range of variation

- Resilience of ecosystems to short- and long-term environmental change

- Viable populations of all native species in natural patterns of abundance and distribution

- Healthy ecological and evolutionary processes such as disturbance regimes, hydrological processes, nutrient cycles and biotic interactions.

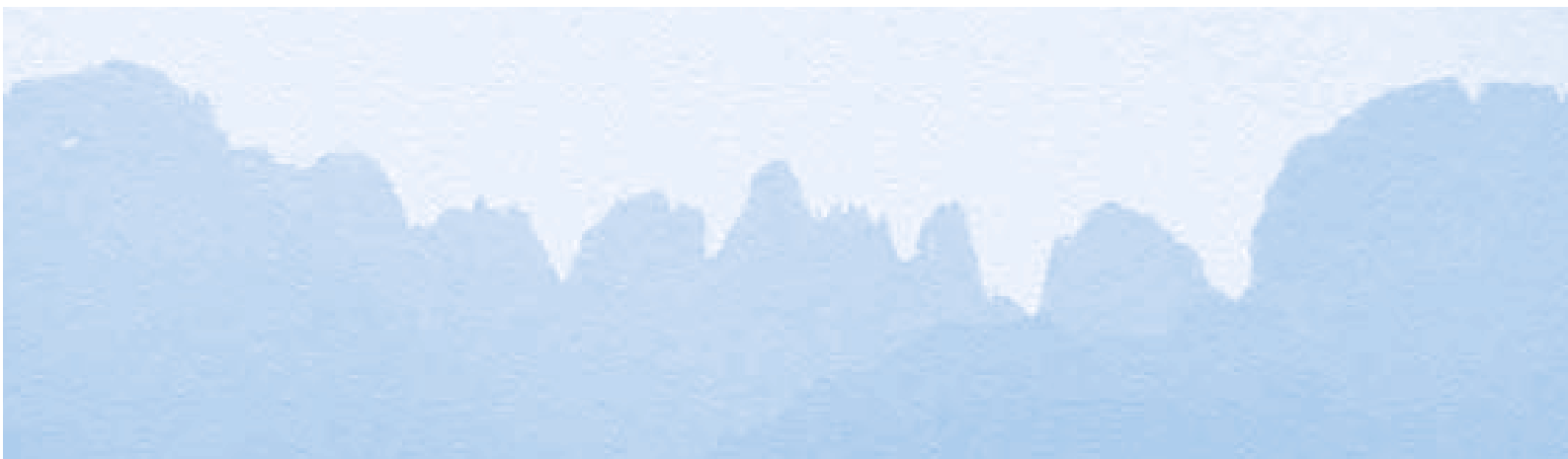
EAPs employ the tried and tested methods that WWF has used over the years - environmental education, the establishment of protected areas, capacity building, advocacy for policy change - but on a geographically larger scale and with the involvement of a wider range of issues and partners than ever before. Based on the need to think and act differently, with broader visions, larger scales, longer time horizons and greater impact, WWF has defined a set of simple features of ecoregion conservation:

- The fundamental goal of ecoregion conservation is to conserve the full range of an ecoregion's biodiversity: Genes, species, communities, ecosystems and ecological phenomena must be conserved at a scale that will ensure their integrity and long-term survival.

- The necessities of human development must be reconciled with conservation imperatives: ecoregional scales of planning and action require a thorough understanding of the interactions between social, economic and ecological factors.

- Emphasis must be placed on collaboration and on the development of partnerships: collaboration among institutions and individuals is vital for getting the best input and broadest commitment to both programme designing and implementation and to ensure that scarce resources are efficiently used.

- Adapting through learning: Actions and strategies are continuously reshaped on the basis of previous lessons and experience. They are regularly reviewed as soon as new information and new tools for conservation management become available.



The WWF European Alpine Programme: an Overview

the end of 1999, the WWF European Alpine Programme was launched by the five WWF organizations of the Alps (WWF Austria, France, Germany, Italy and Switzerland). Its goal was to adapt the Ecoregion Conservation approach to the Alps, after having assessed its feasibility. The national WWF organizations (NOs) had been working in the Alps for many years, but projects were mainly restricted within national boundaries with a relative lack of coordination among the different NOs. Several other organizations, institutions and agencies had also been active in the Alps and many initiatives are underway to conserve biodiversity and promote sustainable development, especially under the framework of the Alpine Convention.

However, the scope of most conservation activities was limited in space and time, rarely extending beyond national borders or lasting more than a few years. Due to the critical conservation status of the ecoregion, WWF saw the need for a strategic response to scale up conservation efforts. The WWF European Alpine Programme was thus initiated to coordinate WWF activities in the Alps while developing a long-term vision with the important parties involved and preserving the ecoregion's ecological integrity for future generations.

The ecoregion conservation process includes the following steps:

1.A reconnaissance phase to analyse the biological and socioeconomic situation of the ecoregion and assess the need for a complete ecoregional approach.

2. The development of a biodiversity vision, identifying the priority conservation areas and ecological corridors of the ecoregion.

3. The development of a shared Ecoregion Action Plan, also including Action Plans for each Priority Conservation Area, in cooperation with partners and stakeholders.

4. The implementation of the Action Plans.

5. Continuous monitoring and evaluation.

So far, the three first steps are almost concluded. This means that planning at the ecoregional level is very nearly completed, whereas planning at the Priority Conservation Area level is in its initial phase. The following gives an overview of the distinct planning phases:

Analyzing the situation: the reconnaissance phase

The first step was conducting a broad-scale assessment of relevant factors in the Alps in order to gain knowledge of the general status of the ecoregion and to provide a basis for deciding whether or not to continue with the Ecoregion Conservation work. During this phase, which was handled internally by WWF, three rapid assessments were conducted concerning the Alps' biodiversity, socio-economic aspects and policy scene. These reports also included a survey of the current knowledge and data gaps. Furthermore, threats to biodiversity were analysed as were opportunities for conservation and action priorities. A review of institutions and organizations active in the Alps was also undertaken.

The findings from this phase are summarized in the "Final Reconnaissance Report" issued in June 2001.

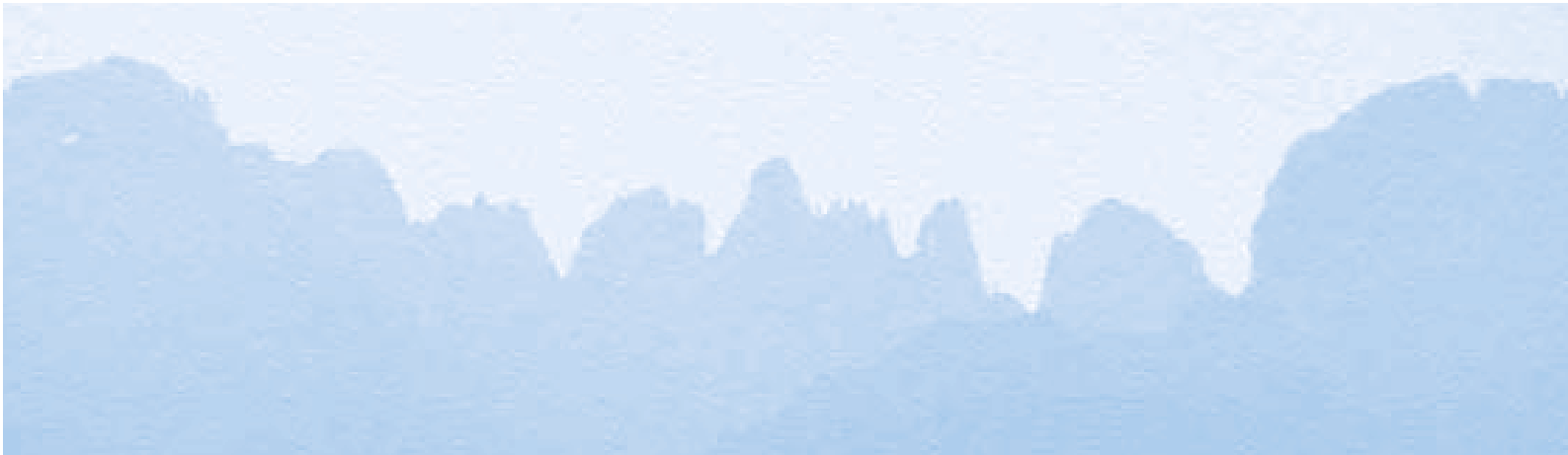
Setting goals: the biodiversity vision

The development of a long-term biodiversity vision for the Alps was the next step. The biodiversity vision identifies which species, ecological processes and geographic areas are most important for sustaining and restoring biodiversity. This crucial step was undertaken in collaboration with our partners CIPRA, ISCAR and ALPARC . The vision was defined over the course of a two-year process, with the contribution of more than a hundred people belonging to ninety different organizations. The process itself culminated in 2002 with two international workshops with scientists, representatives from NGOs and institutions: The first one took place in Gap, France in May and the second was held in Alpbach, Austria in the month of September. Other small-scale consultations took place at other times.

During this process, the key elements of biodiversity in the Alps were identified and a vision map was elaborated outlining the Priority Conservation Areas in the ecoregion, i.e. the areas which have the highest biodiversity value and should be given priority for conservation. Ecological corridors still have to be identified.

Moreover, the long-term conservation goals in the ecoregion were determined and major threats to biodiversity identified. WWF's vision of the Alps in 50 years is expressed in the following vision statement:

"The mosaic landscape of the Alps offers living space for people and nature. The mountain forests shelter a wide range of wildlife throughout the Alps, enabling migrating species to roam freely in the whole Alpine Arc between Nice and Vienna. Alpine rivers are open to wandering fish connecting the Alps with the seas of the North Sea, Black Sea and the Mediterranean. Sparkling and breathtaking glaciers continue to be a source of unspoiled freshwater as well as of enjoyment and enchantment of people. Children are playing in colourful flourishing meadows happy to explore and discover the hidden miracles of nature. Alpine environment friendly behaviour of people has become a common living standard."



Strategic planning at ecoregional level: The Ecoregion Action Plan

On the basis of the reconnaissance phase results and of the vision process, "targets" were formulated that need to be achieved if we are to conserve or restore biodiversity in the Alps. During a consultation process with experts and staff from WWF NOs, these targets were then broken down into medium-term "milestones". Together, the targets and milestones form the WWF Ecoregional Action Plan, which outlines the strategies and actions to be employed in order to achieve the biodiversity vision. They provide benchmarks against which the achievement of biodiversity conservation in the Alps can be measured.

Taking urgent action: the priority themes

Drawing up an Ecoregion Conservation Plan for the entire Alps is an ambitious goal which requires careful planning. In order to be able to take immediate action on important issues, the European Alpine Programme decided to start working on four priority themes without waiting for the planning process to be completed. These themes emerged from the results of the reconnaissance phase. The decisive criteria for identifying them were their relevance for the entire Alpine region, the availability of previous WWF expertise, and the presence of short- to medium-term opportunities or threats that needed to be addressed.

The four priority themes were:

- Priority species
- Natura 2000 and Emerald Network
- Freshwater
- Education

Priority species (Lynx, Wolf, Brown Bear and Bearded Vulture)

Large carnivores are part of the focal species identified during the reconnaissance phase. Their conservation is linked to other important issues: large expanses of suitable habitats are necessary for their survival, therefore large carnivores depend heavily on the establishment of habitat corridors. Humans also play an important role in their conservation, as their coexistence with people is often controversial. WWF's goal is to maintain and restore, in coexistence with people, viable populations of large carnivores as an integral part of the Alpine ecosystem. As large carnivores are wide-ranging species, their effective conservation requires adequate measures in the entire Alpine region. The European Alpine Programme can contribute to this by promoting relevant cooperation projects at all levels (international, national, regional and local), supporting monitoring of large carnivore populations and implementation of Alpine wide shared data bases. A strong focus is also laid on policy work on international convention level in Brussels and Strasbourg. In order to keep up good pro-

tection status, which is crucial for the return and establishment of large carnivores in the Alps,WWF installed a lobby person in Brussels.

WWF is participating in the project "Status and Conservation of the Alpine Lynx Subpopulation" (managed by KORA, www.kora.ch). This ongoing project's goal is to coordinate lynx monitoring and conservation activities in the Alps. The long-term objective is to help the current small, reintroduced sub-populations to expand and recover throughout the Alps in coexistence with people. WWF contributed to the development of the European Lynx Online Information System (ELOIS), which provides updated information on the status and distribution of lynx populations.

In co-operation with all Alpine WWF NOs and the policy officer in Brussels a proposal for weakening the protection status of the wolf in the Bern Convention could be turned down by effective lobby work. Wolves living in the Italian and French Alps regularly cross overinto Switzerland. WWF promotes livestock damage prevention measures (electrical fences, guardian dogs) to enable the cohabitation of wolf and man. These measures have been implemented in Italy and France for some time and have recently been tested in Switzerland with good results. They significantly reduced damage thereby preventing legal shooting of wolves. A guide collecting the main results will be published soon. Courses on livestock damage prevention have been integrated in the programmes of farmers/shepherds schools in two Swiss cantons.

Brown bear habitat and corridor studies are carried out in transboundary regions of Slovenia, Austria, Italy and Switzerland. Damage prevention measures are promoted and public awareness enhanced in exposed regions.

Bearded Vultures are fantastic flyers. In the first years of life they tour the whole Alpine region. There are many knowledge gaps about these journeys. In the project "Bearded Vultures on the move", initiated by the Foundation Pro Bearded Vulture and strongly supported by WWF, young bearded vultures are released into the wild, marked with small satellite transmitters. Through this the journeys undertaken can be continuously monitored and knowledge on habitat use and threats gained.

Natura 2000 and Emerald Network

Natura 2000 and Emerald are crucial instruments for the conservation of habitats and species diversity in the Alpine Region. WWF's goal is to lobby member states into building a representative and adequately protected network of Natura 2000 and Emerald sites in the Alps and to implement efficient monitoring and management activities in these sites.

Together with other organizations, WWF largely contributed to the completion of the official lists of Natura 2000 and Emerald sites. Out of the 959 Natura 2000

sites the EU commission approved for the Alpine Biogeographical Region, the European Alpine Programme extracted the data for the Alpine Ecoregion: 2.3 million hectares in 649 sites constitute the protected network of Natura 2000 in Austria, France, Italy and Germany (more site nominations are still to follow). WWF produced a map showing the N2000/Emerald sites of the Alpine arc and a species list with details for the EU member countries and Switzerland. WWF also created a map showing the superposition of N2000/Emerald sites on the priority conservation areas.

This information was partly integrated into an information booklet aimed at decision-makers, NGOs working in the Alps and potential sponsors. The brochure contains an overview of the N2000 and Emerald network in the Alps, gives specific examples from all Alpine countries and includes a list of WWF demands for the effective protection of N2000 and Emerald sites.

Now that the Natura 2000 network is nearing completion, there is a need to increase the focus on the active management of

Natura 2000 and Emerald sites in the Alps

the sites so as to ensure long-term conservation. This in turn raises the question of finding sufficient financing. In the next years, a main focus of the WWF European Alpine Programme will be laid on policy work at international and national level in co-operation with the WWF European Policy Office in Brussels to ensure adequate financing for the management of Natura 2000 sites.

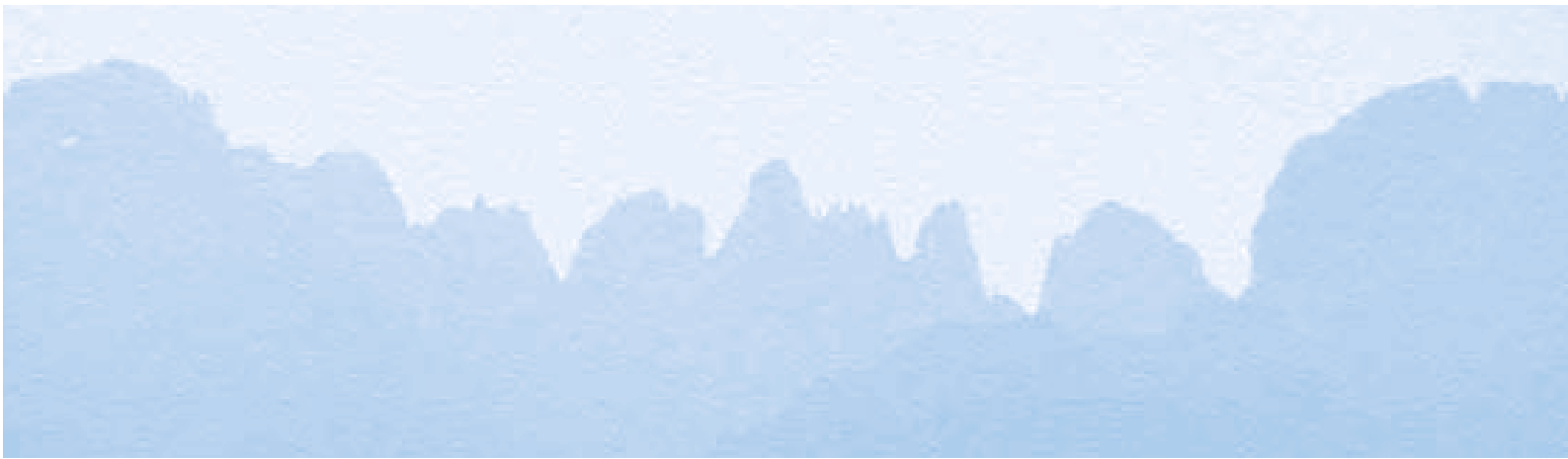
For the first time there is a fundamental discussion on financing for all Natura 2000 sites in Europe. All existing instruments on Financing Natura 2000 (mainly Life nature) have been developed to finance only some innovative model projects in Natura 2000 sites. The European Commission is now asking for about 40 to 50 times more funds for Natura 2000 than was allotted in the past. And until the end of 2006, decisions have to be made to guarantee that enough money will be spend for these sites in the new EU financial period from 2007 to 2013. The Commission's proposal to integrate Natura 2000 financing objectives into the EU Rural Development Fund, Structural Funds and LIFE+ (Financial Instrument for the Environment) is to be welcomed. These funding lines are well placed to deliver the levels of funding required for Natura 2000 conservation and management. The major flaw in the Commission's Natura 2000 financing strategy is that there is no requirement for member states to spend rural development or structural funds on Natura 2000. Moreover, the LIFE+ proposal for environment financing after 2006 must be amended to include a dedicated programme for biodiversity, which would provide funding for Natura 2000 management activities that cannot be financed by either rural or structural funds. Such activities include land purchase, education work and wetland management.

Freshwater

The main goal of freshwater activities is the conservation of Alpine rivers and wetland ecosystems and their dynamics. They focus on the conservation of high priority freshwater ecosystems in the Alps. The aim is to stop artificial schemes in areas where large-scale geomorphic processes can still be observed and where the rivers still have their own natural retention capacity.

Another goal is to restore degraded floodplains to reconnect them to the rivers and to conserve wetlands, floodplains, riparian vegetation and mountain forests in order to maintain the natural retention capacity of the rivers. Successful river restorations have been implemented by WWFs National Organizations in the last years. The European Alpine Programme has allowed the sharing of the lessons learned from successful river restoration projects across the Alps.

Finally, WWF seeks to promote the sustainable use of water resources, especially through the production of green hydroenergy. The main tool is exporting to other



Alpine countries the principles and methodology of Naturemade Star, the Swiss label for green power production.

All of our work refers to the principles of integrated river basin management according to the Water Framework Directive (Dir.2000/60/CE), which is the best tool currently available inside the European Union and the most advanced methodological reference to conserve and improve the quality of freshwater ecosystems.

The Tagliamento: one of the last pristine Alpine rivers is threatened

The Tagliamento river flows from the Alps to the Mediterranea Sea, mostly in the north-eastern Italian regione of Friuli Venezia Giulia. It is considered the last morphologically intact river in the Alps, since it retains the dynamic nature and morphological complexity that must have characterized most Alpine rivers in their pristine stage.

Because of a disastrous flooding in 1996, large artificial flood control structures, including three large water-retention basins, are to be built half-way along the Tagliamento river course, in the NATURA 2000 "Greto del Tagliamento" site, where the flood plain is 3 km wide. This degradation of one of the most natural streches of the river - which still has a natural high flood retention capacity - will definitely destroy the ecosystem without providing safety to the people living dowstream.

WWF initiated a multiple-stage process, involving the European Commission, the international scientific community and local municipalities to design sustainable alternatives to the water-retention basins project. In 2004 the WWF European Alpine Programme published a preliminary study for the identification of valid alternatives to the water-retention basins to be carried out in the middle reach of the river. After assessing the ecological and hydrological dynamics and the socio-economic regional framework, the report proposes an alternative model. It suggests a blend of different measures, and only one water retention basin on a lower stretch of the river, with remarkable advantages in terms of environmental impact and protection effectiveness.

The study's main conclusions (the serious lack of data, hence of knowledge, regarding many features of the Tagliamento watershed, the negative impacts of the schemes being planned and the need to implement reliable alternatives) coincide with the deductions of an official regional commission established to "pre-assess" the impact of the measures planned. Therefore, one of the important results of the study was the at least temporary halt of the disputed flood control measures. Meanwhile, WWF is working to establish a common platform with all the main regional stakeholders to develop a shared vision for a sustainable river basin management.

Education

The Alps are the most densely populated mountain range in the world and human activities significantly affect biodiversity. Thus, in order to conserve biodiversity it is paramount to change human attitude and behaviour. It is also important to develop a sense of belonging of the inhabitants of the Alps, so that they recognize that they are all part of the same ecosystem and can take responsibility for it. WWF has decided to begin with children, with the "Kids for the Alps" project.

"Kids for the Alps" has now reached phase III. The first phase was an internet drawing contest for schoolchildren from all Alpine countries. In phase II ("My water and me") children could test the water consumption in their school building or at home. School classes could also examine the water quality of their region by way of a "river test". In phase III, participants can discover if their hometown is "water-friendly". This way, they can reach out to local authorities and the public.

From the beginning, "Kids for the Alps" was made known through its own website in the four main alpine languages. The site serves as a portal that children can use to participate in the activities. It also contains background information on the Alps, teaching material, stories and interactive games. www.kids-for-the-alps.net

"Your wishes for the future"

Melanie Banzer, 12, Switzerland

This was the title of the first initiative by "Kids for the Alps". It was an Alps-wide drawing contest whose goal was to raise awareness about the Alps' peculiarities and to get children to think about a concrete vision of the future of the Alps. Children aged from 9 to 13 could send in drawings of their Alpine environment and express their wishes for the future. These were continuously scanned, translated and published on the "kids" website. The success of the project exceeded all expectations: over 3000 drawings were sent in from all over the Alps!

The children's summit

"Children's wishes for the future of the Alps" was the motto of the children's summit that took place in Innsbruck, Austria, in June 2003. And what a great experience for the 38 participants from seven Alpine countries: Austria, Germany, Switzerland, Liechtenstein, Slovenia, Italy and Monaco! As representatives of their countries, they discussed the future of the Alps, developed ideas and projects that were articulated on posters and letters. Together, they made demands for politicians and other prominent people on what they should do to ensure a better future for the Alps. On the summit's closing day, invited politicians were presented with these demands and had to answer a lot of hard questions!

Priority Conservation Areas

What are Priority Conservation Areas?

The map of Priority Conservation Areas (PCAs) shows the Alpine regions which need to be given priority for conservation, based on their biodiversity values. Important as the Alps are as a whole, the Priority Conservation Areas represent its "gemstones": the most important areas when considered at an ecoregional level. This does of course not mean that the areas outside the PCAs are unimportant. First of all, habitat connectivity between these areas has to be ensured. Moreover, many actions aimed at mitigating threats to biodiversity will have to take place at a pan-Alpine level. But in order to make the best possible use of our limited resources, we have to concentrate our efforts. Human activities in priority conservation areas have to be especially thoughtful. We are all responsible for conserving these Alpine "gemstones" - we cannot afford to lose them!

Methodology

This chapter gives a brief overview of the methodology employed to delineate the PCAs. For further information, please refer to the Technical Report describing the technical aspects of the vision process, which will be issued this year.

The map of PCAs was elaborated over a two year process involving several scientists and representatives from organizations from all over the Alps. Biodiversity and socio-economic experts were consulted and invited to participate in the process. A workshop was organized in Gap, France in May 2002 by WWF, the Alpine Network of Protected Areas (ALPARC), the International Commission for the Protection of the Alps (CIPRA International) and the International Scientific Committee for Alpine Research (ISCAR). The Conservatoire Botanique National Alpin in Gap and the University of Vienna Institute of Ecology and Conservation Biology provided technical support.

During this 3-day workshop, over 60 participants from all Alpine countries selected focal species and key habitats and mapped their most important existing and potential areas. Criteria for identifying the most important areas for the various taxa and the key habitat types were established, thus leading to the identification of priority conservation areas in the Alps by overlaying areas important for individual taxa. It was decided to use the following groups of taxa and habitats for the delineation of the PCAs:

- Flora
- Mammals
- Birds
- Amphibians and reptiles
- Invertebrates (insects)
- Freshwater habitats

Ideally, a conservation strategy takes into account all species, habitats and ecological processes. However, due to limited resources and data, a subset of representative species and habitats was considered.

The participants were divided into groups according to the different taxa. Their task was to identify the most important areas for the conservation of the given taxon or

habitat. Some groups worked on thematic issues like key threats, urbanization etc. Each group was composed of members from different Alpine countries to achieve consistency throughout the Alps. The table on page 34 describes in general terms which criteria were considered in establishing the most important areas for their conservation.

Base maps of the Alps at a scale of 1:500 000 were used. The experts were provided by WWF with a set of reference maps, with information on elevation, land cover, infrastructure, species distribution, protected areas etc.

The spatial information provided by the experts was digitized and imported into a GIS database. Additionally, gaps in data and knowledge were identified and addressed in a review process after the workshop by contacting additional experts and collecting missing data from existing sources. Furthermore, preliminary results were presented and discussed at a dedicated session during the Forum Alpinum in September 2002 in Alpbach, Austria.

Once the information on the most important areas for the various taxa and key habitats was completed, a map for each taxon or habitat was created. The final map was generated by overlaying separate taxon biodiversity maps and identifying the areas with the greatest overlap. These areas are the Priority Conservation Areas of the Alps (PCAs). The boundaries of the PCAs were delineated in a workshop with a small group of landscape ecologists. Remote areas have been incorporated into PCAs whenever they were located close to the areas of greatest overlay of taxon biodiversity maps. The resulting PCAs were analyzed to see if they adequately represented all bio-geographic regions of the Alps as well as all potential vegetation zones. Both analyses showed adequate representation within the PCAs.

As the delineation of the PCAs was conducted at a relatively coarse scale, their boundaries should not be considered final. The areas shown on the following map only give a rough idea of their general location; the detailed boundaries will be identified at a later stage, when planning conservation work at PCA level.

With the final map available, two consultants were contracted to make a description of the PCAs. One report analyzed the biodiversity features, threats and opportunities in each PCA, the other described the socio-political situation. This information will serve as a starting point for future conservation work in the PCAs.

Future conservation work at PCA level

The intention is not to create protected areas wherever there is a PCA. A multitude of other tools is available to conserve the most important aspects of biodiversity within these areas. These tools include measures like the development of environmentally responsible tourism, ecologically sound agriculture, sustainable forestry, developing markets for regional products, restoration of destroyed habitats, the establishment of new, and improvement of existing, protected areas etc.

A detailed analysis, conducted with all interested groups in each priority area, will clarify the detailed actions on a regional and local scale necessary for the conservation of the PCAs. Action plans will be developed with the interested parties and shared with local public administrations.

Criteria used for drafting the maps of important taxon areas:

Taxon and focal species	Criteria
Vegetation	- Endemic species richness - Large forest blocks - Distinct dry areas - Alpine rare species - Particular ecological phenomena (i.e., glaciers, peat bogs)
Mammals: Large carnivores *- Ursus arctos* *- Canis lupus* *- Lynx lynx*	- Areas where animals currently reproduce - Areas where animals can naturally reproduce within the next 10 years - Areas where individual countries want to reintroduce large carnivores within the next 10 years.
Mammals: Large herbivores *- Rupicapra rupicapra* *- Capra ibex* *- Cervus elaphus*	- Species richness - Areas with optimal or core habitat for ungulates (may need restoration first) - Areas important for habitat protection and restoration - Area of endemism (see Rupicapra r. cartusiana). Note: For red deer: habitat where red deer can have their entire life cycle without supplemental feeding, with low predisposition to vegetation damage, and that can guarantee minimum viable population.
Mammals: **Small and medium mammals** *- Lutra lutra* *- Eptesicus nilssoni* *- Rhinolophidae* *- Microtus bavaricus* *- Apodemus alpicola*	- Known current distribution of the focal species.
Birds *- Mergus merganser* *- Actitis hypoleucos* *- Dendrocopos leucotos* *- Picus canus* *- Tetrao urogallus* *- Picoides tridactylus alpinus* *- Serinus citrinella* *- Luscinia s. svecica* *- Alectoris graeca saxatilis* *- Monticola solitarius* *- Monticola saxatilis* *- Charadrius morinellus* *- Upupa epops.*	- Important Bird Areas (IBA) - Additional areas of high biodiversity value for focal species
Reptiles and Amphibians *- Lacerta horvathi* *- Salamandra atra aurorae* *- Salamandra atra ssp.* *- Salamandra lanzai* *- Speleomantes strinatii* *- Triturus alpestris (neotenous)* *- Vipera ursinii* *- Zootoca vivipara (carnidica)*	- Areas with endemic species - Areas with species listed in the IUCN Red List - Areas with Ecological and evolutionary phenomena - Areas with focal species - Areas with species richness
Insects Butterflies and beetles.	- Richness in endemic butterflies and beetles, or centres of endemism (butterflies are among the best known invertebrate groups, the overview about endemic species in the Alps is quite good and the difference in the data quality in the different regions is small) - Species richness of butterflies and beetles.
Freshwater (as key habitat)	- Remaining, intact rivers with floodplains - Lower stretches in river valleys, when in natural or semi-natural status (even if after revitalization).

The action plans will involve a broad consultation with stakeholders and include actions at policy level as well as on the ground. The European Alpine Programme will follow two different approaches in initiating the action plans: the full landscape approach and the project-based approach.

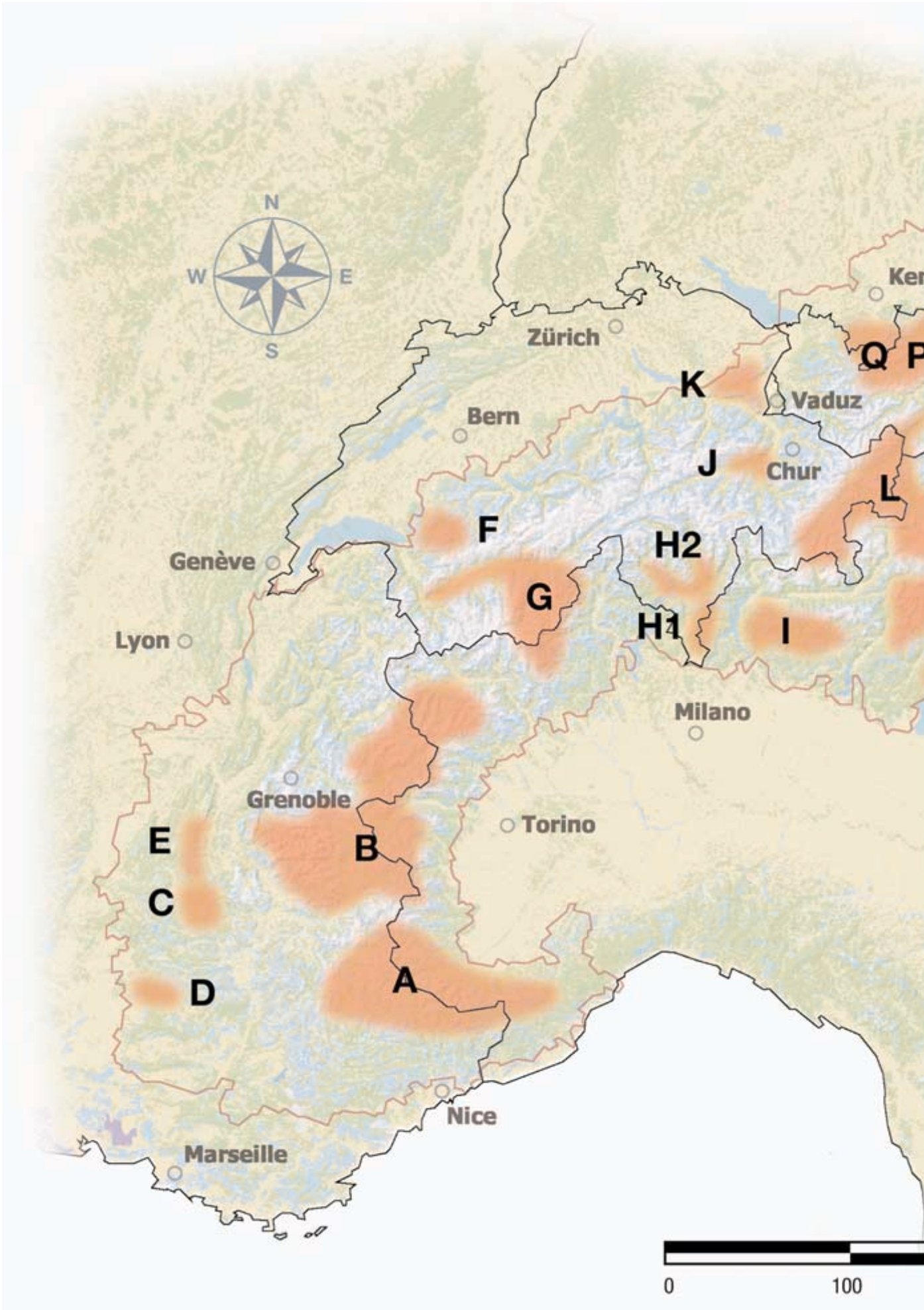
The full landscape approach will be based on a comprehensive and detailed landscape level analysis of the entire PCA. This will involve synthesizing detailed biological and socio-economic data to map the values and resources in the PCA. This data will help identify the core areas, buffer zones, special management areas and corridors within and outside the PCA. The precise boundaries of the area will be defined. Threats and conservation opportunities will also be taken into account. The overlap with protected areas, Natura 2000 and other sites under a certain protection regime will be verified. This will help to identify valuable areas that are as yet unprotected and that may need special management. Areas where human activities can be encouraged will also be described. The full landscape approach will likely be initiated by WWF, but will be carried out by interested parties in the PCA. The degree of WWF's involvement in the process will vary depending on the actual situation in the area. WWF and its partners will in any case provide technical assistance, best practice and lessons learned from other areas and limited human resources. The landscape-level analysis will be started in a restricted number of pilot areas. The lessons learned from these first processes will then be applied to other PCAs.

In other PCAs, the conservation process will be started with a more action-oriented, project-based approach: specific projects will be initiated together with interested parties in the area. These initiatives will bring together stakeholders around definite conservation aspects. Based on this cooperation, the conservation effort will then be scaled up to achieve area-wide action planning.

Connectivity

The main ecological corridors among the PCAs will have to be identified in order to complete the biodiversity vision map. The PCAs are not meant to be islands inside the ecoregion. Connectivity among them has to be guaranteed to enable the migration of species across the Alps as well as to adjacent ecoregions. The ecological network has to be identified in order to work towards limiting land use changes and construction of infrastructure that would weaken connectivity.

The European Alpine programme will develop a map of the main corridors among PCAs and from the Alps ecoregion towards the outside (towards the Dinaric Alps in the SE, towards the Carpathians in the NE, towards the Apennines in the SW, along the rivers exiting the Alps, etc.) The preliminary work will be based on the results from the vision process. Then, once the preparatory phase is over, another experts workshop will be held to identify the macro-corridors of the Alps. This effort will be coordinated with an ongoing ALPARC project identifying the corridors connecting the main clusters of protected areas in the Alps (a report was issued on this projects in the four Alpine languages: see references). A fair amount of overlap exists between these "zoom-in areas" and the PCAs. The two approaches really complement each other and will therefore be integrated under the coordination of the permanent secretariat of the Alpine Convention.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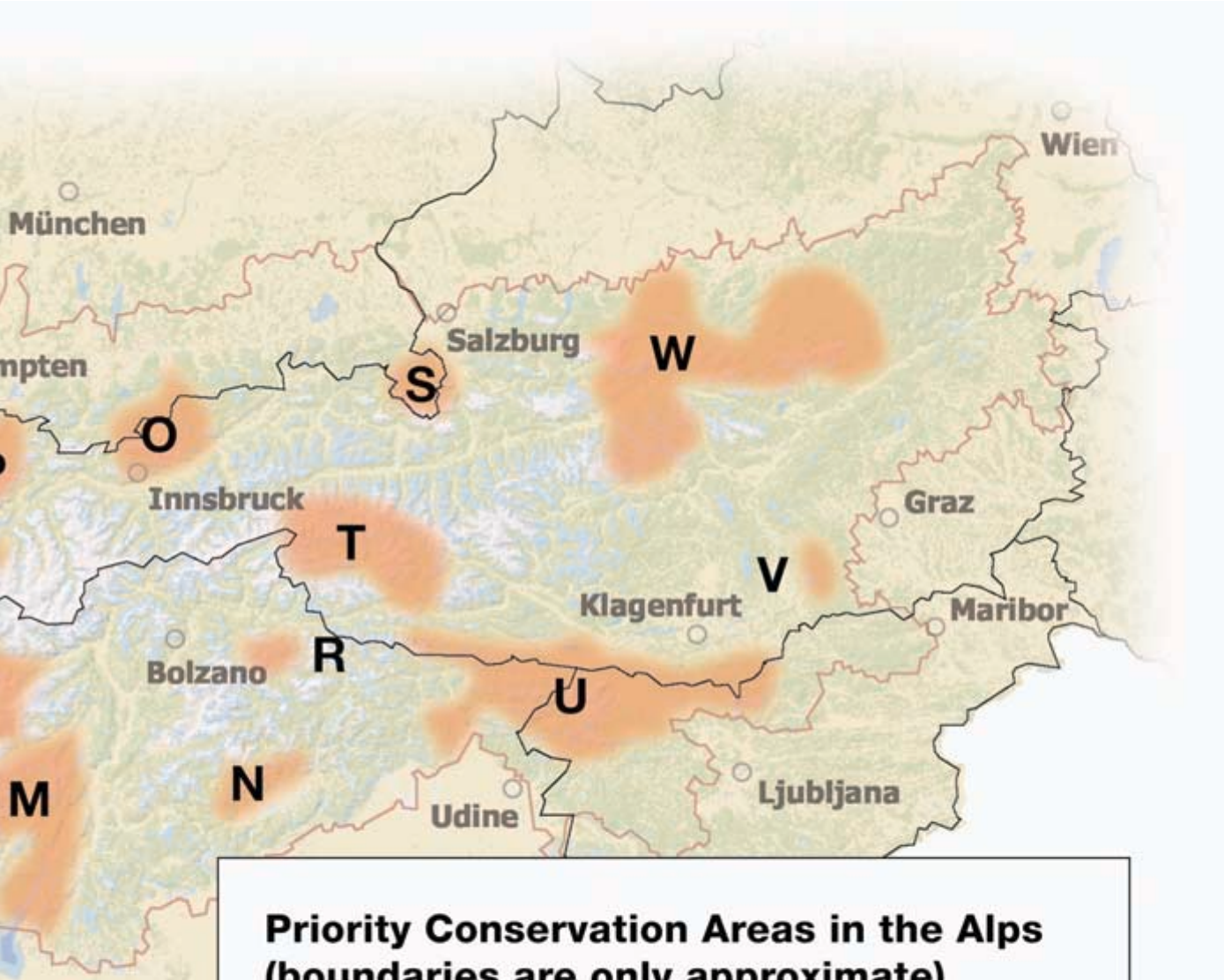


Priority Conservation Areas in the Alps (boundaries are only approximate)

- **A** Alpi Marittime – Alpes Maritimes (Italia/France)
- **B** Alpi Cozie – Gran Paradiso – Queyras – Massif de Pelvoux – Massif de la Vanoise (Italia/France)
- **C** Diois en Drôme (France)
- **D** Mont Ventoux en Provence (France)
- **E** Vercors (France)
- **F** Alpes Vaudoises (Suisse)
- **G** Alpi Pennine – vallée du Rhône – Oberwallis (Italia/Suisse/Schweiz)
- **H1** Sottoceneri
- **H2** Sopraceneri nel Ticino (Svizzera)
- **I** Alpi Orobie – Grigne (Italia)
- **J** Bündner Rheintal (Schweiz)
- **K** Alpstein – Churfirsten (Schweiz)
- **L** Engadina – Stelvio/Stilfser Joch (Svizra/Italia)
- **M** Brenta – Adamello – Baldo – Alto Garda (Italia)
- **N** Dolomiti Bellunesi (Italia)
- **O** Karwendel – Isar (Österreich)
- **P** Lechtal (Österreich)
- **Q** Allgäu (Deutschland)
- **R** Dolomiti d'Ampezzo (Italia)
- **S** Berchtesgaden (Deutschland)
- **T** Hohe Tauern (Österreich)
- **U** Karnische Alpen/Alpi Carniche – Tagliamento – Julische Alpen/ Alpi Giulie/Julijske Alpe – Karawanken/Karavanke (Österreich/Italia/Slovenija)
- **V** Koralpe (Österreich)
- **W** Oberösterreichische Kalkalpen – Niedere Tauern (Österreich)

National Boundary
Alpine Convention Boundary
Priority Areas

200 km

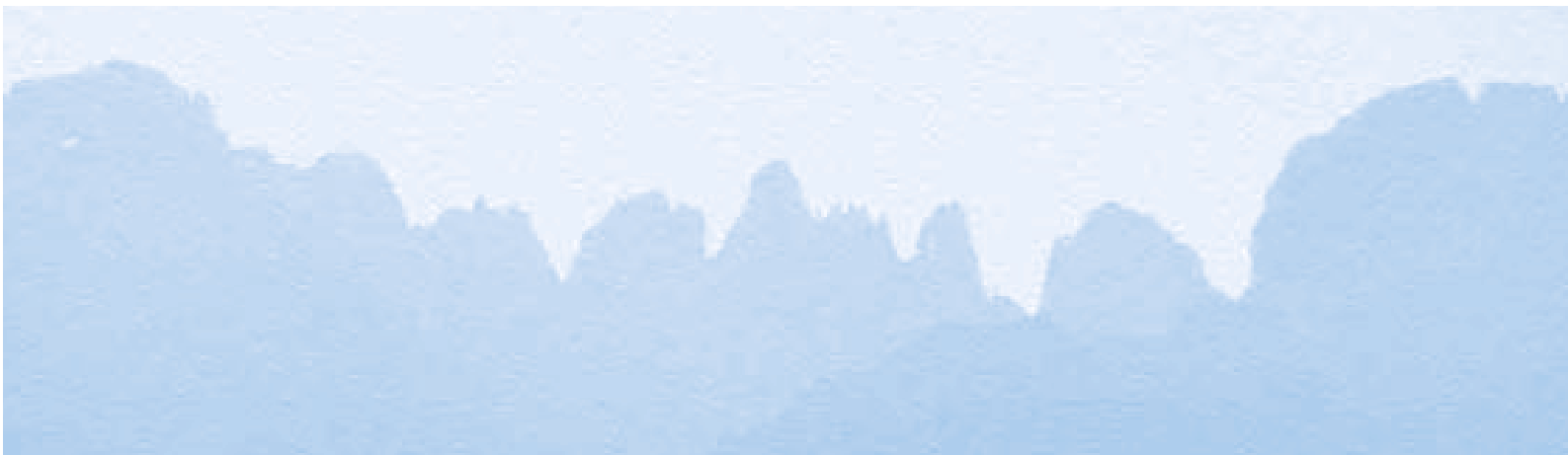
The WWF Ecoregion Action Plan

The WWF Ecoregion Action Plan sets the "targets and milestones" that WWF thinks should be achieved to ensure the conservation of biodiversity in the Alps. The ten "targets" are long-term goals covering the thematic areas where action needs to be taken. Under each target, medium-term "milestones" are defined that need to be achieved to reach those targets.

Due to lack of sufficient resources, WWF itself will not cover all the milestones listed here (for the complete Action Plan, see Annex III) The European Alpine Programme has selected those for which core competences are present within the WWF network in the Alps. Detailed activities are developed every year to fulfil these WWF milestones and are laid out in a logical framework, which defines the timelines, responsibilities and resources needed for the implementation of these activities. In order to measure the success of this implementation, indicators have been defined for the targets and milestones. They will be part of the monitoring and evaluation framework of the European Alpine Programme. This framework will permit to track progress towards the achievement of targets and milestones, to monitor changes in the state of biodiversity and to evaluate and thereby improve the effectiveness of actions.

WWF realizes that the conservation of biodiversity in the Alps is only possible if partners and stakeholders take on some of the remaining targets and milestones, according to their area of expertise and, of course, add their own milestones if necessary. This Action Plan was mainly elaborated internally by WWF. The next step will be to share it with our partners (CIPRA, ISCAR and ALPARC), which will be asked to revise the targets and milestones and to add their own targets and milestones in those thematic areas where they plan to be active. The Ecoregion Action Plan as well as its implementation will thus become a shared endeavour among partners. Besides the involvement of our partners, other stakeholders will be asked to participate on individual targets. The result will be more shared strategies to achieve biodiversity conservation in the Alps.

The Ecoregion Action Plan is not a static document. It will be revised periodically as a part of the programme's monitoring and evaluation framework. Based on the results of these evaluations and on possible situation changes, milestones will be reviewed or new ones will be added. This will allow the ecoregional conservation work in the Alps to be a dynamic, far-reaching process.



Target 1: Conservation in priority areas

"By 2015, the biodiversity status of all priority areas has significantly improved."

The milestones under this target focus on the protection of biodiversity on a landscape and habitat level. WWF will put special emphasis on the protection of the Priority Conservation Areas, since those are the areas with the highest biodiversity value in the ecoregion. To this end, the boundaries of the priority conservation areas will be defined in detail and PCA conservation will be ensured by drawing up and implementing area-wide action plans and/or by launching individual projects. All these activities will be carried out with the deep involvement of local public administrations and stakeholders in the PCAs.

The Natura 2000/Emerald network is a very important tool for improving the conservation status of the PCAs. WWF will lobby the governments of Alpine countries to ensure that the network sites are given adequate national status and good management. In Switzerland, WWF will promote the nomination and protection of more Emerald sites. On EU level, WWF will lobby to ensure that adequate financing for the management of Natura 2000 sites is provided and that subsidies emerging from sectoral EU policies (e.g. agriculture, transport, infrastructure, etc...) will have less negative impact on Natura 2000 sites. WWF will promote the rigorous enforcement of the Natura 2000 infraction procedure, support the preparation of management plans and push international, national and regional projects to take full advantage of EU funding opportunities. A biodiversity index for Natura 2000 species and habitats will be developed to assist governments with their monitoring and reporting to the EU Commission.

Protected areas are a key element for conserving biodiversity in the PCAs and to ensure connectivity among them. The total surface of protected areas in the Alps has to be significantly increased to ensure the representation of all major habitats. Therefore, WWF will lobby to ensure adequate protection of the Natura 2000/Emerald sites and to ensure that Alpine Countries comply with the Programme of Work on Protected Areas of the CBD. In cooperation with its partners, WWF will define high standards for management by which to asses the performance of protected areas. This work can be based on the "Rapid Assessment and Prioritization of Protected Areas Management" (RAPPAM) methodology, which was developed by WWF under the framework of the World Commission on Protected Areas, and which is already in use in several countries all over the world. www.panda.org/about_wwf/what_we_do/forests/our_solutions/protection/tools/rappam/index.cfm
WWF will develop guidelines for good management practice and, in some cases, contribute to the implementation of management plans.

The existence of remote "wilderness" areas was an important criterion in the

definition of PCA boundaries. The last remote areas in the Alps being a heritage of crucial importance for the conservation of natural biodiversity, we have to make sure that also in the future they will remain untouched by major infrastructure projects.

WWF milestones under Target 1:

Milestone 1.1
By 2010, conservation in 5 priority areas is ensured by implementing area-wide action plans, reviewing boundaries where necessary and implementing individual projects.

Milestone 1.3
By 2010, high standard management and monitoring is ensured in 20% of the protected areas within priority areas.

Milestone 1.4
By 2007, an educational programme promoting biodiversity in priority areas is developed and implemented.

Milestone 1.5
By 2010, the Natura 2000 / Emerald network is implemented in 6 Alpine countries by way of an adequate national legal status and good management practices.

Milestone 1.6
By 2008, perverse subsidies threatening Natura 2000/Emerald are identified and reduced by 50%.

Milestone 1.7
No new major infrastructure projects are undertaken in remote areas in priority areas and in areas important for their connectivity.

Target 2: Connectivity

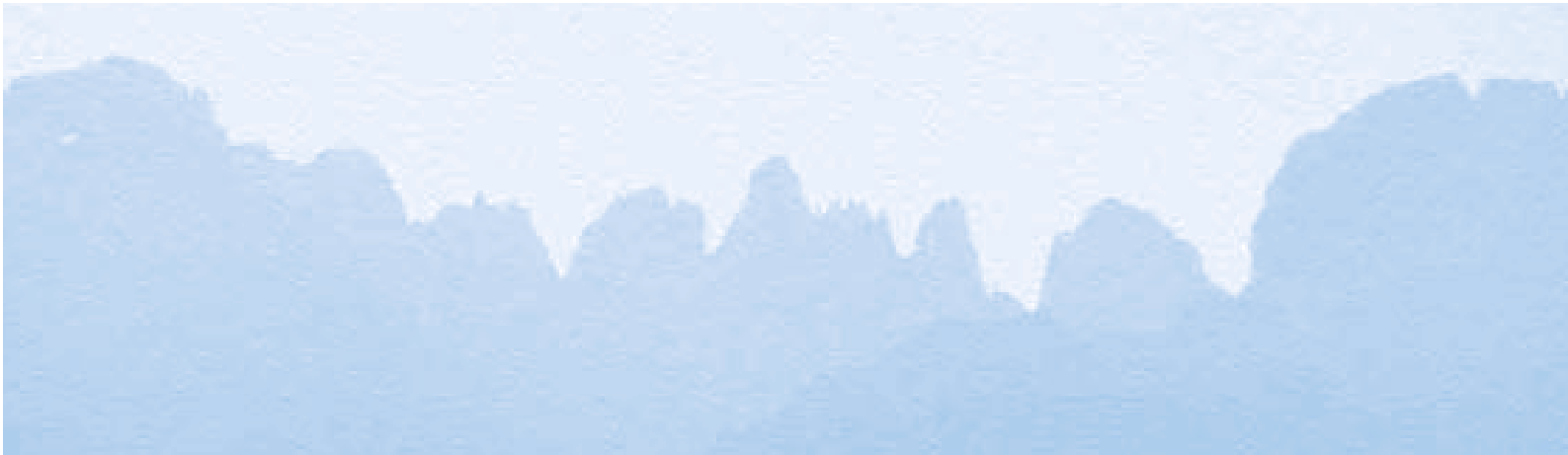
"By 2015, the relevant ecological corridors of the Alps are functional."

Habitat fragmentation is one of the major causes of biodiversity loss in the Alps. To conserve viable species populations and ecological processes, the connectivity between habitats has to be conserved, and where necessary, restored. To this end, WWF and its partners will produce a map of the main ecological corridors connecting PCAs and leading from the Alps to the outside. This map will help identifying the actions needed to ensure that the ecological network of the Alps is functional. Based on this work, WWF will seek to halt infrastructure projects threatening to fragment existing corridors. Many corridors in the Alps have already been interrupted. Therefore, WWF will also initiate projects to restore the corridors that are vital for the ecological network of the Ecoregion.

Most importantly, public authorities will have to be made aware of, and committed to, the importance of preserving connectivity and therefore to include corridors into their spatial planning. To make planning more effective, cooperation at all administrative levels has to be established.

WWF milestones under Target 2:

Milestone 2.1
By 2005, the ecological network (corridors) for the Alps is outlined, including potential links to adjacent ecoregions (Dinaric Alps, Apennines).



Milestone 2.2
Further fragmentation of natural and near-natural sites is prevented, with particular emphasis on priority areas and areas important for their connectivity.

Milestone 2.3
By 2010, 3 very important interrupted ecological corridors are restored, with particular emphasis on priority areas.

Milestone 2.4
By 2010, 20 cooperation projects at all administrative levels (international, national, regional and local) are in place to achieve more effective connectivity

Target 3: Species Conservation

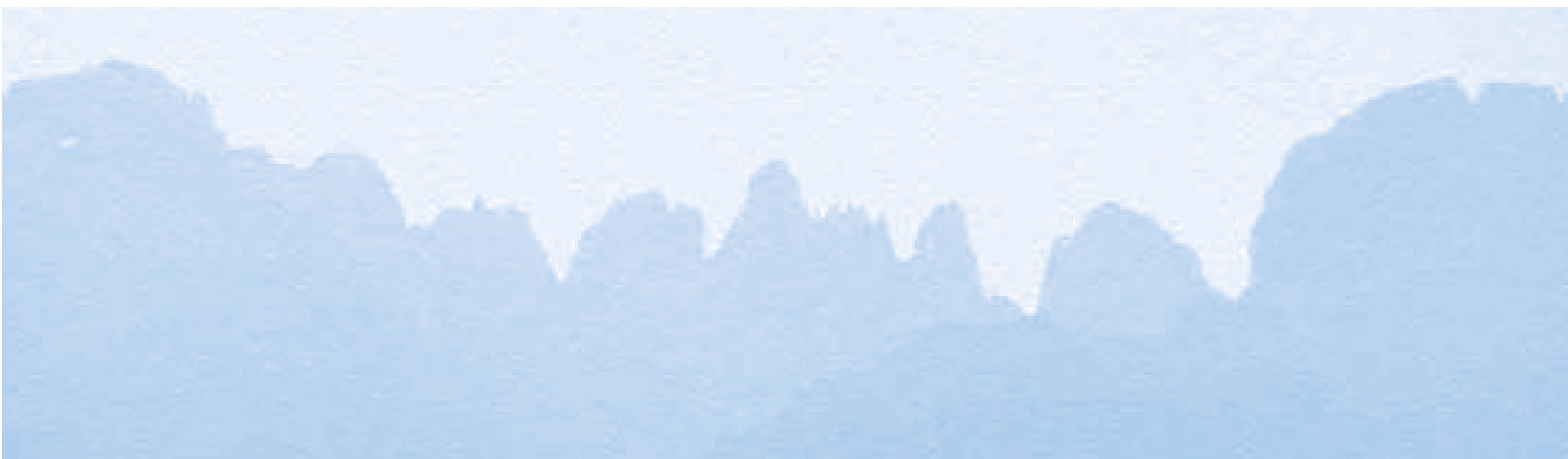
"By 2015, the status of Alpine endemic species/sub-species, as well as of priority species has significantly improved."

This target deals with biodiversity conservation at species level. To effectively allocate resources, WWF will focus on improving the conservation status of rare and endemic species, as well as of priority species. The current Alpine ecoregion priority species are the wolf, the brown bear, the lynx and the bearded vulture. This list will be revised regularly in the future and updated if needed. WWF will promote cooperation projects at all levels (international, national and regional) among stakeholders involved in species conservation work. We will support the monitoring and implementation of Alps-wide shared databases on species populations. We will contribute to species management and to the implementation of species action-plans if adequate. Concerning the large carnivores that have reappeared in the Alps, WWF will work towards permanently linking the still isolated populations through suitable migration corridors. We will also continue our work to ensure cohabitation with humans, through information, capacity building and the promotion of damage prevention measures for livestock.

WWF milestones under Target 3:

Milestone 3.1
By 2010, the conservation status of at least 20 endangered and/or rare alpine species is improved (with special emphasis on priority species).

Milestone 3.2
By 2010, at least 3 isolated large carnivore sub-populations are permanently linked by means of ecological corridors.



Target 4: Adapting land use planning to biodiversity needs

"By 2015, land use plans are adapted to biodiversity needs in Alpine regions of particular importance to priority areas and to their connectivity."

The last remaining natural habitats in the Alps are increasingly threatened by encroaching human land use especially in the densely urbanized main valleys. But also in some side valleys and around high mountain tourist centres, urban sprawl is continuously degrading the landscape. Therefore, the development plans of Alpine communities and regions have to take into account the protection of habitats and natural resources. The protocol "Land use planning and sustainable development" of the Alpine Convention provides a legal framework for reconciling the need for development with ecological considerations. All Alpine states should sign an implement this protocol.

The protocol "Land use planning and sustainable development"

The protocol concerns the coordination of land use in the Alps. The measures listed include sustainable land use planning, elimination of structural weaknesses, conservation and restoration of areas of particular ecological and cultural significance and appropriate limitation of settlement areas.

Target 5: Adapting to climate change

"By 2015, size, representativeness and connectivity of priority areas and selected protected areas ensure maximum resilience of species and habitats to the effects of Climate Change."

The effects of global warming are already being observed in the Alps. As temperatures rise, vegetation belts shift upwards, which will eventually lead to a decrease in their area and to the loss of the coldest climatic zones at the summits. This means that especially high mountain habitats are becoming more vulnerable and some species from the upper reaches are risking extinction. To avoid this, the first response is of course to limit global warming through the reduction of CO_2 emissions. At the same time, the effects of climate change on Alpine habitats have to be thoroughly assessed. Habitat conservation has to be planned accordingly to the results of this assessment. The design of protected areas and corridors will have to take into account the migration of plants induced by climate change. Therefore, protected areas will need to be as large as possible and will have to include a great range of elevations and slope variety.

Target 6:

Integrated river basin management

"By 2015, freshwater habitats and environmental processes in at least 10 Alpine priority subcatchment areas are maintained and/or restored."

The focus of WWF concerning freshwater habitats is aimed at the protection of natural river systems, river restoration and the promotion of sustainable hydro-energy. A holistic river basin management, as foreseen in the European Water Framework Directive (WFD), will be promoted. A map showing the current state of Alpine rivers is being developed. It will allow the selection of priority rivers for conservation and restoration and will serve as a lobbying tool to protect rivers that are still in a fairly natural state. Further restoration projects will be initiated. Sustainable energy will be promoted in all Alpine countries, according to the Swiss Naturemade Star label or equivalent criteria.

WWF milestones under Target 6:

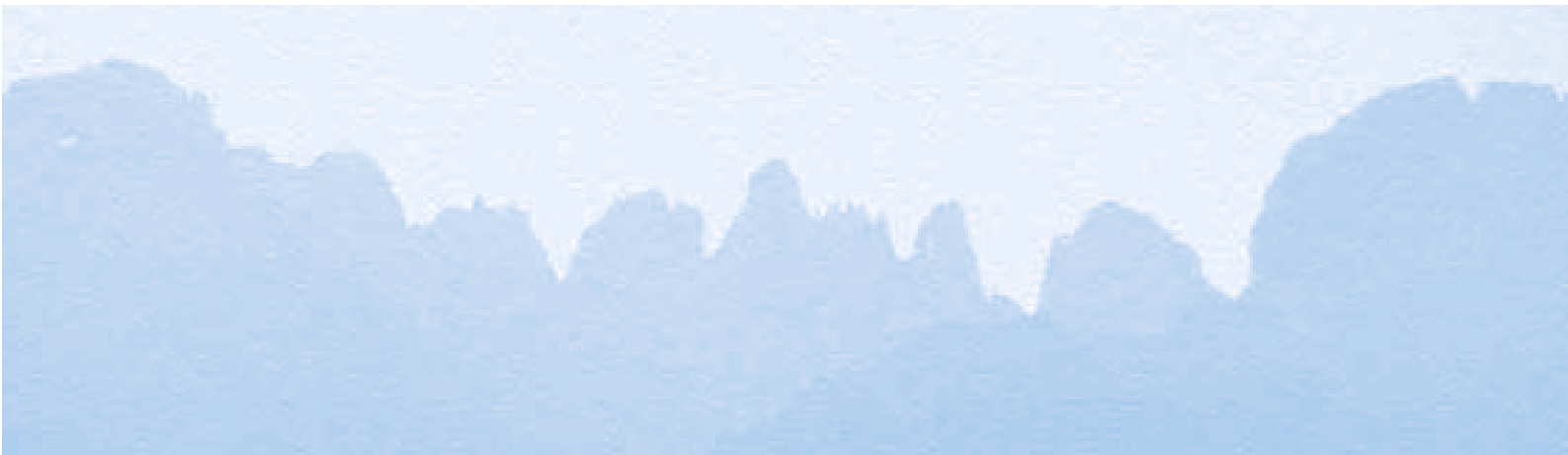
Milestone 6.1
By 2009, environmental processes are conserved, maintained or restored in at least 5 priority Alpine subcatchments of high biodiversity importance according to Water Framework Directive principles.

Milestone 6.2
By 2007, an educational program is implemented, involving 100 school classes and 30 communities and promoting the protection and restoration of freshwater systems and a wise use of water.

Milestone 6.3
By 2007, sustainable use of hydro-energy according to "Naturemade Star" or equivalent criteria is applied by at least 3 major energy producers and/or distributors outside of Switzerland.

Naturemade Star

Naturemade Star is the Swiss label certifying green power production and green electricity products. In the field of hydropower, Naturemade Star employs very strict requirements regarding the production of green power. Certified hydropower plants must fulfil basic ecological requirements at local scale, so that the river system's principal ecological functions are preserved. The label satisfies clear, scientifically defined criteria (the Greenhydro criteria defined by EAWAG, the Swiss Federal Institute for Water Supply, Treatment and Protection). Additionally, a part of the energy price flows into a fund the Swiss 'Greenhydro Criteria" are also officially the basic condition for a label to be certified with the European Label "Eugene". This label allows green energy to be tradable to other European countries. www.naturemade.org



Target 7: Forest management

"By 2015, all managed forests in priority areas and areas of critical importance for their connectivity are managed according to Forest Stewardship Council (FSC) or equivalent standards."

Forest certification is widely seen as the most important initiative in the last decade to promote better forest management. Forest certification is a system of third party forest management assessment plus a means of tracking timber through a "chain of custody" - following the raw material from the certified forest site trough to the finished product. Currently WWF considers the Forest Stewardship Council (FSC) certification system to be the only credible system to ensure environmentally responsible, socially beneficial and economically viable management of forests. The aim of this target will therefore be to promote sustainable forest management through the certification of productive forests under the FSC label in all alpine countries, or to promote the implementation of equivalent, high-quality standards where this is not possible. Moreover, High Conservation Value Forests (HCVF) have to be identified to ensure that forests that are especially important for biodiversity are maintained. This concept should be adopted by all Alpine Countries.

The Forest Stewardship Council (FSC)

The Forest Stewardship Council is an international body which accredits certification organizations. The process of certification is initiated voluntarily by forest owners and managers who request the services of a certification organization. The framework of certification is set by the international FSC principles and criteria, which apply to all forests worldwide. They cover aspects like land tenure and workers' rights, sustainable management of forest services and resources, conservation of biodiversity and assessment of environmental impact. At national or regional level, these criteria are adapted to the specific ecological, economic and social conditions through a broad participatory process. While the FSC principles and criteria are mainly designed for forest management and wood products, they are also relevant to forests managed for non-timber products and other services. www.fsc.org

High Conservation Value Forests (HCVF)

The concept of High Conservation Value Forests is a recent development aiming to ensure that the most environmentally and socially significant forest values are maintained. Where these values are considered to be of outstanding meaning or critical importance, the forest can be defined as a High Conservation Value Forest. This process will help forest owners, companies, governments and other stakeholders with a relevant role in conservation planning decide which parts of a forest must be given higher conservation priority than others. WWF promotes this practical approach towards responsible forestry across all land tenures.
www.panda.org/about_wwf/what_we_do/forests/our_solutions/protection/hcvf.cfm

Target 8:
High Nature Value Farmland

"By 2015, agricultural activities in priority areas and areas of critical importance for their connectivity fully respect the conservation needs of endangered habitats and species as well as the value and integrity of traditional cultural landscapes."

It is a well-known fact that biodiversity in the Alps heavily depends on sustainable farming. It is therefore important to identify which farming systems in the Alps are vital for biodiversity and to map their current distribution, especially in PCAs. The criteria to identify such systems will follow the methodology developed by the European Environment Agency for qualifying High Nature Value (HNV) farmland. Once these farming systems have been mapped, we need to identify those that are not economically viable and assess which instruments or subsidies can be applied to ensure their continuation. On the policy level, WWF will work towards ensuring that subsidies, especially on the EU level, support farming systems that create and maintain HNV farmland. On the ground, a network of pilot farms contributing to the protection of biodiversity will be created to allow the exchange of information and lessons learned.

WWF milestones under Target 8:

Milestone 8.1
By 2008, sites with agriculture and farming systems vital to biodiversity are identified within priority areas and areas of critical importance for their connectivity.

Milestone 8.2
By 2010, farming systems contributing to the conservation of biodiversity in priority areas and areas of critical importance for their connectivity are supported through targeted public funding, mainly Common Agriculture Policy (CAP) subsidies.

Milestone 8.3
By 2010, a representative cooperation network of farming areas and pilot farms beneficial to biodiversity conservation in priority areas and areas of critical importance for their connectivity is established.

High Nature Value (HNV) farmland includes hot spots of biodiversity in rural areas and is usually characterized by extensive farming practices, such as low stocking densities, low use of chemical inputs and labour intensive management. According to the European Environment Agency (EEA), HNV farmland areas are relatively abounding in mountainous regions, one of the best examples being alpine pastures and meadows. HNV farmland's conservation value is acknowledged in several EU policy documents such as the EU regulation on Rural Development (EC 1257/1999). The EEA defines HNV farmland as having one or more of the following characteristics :

- a high proportion of semi-natural vegetation
- presence of low intensity agriculture, or a mosaic of semi-natural and cultivated land and small-scale features
- offering support to rare species or a high proportion of European or world populations of species

http://reports.eea.eu.int/report_2004_1/en

Target 9: Transportation

"By 2015, the negative impacts and pollution due to trans-alpine and inner alpine traffic are reduced by at least 10% below the 1990 level."

The negative effects of transportation in the Alps include habitat fragmentation, pollution and CO2 emissions. The threat of road induced habitat fragmentation will be addressed directly by forestalling the construction of new highways or the expansion of existing ones. Road projects will be analysed with regard to their possible interference with PCAs or protected areas, and technical or legal action will be taken against such projects.

Another area of action will be the reduction of transalpine traffic, a great part of which is generated by the increased transport of goods across the Alps by road. Road transport has negative social and environmental impacts such as accidents, noise and air pollution, habitat destruction and greenhouse-gas emissions. These impacts generate so-called "external costs" to society, which should be paid by transport users but are currently not taken into account. This gives an unfair competitive advantage to those transport modes which do most damage, i.e. motorized transport. Therefore, structures are needed for "internalizing external costs", that is for charging users the true price of transport. The EU Commission has recently proposed an amendment of the EU "eurovignette" directive (Directive 1999/62/EC), which governs the application of tolls and charges on commercial vehicles using EU roads. But this long-awaited proposal is insufficient as it still doesn't take into account environmental costs. A more efficient tool is the Swiss distance-related heavy-vehicle fee, which should be adopted in all Alpine countries.

The transport protocol of the Alpine Convention is a good framework for sustainable transportation policy in the Alps. WWF therefore calls upon all alpine states to ratify the protocol as soon as possible.

WWF milestones under Target 9:

Milestone 9.1
By 2006, 7 Alpine Countries ratify the Alpine Convention Transport Protocol.

Milestone 9.2
No construction of new major highways, nor any expansion of already existing ones, is undertaken.

Milestone 9.5
By 2010, the number of heavy vehicles crossing the Alps is reduced by at least 10% compared to 2000.

The transport protocol of the Alpine Convention

The protocol aims at reducing pollution and the risks associated with inner- and transalpine traffic to a level tolerable for humans, animals and plants as well as their habitats. This goal is to be attained in part by shifting transport of goods to the railways and fostering environmentally friendly public transportation. Measures include halting the construction of new major transalpine roads, the creation of zones with reduced traffic and the internalization of social and environmental costs caused by traffic.

The distance-related heavy vehicle fee (HVF) has been levied in Switzerland since 1 January 2001. It replaced the previous flat-rate heavy vehicle fee. The rate is calculated according to uncovered costs caused by heavy vehicles and the total amount of tonnes/km driven by heavy vehicles. The HVF applies to heavy goods vehicles with an admissible laden weight of more than 3.5 tonnes and is calculated according to three criteria:

- number of kilometres covered on Swiss territory
- admissible laden weight of the vehicle
- vehicle's emissions

Three years after Switzerland, on January 1st 2004, Austria has also successfully introduced a fee for heavy goods vehicles.
www.rapp.ch/documents/papers/SwissHVFRapp.pdf

Target 10: Tourism and recreation

"New tourist infrastructure as well as motor based leisure activities negatively impacting habitats and species or beautiful landscapes are banned, with a focus on priority areas."

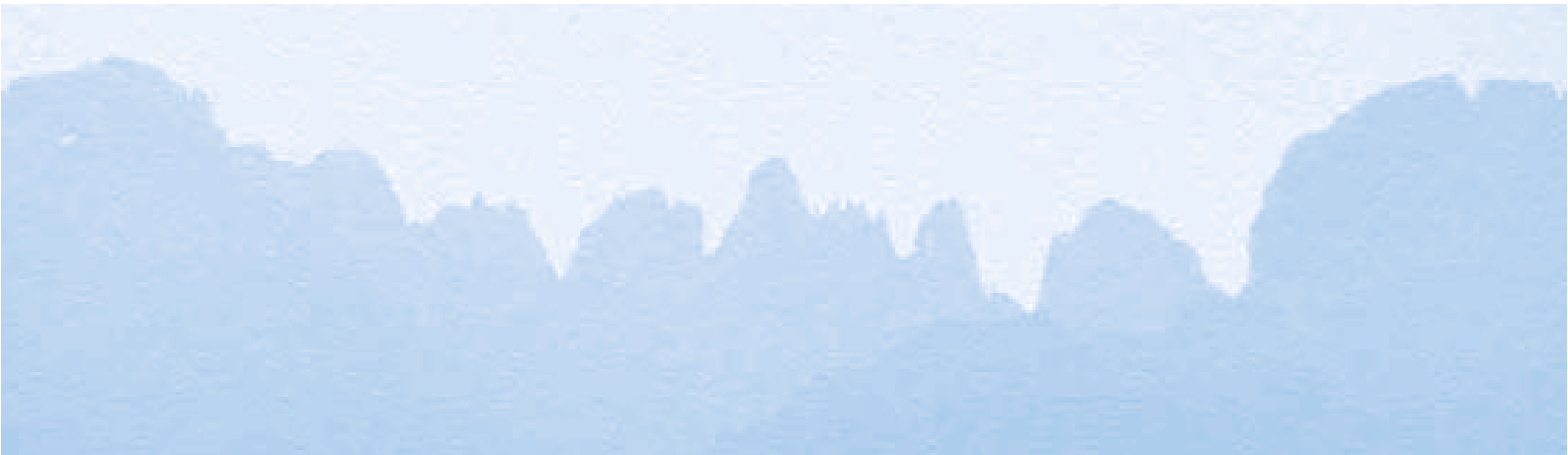
WWF will work to reduce the most damaging tourism-related activities. Especially in PCA's and in other sensitive and valuable areas, the construction of infrastructure like ski-lifts has to be prohibited. Harmful activities like motor sports have to be banned from these areas. Meanwhile more sustainable forms of tourism will be promoted across the Alps. To this end, WWF will raise the awareness of visitors, tour operators and public administrations regarding the problems caused by unsustainable forms of tourism. Concrete alternative models will be promoted through projects involving local communities. One focus point will be the planning of major events like world championships. The negative impacts of these events will be documented and quality standards will be elaborated to ensure that the lessons learned are incorporated into the planning of new events.

WWF milestones under Target 10:

Milestone 10.1
No new technical infrastructure (new skiing installations) harmful to endangered habitats and species or beautiful landscapes are constructed.

Milestone 10.4
By 2008, high environmental standards are met in the planning and management of major events.

Milestone 10.5
By 2010, at least 10 pilot projects of ecologically and socially responsible tourism (ecotourism, community development) are implemented especially in priority areas and the acquired know-how is circulated within the Alps.



Acronyms

ALPARC: Alpine network of protected areas

CBD:Convention on Biological Diversity

CIPRA: International commission for the protection of the Alps

EAP: Ecoregion Action Programme

EAWAG: Swiss Federal Institute for Water Supply, Treatment and Protection

EEA: European Environment Agency

ELOIS: European Lynx On Line Information System

EPO: WWF European Policy Office

FSC: Forest Stewardship Council

HCVF: High Conservation Value Forests

HNV: High Nature Value

HVF: Distance-related heavy Vehicle Fee

ISCAR: International Scientific Committee for Alpine Research

KORA: Coordinated research projects for the conservation and management of carnivores in Switzerland

N2000: Natura 2000

NGO: Non-governmental organization

NO: National WWF organization

PA: Protected Area

PCA: Priority Conservation Area

PoW: Programme of work on protected areas

RAPPAM: Rapid Assessment and Prioritization of Protected Areas Management

WFD: Water framework directive

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Links

WWF European Alpine Programme

www.panda.org/alps

Our partners

www.cipra.org

www.alpinestudies.ch/iscar

www.alparc.org

Kids for the Alps

www.kids-for-the-alps.net

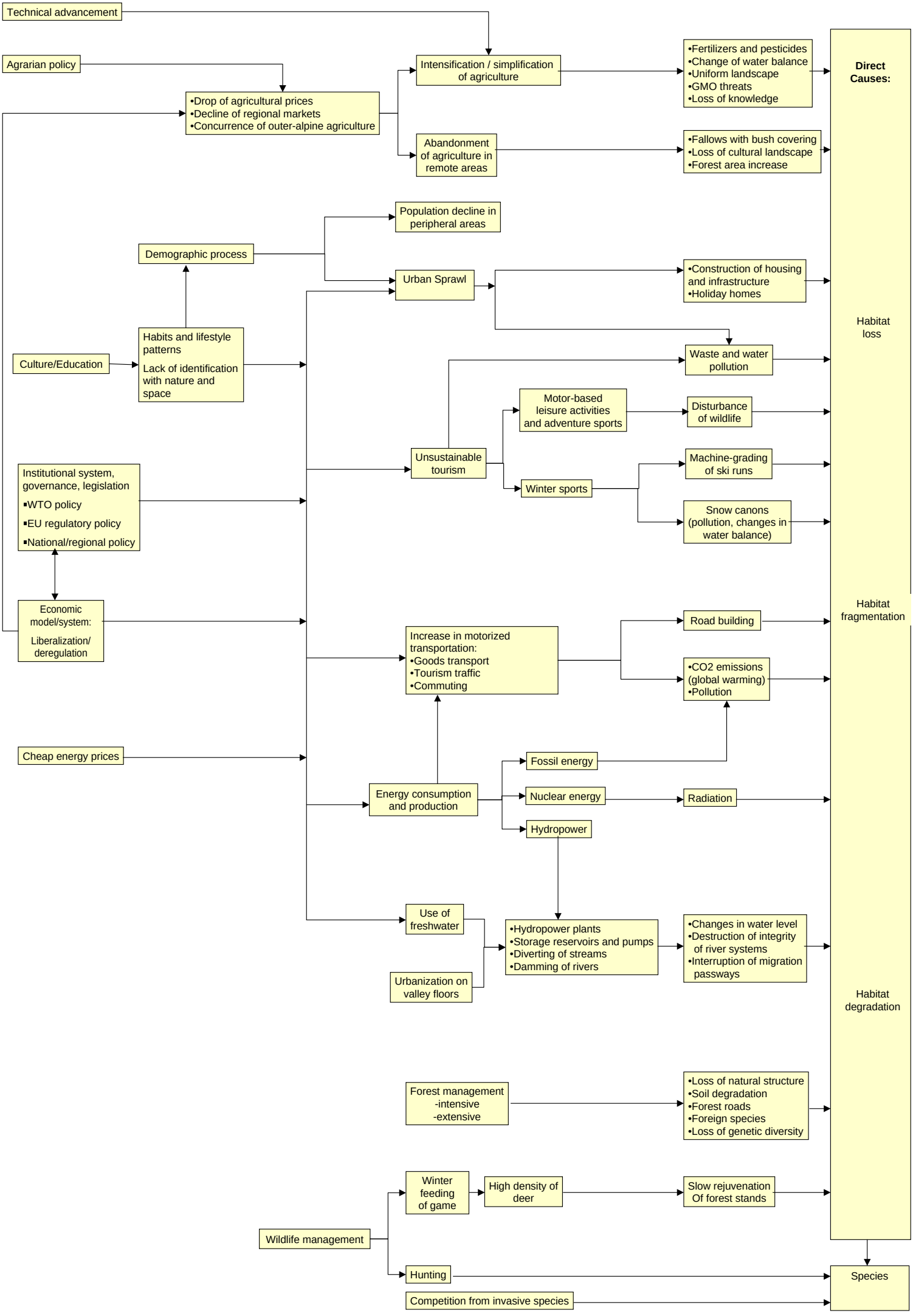
Alpine Convention

www.alpenkonvention.org

Information service for the Alps:

www.alpmedia.net

Annex I: Conceptual Model for the Alpine Ecoregion



Annex II : Description of the Priority Conservation Areas

Area A	Alpi Maritime – Alpes Maritimes
Approximate size	4990 km^2
Location	Countries: France and Italy Mountain range: Maritime Alps

Area B	Alpe Cozie – Gran Paradiso – Queyras – Massif de Pelvoux – Massif de la Vanoise
Approximate size	7270 km^2
Location	Countries: France and Italy Mountain ranges: Massif des Ecrins, Massif de la Vanoise, Grajic Alps with Gran Paradiso

Area C	Diois en Drôme
Approximate size	550 km^2
Location	Country: France, Departement Drôme

Area D	Mont Ventoux en Provence
Approximate size	290 km^2
Location	County: France, Region Provence-Alpes-Cote d'Azur Mountain range: Mont Ventoux

Area E	Vercors
Approximate size	460 km^2
Location	Country: France, Region Rhone-Alpes Mountain range: Vercors massif

Area F	Alpes Vaudoises
Approximate size	570 km^2
Location	Country: Switzerland, cantons of Vaud and Fribourg Mountain range: Préalpes Vaudoises and Préalpes Fribourgeoises

Area G	Alpi Pennine – Vallée du Rhone - Oberwallis
Approximate size	2580 km^2
Location	Countries: Italy, Switzerland Upper Rhone Valley and its catchment areas in the Alpes Valaisanes

Areas H1 and H2	Sottoceneri-Comasco and Sopraceneri
Approximate size	530 and 410 km^2
Location	Countries: Switzerland and Italy Lago Maggiore and Valleys to the north, Lago Lugano

Area I	Alpi Orobie - Grigne
Approximate size	1180 km^2
Location	Country: Italy, Provinces of Bergamo, Sondrio and Lecco Mountain range: Orobian Alps

Area J	Bündner Rheintal
Approximate size	230 km^2
Location	Country: Switzerland Rhine valleys of the Vorder- and Hinterrhein

Area K	Alpstein - Churfirsten
Approximate size	540 km^2
Location	Country: Switzerland Moutain range: Alpstein and Churfirsten

Area L	Engadina – Stelvio/Stilfser Joch
Approximate size	3610 km^2
Location	Countries: Switzerland, Italy Mountain range: Bernina and Raethian Alps.

Area M	Brenta – Adamello – Baldo – Alto Garda
Approximate size	3010 km^2
Location	Country: Italy, regions of Trentino and Lombardia

Area N	Dolomiti Bellunesi
Approximate size	600 km^2
Location	Country: Italy, provinces of Belluno and Trento Mountain range: Dolomiti Bellunesi

Area O	Karwendel - Isar
Approximate size	1330 km^2
Location	Countries: Germany and Austria Mountain range: Karwendel

Area P	Lechtal
Approximate size	1180 km^2
Location	Country: Austria Tyrolean part of the Lechtal

Area Q	Allgäu
Approximate size	660 km^2
Location	Countries: Germany and Austria Northwest of the Lechtal

Area R	Dolomiti d'Ampezzo
Approximate size	380 km^2
Location	Country: Italy Mountain range: Dolomites

Area S	Berchtesgaden
Approximate size	670 km^2
Location	Countries: Germany and Austria

Area T	Hohe Tauern
Approximate size	2300 km^2
Location	Country: Austria, federal states of Tyrol, Salzburg and Kärnten

Area U	Karnische Alpen/Alpi Carniche – Tagliamento – Julische Alpen/Alpi Giulie/Juliske Alpe – Karawanken/Karavanke
Approximate size	4940 km^2
Location	Countries: Austria, Italy, Slovenia Mountain ranges: Julian Alps, Carnian Alps, Karawanks Tagliamento river valley

Area V	Koralpe
Approximate size	340 km^2
Location	Country: Austria Mountain ridge between Styria and Carinthia

Area W	Oberösterreichische Kalkalpen – Niedere Tauern
Approximate size	5730 km^2
Location	Country: Austria Mountain range: Oberösterreichische Kalkalpen, Niedere Tauern, Dachstein

Annex III: WWF Ecoregion Action Plan for the Alps

In blue: WWF Milestones

Ecoregion Conservation Vision Statement- 50 Years (SUMMARY):

The mosaic landscape of the Alps offers living space for people and nature. The mountain forests shelter a wide range of wildlife throughout the Alps, enabling migrating species to roam freely in the whole Alpine Arc between Nice and Vienna. Alpine rivers are open to wandering fish connecting the Alps with the North Sea, Black Sea and the Mediterranean Sea. Sparkling and breathtaking glaciers continue to be a source of unspoiled fresh water as well as of enjoyment and enchantment of people. Children are playing in colourful flourishing meadows happy to explore and discover the hidden miracles of nature. Alpine environment friendly behaviour of people has become a common living standard.

Ecoregion Conservation Plan 10 year Targets	**3-5 year Action Plan (Milestones)**
Target 1 – Conservation focused on priority areas By 2015, the biodiversity status of all priority areas has significantly improved.	**Milestone 1.1** By 2010, conservation in 5 priority areas is ensured by implementing area-wide action plans, reviewing boundaries where necessary and implementing individual projects.
	Milestone 1.2 By 2010 the total surface of protected areas corresponding to IUCN criteria is significantly increased, in an attempt to create a network representative of all major habitat types.
	Milestone 1.3 By 2010, high standard management and monitoring is insured in 20% of the protected areas within priority areas.
	Milestone 1.4 By 2007, an educational program promoting biodiversity in priority areas is developed and implemented.
	Milestone 1.5 By 2010, the Natura 2000 / Emerald network is implemented in 6 Alpine countries by way of an adequate national legal status and good management practices.
	Milestone 1.6 By 2008, perverse subsidies threatening Natura 2000/Emerald are identified and reduced by 50%.

	Milestone 1.7 No new major infrastructure projects are undertaken in remote areas in priority areas and in areas important for their connectivity.
Target 2 – Connectivity By 2015, the relevant ecological corridors of the Alps are functional.	**Milestone 2.1** By 2005, the ecological network (corridors) for the Alps is outlined, including potential links to adjacent ecoregions (Dinaric Alps, Apennines).
	Milestone 2.2 Further fragmentation of natural and near-natural sites is prevented, with particular emphasis on priority areas and areas important for their connectivity.
	Milestone 2.3 By 2010, 3 very important interrupted ecological corridors are restored, with particular emphasis on priority areas.
	Milestone 2.4 By 2010, 20 cooperation projects at all administrative levels (international, national, regional and local) are in place to achieve more effective connectivity.
Target 3 – Species conservation By 2015, the status of Alpine endemic species/ sub-species as well as of priority species has significantly improved.	**Milestone 3.1** By 2010, the conservation status of at least 20 endangered and/or rare alpine species is improved (with special emphasis on priority species).
	Milestone 3.2 By 2010, at least 3 isolated large carnivore sub-populations are permanently linked by means of ecological corridors.
Target 4 – Adapting land use planning to biodiversity needs By 2015, land use plans are adapted to biodiversity needs in Alpine regions of particular importance to priority areas and to their connectivity.	**Milestone 4.1** By 2010, at least 3 main administrative units in the Alps have modified their development plans in accordance to principles of biodiversity conservation and sustainable land use.
	Milestone 4.2 By 2005, all Alpine Countries have ratified the “spatial planning and sustainable development” protocol of the Alpine Convention.
Target 5 – Adapting to climate change By 2015, size, representativeness and connectivity of priority areas and selected protected areas ensure maximum resilience of species and habitats to the effects of Climate Change.	**Milestone 5.1** By 2010, concrete adaptation measures in at least 5 priority areas are politically endorsed and implemented.
	Milestone 5.2. The CO2 emissions are significantly reduced by 2010.

Target 6 – Integrated River Basin Management By 2015, freshwater habitats and environmental processes in at least 10 Alpine priority subcatchment areas are maintained and/or restored.	**Milestone 6.1** By 2009, environmental processes are conserved, maintained or restored in at least 5 priority Alpine subcatchments of high biodiversity importance according to Water Framework Directive principles.
	Milestone 6.2 By 2007, an educational program is implemented, involving 100 school classes and 30 communities and promoting the protection and restoration of freshwater systems and a wise use of water.
	Milestone 6.3 By 2007, sustainable use of hydro-energy according to “Naturemade Star” or equivalent criteria is applied by at least 3 major energy producers and/or distributors outside of Switzerland.
	Milestone 6.4 By 2008, perverse European agriculture subsidies harming water resources and ecological processes are reduced by 10%.
Target 7–Forest management By 2015, all managed forests in priority areas and areas of critical importance for their connectivity are managed according to Forest Stewardship Council (FSC) or equivalent standards.	**Milestone 7.1** By 2008, at least 3 pilot areas in each of the 7 Alpine countries are FSC certified, with a focus on priority areas.
	Milestone 7.2 By 2010, in at least 5 Alpine countries a minimum of 4 FSC-certified wood products or FSC-related services (tourism, excursions) are developed and marketed.
	Milestone 7.3 By 2010, at least 3 Alpine regions or countries have defined, identified and mapped their HCVFs and incorporated them into their forest landscape planning.
Target 8 High Nature Value Farming By 2015, agricultural activities in priority areas and areas of critical importance for their connectivity fully respect the conservation needs of endangered habitats and species as well as the value and integrity of traditional cultural landscapes.	**Milestone 8.1** By 2008, sites with agriculture and farming systems vital to biodiversity are identified within priority areas and areas of critical importance for their connectivity.
	Milestone 8.2 By 2010, farming systems contributing to the conservation of biodiversity in priority areas and areas of critical importance for their connectivity are supported through targeted public funding, mainly Common Agriculture Policy (CAP) subsidies.
	Milestone 8.3 By 2010, a representative cooperation network of farming areas and pilot farms beneficial to biodiversity conservation in priority areas and areas of critical importance for their connectivity is established.
Target 9 – Transportation By 2015, the negative impacts and pollution due to trans-Alpine and inner Alpine traffic are reduced by at	**Milestone 9.1** By 2006, 7 Alpine Countries ratify the Alpine Convention Transport Protocol.
	Milestone 9.2 No construction of new major highways, nor any expansion of already existing ones, is undertaken.

least 10% below the 1990 level.	**Milestone 9.3** By 2010, the European Union amends the “Eurovignette” directive in order to take into account external transportation costs (e.g. health, accidents, pollution, climate change) and sensitive regions like the Alps.
	Milestone 9.4 By 2010, at least 4 Alpine countries have adopted the distance-related heavy vehicle fee (HVF).
	Milestone 9.5 By 2010, the number of heavy vehicles crossing the Alps is reduced by at least 10% compared to 2000.
	Milestone 9.6 By 2010, in 5 major tourist resorts the number of visitors reaching their destinations by public transportation is increased by 20% compared to 2000.
Target 10- Tourism and recreation New tourist infrastructure as well as motor based leisure activities negatively impacting habitats and species or beautiful landscapes are banned, with a focus on priority areas.	**Milestone 10.1** No new technical infrastructure (new skiing installations) harmful to endangered habitats and species or beautiful landscapes are constructed.
	Milestone 10.2 By 2010, motor based off-road leisure activities (heliskiing, snowcat, 4-weel drives, motorboats etc…) are banned in all priority areas, protected areas and areas of special concern.
	Milestone 10.3 By 2010, the ecological performance in transportation, tourism infrastructure, energy, land use and biodiversity conservation of at least 5 major tourist resorts is improved.
	Milestone 10.4 By 2008, high environmental standards are met in the planning and management of major events.
	Milestone 10.5 By 2010, at least 10 pilot projects of ecologically and socially responsible tourism (Ecotourism, community development) are implemented especially in priority areas and the acquired know-how is circulated within the Alps.