WWF European Alpine Programme

Pan-Alpine Brown Bear

WWF European Alpine Programme

Client

WWF Austria
on behalf of WWF European Alpine Programme and WWF Germany

The European Alpine Programme (EALP) was launched in 1999 by five WWF national organizations in the Alps (WWF Austria, France, Germany, Italy and Switzerland) to halt biodiversity loss in the Alps. The WWF Large Carnivore Team is a working group that brings together WWF large carnivore experts under the frame work of the EALP. One goal of the contact group is to exchange information and good practices at the national level in order to align national conservation work on brown bears in the Alps.

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The mission of elmauer institute is to facilitate complex environmental programmes and manage consensus for wildlife management and protected areas. With a background in forestry science, mediation and business administration we understand the endeavours of sustainable development and apply communication and conflict resolution techniques for the benefit of all people with an interest in nature conservancy.

Kai Elmauer led the development of different management projects, among which also the first Management Plan Brown Bear Austria – a role model for many national bear management concepts in the Alpine region and was also involved in several bear programmes in the US and Canada.

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[1] See Glossary
[2] See Glossary

Summary

The Pan-Alpine Brown Bear Conservation Strategy (PABBCS) is a consensus-based concept to which national WWF organizations agree to align their conservation strategies for the management of brown bears in the Alps. The strategy outlines goals and actions to be taken by WWF and encourages others, such as NGOs, authorities, and interest groups, to participate in the common effort.

The PABBCS promotes a 30-year vision and corresponding goals. The ultimate goal is a viable Alpine-Dinaric-Pindos brown bear metapopulation of several hundred bears in a favourable conservation status. The established metapopulation, composed of geographically distinct but not isolated subpopulations, will help to conserve the genetic variability and be instrumental in the constitution of a common gene pool. In addition, the administrative framework and an adequate legislation ensure that conflicts with human interests are managed pro-actively.

The 30-year time frame helps to build strong public support, providing people with ample opportunities to adapt to the presence of bears and implement best practices for land use and damage prevention. The transition to a co-existence with bears will happen within one human generation, becoming the norm for the next generation.

Limiting the transition to a 30-year time span means reducing the critical time in which the bear population is most vulnerable due to its small numbers. Implementing mandatory mitigation actions for any instances when bears are lost from the population add further to the resilience of the recovery efforts and to the public support for a continual progress.

The PABBCS is based on the current state of scientific knowledge and acknowledges the variety of positions in the public conversation. The strategy is based on lessons learned in past bear management and presents goals which are broken down into objectives and proposed activities. A fact sheet on Brown Bears in Europe as well a general overview of the legal framework are given in the appendices.

While the strategy has been largely developed during internal discussions with WWF staff, it emphasizes that the mission can only be accomplished if several actors collaborate. Therefore, the strategy should be viewed as a basis for negotiation with other interest groups rather than a final directive that is ‘carved in stone’.

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Introduction

After being eradicated from most of the Alps, the brown bear is slowly returning to its original distribution range due to restocking programmes in the Northern Limestone (Austria) and Trentino region (Italy) as well as natural dispersal. From the core area in the Trentino region in Italy, individuals are dispersing back into Austria, Switzerland, Southern Germany and other Italian regions. At the same time, other bears are migrating into Austria and Italy from the Slovenian territory. This comeback is mainly due to the reduction of hunting in Slovenia and also to the recovery of vital bear habitats. Despite many successes, the past years and experiences show how many challenges still have to be overcome before a viable Alpine bear population can establish itself. For instance, the dispersing individuals are mainly males and even though they are settling down in new regions, the formation of new subpopulations is impossible without female presence. Moreover, the recent extinction of the subpopulation in the Northern Limestone Alps (Austria) demonstrates how fragile small and isolated subpopulations can be.

Bear management, from the process of data collection to the actual management decisions, was historically mainly centred on legal frameworks and limited in their application by national borders. The natural dispersal of individuals into neighbouring countries, however, demonstrates how important it is to seek international coordination. A pan-Alpine collaboration is therefore necessary for the conservation of shared populations and even more to overcome common challenges. With this strategy, WWF seeks to promote cross-border cooperation, encouraging Gos[1], NGOs[2], and other interest groups to participate in the common effort.

The Pan-Alpine Brown Bear Conservation Strategy is based on scientific studies, expert opinions and also on lessons learned. Moreover, it identifies strategically relevant technical, ecological, socio-economic and political challenges and provides recommendations for the future management of brown bears in the Alps. An important aspect that has been analysed in this strategy is the human dimension: public acceptance of bears, overall awareness, and confidence in the recovery project. Finally, experts agree that occurrences in appointed regions should be augmented with new individuals since the current situation is still precarious for the long-term viability of the Alpine population.

Past and Present Distribution in the Alps

Brown bears originally occurred throughout Europe except for the largest islands such as Ireland, Iceland, Gotland, Corsica, Sardinia and Sicily. As the human population grew and agricultural land use changed, habitat formerly suitable for bears was degraded, human-bear conflicts increased and bear hunting became more efficient. As a consequence, bears disappeared from most areas during the last centuries. Most Alpine countries recorded their last bear kills in the early 20th century. However, in Italy a small population of bears survived in the Trentino region. In addition, bears roaming from adjacent Dinaric areas have been spotted throughout the 20th century in southern parts of Austria.

In order to save the Alpine brown bear population from extinction, two augmentation[3] programmes were carried out. The first one took place between 1989 and 1993 in Austria, where three bears from Slovenia and Croatia were released in the Northern Limestone Alps. At that time one male bear which naturally migrated from Slovenia was living in the same area. After a successful beginning, when 312 cubs were recorded between 1991 and 2006 and a maximum of 12 bears in 1999, the population quickly decreased until in 2011 it totally disappeared from the region. The causes of this loss are not yet well understood; however, after analysing different aspects which could have contributed to the high mortality rate, experts concluded that the present situation is primarily the consequence of bear poaching.

The second restocking[4] project was carried out in Trentino in Northern Italy in the late 1990s. The small subpopulation that included only 3 to 4 individuals was augmented with 10 bears relocated from Slovenia. To date, the core area counts 25 to 30 bears and its growth trend is positive. Since then, individuals – all of them young males less than 4 years old – have dispersed from the core area around the Brenta and Paganello-Gazza mountains, heading to the Bolzano, Lombardy and Veneto regions in Italy and other areas in Austria, Switzerland and Southern Germany. The dispersal and habits of some of these bears have caused considerable conflicts. One bear showed signs of habituation[5] and was shot in Germany after being hunted for weeks. Two others were shot in Switzerland.

The Alpine population thus currently consists of the core area in the Trentino region as well as the occurrences in the border area between Italy, Austria and Slovenia and the dispersed individuals in the Rethic triangle between Italy, Switzerland and Austria. Moreover, it can be considered a subpopulation of the larger metapopulation covering the Dinaric and Pindos mountain ranges, ranging from Slovenia to Greece. While the total Alpine-Dinaric-Pindos population is estimated at 2,800 individuals, the size of the Dinaric portion numbers only about 300-700 individuals.

Even though the brown bear is a strictly protected species and its population in Europe has partly recovered, its establishment in the Alps is still precarious. Since males have a higher and larger dispersal pattern than females, the probability that the dispersed individuals will form a new subpopulation is very low, if not augmented with females. In addition, random events and poaching of individuals may have a devastating effect on small and relatively isolated populations.

[1-5] See Glossary

Goals of Strategy

The ultimate goal of the strategy is to promote and support the recovery of the brown bear population in the Alps. The establishment of a metapopulation counting at least 1,500 individuals throughout the Alpine and Dinaric mountain range - composed therefore of geographically distinct but not isolated populations - will secure the long-term viability of brown bears in the Alps. Natural migration between the two populations will help maintain genetic variability for this species and will be instrumental in the establishment of a common gene pool[6].

With the help of local actors, national authorities and partners, as well as international cooperation, the establishment of a viable metapopulation can happen within 30 years. The timeframe will provide people with ample opportunities to adapt to the presence of bears and implement best practices for land use and damage prevention. In addition, limiting the transition to a 30-year time span also means reducing the critical time in which the bear population is most vulnerable due to its small numbers.

In order to achieve this overall goal, WWF identified different areas of interest for bear population management in the Alps and Dinaric Mountains.

We envision that bear management delivers appropriate solutions to ecological challenges and conflicts with human interests at the pan-Alpine, national and local levels. Political and administrative decision making, land use planning, and a legal framework ensure that bear habitat is preserved and bears are kept wild by regulating human activities that could have a detrimental impact on bear behaviour, such as food-conditioning[7] or habituation[8].

The Pan-Alpine Brown Bear Conservation Strategy consists of the following goals:

1. Promote a pan-Alpine perspective on bear management through information sharing and mutual decision making, internationally coordinated planning, cross-border monitoring, and combined efforts to provide adequate financial resources.

2. Closely monitor and consolidate human dimension issues such as public support for human-bear coexistence, raising awareness for bears and the implementation of damage prevention methods. In addition, the aim is to consolidate bear management capacity and integrate mitigation measures into the recovery programme to meet the needs of special interest groups.

3. Start the recovery of the Alpine bear population by establishing the greatest possible founding population and by promoting population growth in order to reduce the time span for recovery and to rapidly overcome the less resilient starting phase.

4. Regularly evaluate the progress and adapt management to improve overall performance.

Objectives and activities

A. Protect and Restore Critical Habitats

Spatial Planning

Improved spatial planning at the local, regional, national and international levels will help to balance needs for protection of critical bear habitats and for reduction of potential conflicts. Human landscape interventions shall not disturb or degrade important bear habitats or important migration corridors. Mitigation measures and state-of-the art design should be integrated in the planning of linear infrastructures such as roads or rails to avoid habitat isolation or the creation of barriers in migration corridors.

Proposed Activities

WWF will lobby for improved spatial planning regulation to better balance infrastructure development and biodiversity conservation. Authorities adapt spatial planning regulation at all levels.

Migration Corridors

Ecological corridors have to be restored or maintained in order to allow for the expansion of the subpopulations and genetic exchange between them. In the Central and Eastern Alps, experts agree that there are three main corridors that deserve special attention: the Rethic Triangle/Brenner Corridor that connects the Italian provinces of Trento and Bolzano with potential habitats in Tyrol (Austria), Switzerland and Southern Bavaria (Germany); the Koralm Corridor between Austria and Slovenia; and the Carnic corridor situated in the border triangle of Italy, Slovenia and Austria which connects brown bear subpopulations in Trentino (Italy) and in the Slovenia/Austria (Carinthia) border area. Although the dense urban and road infrastructure has a negative impact on corridor quality, large segments are still covered with dense forests.

In the Western Alps, bear migration corridors still have to be identified.

Proposed Activities

WWF will initiate projects to restore corridors that are vital for the bear metapopulation and for the ecological network of the Alpine ecoregion. Authorities have to include these ecological corridors into their spatial planning at all geographical levels.

Brown Bear Retreat Areas

The Alpine landscape is characterized by densely populated valley floors and relatively intact higher altitude areas. In the valley floors, the most common forms of land use are urban and road infrastructure, agriculture and tourism. WWF Austria and the University of Vienna identified 17 remote and undisturbed areas in the Alps by using GIS-based analyses. Although such areas tend to be too small to provide enough space for individual bears, they may provide denning opportunities and retreat areas. The managing organization of the wilderness areas

[6-8] See Glossary

should therefore facilitate forms of land use that are compatible with bear habitat requirements.

Proposed Activities

WWF will initiate projects to save retreat areas that are vital for the bear metapopulation. Authorities have to include these areas into their spatial planning on local, regional and national level.

Habitat Requirements

Forage supply, denning opportunities and security, as well as access to potential mates during the breeding season and intra-specific (social) interactions, are important habitat requirements for bears. The home range selection of a brown bear is therefore influenced by human presence and land use activities. However, a mix of both degraded and intact areas could be considered as suitable bear habitat, since bears are flexible in their behaviour and adapt quite easily to spatial and seasonal shifts related to habitat quality. Agriculture and forest practices should therefore be adapted to such habitat requirements. Temporary restrictions to tourism or other leisure activities should be considered to protect critical bear habitats.

Proposed Activities

WWF will initiate projects to identify best-practices for agriculture and forestry in (potential) bear areas. Agriculture and forestry partners should collaborate in the analysis and later adopt these principles into their management. It is important to develop feasible long-term solutions and compensation schemes where appropriate. Authorities should foster legislation or regulations to protect those habitat requirements.

B. Bear Management and Capacities

International Cooperation

In recent years, some young male bears (JJ1 and JJ2, JJ3 and KJ2G2) migrating from Italy to Austria, Germany and Switzerland clearly showed the need for international coordination in Alpine bear management. Today, GOs and NGOs agree that the Alpine bear population can only be restored and managed in a cooperative effort of Alpine countries.

Coordination should include information exchange, standardized monitoring activities, maintenance of common databases, coordinated management plans, and cross-boundary guidelines. Regular expert meetings should be held to share new information and align management decisions.

To date, there are already different platforms and hubs that can be used for such purpose, such as the Large Carnivore, Wild Ungulates and Society Platform of the Alpine Convention (WISO), or the Large Carnivore Initiative for Europe (LCIE) or the networks created during the implementation of international projects (e.g. Life Arctos).

Proposed Activities

WWF will lobby for a body or forum that helps coordinate brown bear management activities at a pan-Alpine level. WWF will encourage European and global players to share their views and take part in the common effort.

Pan-Alpine Monitoring

In the early stages of recovery programmes, when population numbers are low and losses of individual bears may have catastrophic effects, a detailed and constant monitoring an essential task that must be established. Ecological indicators (such as, but not limited to, bear numbers, sex ratio, and habitat suitability), economic trends (such as, but not limited to, damages, prevention cost, and related business opportunities) and social aspects (such as, but not limited to, conflicts, attitude, knowledge, and values) that are relevant to bear recovery should be included in every monitoring project.

Monitoring methods in all Alpine countries should be standardized to make results comparable and information consistent.

Proposed Activities

WWF will support monitoring efforts and the development of a public pan-Alpine database. Partners in research institutions will adapt common protocols and methods for their national monitoring efforts. Authorities should promote legislations to support monitoring efforts by granting research staff access to bear sites, provide public funding and govern the access to the monitoring database.

Metapopulation Database

Authorities and key actors in bear management must have easy access to up-to-date monitoring results. For privacy reasons and important bear management objectives, some information may have to be held confidential; however, the general monitoring results should be public. Public awareness of such results can serve as a deterrent against sabotage (i.e., poaching) and builds trust in recovery programmes. A policy should be designed and implemented to regulate the publication of data and public access to the database.

Proposed Activities

WWF will lobby for, and support, the establishment of a centralized database and encourage a dialogue on a policy for public information and transparency.

Bear Management Protocols

Several Alpine countries have developed and implemented bear management guidelines or concepts. In general, they share accepted principles of conservation and wildlife management, but differ in many details depending on the legal, social or economic situation of each country. For example, Swiss concepts are legally binding whereas concepts in other countries – like the second edition of the Brown Bear Management Plan in Austria – have the character of non-binding guidelines. In particular, the response to specific bear behaviour varies from country to country. Despite such differences, management concepts

should be aligned in order to achieve a consistent and more effective pan-Alpine bear management.

Proposed Activities
WWF will lobby for the alignment of pan-Alpine management protocols in order to achieve consistent and more effective pan-Alpine bear management.

Shared Bear Management Capacities

Bear management capacities must be able to deal with conservation efforts, monitoring, awareness raising, damage prevention, damage compensation, and other tasks. However, such capacities are currently not sufficient. Involved staff should be provided with state-of-the art equipment and should be trained regularly to keep the specific knowledge up to date. One of the challenges in bear management is that crises can be relatively rare but require vast resources when they break out. A solution for all these challenges could be found in sharing resources and building international teams.

Proposed Activities
WWF will lobby for shared resources and pan-Alpine funding in bear management.

Aversive Conditioning

In order to use aversive conditioning tools on nuisance bears it is essential to instruct and train experts who can deal with critical situations. A group of certified experts in aversive conditioning could assist national staff in order to mitigate shortages while reducing total costs for training and deployment.

Proposed Activities
WWF will lobby for a pan-Alpine or European training certification in aversive conditioning, harmonized pan-Alpine training protocols, and will assist in organizing at least one pan-Alpine training session per year and exchange programs for experts.

Policy Context

The policy context for bear recovery programmes should be assessed for each Alpine country and region of interest. The assessment should identify key interest groups and players, their position and relationship to proponents of recovery efforts, the types of conflicts that have occurred in the past and their relevance for bear recovery efforts, values and attitudes of focus groups, and how interest groups frame their concerns and expectations. The assessment would lay the groundwork for a better understanding of barriers and benefits of bear recovery efforts. It would help identify important tasks and possible solutions for negotiations between bear management and concerned interest groups.

Proposed Activities
WWF will support relevant NGOs and GOs assessing the local and national management and international collaboration in bear management on a pan-Alpine level as well as the successes and short comings of past experiences. WWF will lobby for collaborative efforts and propose specific collaborative activities with other interest groups.

Augmentation

Augmentation projects are indispensable in order to establish a vital Alpine bear population within 30 years. However, any project needs solid preparation as outlined in the IUCN Guidelines for Re-Introduction and a solid management plan must be developed before considering augmentation programme. Before considering new augmentation projects, key drivers of success and failure of past bear projects must be clearly understood and solutions defined. The viability of source populations, the impact on individuals in the augmented population, and the number, age and sex of bears to be released, and the release site are all important issues that have to be analysed in advance. In addition, a genetic assessment of both the source populations and the population to be augmented must be done in order to avoid inbreeding effects. Public acceptance of the project is crucial and, since these projects have an impact on neighbouring countries, their consent should be an integral part of the plan.
In order to mitigate the loss of individuals, one or more additional bears should be released in the years following the restocking projects. With this approach, the probability of a failure in the recovery attempt due to extremely low population size and shortage of female bears would be reduced. Such policies would also serve as a deterrent for intentional sabotage and poaching.

Proposed Activities
WWF will lobby for one or two additional augmentation projects and for the establishment of mitigation policies. In addition, WWF will encourage other GOs and concerned NGOs to collaborate in the development and implementation of projects.

Habituation or Food-Conditioning

Potential bear attractants will have to be closely monitored and managed in order to prevent habituation and food-conditioning. Food should not be available to bears in or near human settlements. Waste management, composting and food storage should be organized accordingly. Garbage dumps located within a bear's range must be inaccessible to bears.

Proposed Activities
WWF will raise awareness and promote incentives for bear smart practices to hunters, livestock managers, and local decision makers.

Damage prevention

Prevention measures provide an efficient protection against bear damages. People in bear areas should be aware of possible prevention tools and take adequate measures to protect themselves. In case of frequent damages or imminent hazards in a specific area, the concerned interest groups must be immediately informed about the necessary precautions. In order to keep damage compensation to a minimum,

a long-term link should be made to the implementation of damage prevention measures.
Bear advocates, damage assessors, and local authorities should inform and, in the case of actual bear damage, immediately assist the concerned parties in the compensation procedure. Damage compensation is indispensable for ensuring the goodwill of local communities. Prevention and damage costs should not be charged to the affected parties (e.g., the local communities), but should instead be covered by society at large (e.g., regional and national bodies).
Regulations and procedures for damage compensation must be both fair and consistent throughout the Alps. Moreover the efficiency of prevention systems must be regularly monitored.

Proposed Activities
WWF will inform the public and interested decision makers on the best prevention models. WWF will assist in the development of compensation programmes. WWF will lobby for congruent long-term compensation systems in all Alpine regions subject to regular bear occurrences.

C. Awareness and Commitment

Public Awareness
Acceptance by local communities and information transfer greatly contribute to the recovery of bear populations. The involvement of local interest groups should be promoted by applying a dialogue-oriented communication style. In addition, concerned people living in or visiting bear areas should be informed of the presence of bears and educated on how to avoid food conditioning or bear habituation. Targeted campaigns to raise public awareness should be an integral part of any conservation programme, especially events addressed to children. It is a proven fact that children influence the awareness of their respective families.
A better understanding of the attitudes and concerns of local communities will help to improve bear management programmes.

Proposed Activities
WWF will deliver on-going public awareness campaigns and develop specific youth education programmes. WWF will promote local dialogue by supporting specific outreach programmes in key regions.

Interest groups
Commitment of local interest groups should be enhanced by applying a dialogue-oriented communication style and community-based social marketing. Information campaigns alone often fail to change behavioural patterns. Community-based social marketing tools, on the other hand, have proven to be effective by creating commitment, using prompts, establishing social norms, and fostering social diffusion within focus groups.
Specific interest groups such as farmers, breeders, honey producers, shepherds, hunters, tourist operators and tourists should be considered separately and a strategy needs to be developed for each of the groups according to the country needs.

Proposed Activities
WWF will design and implement a community-based social marketing pilot programme for selected regions and focus groups.
WWF will offer support to and seek a mutual understanding with specific interest groups to identify collaboration procedures in critical situations.

New Business Models
Bear-related tourism attracts millions of tourists worldwide. Tourist operators in the Alps state that their guests react either positively or negatively to the presence of bears. It would be worthwhile to compare successful international business models and discuss their benefits and drawbacks in the Alps with all concerned interest groups.

Proposed Activities
WWF will provide a comparative study to evaluate best practice models and publicly discuss their benefits and drawbacks for new business opportunities based on bear-related tourism with all concerned interest groups.

Glossary
Aversive conditioning is an operant technique that uses a negative stimulus to cause pain, avoidance, or irritation in an animal engaged in an unwanted behaviour (Brush 1971, Mason et al. 2001, Shivik et al. 2003, Beckmann et al. 2004). In the case of bears would learn to associate humans, human food, and human developments with the negative stimulus and avoid them.

Augmentation is the process in which individuals are added to an existing population whose numbers are critically low.

Food conditioning is a form of operant conditioning (Davey 1981, Dugatkin 2004) where a bear learns to associate humans or human-occupied areas with food. Food-conditioned bears are, thus, bears that approach humans, or frequent human-occupied sites, in search of food.

GOs are Governmental Organizations.

Habituation is defined as the waning of an animal's innate response to repeated exposure to stimuli that carry no discernible biological consequence (e.g., Whittaker and Knight 1998, Taylor and Knight 2003). Animals that are habituated to humans thus do not avoid contact with humans or areas in which contact with them is likely.

A **metapopulation** consists of different geographically distinct, but not isolated populations. The natural migration of individuals allows for genetic exchange, allowing therewith genetic variability even in relatively small populations. Furthermore a metapo-

pulation is more resilient to random effects that pose a threat to small populations.

NGOs are Non-Governmental Organizations.

A **population** is geographically distinct and is composed of subpopulations that are genetically connected.

Restocking is used as the term augmentation in this document.

A **subpopulation** is a group of organisms of one species that interbreed and live in the same place at the same time.

Appendix I - Fact Sheet
European Brown Bear (Ursus arctos arctos)

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Conservation Status Europe: Strictly protected under the Bern Convention, the EU Habitats Directive and CITES.

Habitat requirement: Bears in Europe are strongly connected to forests and show an extreme range of behavioural and environmental adaptations. Even though it is difficult to generalize, there are a couple of key factors that make an area an ideal habitat: forage supply, visual and thermal cover, access to potential mates, and denning opportunities.

Diet: Even though bears are systematically placed under the order of the Carnivora, they are omnivores. Their diet varies from fruits, green vegetation and seeds to insects and carcasses of ungulates, depending on the season and availability. Brown bears rarely prey.

Reproduction: Brown bears reach sexual maturity at 3 to 4 years old. Litter size ranges from 1 to 4 cubs that are born generally in January during the winter sleep and remain with their mother for one to two years. Females have cubs every 2 to 3 years.

Dispersal: Males have a higher dispersal rate and a larger dispersal area than females.

Home range: in Alpine habitats the home range can extend to several hundreds of km2.

Denning or winter sleep: Bears do not go through a real hibernation phase, but instead spend winters in a dormant state that lasts a couple of months and coincides with the reproduction period. In this state, body temperature is lowered a few degrees and their heart and breathing rate decrease considerably. However, some individuals remain active during the winter months.

The eradication of brown bears in Europe: Conflicts between humans and large carnivores started as early as humans became sedentary, when forests were cleared to give space to agricultural land and settlements. Already in the 15th century, brown bears disappeared from most of their original distribution area due to agricultural practices and the over-exploitation of wood. Brown bears were also directly persecuted by humans because they were considered a danger to livestock and competitors to game animals. Within a 100 year period, from 1850 until 1950, bears were nearly eradicated from the whole Alpine arc. A small population in the Italian Alps was the sole survivor.

Distribution in Europe: The biggest population with an estimated 37,000 individuals lives in the northwest of Europe - from Scandinavia to the Urals. Other medium sized populations live in the Carpathians (6,600 individuals) and in the Alps–Dinaric Alps and Pindos range (2,800 animals). In southern Europe, there are several extremely small and isolated populations: one in the Pyrenees (France and Spain) with around 12 individuals, one in the Cantabrian Mountains (Spain) with 80-100 bears, and one in the Apennine Mountains (Italy) with 40-50 bears. In southwestern Bulgaria and north-eastern Greece three local and connected populations count 520 individuals. In the mountains of Central Bulgaria, another small population with 200 animals exists.

Threats: Illegal killing, traffic accidents, and habitat degradation due to human activities such as agriculture, forestry, urban development, traffic, and tourism development.

Appendix II: Legal Framework

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The European Brown Bear is a protected species under the international agreements of the **Bern Convention**, the **CITES** and, for EU member states, under the **Habitats Directive**. In Italy and Switzerland its protection status is given by the hunting legislations whereas in Germany the brown bear is protected by the Federal Law for Nature Conservation. Austria is the only country in which the species is not subject to the national law, but is under the jurisdiction of each of the nine federal states. Depending on state legislation, regulation can be found in either hunting or nature conservation laws or in both. In Switzerland, the government will propose a change to the Bern Convention that allows member states to exempt strictly protected species even after signing and ratifying the convention.

Bern Convention: The Convention on the Conservation of European Wildlife and Natural Habitats was established in 1979 to protect and conserve European fauna and flora and was ratified by all Alpine countries. The Brown Bear is listed in Appendix II, as a strictly protected species, meaning that special measures have to be taken in order to promote its protection. If the animal is an indigenous and endangered species, then specific actions must be undertaken to promote its recovery. Hunting or culling of single individuals is permitted when human interests are threatened, to prevent serious damages to livestock, culture and property, and for scientific purposes, such as restocking and recovery. A member state is also allowed to make reservations for species during the signatory or ratification phase.

CITES: The Convention on International Trade in Endangered Species of Wild Fauna and Flora is an international agreement set in 1973 to ensure that international trade in specimens of wild animals and plants does not threaten their survival.

The European Brown Bear is listed in Appendix II, indicating that, while it is not a threatened species, it is at risk of becoming endangered if the trade of specimens is not strictly controlled. Therefore, specific measures must be taken in order to safeguard this species.

Habitats Directive (Council Directive 92/43/EEC): The 'Council Directive on the conservation of natural habitats and of wild fauna and flora' aims to secure species diversity by protecting habitats of wild fauna and flora species. The Brown Bear is a strictly protected species under the Habitats Directive and member states must therefore ensure its conservation by taking adequate measures. A favourable conservation status of the Brown Bear in Europe is reached when the population is viable and a sufficiently large habitat is ensured on a long term basis. Single individuals may be killed only in exceptional cases and when no other solution can be implemented.

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