

RECOVERY PLANS FOR BROWN BEAR CONSERVATION IN THE CANTABRIAN MOUNTAINS, SPAIN

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Abstract: The conservation problems of brown bears (*Ursus arctos*) in the Cantabrian Mountains of Spain include illegal hunting and habitat loss. Recovery Plans recommend increasing the number of guards in key areas, declaring more Parks and Reserves, and evaluating environmental impacts. Even though their application is still minimal, Recovery Plans are to date the best technical and legal instrument in existence for brown bear preservation in Spain.

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In the Cantabrian Mountains in northwest Spain, 70–90 brown bears live in 2 apparently unconnected populations (Fig. 1). One has 3 times as many bears than the other (Palomero et al. 1993a), and each covers 2,500 km² (Naves and Palomero 1993, Palomero et al. 1993b). They are situated in 4 Autonomous Regions (Fig. 1) whose governments are empowered to manage both the bears and their habitats.

Bears were legally hunted in Spain until 1967, when a temporary ban was introduced. This ban became permanent when brown bears were declared a protected species in 1993. They are currently listed as endangered in the *National catalogue of threatened species* established by Royal Decree 439 on 30 March, 1990. This listing legally obligates the Autonomous Regions to develop Recovery Plans in accordance with law 4/1989 on the Conservation of Natural Areas and Wildlife. We review the main conservation problems facing the Cantabrian brown bear and describe and analyze the conservation strategy currently being developed for the species.

CONSERVATION PROBLEMS

Different authors consider poaching and habitat degradation as the main causes for the decline of the Cantabrian brown bear population (Purroy and Clevenger 1991, Palomero et al. 1993a). Although it is difficult to accurately estimate damage from illegal hunting, this damage appears to be excessive. Braña et al. (1982) cited 20–25 deaths due to illegal hunting in the Cantabrian Mountains between 1979 and 1981. Palomero et al. (1993a) provided data on 21 definite and 12 probable bear deaths

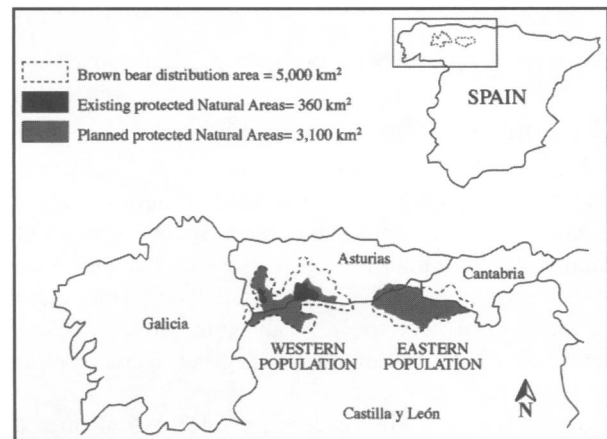


Fig. 1. Brown bear distribution and present and future protected areas in the Cantabrian Mountains, Spain, 1992.

between 1981 and 1990 in the western population and 6 definite and 6 probable bear deaths in the eastern population for the same period. Illegal killing results not from dissatisfaction with compensation policies, but from the desire for a rare, illegal hunting trophy and from traps and bait meant for other animals.

Fewer people in mountain areas, a decrease in cattle rearing and an end to former agricultural activities has meant less disturbance in mountainous areas and even recolonization of former natural areas for bears. However, offsetting these positive developments for bears are increased leisure pursuits in the countryside and increased building, forestry and mining activities that do not consider the ecological needs of the bear. Often

these human activities lead to loss of or damage to favorable bear habitat.

Even if the most pressing conservation problems were to disappear, the viability of small populations is intrinsically threatened (Shaffer 1981). Shaffer (1983) suggested extinction times of 19, 44, and 114 years for bear populations of 10, 20, and 50 individuals, respectively. Knight and Eberhardt (1985) stated that 30–70 individuals in 2,500–7,400 km² have a 95% possibility of extinction in <100 years. Allendorf et al. (1986) estimated that for genetic reasons a population <125–250 is unlikely to survive long term. The U.S. Fish and Wildlife Service (1993:27) stated that “little reliance for long-term viability can be placed on isolated populations of 50–90 grizzly bears.” Censuses and other information on the Cantabrian Mountains populations put their numbers in this range (Palomero et al. 1993a). However, their regular annual reproduction, albeit low, allows for optimism provided negative factors are removed.

RECOVERY PLAN DEVELOPMENT

Background and Approval

Law 4/1989 on the Conservation of Natural Areas and Wildlife significantly changed the conservation strategy for endangered species in Spain. Instead of merely banning hunting and possessing live and dead specimens, it proactively required the development of plans to protect species and their habitats. Governments of the Autonomous Regions were responsible for this implementation.

There was sufficient scientific information on the Cantabrian brown bear to allow immediate preparation of such plans. The 4 Autonomous Regions in the Cantabrian Mountains drafted and approved their respective recovery plans, Cantabria in 1989, Castilla y León in 1990, Asturias in 1991, and Galicia in 1992. The contents of the 4 recovery plans are similar as they deal with similar problems. They were jointly drafted by Autonomous Regions with bears within their boundaries on the basis of technical proposals made by the same team of researchers and managers.

Scope and Duration

The goal of a recovery plan is to restore and maintain a species as a viable component of a given ecosystem. For the Cantabrian brown bear, the specific Recovery Plan goal is “to increase the number of individuals in order to achieve a sufficiently large and stable population in the current distribution area al-

lowing a later link between the two current populations in the Cantabrian Mountains and guaranteeing their genetic and demographic viability” (Table 1).

The recovery plans attempt to reestablish the population distribution that brown bears occupied in the 17th and 18th centuries before the population separation occurred (Nores 1988). This approach means that the scope of the plans includes not only the current, but also the potential population area at least concerning habitat impacts.

Because the primary goal of the plans is to reduce the risk of extinction, they are in effect indefinitely until that goal is achieved. Regular revisions allow for flexibility to remedy problems that arise over such a long time period.

Objectives, Directives, and Measures

The plans include very specific proposals, and more general proposals that will be further developed later or used as directives. The series of directives and measures attempt to fulfill the following operational objectives:

1. To establish and implement effective measures for the direct protection of the species.
2. To develop and implement programs and activities that effectively contribute to the conservation and restoration of brown bear habitat.
3. To establish a supplementary feeding program that ensures the availability of food in extreme conditions.
4. To compensate damage claims as quickly and effectively as possible.
5. To heighten the awareness of different social groups to the problems of the brown bear and the need for its conservation.
6. To increase knowledge of the species and its habitats so that conservation measures can be refined and improved.
7. To collect continuous, up-to-date information on brown bear demographics.

The specific measures of each plan differ according to the situation in each Autonomous Region. However, they fall into similar groups according to the operational objectives (Table 1).

The first group of measures deals with eradicating illegal hunting with proposals ranging from increasing the number of guards to an average of 1 for every 2,500–3,000 ha to campaigns to discredit the behavior of illegal hunters. Other measures include continuous training for existing rangers, creating specialized patrols, and criminalizing bear poaching.

Table 1. Organization of recovery plans for brown bear in the Cantabrian Autonomous Communities, 1992.

Ultimate Objective	Directives	Measures	Examples	
To ensure Cantabrian brown bear conservation by means of population and range increase to join the 2 existing populations	A. Protect Bears	1. Eradicate illegal hunting	Increase guards Create specialized mobile guard units Equipment (vehicles, radios, etc.) Continuous guard training courses Collaboration with Civil Guard Apply maximum penalties Prison sentences for illegal hunting Campaign against illegal hunting	
		2. Preserve genetic purity		
	B. Conserve and restore habitat	3. Extend network of parks and reserves		
		4. Environmental impact studies		
		5. Develop forest policy		
		6. Manage game resources		
		7. Control eco-tourism		
		8. Control unpaved road use		
	C. Provide supplementary food during shortage	9. Supplement food supply		
	D. Compensate for bear damage	10. Damage compensation	Compensate for bear damage Compensate for damage by other species	
	E. Educate public	11. Develop public education program		
	F. Research	12. Biological		
		13. Ecological		
	G. Collect information	14. Monitor population	Census breeding females annually Monitor signs of presence in fixed transects.	

The second group of measures attempts to guarantee the genetic purity of the Cantabrian brown bear by, among other things, tightly controlling the whereabouts of bears in zoos to avoid accidental introductions into the wild and listing the genetic and demographic considerations for future population augmentation.

The third group of measures envisages extending the network of Protected Natural Areas and incorporating the ecological requirements of the bear into the management criteria for such areas. The measures made public

by the Autonomous Regions require the incorporation in the next few years of almost 75% of bear range into the network of Parks and Reserves. At present, scarcely 7% is included (Fig. 1).

The fourth group covers directives to ensure that bear conservation is considered in environmental impact studies. The primary negative effect on Cantabrian bear habitat is the cumulative impact of small building projects exempt from studies covered by the European Union Directive 85/377. This problem has been rectified either

by creating in each Autonomous Region separate provisions or by simply extending the list of activities subject to a prior study.

Groups 5 through 8 cover forestry policy, hunting, tourism development, and measures to control the negative effect of cattle and unpaved forest roads.

Supplementary feeding, addressed in the next group, is considered exceptional, limited, and a last resort in situations of extreme hardship due to lack of natural resources.

The burden of bear conservation must not fall completely on people living in bear range. Thus group 10 covers socio-economic measures and directives and includes a compensation payment system for bear damage to agriculture and livestock. This system accelerates the payment process (1 month between damage occurrence and receipt of payment), fairly assesses the amount due (at market prices), and adds compensation for suffering (supplementary payment of 20% of the damage value).

Directives and measures to increase awareness of bear conservation problems in Group 11 include the creation of "bear houses": centers for permanent and temporary exhibitions on topics related to bear biology and its influence on human culture, environmental education classrooms for schoolchildren and audiovisual facilities for viewing documentaries of captive-reared bears in semi-natural conditions. Such "bear houses" aim to satisfy peoples' need to see bears that will be created by the awareness-raising and educational activities, thereby avoiding new disturbance in the wild.

Research activity includes collecting information on bear biology, especially responses to human activity (hunting, cattle rearing, forestry, etc.) and use of habitat (habitat ecology). Currently underway is production of a thematic map (vegetation, geology, etc.) on a scale of 1:25,000 of the bear range to identify critical areas (denning, refuge and feeding zones or communication corridors between different groups) which will be used to develop specific conservation measures for each area.

The last group covers monitoring the population status to judge the success of the other measures in view of the results obtained. The plans advocate use of non-intrusive methods, and annual censuses of family groups. The overall guidelines of the recovery plans for the brown bear in the Cantabrian Mountains correspond to the proposals for brown bear protection in Recommendation 10 of the Permanent Committee of the Convention on the Conservation of Wildlife and the Environment in Europe (Berne Convention).

RECOVERY PLAN IMPLEMENTATION AND MONITORING

The 4 plans share a similar organizational framework for implementation. The plans are enforced by departments responsible for wildlife management, but their directives are compulsory for all government and private bodies. Thus, any public works department or individual interested in building must adhere to the recovery plan directives and measures.

The need for inter-plan coordination and for cooperation with non-governmental conservation organizations underlies the plans. Coordination is 1 component of the plans that has been well developed. Meetings at different levels between representatives of Autonomous Regions and the National Government take place frequently. Management Programs (1 to 3 years) and Annual Results Reports are required.

The recovery plans did not come about in a vacuum, but as a result of accumulated experience and work on conservation of bears. As the plans have only existed a short time, it is difficult to evaluate detailed results. However, an initial review showed that, contrary to expectations, the previous situation has not improved—bears are still illegally killed, habitat is still disturbed. Despite this, the plans continue to be the best technical and legal instrument to date in Spain for bear conservation. The measures have simply not been implemented sufficiently or forcefully.

Full implementation of the plans will require considerable economic effort and a complementary administrative and legal framework. The latter has been adequately dealt with recently and prospects for the former look reasonably bright. The European Union has approved, within the ambit of ACNAT (Community Action for Nature Conservation) and LIFE (Legal Instrument for Environment) funds, a bear conservation project in the Cantabrian Mountains coordinated by the Autonomous Regions which represents the next phase in the implementation of the Plans. It involves an overall investment of about \$6 million US over 1994–96. This amount includes 42% for habitat restoration and protection, 20% for anti-poaching activities, 13% for socio-economic measures, 13% for monitoring and research on the species and its habitat, and 12% for awareness-raising and environmental education.

Hiraldo and Alonso (1985) considered the brown bear one of the most useful vertebrates as an indicator of the natural value and health of an area of the Iberian Peninsula. Indeed, if the brown bear has survived until today in the Cantabrian Mountains it is because the habitat is less disturbed than other areas of Spain. Nevertheless,

without decisive action, it will become extinct there as it is already in many other places. The newly created recovery plans for bears in the Cantabrian Mountains is a major step in preventing this from occurring.

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