
Keywords: 8ES/conservation/conservation planning/conservation strategy/Iberian lynx/Lynx pardinus/Species Recovery Plan

Abstract: A new Strategy for the Conservation of the Iberian Lynx (Lynx pardinus) has recently been approved by the Spain's maximum authorities in Environmental Policy at the Sectorial Conference for the Environment. The new Strategy has been developed in a different working framework from the one that led to the first Strategy for the Conservation of the Iberian Lynx in 1999. The demographic situation of the Iberian lynx has never been worse. However, there have never been so many human and financial resources available, and the species has never been the focus of so much public attention and concern. The ultimate goal of the Strategy is to ensure that the Iberian lynx becomes a functional part of the Mediterranean scrubland habitat again. To this end, the recovery of the species involves both successfully managing the remaining populations and choosing and restoring areas to carry out reintroduction projects that will lead to the establishment of new wild populations. The new Strategy has set a roadmap for the conservation and recovery of the Iberian lynx, as well as specific numerical targets that must be met in a given period of time. These targets include: 1) Stabilize the populations by combating the causes of threat to the species; 2) Increase the number of individuals in the wild populations so that the Iberian lynx can be downlisted from Critically Endangered (CR) to Endangered (EN) by 2011; and 3) Increase the number of wild populations, so that the species can be downlisted from Endangered (EN) to Vulnerable (VU) by 2020. According to the Spanish system, the first target should be achieved through Regional Recovery Plans, which must adopt the guidelines established in the National Strategy and develop them fully and efficiently. Achieving the second goal requires increasing the number of individuals in the lynx populations until at least one of them has more than 50 mature individuals, which must not amount to more than 90% of all the wild mature individuals. If necessary, "Restocking" and "Population Exchange Projects" are recommended to help increase the abundance of lynxes in the existing populations. To achieve the third target, the combined wild populations must comprise at least 250 mature individuals and not show signs of decline. This could only be attained through "Habitat Restoration and Reintroduction Projects" carried out in all the Autonomous Communities of Spain where the Iberian lynx occurs or occurred until recent times.

Notes: Incl. Spanish abstract
A new Strategy for the Conservation of the Iberian Lynx

Una nueva Estrategia para la Conservación del Lince Ibérico

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Resumen
Recientemente, el Grupo de Trabajo del Lince Ibérico aprobó una nueva Estrategia para la Conservación del Lince Ibérico. Esta Estrategia surge en un marco de trabajo diferente al que existía cuando se aprobó la primera Estrategia para el Lince Ibérico, en 1999. El lince ibérico está en la peor situación demográfica en la que ha estado a lo largo de su historia pero, por otra parte, nunca antes se había contado con tantos recursos humanos y económicos, ni con tanta atención política y preocupación social por la especie. La meta final de la Estrategia es que el lince ibérico sea una pieza funcional del monte mediterráneo. Para ello, la recuperación de la especie pasa tanto por gestionar con éxito las poblaciones que quedan, como por la elección y adecuación de áreas donde desarrollar proyectos de reintroducción que conduzcan al establecimiento de nuevas poblaciones silvestres. La nueva Estrategia marca un camino a seguir en el proceso de conservación y recuperación del lince ibérico, estableciendo metas numéricas concretas a lograr en un plazo determinado. Estas incluyen: 1) Estabilizar las poblaciones existentes luchando contra las amenaza para la especie. 2) Aumentar el número de linces que viven en las poblaciones silvestres. Se pretende conseguir que, para el año 2011, el lince pase de estar catalogado como “en peligro crítico de extinción, CR” a “en peligro, EN”. 3) Aumentar el número de poblaciones silvestres, y lograr que para el año 2020 la especie deje de “estar en peligro, EN”, para pasar a ser considerada “vulnerable, VU”. Según el contexto español, la primera meta se debería conseguir a través de los Planes de Recuperación Autonómicos, que deben adoptar las líneas marcadas en la Estrategia y desarrollarlas completa y competente. La segunda meta es hacer crecer las poblaciones de linces hasta que, al menos una de ellas, supere los 50 individuos maduros (sin que éstos supongan más del 90% de todos los linces maduros silvestres). Si se considerase necesario, se recomienda desarrollar “Proyectos de Refuerzo e Intercambio Poblacional” para contribuir a aumentar la abundancia de linces en las poblaciones existentes. La tercera meta es conseguir que el número total de linces maduros presentes en la naturaleza sea superior a los 250 individuos maduros y que las poblaciones no muestren signos de declive. La única manera de lograrlo es mediante “Proyectos de Restauración del Hábitat y Proyectos de Reintroducción” en todas las Comunidades Autónomas de España donde el lince ibérico está presente o estuvo presente hasta hace poco.

Palabras clave
Planes de conservación, Plan de recuperación de especies, Lynx pardinus
ABSTRACT
A new Strategy for the Conservation of the Iberian Lynx (Lynx pardinus) has recently been approved by the Spain’s maximum authorities in Environmental Policy at the Sectorial Conference for the Environment. The new Strategy has been developed in a different working framework from the one that led to the first Strategy for the Conservation of the Iberian Lynx in 1999. The demographic situation of the Iberian lynx has never been worse. However, there have never been so many human and financial resources available, and the species has never been the focus of so much public attention and concern. The ultimate goal of the Strategy is to ensure that the Iberian lynx becomes a functional part of the Mediterranean scrubland habitat again. To this end, the recovery of the species involves both successfully managing the remaining populations and choosing and restoring areas to carry out reintroduction projects that will lead to the establishment of new wild populations. The new Strategy has set a roadmap for the conservation and recovery of the Iberian lynx, as well as specific numerical targets that must be met in a given period of time. These targets include: 1) Stabilize the populations by combating the causes of threat to the species; 2) Increase the number of individuals in the wild populations so that the Iberian lynx can be downlisted from Critically Endangered (CR) to Endangered (EN) by 2011; and 3) Increase the number of wild populations, so that the species can be downlisted from Endangered (EN) to Vulnerable (VU) by 2020. According to the Spanish system, the first target should be achieved through Regional Recovery Plans, which must adopt the guidelines established in the National Strategy and develop them fully and efficiently. Achieving the second goal requires increasing the number of individuals in the lynx populations until at least one of them has more than 50 mature individuals, which must not amount to more than 90% of all the wild mature individuals. If necessary, “Restocking” and “Population Exchange Projects” are recommended to help increase the abundance of lynxes in the existing populations. To achieve the third target, the combined wild populations must comprise at least 250 mature individuals and not show signs of decline. This could only be attained through “Habitat Restoration and Reintroduction Projects” carried out in all the Autonomous Communities of Spain where the Iberian lynx occurs or occurred until recent times.

KEYWORDS
Conservation planning, Species Recovery Plan, Lynx pardinus
A new Strategy for the Conservation of the Iberian Lynx

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Spain is a unitary state which, in fact, functions almost like a decentralized federation of regions, called “Autonomous Communities”. Each of the 17 Autonomous Communities has powers to manage its own interests with a great deal of independence. The Environment is one of the areas over which Autonomous Communities have full powers. Therefore, every region is in charge of nature conservation and protects its resources with total independence. When an Action Plan is needed for the conservation of an endangered species, each Autonomous Community must draw up, adopt and implement its own Plan, which must include the necessary measures for the protection of the species in its territory (Article 31.6 of Act 4/89). In this case, the Iberian lynx (L. pardinus) has been listed as Endangered on a national level since 1990 (Royal Decree no. 439/90). Five Autonomous Communities in Spain where the Iberian lynx occurs or occurred until recently –Andalusia, Castille-La Mancha, Castille y Leon, Extremadura and Madrid– must therefore draw up and implement their own Species Recovery Plan to eliminate the risk of extinction of the species in their territory. However, for the species to recover successfully, Regional Plans must be designed and implemented in a coordinated and consistent way. This is done by means of National Conservation Strategies, whose purpose is to coordinate and combine the efforts of all the relevant departments and levels of government to achieve a recovery of the species.

The 2008 Strategy for the Conservation of the Iberian Lynx

The first National Conservation Strategy for the conservation of the Iberian lynx was adopted in 1999 (Dirección General de Conservación de la Naturaleza, 1999). Although the Strategy was planned to be valid for an indefinite period of time, it was decided that it should be reviewed annually and updated every four years. In 2003 no updates to the Strategy were considered necessary. However, new data available on the species –especially on its abundance, distribution and annual productivity– and the new circumstances of its management –the launch of new LIFE projects, and the Iberian Lynx Ex situ Conservation Programme– led the Iberian Lynx Working Group (a group of Iberian lynx experts of the national and regional environmental departments) to review and agree on a new
Annual surveys were carried out | No | Yes
---|---|---
Estimated population size (individuals over 1 year old) | * 1,136 | *** 107
No. of breeding females | * 350 | *** 32
Area of occupancy | * 14,569 km² | ** 2,200 km²
Area of occupancy where breeding occurs | * 10,669 km² | ** 925 km²
No. of breeding populations | * 9 | ** 2
Range States of the Iberian lynx | * Spain and Portugal | ** Spain
Spanish Autonomous Communities (administrative regions) with breeding populations | * 5 | ** 1
Conservation status (IUCN) | Endangered | Critically Endangered
Prior National Strategy | No | Yes
Recovery Plans approved | 0 | 2 (Regions of Extremadura and Castille-La Mancha)
Action Plan for the Iberian Lynx in Europe | No | Yes
Iberian Lynx Ex situ Conservation Programme | No | Yes
LIFE Projects devoted, at least partly, to the species | 2 | 6
Management teams exclusively devoted to the species | No | Yes
Knowledge of the species' ecology and biology | Yes | Yes
Management Plan for the Iberian Lynx in Doñana National Park | Yes | Yes
SACs for the Iberian lynx (Natura 2000 Network) | No | SCIs approved

Table 1. Differences in conservation status, knowledge and management of the species between 1999, when the first strategy for the conservation of the Iberian Lynx was adopted, and 2007, when the second strategy was drawn up. Demographic data are taken from the following studies: *Rodríguez and Delibes, 1990; ** Guzmán et al., 2005; *** Junta de Andalucía (Regional Ministry for the Environment, Andalusian Regional Government), 2006.

Table 1. Diferencias en el estado de la conservación, conocimientos y manejo de la especie entre 1999, año en el que fue adoptada la primera Estrategia para la Conservación del Lince Ibérico, y el año 2007, cuando se redactó la segunda Estrategia. Los datos demográficos proceden de los siguientes estudios: *Rodríguez y Delibes, 1990; ** Guzmán et al., 2005; *** Junta de Andalucía 2006.

**Evolution of Iberian lynx abundance from mid-eighties to present**

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**Figure 1. Evolution of Iberian lynx abundance from mid-eighties to present.** The graph only considers abundance of individuals over 1-year-of-age (i.e., it does not take into account young-of-the-year). Estimates after 2001 are related exclusively to Andalusia. Data based on Rodríguez and Delibes, 1990; Castro and Palma, 1996; Guzmán et al., 2005; and Simón et al., this book.
document which has been adopted by the Iberian Lynx Working Group in 2007, and, in 2008, has been approved by the Spain's maximum authorities in Environmental Policy in the Sectorial Conference of the Environment.

A DIFFERENT STATE OF AFFAIRS

The Iberian lynx is facing its worst demographic situation ever (Delibes and Calzada, 2005). In just a few years the population has declined from over a thousand individuals over 1-year-old distributed in about 10 subpopulations in different regions of Spain and Portugal (Rodríguez and Delibes, 1990; Castro and Palma, 1996) to less than two hundred individuals, most of which are grouped into two subpopulations in the region of Andalusia (Guzmán et al., 2005. See Table 1 and Figure 1). The Atlas and Red Book of Mammals of Spain, Atlas y Libro Rojo de los Mamíferos de España (Calzada et al., 2007) shows that, in only 16 years –between 1985 and 2001– the area of occupancy of the species has decreased by 87%, its breeding area has shrunk by 93%, the number of breeding females has declined by more than 90%, and the number of individuals over 1-year of age has fallen under 86%. These data led the IUCN to list the Iberian lynx as Critically Endangered, the highest category of threat for a species (IUCN, 2002). More recent population data obtained between 2001 and 2006 indicates some improvements (CMA-Junta de Andalucía, 2006). For instance, the Sierra Morena population is beginning to increase, while Doñana remains stable (Simón et al., this book).

DIFFERENT PLAYERS

In recent years, the political, social and economic attention given to the species has improved. In 1999, when the first Strategy for the Conservation of the Iberian Lynx (L. pardinus) in Spain was adopted, it was the first document drawn up to plan the management of the species. There was only one honorable exception, however: the Management Plan for the Iberian Lynx in Doñana National Park, drawn up many years before (Delibes et al., 1986). To date, two of the five Regional Recovery Plans have been approved, as well as an Action Plan for the species adopted by the Council of Europe, and a National Iberian Lynx Ex situ Conservation Programme (Delibes and Calzada, 2005). In 1999, the Sites of Community Importance (SCIs) for the Iberian lynx of the Natura 2000 Network had not been proposed yet. Today, the list has already been approved. In 1999 no attempts to breed the species in captivity had succeeded, whereas the species now breeds regularly every year in specialized centers. LiFE Projects involving the species had only been granted on two occasions, whereas the sixth one is currently under way. As a matter of fact, the latest LiFE Nature Project (see Simón et al., this book) is the most generous one ever granted so far in Europe. Besides, today there are several professional teams exclusively devoted to the management of the Iberian lynx, which was not the case in 1999 (Table 1).

In short, the current framework is totally different to the context in which the first Strategy was adopted. We know that the status of the Iberian lynx is the worst ever, but never before had so many resources been available for its management and conservation; the species has never received as much political attention, the public has never been so aware of and sensitive about its difficult plight, and never before have so many people been involved in the study, management and conservation of the Iberian lynx.

A NEW GLOBAL COMMITMENT

The ultimate goal of the Strategy for the Conservation of the Iberian Lynx is “to make the Iberian lynx a functional part of the Mediterranean scrubland habitat again”. The intention is not to maintain the lynx in captive populations, or “unnatural” wild populations where the resources of the species need to be supplemented forever.

The new Strategy for the Conservation of the Iberian Lynx (L. pardinus) acknowledges the undeniable fact that the recovery of the lynx cannot be achieved in the territory of just one Autonomous Community. This is due to the biological and ecological characteristics of the species and its habitat requirements (Delibes, 1980; Palomares, 2001; Palomares et al., 2000, 2001). This, added to the certainty that only two breeding populations of the species remain –both in Andalusia–, means that a solid, close and honest relationship is necessary between all the different departments and levels of government to achieve a recovery of the species.

The recovery of the species clearly involves both successfully managing the remaining populations and choosing and restoring areas to carry out reintroduction projects that will lead to the establishment of new populations of Iberian lynx.
**OVERVIEW OF THE IBERIAN LYNX CONSERVATION AND RECOVERY PROCESS IN THE NATIONAL STRATEGY**

According to the Strategy, the conservation and recovery process of the Iberian lynx must absolutely involve the following steps:

**Stabilize the existing populations.** If the declining trend continues, the species will become extinct in the wild. To avoid this, it is urgent to stabilize the remaining wild populations. This implies eliminating the causes of threat that have been described (Dirección General de Medio Natural y Política Forestal, 2009). It must be highlighted that an increase in the abundance or range of a species in itself does not imply that it is sustainable (Clark et al., 2002). The recovery of the species can only be achieved by eliminating actual threats. However, even if all the threats affecting the wild populations disappeared and the populations remained stable, they might still become extinct because of their very small size. This could simply be caused by demographic stochasticity, an environmental disaster and/or due to problems derived from poor genetic diversity. It is therefore vital to increase the number of individuals in the remaining populations, to create new populations and to promote genetic exchange between all of them.

To meet these commitments, the Strategy has drawn up a clear roadmap with specific numerical targets that are to be achieved in specific timeframes. This is an innovative feature of the National Strategy, which also shows an attitude of political commitment. It is the first time that a strategic plan for the conservation of a species in Spain has taken on such clear, specific and measurable commitments.

**Increase the number of individuals in the wild populations.** The IUCN requirements for the Iberian lynx to be downlisted from Critically Endangered, CR C2a(i), to Endangered, EN, are as follows: until the population is stabilized, at least one of the two subpopulations must contain more than 50 mature individuals –adults capable of breeding–, none of the subpopulations must contain more than 90% of all mature individuals, and, in any case, there must not be extreme numerical fluctuations. Therefore, the first numerical target of the recovery process must be to increase the number of individuals in the lynx populations until at least one of them has more than 50 mature individuals*. These 50 individuals must not amount to more than 90% of all the wild mature individuals. To attain this goal, the source patches in each population should be enhanced and allowed to expand. The year 2011 was set as a deadline to meet this target at the meeting of the Iberian Lynx Working Group held on 27 March 2007, where the Strategy was discussed and adopted**.

**Increase the number of wild populations.** The next step will be to get the Iberian lynx downlisted from Endangered, EN, to Vulnerable, VU. For this to happen, the wild population must contain more than 250 mature individuals* and not show signs of decline. To achieve this, the habitat must be restored so that it can be used by the species and new lynx populations must be created through reintroduction projects. The National Strategy has set the year 2020 as the deadline to meet this specific target**.

In order to reach the specified goals, it is obvious that a stable captive population must be maintained to guarantee that the species will not completely disappear if the efforts to conserve the wild populations fail. In addition to providing a safety net for the species, the captive population should be able to provide individuals for Reintroduction and Restocking Projects.

*:* It is difficult to calculate the number of mature individuals of wild Iberian lynx according to the definition used by the IUCN to set its categories of threat. However, a survey of the number of females holding a territory is made every year. In this species, the territory of a female is not equivalent to two mature individuals using IUCN criteria. This is because the social organization of the lynx is not always structured into monogamous pairs, and not all individuals with a territory actually breed. From a conservative approach, the target of reaching 50 mature individuals could be considered met if there were 25 breeding females; the target of reaching 250 mature individuals could be considered met if there were 125 breeding females.

**:** Once the target is met, a taxon may be moved from a category of higher threat to a category of lower threat if none of the criteria of the higher category has been met for five years or more (IUCN 2001).
HOW TO MEET THE COMMITMENTS

The first priority is to minimize the threats to the species. Unless this condition is met, the Strategy will never succeed. The Strategy contains a summary of the threats leading the species to extinction and the basic actions proposed to combat them. Yet, it is only an outline of the actual task of planning the management and conservation of the species. It is through Regional Recovery Plans that Autonomous Governments must adopt the guidelines set in the Strategy and develop them fully and efficiently. Each objective included in the Strategy must be broken down into more specific, realistic and measurable goals and actions related to it. These goals and actions should be adopted in the Plan with a deadline and information on who will be in charge and what budget has been planned for their implementation. More importantly, provision must be made for monitoring the actions and reviewing the Plan. A monitoring procedure is particularly necessary to check the degree of compliance with the goals; it should include a timeframe of reviews with the possibility of adjusting the actions—and even the Plan itself—to ensure that the goals are reached and thus that the species is on its way to recovery. The monitoring procedure must be designed so that it is possible to differentiate between a defect of the Plan—if the actions are implemented but do not lead to meeting the goals as expected—and a lack of compliance with the Plan—if the actions are not implemented. Regional Recovery Plans must be developed as the main tool to fight against the threats to the species and achieve the specie’s recovery. Recovery Plans, however, are not the only executive plans for species conservation in Spain. There are many other local and regional action plans that are mainly targeted to reducing threats to the species, ranging from the Management Plan for the Iberian Lynx in Doñana National Park to the LIFE Project currently under way. However, it is through Recovery Plans that regional governments must plan and design the general implementation of the recovery process in each Autonomous Community. They provide an axis for all the other Plans to join in.

After minimizing the direct threats to the Iberian lynx, the most important action for the conservation of the species in the wild is to increase the number of individuals in the existing wild populations. This is aimed at protecting the species from a direct threat of extinction due to stochastic, demographic and/or environmental factors. The chances that a lynx population will disappear are inversely related to its size. In fact, over the last 30 years, all the populations of Iberian lynx with less than 50 individuals have disappeared, except for the one in Doñana (Rodríguez and Delibes, 2002, 2003). The remaining populations must grow and expand. Sometimes it may be necessary to increase the carrying capacity of source patches by “compacting” territories or by implementing Restocking and Population Exchange Projects (Simón et al., this book). With such few populations of Iberian lynx, the conservation of the species is unlikely to be guaranteed even if we increase the number of individuals they contain. The reason for this is that these populations might disappear simply because of environmental stochasticity—e.g., a fire, a flood or the outbreak of a new disease in the population. This risk, as well as others, would decrease with the creation of new populations through Reintroduction Projects. In fact, representatives of the five Spanish Autonomous Communities have agreed on the goal of achieving a new breeding population of lynx with long-term viability in each of these regions; another one will be planned to be established in Portugal (Vargas et al., this book). The commitment acquired through the National Strategy establishes that each Autonomous Community must have a Reintroduction Project under way by 2012. This implies, at least, finding and selecting a number of potential areas that can be made suitable if necessary via Habitat Restoration Projects so that Reintroduction Projects can be implemented with high chances of success.

One of the main tools to achieve reintroduction goals is through the Iberian Lynx Ex situ Conservation Programme, which is included in the National Strategy. The main goal of the Programme is to contribute to the specie’s recovery by providing specimens born and raised in captivity fit for reintroduction into the wild (Vargas et al., 2008; Vargas et al., this book). Besides, it also offers protection in the event of a catastrophic extinction. In Andalusia there are already two dedicated Breeding Centers and a partner centre for breeding Iberian lynx in captivity. The Ministry of the Natural, Rural and Marine Environment has agreed to fund one new breeding center per Autonomous Community that has expressed and open commitment to recover the Iberian lynx in areas of historical occupancy. In situ and ex situ efforts are thus linked by MOUs that tie the building of breeding centers to preparation of habitat for lynx reintroductions. Besides the two dedicated centers that are already established in Andalusia, new centers are scheduled to be opened in Extremadura and Castille-
La Mancha (Vargas et al., this book). These centers will each maintain approximately 8 Iberian lynx breeding pairs, that will be exchanged between facilities according to genetic criteria and that will also provide lynxes for reintroduction projects. Portugal has also joined in by building a breeding center in the Algarve region (Vargas et al., this book) while committing to sign up agreements to prepare areas for future reintroduction efforts. Table 2 shows an outline of the steps, main goals and management tools planned for the recovery of the species. This framework was established through the overview of the Recovery Process of the Strategy for the Conservation of the Iberian Lynx.

For this Strategy to be successful, all official departments in charge of environmental issues at any governmental level must believe in the recovery process and participate in an active, coordinated and efficient way. It will be necessary to promote research applied to the conservation of the species (Palomares, this book) –especially studies aimed at assessing the outcome and efficacy of the various Plans and Projects that must be carried out. However, the most important thing to do is to convince society of the need to conserve the Iberian Lynx. The recovery process of the Iberian lynx will be difficult, long and costly, and unless there is enough support from society it will be impossible to implement it successfully (Jiménez, this book).

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Referencias


