

Welcome to the sixth edition of *LynxBrief*, a briefing paper focusing on the conservation of the Iberian Lynx, **the most endangered big cat species in the world**. Comments on, and questions about, any issue relating to the conservation of the Iberian Lynx should be emailed to: lynxbrief@yahoo.co.uk

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Update on lynx captive breeding

Three new cubs have been born and successfully raised this year in the Iberian Lynx captive breeding programme in Spain. In addition, the lynx breeding centre at El Acebuche – along with other institutions including the Junta de Andalucía and Doñana National Park – helped to rehabilitate a severely injured wild female lynx (Viciosa), that was subsequently released back into the wild in Doñana where she mated successfully with a male lynx to produce 2 new cubs.

There are now 21 lynxes in the captive breeding programme, spread across two centres – in El Acebuche near Doñana and Zoo Jerez. This includes 5 captively bred lynx and 16 incorporated wild-born founder individuals. A new, larger breeding centre is now nearing completion in Jaén province, close to the wild population in the Sierra de Andújar. It is planned that the captive population will be increased to over 60 by 2010 – through more captive breeding and the incorporation of more wild-born founder individuals – spread across a number of centres, including outside of Andalucía. Reintroductions might then be possible, provided that *in-situ* conservation has progressed by then (see below).

On 23 March, Saliega – the same female that produced 3 cubs last year – gave birth to 2 more cubs, both females: Camarina and Castañuela. Both have subsequently developed well and now weigh around 5 kilos. The cubs needed to be separated from each other for a period when they were 51 – 64 days old, because they started to fight. However, the intervention of Saliega, and staff at El Acebuche meant that the cubs did not suffer serious injuries. Studies have shown that during the age of 30-64 days young lynx are more aggressive to each other, and following this period the cubs were gradually reunited under careful surveillance and are now living happily together. Last year, one of Saliega's first cubs, Brezina, was killed in a fight with her brother Brezo when she was 45 days old.

On 15 April, Esperanza (born in the wild in Doñana but raised in captivity from 4 days old) also gave birth to two cubs, a male and a female: Corcho and Cynara. This birth was particularly significant because it represents the first time in over six decades that there has been genetic exchange between the isolated Doñana population and the population in the Sierra de Andújar, where the cub's father (Jub) was born.

Corcho and Cynara were cared for by their mother during their first two days. However, unexpectedly, on 17 April, Esperanza abandoned Cynara, whilst continuing to care for Corcho. This may have been due to Esperanza suffering post-natal hormonal changes or her feeling that she was not able to raise two cubs.



©Ex-situ conservation programme
Cynara and Corcho being examined by El Acebuche staff

After being abandoned, Cynara has been cared for by staff at El Acebuche. Fortunately, an American Bobcat cub – also abandoned by her mother – was transferred to El Acebuche from Zoo Jerez two weeks later and this cub (Catalpa) was kept with Cynara to aid her social development.

Tragically, on 12 June Corcho died from a viral infection. This unfortunate event, followed the previous death of the two premature cubs born a week early by Aliega; one cub being still-born whilst the other only surviving a day, despite the rapid intervention of the El Acebuche staff. However, it is important to stress that premature births and the death of cubs are common events afflicting both wild and captive felines. Moreover, although such setbacks are a challenge for the captive breeding programme, they do not detract from the progress and achievements that have been made to date.

The continued progress of the captive breeding programme will be an important part of the conservation of the Iberian Lynx, and *LynxBrief* congratulates all those involved for their good work. Successful captive breeding will help to conserve the genetic diversity of the species, and could provide individuals for reintroductions back into the wild, to recreate and link up wild populations. However, reintroductions will only be possible in an area if the pressures that caused declines in lynx populations there in the past (i.e. lack of prey, high non-natural mortality and/or habitat loss) are reduced or removed. Moreover, captive breeding and reintroductions will not be as important as conserving and expanding the remaining wild breeding populations through *in-situ* conservation projects.



©Ex-situ conservation programme
Saliega with her two cubs – Camarina and Castañuela

Reference: Iberian Lynx Ex-situ Conservation Programme E-Newsletter available on-line, along with other information, news, photos and videos at: www.lynxexsitu.es

A note on names: the captive breeding programme chooses names starting with the same letter for all cubs born in a particular year. Last year's cubs all begin with 'B', this year's cubs begin with 'C' and next year's cubs will begin with 'D'.

Results of recent lynx monitoring

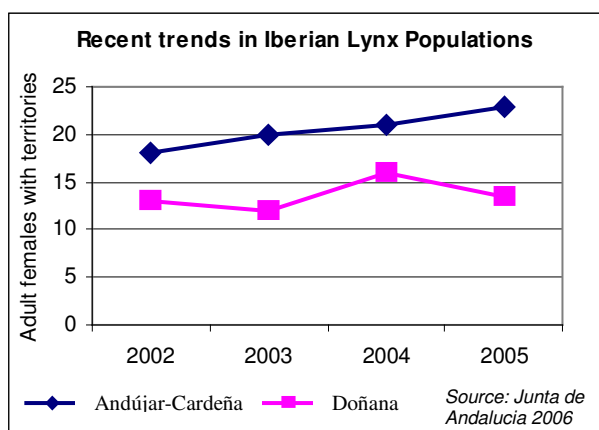
Species monitoring is vital for nature conservation, to diagnose problems, classify the conservation status of species and assess the effectiveness of management interventions. Monitoring is particularly important for the Iberian Lynx given that the species is already critically endangered and that any further decline could signal imminent extinction in the wild.

A variety of different methods have been used to monitor Iberian Lynx, including records of sightings, DNA analysis of excrements and hair, footprint surveys, radio collars and camera traps (see *LynxBrief* no. 3). Camera traps surveys are the most widely accepted method, although footprint surveys are still used, particularly in and around Doñana National Park where soils are sandy, providing many footprints.

Despite a number of recent reports of new lynx presence, including in Montes de Toledo (Castilla-La Mancha), in a area just west of Madrid, and Sevilla (Andalucía), *breeding* populations of Iberian Lynx can still only be confirmed in two places: Doñana and Andújar-Cardena (both in Andalucía). Figures released in early 2006 from the Andalucian Regional Government – produced by camera trap and footprint surveys – are for 141-169 lynx (adults and cubs > 6 months old) across these two areas in 2005 (see: Junta de Andalucía 2006).

The total population estimate includes around 38 juveniles of over 6 months. Thus the number of adults (>1 year) is between 103 and 131. This range is similar to the population estimate concluded by the Spanish Environment Ministry in a recent publication (Guzmán et al. 2004), of 84 – 143 adult (>1 year) lynx: 60 – 110 in Andújar/Cardena and 24 – 33 in Doñana.

The most precise reliable figures are available for the number of adult females with territories: 23 in Andújar – Cardena and 12-15 in Doñana, as shown in the graph below. The number of females with territories is the focus of surveys because this is an important indicator of population trends, and because female territories do not overlap, unlike male territories that may overlap with those of other males and several females. Nonetheless, it is important to stress that in any given year not all territorial females will have cubs. For example, in Doñana in 2005 only just over 40% of territorial females gave birth.



Overall, the monitoring figures show that there has been a slight recovery in Andújar – Cardena in recent years in both the size and the range of the population, in part due to conservation work by several organisations. Although the population remains small and vulnerable, e.g. to forest fires or a crash in local rabbit populations, the situation has improved slightly. Unfortunately, however, the same cannot be said for Doñana.



©Ex-situ conservation programme

The Doñana population has not recovered over recent years and remains small with just 20-35 adult lynx (Junta de Andalucía 2006). Moreover, the reproductive rate of lynxes in Doñana dropped in 2005, with only six females giving birth, and each raising on average just 1 cub. In addition, almost all breeding females in Doñana are located outside the protected area, where mortality rates are higher (see below) and habitat continues to be consumed by intensive agriculture. It has been concluded that both these worrying changes have been driven primarily by a further decline in the abundance of rabbits (the main lynx prey), particularly inside the National Park where rabbit densities dropped by 73% between 2000 and 2004 alone.

There has been important progress in recent years in both *ex-situ* (captive breeding) and *in-situ* conservation. However, a lot more work will need to be done to guarantee the long-term survival and recovery of the Iberian Lynx. In particular, a lot of work will be needed to recover rabbit populations following decades of drastic decline due to introduced rabbit diseases, hunting and habitat loss. In addition, more work is needed to reduce non-natural mortality of lynx (see next page).

Rabbit recovery will be an important prerequisite for Iberian Lynx recovery in Spain and Portugal. Those interested in this specific topic should read the report “Reversing Rabbit Decline” available on the internet at: www.iucn.org/en/news/archive/2005/12/report.pdf

References: Guzmán J N et al. 2004, “El Lince Ibérico en España y Portugal. Censodiagnostico de sus poblaciones”. Junta de Andalucía 2006, “El Gato Clavo, No. 5”, available online via the Cat Specialist Group website: www.catsg.org

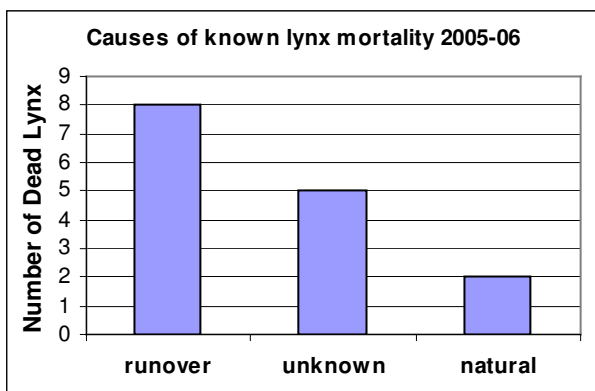


High non-natural mortality

Beyond rabbit decline, lynx decline has also been driven by habitat loss and non-natural mortality. Unfortunately all three pressures continue. In particular, lynx continue to be killed by road vehicles and possibly hunting, as described opposite.

The level of non-natural mortality of Iberian Lynx is itself cause for concern, given the small size of remnant populations. Moreover, as with most species, recorded lynx mortality probably only represents a part of actual mortality, which may be significantly higher, given the practical difficulties of finding dead lynx in extensive, mostly private hunting, areas. In particular, it has been assumed that there is a high level of mortality amongst juvenile dispersing lynx in Andújar-Cardena, which is not currently being recorded. New developments with smaller lynx radio collars may permit this particular knowledge gap to be addressed in the near future.

One of the most striking findings of the record of lynx mortality for the last 18 months is that road-kills continue to be a significant – and perhaps the most significant – cause of lynx deaths, as shown in the graph below. This is particularly the case for the Doñana lynx population, where 6 lynx have been killed by vehicles in the last 18 months alone. This continues a trend occurring over recent years. For example, 18 lynxes have been runover between 2000 and 2006 around Doñana.



By contrast with Doñana, the number of recorded road deaths in the Andújar-Cardena population is lower. However, the fate of many young dispersing lynx in this area is unknown. Moreover, should a proposed new motorway across the Sierra Morena between Toledo and Cordoba actually be built, many more lynx could also be killed in this area by road vehicles.

The high number of lynx road deaths around Doñana is indicative of the general unsustainable development in the area, despite it being recognised as one of Europe's most important natural sites. Important habitat for lynx and other endangered

species – including the Spanish Imperial Eagle – has been lost in the area, particularly to the growth in intensive farming. Similarly, in recent years, several roads have been upgraded and new roads built, including the new Villamanrique to El Rocio road through the Doñana Natural Park where several lynx have been killed in recent years. The European Union has recently criticised the construction of this particular road, and WWF Spain and Ecologistas en Acción have filed legal proceedings in a European court calling for it to be removed.

Some “corrective measures” have been implemented, and will continue to be implemented, on problematic roads by EU-funded Iberian Lynx LIFE projects, including: signs, underpasses and fences. However, a lot more needs to be done to reduce the mortality caused by vehicles, in particular by re-orientating the planning of future new and upgraded roads to adequately consider the lynx, in both actual and potential lynx areas. Moreover, some underpasses and fences may need to be re-designed because it has been reported that existing designs do not adequately exclude lynx, which continue to cross problematic roads. Similarly, traffic speeds on some roads remain far too high (e.g. >100 km/h) despite warning signs, rumble strips and other measures. Thus more work is also needed to raise the awareness amongst the local community and visiting tourists as to the impact of their actions.

- Record of known lynx mortality in the last 18 months**
- 2005**
- 14 March – body of lynx found on road between Matalascañas and El Rocio (Doñana); run over.
 - 23 April – body of lynx found on road in Andújar Natural Park, close to pilgrim site; killed by vehicle.
 - 3 May – body of lynx discovered in Cardena National Park; died of unknown causes.
 - 11 July – body of lynx found in Doñana; cause of death unknown.
 - 9 September – body of lynx found on road between Hinojos and El Rocio (Doñana); killed by vehicle.
 - 14 September – body of lynx found in Doñana; cause of death uncertain.
 - 8 October – body of lynx found on Sevilla-Madrid motorway, near Andújar; killed by vehicle.
 - 17 October – body of lynx found in Doñana, died of natural causes and/or old age (8 years old).
 - 20 October – body of lynx found in Doñana, died of unknown causes.
 - 25 October – body of lynx found in Doñana, died of unknown causes.
 - 12 December – body of lynx found next to motorway A49 (Sevilla - Huelva) near Bonares; run over.
 - 19 December – body of lynx found in the Sierra de Andújar. Died of unknown causes, probably natural.
- 2006**
- 17 April – body of lynx found on road between Matalascañas and El Rocio (Doñana); run over.
 - 15 July – female lynx injured by vehicle on road between Niebla and Almonte (Doñana). Died later.
 - 22 July – body of male lynx found on road near El Rocio (Doñana); killed by a vehicle.

Doñana Emergency Recovery Plan

The Doñana lynx population is only one of two known breeding populations and is isolated from the other population in Andújar – Cardeña by 300km, roads, towns, intensive agriculture and other barriers, making natural connection unlikely. Moreover, the Doñana population is very small with only 20-35 adult lynx and just six breeding females in 2005, and it has not shown signs of recovery in recent years.

Given its small size and isolation the Doñana population is not viable in the long-term, even without further external threats. Moreover, high non-natural mortality from road vehicles and the loss of habitat to agriculture continues, making the population's prospects very bleak without drastic intervention.

Because the Doñana lynx population is one of only two surviving populations, its loss would be potentially catastrophic for the species. Moreover, the loss of lynx in Doñana would be highly embarrassing and damaging for the image and status of this emblematic natural area and World Heritage Site.

Given its vital importance, as well as its bleak prospects, groups such as WWF Spain and Ecologistas en Acción have called for an *Emergency Recovery Plan* to be implemented for the Doñana lynx population. Such a plan would need to recognise and address the dire situation of lynx in Doñana, mandating urgent actions to significantly reduce traffic speeds, recover rabbit populations, and halt and reverse habitat loss. This plan would supersede, and go further than, existing plans and conservation work, which do not seem to have the scope, urgency or political power to recover lynx in the Doñana area.

In order to increase the pressure for the creation and implementation of an Emergency Recovery Plan for lynx in Doñana, individuals and organisations concerned with the survival of the Iberian Lynx are advised to write to the President of Andalucía, calling upon him to mandate such a plan. Individuals and organisations should write to:

**Excmo. Sr Presidente de la Junta de Andalucía,
Dr Manuel Chaves, Palacio de San Telmo,
Avenida de Roma, 41071 Sevilla, SPAIN
email: manuel.chaves@juntadeandalucia.es**

Thank you for your support!

WWF Spain article calling for Emergency Recovery Plan available at: <http://www.wwf.es/noticia.php?codigo=863>

Useful IUCN Lynx Compendium



As announced in *LynxBrief* no. 5, the IUCN Cat Specialist Group has produced a very useful on-line compendium of reports, scientific publications, maps, project descriptions and other material relating to Iberian Lynx conservation and associated issues (e.g. rabbit conservation). This compendium is freely and publicly available at: www.catsg.org (under the button "conservation compendia"). All those interested and/or working in lynx conservation are strongly advised to make regular use of this valuable resource. Any questions, comments or submissions for the compendium should be sent to Manuela von Arx at: m.vonarx@kora.ch

Conclusions

It is important that all those interested and working in lynx conservation (in research, conservation and/or lobbying) work together to ensure the survival of this beautiful and important creature, particularly in the face of conflicting interests. In particular, it is important that those interested in lynx conservation write lobby letters to politicians and policy-makers to encourage them to alter their actions in favour of the Iberian Lynx.

In this edition, *LynxBrief* advises all those interested and working in lynx conservation to write a letter to the President of Andalucía calling upon him to urgently implement an emergency lynx recovery plan in Doñana.

Such a plan is needed given the very small size, isolation and lack of recovery of the Doñana population, and the on-going threats from fast motor traffic and the loss of habitat to intensive farming and other developments. In addition, a number of conservation groups – including WWF Spain and Ecologistas en Acción – have already recommended that such a plan be implemented.

Finally, *LynxBrief* sends best wishes to all those interested and involved in lynx conservation and looks forward to more of your comments and suggestions.

About the author

LynxBrief is edited by **Dan Ward**, who has a degree in Natural Sciences (Cambridge University), a MSc specialising in Environmental Policy and experience in conservation projects in Scotland, New Zealand, Ecuador and Spain. He accepts no responsibility for the use that may be made of this report.

About SOS Lynx

SOS lynx is a campaign organisation set up in 2000 to promote the conservation of the Iberian Lynx, and works mainly at the International level. For more information about, and to support, SOS lynx, see: www.soslynx.org

About Ecologistas en Acción – Andalucía

Ecologistas en Acción – Andalucía is a federation of ecological groups that works to conserve the Iberian Lynx and the natural environment in general, and promotes peace and solidarity. Ecologistas en Acción is not necessarily identified with all the contents of this publication. You can contact the organisation by email at: andalucia@ecologistasenaccion.org

About One Planet Living and Pelicano SA

In 2001, UN Secretary General Kofi Annan said: "Our biggest challenge this new century is to take an idea that seems abstract – sustainable development – and turn it into a reality for all the world's people". BioRegional and WWF have sought to take up this challenge. One Planet Living (OPL) is a joint initiative that aims to make it easy, attractive and affordable for people everywhere to adopt sustainable lifestyles, and at the same time support nature conservation. Pelicano SA, a Portuguese developer, is a Founding Global Partner of the OPL initiative, and is directly supporting lynx conservation in Portugal.