

Short communication on the first Iberian lynx translocation from Sierra Morena to the Doñana population

Comunicación breve sobre la primera translocación de un lince ibérico de Sierra Morena a la población de Doñana

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RESUMEN

Esta comunicación breve tiene la finalidad de relatar la primera translocación de un lince ibérico al Parque Nacional de Doñana. La meta de esta medida de manejo fue el reforzamiento genético, para lo que se seleccionó un macho adulto de la población de Sierra Morena. La liberación se planteó en un núcleo de Doñana donde todos los ejemplares adultos eran hembras, debido a la muerte o retirada de todos los machos residentes tras un brote del virus de la leucemia felina (FeLV) que tuvo lugar en la primavera de 2007. Este suceso promovió un manejo de crisis cuya finalidad fue abordar los tres siguientes objetivos: 1) Asegurar que las tres hembras establecidas en el área de suelta no se dispersasen de la zona en búsqueda de un macho; 2) Evitar una disminución en la productividad global de la población de Doñana; 3) Evitar que aumentara la probabilidad de extinción a corto plazo de la población de Doñana. El macho seleccionado, conocido como *Baya*, fue ubicado en una instalación de presuelta en diciembre de 2007 y liberado en enero de 2008. *Baya* se apareó con las tres hembras residentes y tuvo un total de ocho cachorros mixtos (mezcla de genes de Sierra Morena y Doñana), los cuales se consideran importantes para aumentar la variabilidad genética de la población de Doñana. Seis meses tras su liberación, el área de campeo de *Baya* continuó solapándose con los respectivos territorios de las tres hembras residentes y, por tanto, su asentamiento en la zona se consideró un éxito.

PALABRAS CLAVE

Translocación, instalaciones de presuelta, extinción, liberación, área de campeo, diversidad genética

Photo: E. Abad

ABSTRACT

This short communication aims at describing the first translocation of an Iberian lynx into Doñana National Park. The purpose of this management approach was to help increase the genetic diversity of the Doñana population and, for this reason, we selected a specific male from the Sierra Morena population. The aim was to release this male in a nuclei where all the territorial lynxes were females –because an outbreak of Feline Leukemia (FeLV) that took place in the in the Spring of 2007 had killed all the territorial males in that area. Altogether, the goals of this crisis management approach were threefold: 1) To ensure that the three established females would not leave the core population in the process of searching for a mate; 2) To avoid a decrease in global productivity within the Doñana population; 3) To avoid augmenting the potential probability of short-term extinction in the Doñana population. The new male, known as *Baya*, was translocated into an acclimatization pen in December 2007 and released in January 2008. *Baya* mated with the three resident females during breeding season and produced eight offspring of mixed Sierra Morena-Doñana origin, which are considered important to increase the genetic diversity of the Doñana population. Six months after release, *Baya's* homerange still overlapped the respective territories of the three resident females and the male was considered to be successfully settled in the area.

KEYWORDS

Translocation, acclimatization pen, extinction, release, homerange, genetic diversity



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INTRODUCTION

The first translocation of an Iberian lynx into Doñana, which took place in December 2007 under the framework of the LIFE Nature Project (Simón et al., this book), had the purpose of strengthening this remnant population from a genetic and a demographic point of view. Even though the original restocking project was scheduled to take place in a different part of the Protected Area, a crisis management decision led to reconsider the initial translocation site and opt for releasing this valuable male into the Coto del Rey nuclei, where a Feline Leukemia (FeLV) outbreak had wiped out the four territorial males in the area (López et al., this book).

The purpose of this crisis management decision was three-fold:

- 1) To ensure that the three established females would not leave Coto del Rey in the process of searching for a mate.
- 2) To avoid a decrease in global productivity within the Doñana population, which would result if the Coto del Rey metapopulation would not have adult males to breed with the established, territorial females.
- 3) To decrease the potential for short-term extinction in the Doñana population.

Population models predicted that the loss of a single territory in Coto del Rey would increase by 10% the global probability of extinction of the Doñana Iberian lynx population (Palomares et al., this book). Natural re-colonization of the Coto del Rey nuclei by free-ranging males was hard to predict but, in all likelihood, given the scarcity of adult males in Doñana, the most probable scenario would have been the settlement of a juvenile male, with lower reproductive potential than that of an adult. In fact, this has proven to be the case, since only one subadult male has naturally recolonized the area after the FeLV outbreak took place.

The translocation of lynxes from Sierra Morena to Doñana was originally thought out as a means to increase the already diminished genetic variability of this population. After the FeLV outbreak, the need for re-stocking was not only genetic, but also demographic. The situation encountered after the loss of all territorial males in Coto del Rey left three breeding females available in Doñana's main "population source" (Palomares et al., this book) which, paradoxically, was a situation that would allow for a more rapid gene flow of Sierra Morena genes through the Doñana population.

PRE-RELEASE CONSIDERATIONS

The male selected for translocation, *Baya*, belonged to the 2005 cohort. One of the selection criteria included that the animal would be *Cytauxzoon*-free, since no *Cytauxzoon* has ever been detected in the Doñana free-ranging population (Meli et al., this book). After a 6-week quarantine period that ensured that *Baya* was disease-free, he was transferred to an acclimatization pen in Coto del Rey. *Baya*'s translocation took place on December 21st, 2007, via soft-release in a 2

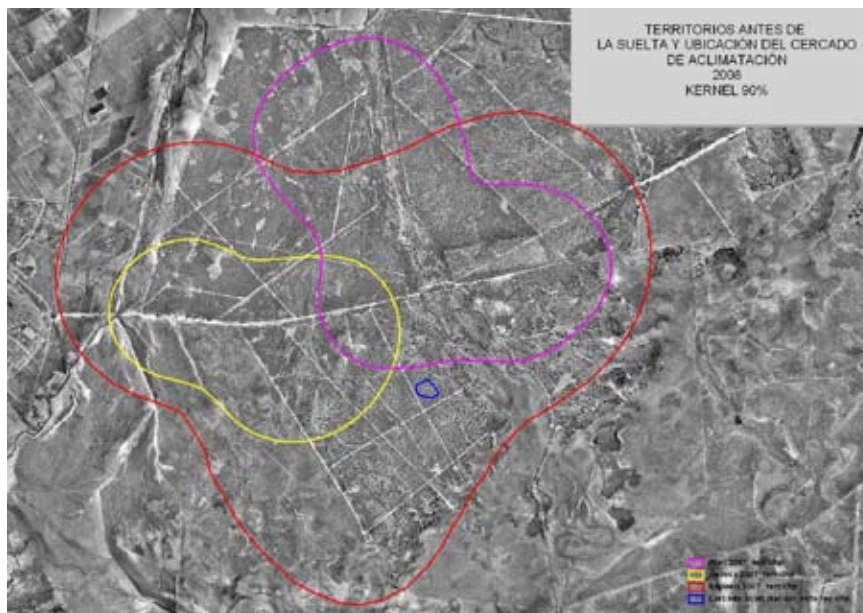


FIGURE 1 (A). TERRITORIES OF THE RESIDENT BREEDING FEMALES (RED, BLUE AND GREEN). THE ARROW INDICATES THE PLACEMENT OF THE ACCLIMATIZATION PEN, WHICH IS REPRESENTED BY AN ORANGE SQUARE.

FIGURA 1 (A). TERRITORIOS DE LAS HEMBRAS REPRODUCTORAS RESIDENTES (ROJO, AZUL Y VERDE). CON UNA FLECHA SE INDICA LA UBICACIÓN DEL CERCADO, QUE APARECE REPRESENTADO ESQUEMÁTICAMENTE EN COLOR NARANJA.

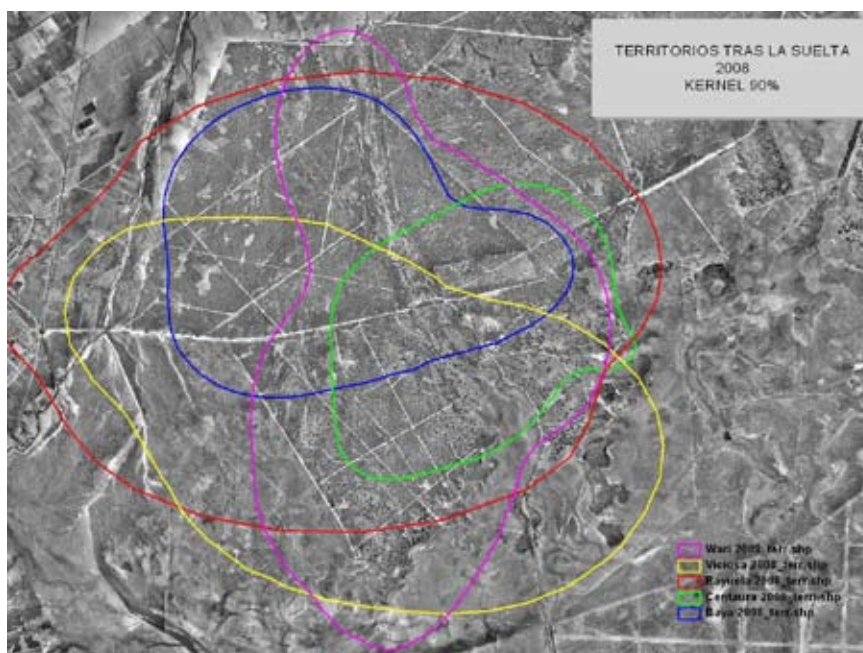


FIGURE 1 (B). REDISTRIBUTION OF TERRITORIES SIX MONTHS AFTER RELEASE.

FIGURA 1. (B). REDISTRIBUCIÓN DE TERRITORIOS SEIS MESES DESPUÉS DE LA SUELTA.

Ha acclimatization pen. The chain link enclosure was 3.85 m high with an additional 0.5 m buried underground. Inside the enclosure there were Supplementary Feeding Stations (SFS) as well as a den site. Prior to *Baya's* acclimatization to the release site, his own scats as well as scats from the three resident females were scattered in specific locations of the enclosure. Actual placement of the acclimatization pen was carefully chosen after evaluating the home-range overlap (using a 95% kernel) of the three territorial females (Figures 1a and b).

The final decision regarding the moment of actual release was determined taking the three following factors into account:

- Positive and continuous interactions (through the wire mesh) of *Baya* with the territorial females.
- Estimation of the timing of estrous of the three territorial females based on their birthing periods in previous years.



FIGURE 3. *BAYA* (ABOVE) AND *RAYUELA* (SITTING INSIDE THE SUPPLEMENTARY FEEDING STATION).

FIGURA 3. *BAYA* (ARRIBA) Y *RAYUELA* (SENTADA DENTRO DEL CERCADO DE ALIMENTACIÓN SUPLEMENTARIA).

FIGURE 2. MOMENT OF INTERACTION BETWEEN *BAYA* AND *WARI*, WHICH MARKED THE END OF THE ACCLIMATIZATION PERIOD.

FIGURA 2. MOMENTO DE INTERACCIÓN ENTRE *BAYA* Y *WARI*, QUE MARCÓ EL FINAL DEL PERIODO DE ACLIMATACIÓN.



- Establishing a maximum limit for holding the male in the pen if no interactions with females had been observed. It was decided that Jaunaury 10th would be the maximum waiting period, always considering the observed behaviours during the acclimatization phase.

In order to detect the different behaviours, the acclimatization enclosure was equipped with a robotized (365° movement) infrared camera that was operated by project personnel 24 hours per day. One of the main objectives to be attained with this effort was to learn as much as possible from this release in order to improve techniques future reintroductions.

Baya was released on January 1st, 2008 (Figure 2). Project personnel estimated that the animal was properly acclimated to the site, considering that there have been a large number of positive interactions through the mesh with the three territorial females present in the area. The actual release took place after one of the females spent more than a day in the vicinity of the enclosure, vocalizing towards the male and showing signs of estrous.

POST-RELEASE MONITORING

Intensive post-release monitoring efforts were conducted by the project's specialized staff in order to learn as much as possible from this release. These efforts continue to date but in a less intensive way.

RADIOTELEMETRY

After release, at least two daily locations were obtained from *Baya*. The animal was followed for a while if it presented activity and, at the same time, all three territorial females were also located. After two months, and given that *Baya* had established himself in the area, he was included in the regular radio-monitoring protocol, with at least 2-3 locations per week.

PHOTOTRAPPING AND TRACKING

Supplementary Feeding Stations and the bounder of the enclosure are equipped with photo-trapping cameras, which have allowed for a precise control of the animals and their use of the enclosures (Figure 3). Altogether, a total of 212 lynx photographs have been obtained from the six photo-trapping stations during a 6-month period (January through June).

MONITORING GENE FLOW

This genetic aspect of the project is monitored through two kinds of efforts: sampling of mixed-origin cubs for paternity tests (Godoy et al., this book), and identifying individual lynxes via scat collection. The latter method could become an effective and non-invasive way of studying gene flow throughout the Doñana population.

CONCLUSIONS

Six months after his release, we consider that *Baya* is effectively established in Coto del Rey, since he has never dispersed outside this nuclei. During the 2008 breeding season, *Baya* mated with the three adult females of this nuclei (Figure 1.B), although not with the 2-year-old subadult. Three of the eight mixed-origin cubs he has fostered have already reached dispersal age. We consider that this first stage of the re-stocking project, which involved ensuring the settlement of a Sierra Morena male in Doñana, has been successful. More time is needed to assess the genetic impact of this management action at the population level.

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