

Assessment of the Conservation Breeding Programme for the Iberian Lynx

Urs Breitenmoser and Alexander Sliwa¹

Introduction

The second visit of the international group to monitor and assess Iberian lynx conservation actions in the framework of the Bern Convention took place on 27 and 28 October 2003. In Madrid, the group met with the representatives of the Ministerio de Medio Ambiente (MIMAM) and in Sevilla with those of the Consejería de Medio Ambiente (CMA) of the Junta de Andalucía, respectively. Before this official visit of the international group, Urs Breitenmoser and Alexander Sliwa visited all sites and stations involved in the conservation breeding programme in Andalucía and discussed open questions and problems with people involved in the captive breeding or in lynx conservation activities in general.



Fig. 1. Young female Aura in El Acebuche breeding centre (Photo A. Sliwa).



Fig. 2. Hacinto/Ulysses in the quarantine enclosure in Los Villares wildlife rehabilitation centre. The male is infected with *Cytauxoon felis* (Photo U. Breitenmoser).

In June 2003, MIMAM and CMA signed a convention for the collaboration in regard to the conservation of the Iberian lynx in Andalucía. The two authorities have formed a bilateral commission, which has, according to the convention, the task to stimulate, to plan and to implement the co-ordinated conservation actions. The commission presently reviews all activities in order to make them as complete and efficient as possible. The Bilateral Commission is the ultimate decision making body for the conservation of the Iberian lynx in Andalucía. Although it is clear that for a comprehensive long-term conservation strategy, the critically endangered Iberian lynx will need to recover in many other areas in Spain and Portugal, the fact that the only two remaining nuclei with reproduction are both in Andalucía calls for specific, targeted and quickly implemented actions in this autonomous region. It is a glimmer of hope for the survival of the Iberian lynx that the Bilateral Commission now provides a strong leadership in the conservation of the species in Andalucía.

The aim of our visit in the captive breeding facilities and quarantine stations in Andalucía was to get first hand information on the conservation breeding programme regarding strategy, infrastructure and procedures, as we

¹ Dr. Alexander Sliwa is curator of the Wuppertal Zoo, Germany, co-chair of the EAZA Felid Taxon Advisory Group and member of the IUCN/SSC Cat Specialist Group.

were worried about the further delay of the captive breeding. In addition, we have also visited the rabbit breeding station in El Acebuche and some habitat amelioration and prey enhancement sites in the Doñana National Park and in the Sierra Morena near Andujar. Although we consider these parts of the conservation activities of high importance, we do not further mention them here², as the main goal – and presently the main concern – was the conservation breeding programme. This report is written on behalf of the Bilateral Commission. However, to make it understandable to less involved readers, we repeat some aspects well known to the members of the commission.

Programme, people and sites visited

Wednesday, 22 October:

- Journey Madrid – Mérida – Sevilla. Glance at the natural parks in the western Sierra Morena (future lynx recovery areas).
- Meeting with Miguel Delibes, Estación Biológica de Doñana, in Sevilla.

Thursday, 23 October:

- Visit of the lynx conservation breeding centre El Acebuche, meeting with Celia Sánchez Sánchez (responsible veterinarian) and Pablo Pereira (responsible keeper).
- Visit of the rabbit breeding station El Acebuche and meeting with Blanca Ramos Losanda, programme director and conservation director of Doñana NP.
- Trip to the habitat and rabbit improvement sites and to the lynx feeding stations in the Doñana NP with Blanca Ramos Losanda.

Friday, 24 October:

- Visit of some of the Junta de Andalucía and the WWF/Adena field project sites in the Sierra Morena north of Andujar with Luis Suarez and Alfonso Moreno (WWF/Adena) and Jose María Gil-Sánchez (Junta de Andalucía).
- Meeting with Miguel Angel Simon (Junta de Andalucía) and Luis Suarez (WWF/Adena).

Saturday, 25 October:

- Visit of Los Villares, the rehabilitation centre of the Junta de Andalucía near Cordoba, meeting with Raphael Cadenas (conservation officer Junta de Andalucía) and Jorge Velarde (veterinarian).
- Visit of the rehabilitation centre of Jerez de la Frontera Zoo, meeting with Iñigo Sánchez (director of Jerez Zoo and co-ordinator of the Iberian lynx conservation breeding programme) and Jose María Aguilar (veterinarian).
- Trip to Torremolinos and meeting with Astrid Vargas (co-author of the conservation breeding action plan for the Iberian lynx and designated new director of the conservation breeding programme).

Sunday, 26 October:

- Return trip to Madrid Barajas airport and meeting with Agnieszka Olsanska (co-ordinator Large Carnivore Initiative for Europe and member of the Bern Convention group).

Status of the two remnant populations

The situation of the two remnant populations, the Andujar and the Doñana occurrences, respectively, has stabilised at best. The use of camera-traps in the Doñana population has revealed a total of 37 individuals (including young and subadult animals; P. Pereira, pers. com.), or 50-70 in a more statistical approach. The population density within the park is very low, but there is more lynx activity in adjacent natural park areas, mainly to the west than before. The Andujar population is at present estimated to include 20-25 breeding females (J. M. Gil-Sánchez, pers. comm.). The total distribution area of the Andujar population is said to be not more than 150 km²! Cubs found this year numbered 26 for the Andujar population, but only 6 in Doñana³. Not only the small number of animals in either population, but also the very limited dispersion hangs over the Iberian lynx like a

² See also Report of the Visit of the International Committee for the Follow-up of Iberian Lynx Conservation Actions to Spain (17 – 19 March 2003), document prepared by the Directorate of Culture and of Cultural and Natural Heritage, Council of Europe, Strasbourg

³ Article in El Mundo, 4.9.2003.

Damocles' sword: Any additional catastrophic event – e.g. a forest fire – could destroy the core of such a small area.

Conservation breeding programme: animals in captivity

The two remnant populations in Andalucía are also the only possible sources for animals to be integrated into the conservation breeding programme for the Iberian lynx. There are at present (October 2003) seven lynx in captivity, four females and three males (Tab. 1, Fig. 1, 2). Only one animal is, however, really ready to reproduce this coming mating and breeding season: The 2-years old female Esperanza, a hand-reared and very tame animal. Another female, Morena, is now more than 12 years old and has never reproduced, and it is not sure that she ever will. Her contribution to a captive population would however be very important, as she is the only survivor of a now extinct nucleus from the eastern Sierra Morena and could contribute alleles otherwise lost for the gene pool forever. There is only one mature male in captivity (Fig. 2), in the Los Villares rehabilitation centre near Cordoba. He was not transferred to El Acebuche as intended, because he turned out to be infected with *Cytauxoon felis*, a blood parasite so far not known for European wild cat species. The infection was discovered in a blood smear via microscope in September and confirmed by PCR diagnoses. The second male in Los Villares, a young animal of last year, is also infected with *Cytauxoon* and was, in addition, positive for a Corona-virus?) via PCR. The third male, a juvenile kept in Jerez Zoo, is healthy.

Table 1. Iberian lynx in captivity (October 2003).

Sex	Age	Name	Facility	Origin	Remarks
F	13 ½	Morena	Acebuche	Andujar ¹	Almost certainly too old to breed.
F	2 ½	Esperanza	Acebuche	Doñana	
F	1½	Saliega	Acebuche	Andujar	Smallest kitten taken from a litter of three
F	1½	Aura	Acebuche	Doñana	
M	2 ½	Hacinto/Ulys.	Villares	Andujar	Infected with <i>Cytauxoon</i> .
M	1 ½	Fran	Villares	Andujar	Broken leg. Infected with <i>Cytauxoon</i> and Corona-virus.
M	¾	Cromo	Jerez	Andujar	Problem with front leg, recovering

¹The female was taken as a young animal in Andujar, but then brought to a facility in the parque Natural de las Sierras de Cazorla, Segura y las Villas, where at the time a now extinct occurrence still existed; but she never bred.

Breeding and rehabilitation facilities

There are three sites involved in the conservation breeding programme in Andalucía: (1) the El Acebuche centre in the Doñana NP, built in 1992 as a conservation breeding facility for the Iberian lynx; (2) the Los Villares wildlife rehabilitation centre of the Junta de Andalucía in Cordoba; and (3) the rehabilitation centre of the Jerez Zoo in Jerez de la Frontera. Acebuche is a well-designed breeding facility with eight large enclosures, each including a separable feeding cage with a capture box in the front and a separate den accommodation in the back (Fig. 3, 4). Each enclosure can be observed from a closed lookout, and video facility is pre-installed in the breeding boxes. Gates between all neighbouring pens can be operated from the outside. The breeding facility is completely enclosed by a blinded fence with electric wires on the outside to prevent any terrestrial animal to climb in. In addition, there is a quarantine house with three pens separated from the breeding facility.

Los Villares offers a shelter with three pens each in two rows to keep single lynx for a short while (Fig. 5). There are vertical sliding doors between neighbouring pens and peepholes in the inner doors. The facility is sufficient for animals to pass a quarantine, but not designed for captive breeding, as both, the installations for the animals and the setting up to observe the animals are limited. Los Villares has a large outside enclosure of about 1 ha, with trees, natural vegetation and running water where lynx can be rehabilitated. Technical installations are a blinded fence with electric topping, an observation tower, a lock to enter with a truck, and a capture system. Lynx in this enclosures are live-fed with rabbits.

Jerez Zoo has at present two relatively large pens to keep lynx under quarantine (Fig. 6). The pens are blinded against the outside, but otherwise, the technical installations are limited. A new conservation breeding centre is being constructed within the Jerez Zoo rehabilitation centre.



Fig. 3. Central part of El Acebuche breeding centre (Photo U. Breitenmoser).



Fig. 4. One of the eight enclosures at El Acebuche breeding centre (Photo A. Sliwa).



Fig. 5. Large enclosure at Los Villares wildlife rehabilitation centre (Photo A. Sliwa).



Fig. 6. Young male Cromo in the quarantine enclosure at Jerez Zoo (Photo A. Sliwa).

All three sites can offer quarantine facilities. In all sites, lynx could be kept with no or minimum contact to people; at Jerez Zoo, however, the rehabilitation centre is integrated in – although separated from – the zoo. Only Acebuche has at present good installations to socialise individual lynx with conspecifics under controlled conditions and to breed lynx in captivity. This refers not only to the setting up of the cages, but also to the surveillance and observation facilities installed. Los Villares, on the other hand, has a large enclosure perfectly designed for lynx to be trained before they are released to the wild. The combination of three quarantine stations, a specific breeding centre in El Acebuche and a good training enclosure in Los Villares allows for a complete conservation breeding programme from the capture of wild animals until the re-introduction of lynx to the wild.

Problems

The conservation breeding programme stalls for many years. There were and still are technical problems to be solved, but, in our opinion, the main problems are conceptual ones, and, above all, human dimension aspects: there is no common vision, a demonstrated lack of leadership, and a deep mistrust between the potential partners involved. We have identified the following problems and/or points that would need to be (re)discussed:

- Structural and organisational problems:
 - No clear conceptual integration of the exsitu and insitu parts of the conservation programme into a common (and widely accepted) vision.
 - Complicated and/or unclear organisational structures and/or responsibilities.
- Conceptual aspects:
 - Capture concept (smallest of a litter of three or subadult dispersers) is questionable regarding the fast build-up of a breeding stock.

- Co-operation and share of different tasks between the facilities to keep lynx in captivity must be clarified.
- Lack of central databases (dead animals and dissections, respectively; animals in captivity) obstruct the consultation of outside expert colleagues.
- Lack of alternative strategies or emergency concepts.
- Personal and human dimension problems:
 - Lack of experience in regard to conservation breeding and limited integration of people responsible for the conservation breeding into a professional environment. Outside expertise or peer review was not consequently searched.
 - Despondency of people involved after so many years without success.
 - Mistrust between people from the insitu and exsitu projects and apparent lack of will to co-operate.

The consequence of the structural shortcomings and the lack of co-operation was that decisions were not implemented or had to be re-negotiated over and over again. Valuable time was wasted (the El Acebuche breeding centre has been operative for eleven years without any cubs born in captivity!), and some genetic information still available in the early 1990s (e.g. from the female Morena) was irrevocably lost.

Assessment and recommendations

The Bilateral Commission has now given clear instructions (see below) how to overcome this deadlock. Yet, problems like new parasites diagnosed in the animals captured are emerging constantly, and many questions regarding the procedures and infrastructure still need to be solved. As Iberian lynx have never been bred in captivity, decisions must be based on comparisons with other species/situations. Even though we can hope that, like the other lynx species, Iberian lynx will be relatively easy to breed in captivity, there will still be a lot of questions to solve. As the target of this conservation breeding programme must be the immediate reintroduction of lynx, standard zoo-procedures may have to be adapted to this goal. This needs experience and needs time.

Decision making processes and responsibilities. The decision making processes seem to be unclear. The Acebuche team e.g. indicated that they do not know who is responsible for the assignment to capture additional male lynx. It is not enough to appoint a co-ordinator for the breeding programme; there must be a decision-making body with clear responsibilities in charge of the conservation breeding programme. This body must have competencies to decide about captures of animals in the wild, procedures in captivity, and transport of lynx and combination of pairs, and must be able and willing to take risks and to relieve the people working in the captive breeding programme from being responsible for the success and failure of the whole programme. The Bilateral Commission should agree and decide on an outline programme (especially regarding strategic questions) and then delegate detail and emergency decisions to the technical staff. Everybody involved should be aware of his/her responsibilities and competencies. Progress can only be made if the people are willing to gain further experiences – learning by doing! – and to take the risk to make mistakes. As long as decisions about details e.g. regarding the care of the animals are regarded so important to influence and delay the whole programme, no progress can be made.

Breeding capacity of the animals in captivity. There are now four females and three males in captivity. Hence, the first goal of the conservation breeding plan is formally achieved. In fact, there is only one female (Esperanza) and one male (Hacinto/Ulysses) in the age to mate and breed, and all females and males are in separate locations. The female Morena is too old to breed and she is already lost for the breeding programme. All other animals are too young to breed and will be able to do so only in the year 2005 (the females Aura and Saliega) and 2006 (the males Cromo and Fran), respectively. If no mature male is now brought to the females, at least four potential female-years will be lost.

All females are now socialised with the keeper. They will need to be socialised with their partners and be desocialised from humans. Esperanza is the tamest of all lynx, and it would be important to bring her in contact with a potential mate now. First, this would allow gaining experience with this process before the other two females are ready to breed too (and several socialising processes must be run in parallel), and second, each year

Esperanza continues to have social contact with humans only will make it more difficult to familiarise her with a conspecific.

Risk assessment. The health of the animals is a very important aspect for any captive breeding programme. In the situation of the Iberian lynx, however, veterinary considerations must not be the only aspects to decide on the fate of the animals. The risk to breed animals not totally free from any pathogens must be assessed with the risk of any further delay of the start of the breeding programme.

We recommend urgently to start the socialising process of Esperanza with a mature mate this fall/winter and to try to breed her next winter/spring. The loss of another year with Esperanza might also affect the breeding success with the two younger females! The health risk of the newly discovered blood-parasite *Cytauxoon felis* should be assessed by outside experts, and the above mentioned decision-making body should then decide, based on the report of the local veterinarians and the external review, whether Hacinto/Ulysses is brought to El Acebuche and socialised with Esperanza or not. In the case the decision is “no”, another physically healthy adult male (at least three years old) must be caught in the wild and – after a minimum delay through veterinary check-up – be brought to Esperanza. The Acebuche centre offers the possibility to keep Esperanza and her potential partner at a certain distance to the other lynx, and the enclosure is safe enough to avoid contacts to the wild lynx of the Doñana population.

Even if we assume that the decline of the two remnant populations has halted, there are good reasons not to wait another year with the start of the conservation breeding programme: (1) Both populations are very small in numbers and in distribution, and any additional threat or catastrophic event can bring them below a threshold where restocking is needed to maintain the populations vital. (2) At present, there is one female, Esperanza, ready to breed. In a year from now, there will be at least three. It would then be helpful to have already gained first experiences with the socialisation of Esperanza with a male. (3) It is important that the captive population grows quickly and can seed other conservation breeding programmes and that, as soon as possible, first reintroduction to the wild take place. It will be very difficult to maintain the field projects outside Andalucía, but also the funding and the public awareness over years without a clear perspective and a time plan for the return of the lynx.

Conclusions and addenda

We learnt only after our trip through southern Spain, when we met in Madrid and in Sevilla with the members of the Bilateral Commission, that an important decision was already taken by the commission: Dr. Astrid Vargas was nominated director of the conservation breeding programme. Astrid Vargas had already drafted the first captive breeding plan for the Iberian lynx. We very much welcome such a decision, not only because from her professional background and international experience, Astrid Vargas is highly qualified for this position, but also because we think that, with the now existing constellation of people involved in the captive breeding, it will not be possible to create a combined conservation project integrating insitu and exsitu programme parts. The mutual mistrust is simply too strong.

The new director – regardless to her professional qualifications – will however not be successful if the above-mentioned structural problems are not solved. Furthermore, all individuals and institutions involved in the conservation of the Iberian lynx on the technical level must now work together and overcome old differences of opinions to create an atmosphere of mutual trust. There can be no doubt that during the initial and critical phase of the conservation breeding programme, errors and setbacks will occur. Such foreseeable obstacles must be overcome according to our best available knowledge and should not lead to a further delay or another fundamental dispute over the conservation breeding programme. Risks will have to be taken. The highest risk and the biggest mistake, however, would be to further delay the conservation breeding programme and to lose more time.

The international monitoring group can provide external experiences and can assist the decision making process through the review of proposed procedures. We can so reassure the Bilateral Commission to continue the now started process and support essential decisions. As international institutions dealing with nature conservation, we feel that we all should share the responsibility for the fate of the Iberian lynx.