Iberian lynx update April 2012

Summary of a visit to the Iberian lynx conservation areas in Andalucía, southern Spain, 20–24 April 2012

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Abstract. When the Iberian lynx was up-listed to Critically Endangered in the IUCN Red List in 2002, the population was estimated less than 100 individuals, with only 43 mature animals. In 2004, the area of occupancy was 327 km², fragmented into two populations, Andújar-Cardeña and Doñana. A conservation breeding programme was started in 2003/04 that now includes a total of 77 mature lynx (40 males, 37 females) in 4 centres. 59 cubs were born from 20 females in 2012. As a result of several conservation projects in Andalucía, e.g. the *EC LIFE Lince* project, the two remnant populations have started to recover. Two new populations were founded in 2009/10 in the Sierra Morena, Guadalmellato and Guarrizas through wild-to-wild translocations from Andújar and the release of captive born lynx. End of 2011, the total population in the four populations was estimated 328 lynx, of which 132 mature individuals. The area of occupancy is now in the range of 860–890 km².

1. Introduction

The Iberian lynx *Lynx pardinus* has been listed as Critically Endangered in the IUCN Red List since 2002. The assessment was **CR C2a(i)**, based on the justification that the total population was below 250 mature individuals, with a continuous decline, and with no population containing more than 50 mature individuals. Only two remnant populations were detected in the range-wide survey (Spain: Guzman et al. 2003, Portugal: Sarmento 2002), both in Andalucía: the Doñana population with 18 and the Andújar population with 25 mature individuals (Appendix I). In the 2008 Red List assessment, the Iberian lynx was again listed **CR**. At that time, the two populations had actually already stabilised and started to increase, but the criteria for down-listing to Endangered were not yet met. With the continuous increase of the two autochthonous populations and the creation of two new nuclei through reintroduction (Fig. 1, Fig. 2, Appendix I), a new Red List assessment would now be justified.

From 20 to 24 April 2012, Urs Breitenmoser visited all four sites in Andalucía (Fig. 1; Appendix II) and met with colleagues from the EU Life+ Project "Iberlince" (Appendix III), who are responsible for most of the conservation activities and the monitoring, in order to gain first-hand information on the progress of the conservation of the Iberian lynx and the present status of the species.

2. Progress report

The recovery plan for the Iberian lynx bases on three pillars: (1) stabilisation and increase of the Andújar and Doñana population, (2) a conservation breeding programme, and (3) creation of further populations through reintroduction. All parts of the programme are developing well and have seen encouraging progress in recent years.

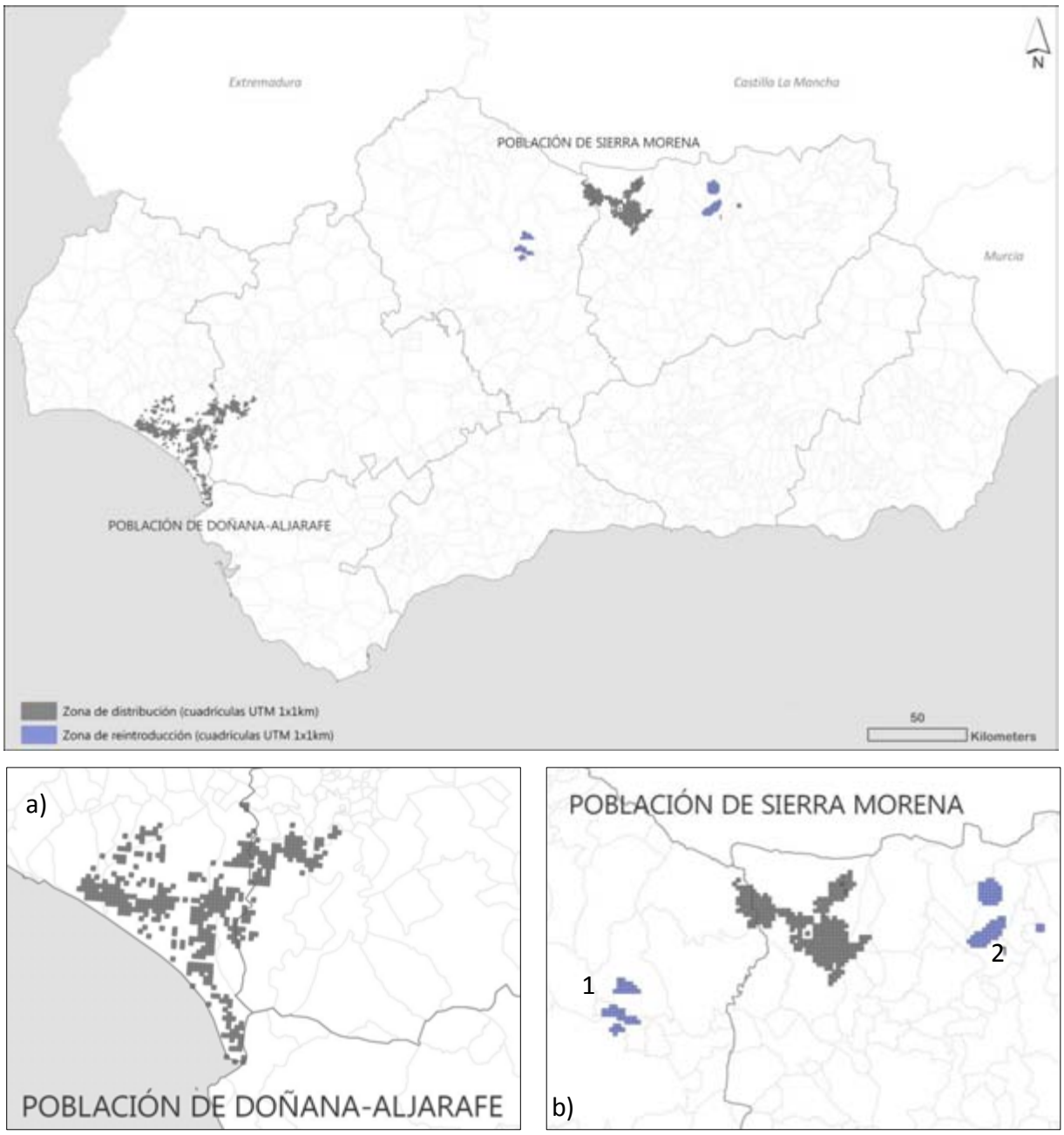

Fig. 1. Distribution of the Iberian lynx *Lynx pardinus* end of 2011 in Andalucía (above), with 1 x 1 km cells occupied in a) Doñana, and b) in the Sierra Morena. In dark grey the two autochthonous, in blue the two newly created populations Guadalmellato (1) and Guarrizas (2).

2.1. Autochthonous populations (Andújar and Doñana)

The increase of the Andújar-Cardeña population (Sierra Morena population in Fig. 1) was prominent and has added most to the increase of the total population of the Iberian lynx (Fig. 2). A total of 214 lynx were counted in 2011, of which 90 were considered mature animals (Appendix I). All numbers refer to lynx individually identified by means of camera trapping, hence to minimum estimates. Until recently, the Andújar-Cardeña population was split into two areas, but in the past two years, the gap between the two sub-populations was closed, and the area settled by resident reproducing females is now continuous (Fig. 1). The population is at its carrying capacity. Further expansion is unlikely, as the surrounding areas do not host high densities of rabbits *Oryctolagus cuniculus*. The

population was the source for the recent translocations to the newly founded Guarrizas and Guadalmellato populations.

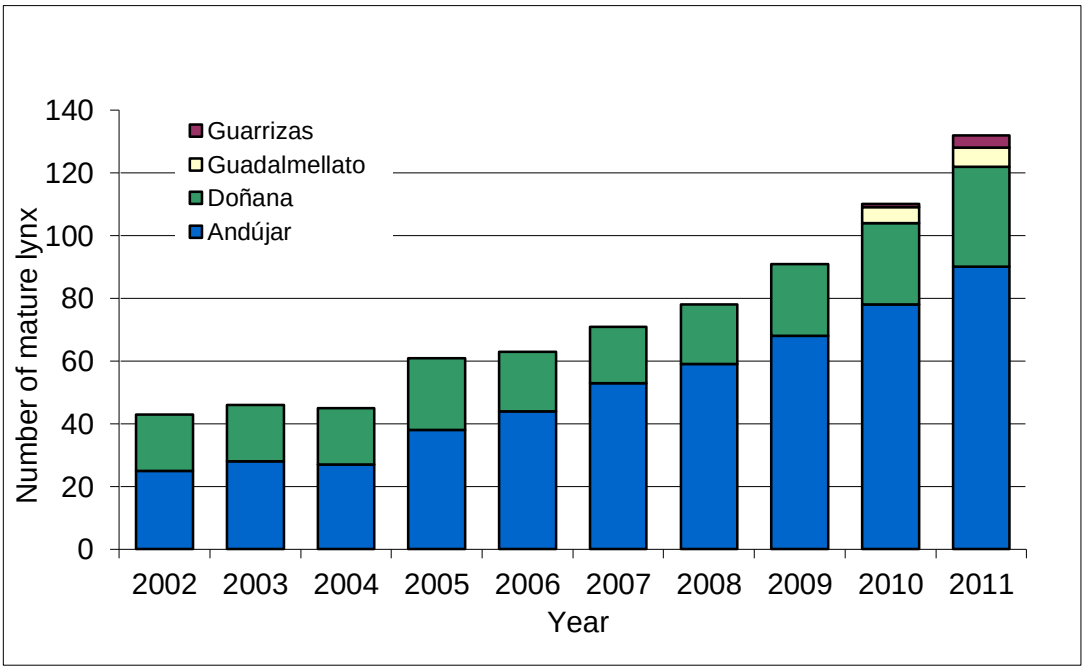

Fig. 2. Development of number of mature Iberian lynx in the two autochthonous and the two reintroduced populations in Andalucía, Spain.

The Doñana population has recently increased as well (from 18 mature lynx in 2002 to 32 in 2011; Fig. 2, Appendix I), though much later than and not as strong as the Andújar-Cardeña population. The reason for the slow increase was the low rabbit density and possibly an inbreeding problem. Three males and one female from Andújar were released in Doñana, and this seems to have boosted the population, but further data are needed for a definite assessment.

Fig. 3. Distribution of the Doñana population in a 1 x 1 km grid. The green area indicates Doñana National Park.

The core of the Doñana population is no longer in the National Park, but in areas north and north-west of the park, mainly in the Nature Park surrounding the National Park (Fig. 3). But lynx are increasingly observed in not protected areas along river beds and in brush land amidst estates. The use of such multi-use landscapes opens new perspectives for the creation of a meta-population connected through corridors.

2.2. Captive breeding programme

The captive breeding programme started in 2003/04 with 1 male and 4 female Iberian lynx in the Acebuche Centre. Now, the programme includes a total of 77 mature lynx (40 males, 37 females) in 4 centres. 2012 was so far the most successful breeding year, with a total of 59 cubs born from 20 females. 45 were still alive end of April: 10 in Acebuche, 15 in Olivilla (both Andalucía), 3 in Granadilla (Extremadura), and 17 in Silves (Portugal). The increase of the captive population was so swift that the programme urgently needs to increase the capacity, both for holding animals in captivity and for reintroduction sites to release the yearlings (chapters 3 and 4). The (genetic) goals set for the conservation breeding programme will soon be reached. According to the model run by J. A. Godoy (pers. com.), another 3 males from Doñana should be integrated into the programme.

Fighting between cubs at an age of about 6 weeks (an observation that horrified the captive breeding team in Acebuche some years ago) is still observed, but the keepers now only intervene if the mother is not handling the fight properly, as any human interference might hamper the socialisation of the cubs. The socialisation phase and the entire ontogenesis is handled with no or a minimum of interactions with humans, in order to prepare the cubs for living in the wild. They are regularly fed with live rabbits and infrequently with birds to learn hunting. Before cubs are brought for soft or hard release to the reintroduction sites, they are taken out of the mother's pen and trained in special larger enclosures. However, the observations so far confirm that the key to successful re-wilding is the correct socialisation with conspecifics.

2.3. Reintroduced populations (Guarrizas and Gudalmellato)

To create new sub-population of the Iberian lynx, two reintroduction sites in the Sierra Morena with a sufficient density of rabbits and within dispersal distance of the Andújar-Cardeña population were selected: Guadalmellato to the south-west and Guarrizas to the east (Fig. 1). In both areas, reintroduction started in 2009/10.

Fig. 4. Soft release enclosure in Guarrizas reintroduction site.

Fig. 5. Mixed landscape near Guadalmellato reintroduction site.

18 lynx have been released to the two sites from 2009 to 2011 (12 in Guadalmellato and 6 in Guarrizas). 15 lynx were wild-caught animals from the Andújar-Cardeña population, 1 female came from the Doñana population and in 2011, the first 2 lynx from the captive breeding programme were released (Simón et al. 2012). Early 2012, an additional 14 captive-born lynx were released in the two reintroduction areas. In the beginning, the lynx were soft-released, that is they were put into an acclimatisation enclosure (Fig. 4). Now, with an increasing number of animals released and with resident animals already present in the area, hard release is used, too. Hard-release protocols would considerably reduce the costs for reintroductions. 11 wild-born cubs were already recorded in Guadalmellato (Simón et al. 2012; Appendix I).

Some of the released lynx have died or dispersed from the release sites. One female travelled north into Castilla-La Mancha and was there accidentally killed in a box trap in a private hunting estate. Several lynx from the Guadalmellato reintroduction site moved south to the foothills of the Sierra Morena, into a multi-use landscape with mixed shrub land and olive tree plantations (Fig. 5). This group of lynx was joined by an animal dispersing from the Andújar-Cardeña population. These anecdotic observations reveal that the mixed landscape can indeed provide suitable living space for lynx and that animals also use such landscapes for dispersal. The rabbit density in the extensively managed olive plantations is often higher than in natural habitats. The consequence of this finding is that the total size and capacity of the reintroduction areas is judged to be considerably higher than projected, and that more lynx will be released to these two areas, especially to Guadalmellato.

3. Conclusions

The situation of the Iberian lynx is much better than 10 years ago, when the species had to be listed as CR. The two remnant populations have not only survived, but increased: The Doñana population about 2-fold, the Andújar-Cardeña population even 4-fold (Appendix I). The conservation breeding programme has reached its goals faster than expected and is now producing a good number of lynx for reintroduction, and the training protocols for re-wilding the animals are successful. The first two reintroduction projects are very promising, though this can be, 2.5 years after the first releases, only a preliminary conclusion. However, the recovery of the species is still in an early stage and the success so far was based on an outstanding input, thanks to the enormous financial support from the European Commission's LIFE programme and the strong commitment of the Junta de Andalucía and other Spanish institutions. Now, as the recovery programme needs to be geographically enlarged, new challenges are coming up.

3.1. Challenges in the new LIFE+ Iberlince Project

The new LIFE+ project "Iberlince" LIFE10 NAT/ES/000570[1], running from 1 September 2011 to 31 August 2016, includes not only Andalucía, but also Castilla-La Mancha, Murcía, Extremadura, and Portugal. The first serious problem is the critical economic situation in Spain and Portugal. Although 61.5 % of the total budget of over 34 million Euros is provided by the European Commission, some of the regional partners have announced difficulties to provide their in-kind contributions. If with such a financial support of the EC the continuation of the project is uncertain, it is likely that the recovery

[1] http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=4053

activities will cease when the support from the LIFE+ programme comes to an end[2]. This has two obvious consequences for the continuous recovery of the Iberian lynx: (1) the "point of no return" needs to be reached during the present Iberlince project period, and (2) the project must develop and test much cheaper methods to recover the Iberian lynx than the present approach (e.g. preparation of habitat, recovery of rabbit populations, breeding of lynx, release and post-release monitoring protocols). Such a methodology may bear higher risks of failure, but this can probably be accepted in the future, when the population has recovered to a certain degree.

The immediate challenge is to integrate the new partners into the on-going project and to implement a common and generally accepted recovery strategy. This concerns mainly the spatial plan for the re-establishment of one or several meta-populations. A wealth of experience is now available from the project in Andalucía, but it will not be easy to transfer this to the other provinces and to Portugal, especially in regard to the integration of private landowners into the recovery programme.

3.2. New Red List assessment

The Iberian lynx population has seen a continuous increase for seven years since 2004 (Fig. 2) and counts now 132 mature individuals (Appendix I). As Criterion A or C (population decline) are no longer valid, a new assessment should be done under Criterion D, considering the number of mature individuals (Appendix I) and the area of distribution (Tab. 1). The number of mature individuals has been above the threshold for CR of 50 animals for seven years (Fig. 2). The Extent of Occurrence EOO, roughly calculated as the convex polygon including all four occurrences is over 14,000 km², but this is of course meaningless considering the huge distance between the Sierra Morena and the Doñana subpopulations with a lot of unsuited habitats in between. Data to estimate the Area of Occupancy AOO are compiled in Tab. 1. The available information is somewhat inconsistent, but even a conservative estimation based on UTM grid cells occupied (Fig. 1; Tab. 1) reveals that the AOO was over 700 km² in 2011.

Tab. 1. Iberian lynx distribution according to area of occupancy AOO (source: Junta de Andalucía 2012) and grid cells occupied from Fig. 1.

Population	2004	2011	
	AOO [km²]	AOO [km²]	No. of cells Fig. 1
Andújar-Cardeña	153	282	311
Doñana	174	591	452
Guadalmellato	-	-	48
Guarrizas	-	-	79
Total	327	861	890

In 2013, five years will have passed since the last assessment. According to our preliminary judgement, the Iberian lynx would be listed as Endangered under Criterion D. One additional aspect however needs to be considered: Rabbit enhancement projects are continued in all four areas. Hence the question arises whether the Iberian lynx population can be considered self-sustaining.

There is a fear in Spain and Portugal, that down-listing form CR to EN could corrupt the commitment of GOs and donor organisations to continue the conservation efforts. Considering the problematic economic situation, we share such concerns. We however think that the Red List rules must be ap-

[2] LIFE+ calls will end in 2013. The possible continuation of the programme is not decided yet.

plied without any (political) considerations. Furthermore, down-listing can also be a motivation to continue the path of success. The Iberian lynx will still be Endangered, and this is by no means a situation to be tolerated.

We have agreed with the Iberlince team that a new Red List assessment should base on a (published) scientific review. The lynx team in Andalucía will now review the status of the Iberian lynx and summarize it in a paper submitted to a peer reviewed journal. This would also offer the opportunity to include a quantitative assessment in form of a population viability analyses under Criterion E.

3.3. Further contributions of the IUCN/SSC Cat Specialist Group

We have followed the progress of the Iberian lynx conservation projects since the species was uplisted to CR in 2002. The work in Andalucía advanced well during the 2006–2011 LIFE Naturaleza Iberlince project. The recovery programme now enters a new phase, with new and inexperienced actors being involved. Several fields of cooperation between the Iberlince project and the Cat SG were discussed during the visit:

- Periodic review of the progress: The Cat SG can supervise the general advance of the project. In 2011, we have done the final review of the WWF Iberian lynx project, and as we are also in contact with other partners in Spain and Portugal, we can help with assessments without being a stakeholder.
- Dissemination of progress reports: The Iberlince project will submit twice a year a short update report to the Cat SG. These reports will be reviewed by the co-chairs. A summary will be published in each issue of Cat News, and the full progress report will be posted at the same time on the Cat SG website. The first progress report will be launched in fall 2012 and will be a short summary of the LIFE Iberlince project.
- Advice in strategic and long-term planning of the recovery and the re-establishment of metapopulation(s). The present strategy aims to downlist the species form CR to EN. This will soon be reached. The next step will then be to reach the status of VU. This should be feasible within a reasonably and foreseeable timeframe.
- Facilitate integration of the zoo world: The conservation breeding centre need to get rid of lynx, which are no longer needed for breeding but cannot be released to the wild. Such animals could be integrated into zoos. In the long run, the entire conservation breeding programme and at least part of the production of lynx needed for reintroductions should be transferred to the zoos.

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Appendix I: Development of the Iberian lynx populations since 2002

Andújar-Cardeña autochthonous population

Individuals	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*
Adult females	15	17	18	25	27	32	34	39	45	52
Adult males	9	10	9	12	16	21	25	29	33	38
Adult indet.	1	1	0	1	1	0	0	0	0	0
Subadults	12	21	23	28	35	35	42	50	54	56
Juveniles	16	11	29	23	54	22	59	49	59	68
Total	53	60	79	89	133	110	160	167	191	214

Doñana-Aljarafe autochthonous population

Individuals	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*
Adult females	9	10	11	14	10	11	14	19	18	19
Adult males	8	8	7	9	9	7	5	4	8	13
Adult indet	1	0	0	0	0	0	0	0	0	0
Subadults	11	13	14	12	11	18	16	23	29	36
Juveniles	12	8	11	10	13	12	19	20	22	20
Total	41	39	43	45	43	48	54	66	77	88

Gudalmellato reintroduced population

Individuals	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*
Adult females									3	4
Adult males									2	2
Subadults									2	6
Juveniles									3	7
Total									10	19

Guarrizas reintroduced population

Individuals	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*
Adult females									1	2
Adult males									0	2
Subadults									0	3
Juveniles									0	0
Total									1	7

Total free ranging mature individuals (adult males + females) of *Lynx pardinus*

Mature lynx	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*
Andújar	25	28	27	38	44	53	59	68	78	90
Doñana	18	18	18	23	19	18	19	23	26	32
Guadalmellato									5	6
Guarrizas									1	4
Total	43	46	45	61	63	71	78	91	110	132

Appendix II: Agenda of the visit 20–24 April 2012

Friday, 20 April 2012

- Morning: Travel with Klaus Feichtenberger (Terra Mater Film) and Patrik Frischknecht (nature photographer) from Badajos airport to Santa Elena.
- Afternoon: Visit Guarrizas reintroduction area, interview for film, 2 soft-release enclosures.
- Overnight stay at La Olivilla breeding facility.

Saturday, 21 April 2012

- Morning: Centro de Cria en Cautividad del Lince Ibérico La Olivilla: Discussion of conservation breeding programme and training of young lynx with Maria-José Pérez-Aspa, Miguel Angel Simón and Guilllermo López.
- Afternoon: Visit of newly settled lynx areas near Montoro (olive plantations).
- Discussion with Miguel Angel Simón, Guillermo López, José Maria Gil-Sanchez about scientific data for new assessment in regard to down-listing.
- Overnight stay at Cordoba.

Sunday, 22 April 2012

- Morining: Visit at newly settled areas around Adamuz (mixed landscape).
- Afternoon: Visit of soft release enclosure 1 in Guadalmellato reintroduction area.
- Overnight stay in Sevilla.

Monday, 23 April 2012

- 09:00 Meetings with Javier Madrid Rojo, Director General Media Ambiente JdA, and José Juan Díaz Trillo, Consejero (Minister) Media Ambiente JdA.
- 10:00 Interviews with Canal Sur (TV channel Andalucía) and Europa Press (newspaper).
- 12:00 Visit Doñana area and corridors across the highway E1-A49 with Iberlince Doñana team (Genma Ruiz, Marcos López and Leonardo Fernández).
- Overnight stay in Sevilla.

Tuesday, 24 April 2012

- 09:00 Cordoba: Meeting with Miguel Aymerich (MARM), Miguel Angel Simon (Life Lince) and Raphaël Cadenas (JdA)
- 13:30 Madrid: Meeting with Luis Suarez and Ramón Pérez de Ayala, WWF Spain

Appendix III: People met during the visit

Name	*Affiliation/function*	*Email*
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