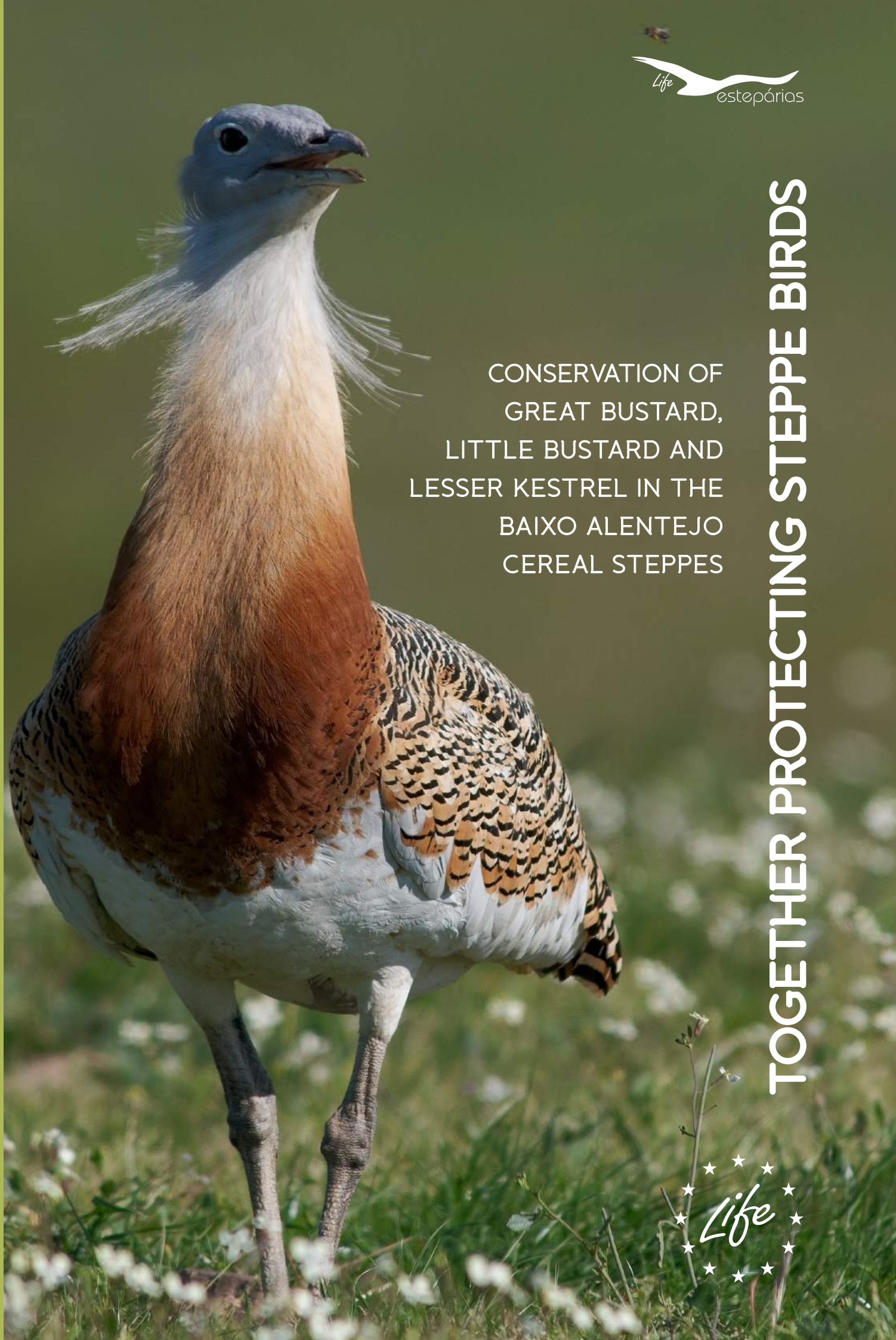
LAYMAN'S REPORT

PROJECT LIFE ESTEPÁRIAS LIFE07/NAT/P/654



TOGETHER PROTECTING STEPPE BIRDS

CONSERVATION OF GREAT BUSTARD, LITTLE BUSTARD AND LESSER KESTREL IN THE BAIXO ALENTEJO CEREAL STEPPES

THE SPECIES: **GREAT BUSTARD, LITTLE BUSTARD AND LESSER KESTREL**

CONSERVATION STATUS ENDANGERED

GREAT BUSTARD
(*Otis tarda*)

ORDER Gruiformes FAMILY Otididae

DESCRIPTION

Large ground bird.
It presents accentuated sexual dimorphism, being the males larger and heavier (sometimes weighing up to 16 kilos) than the females.

SIZE

Wingspan: 190–260cm Weight: 6kg–16kg

HABITAT

Typical bird of open areas: they occur in natural steppe, pastures/grasslands and pseudo steppe.

FEEDING

Green spontaneous plants, seeds and invertebrates. Insects during juveniles growth stage.

BREEDING

Occurs between the end of March and June; males use specific areas – lek areas – for the breeding display; nesting areas are cereal crops or fallows; 2 to 3 eggs are laid on the ground; the hatchlings hatch after 21 to 28 days of incubation and they are nidifugous (leave the nest short after they hatch, following the parent) and feeding on insects.

OTHER CHARACTERISTICS

The heaviest flying bird in Europe, sometimes called the “Queen” of the steppe.

CONSERVATION STATUS VULNERABLE

LITTLE BUSTARD
(*Tetrax tetrax*)

ORDER Gruiformes FAMILY Otididae

DESCRIPTION

Medium-sized bird, being the females slightly smaller than the males. Males have a greyish head and a black and white collar by the neck (during spring). Females are more greyish brown and juveniles are similar to females.

SIZE

Wingspan: 105–115cm Weight: 700–950g

HABITAT

Typical bird of open areas: they occur in natural steppe, pastures/grasslands and pseudo steppe.

FEEDING

Green spontaneous plants, seeds and invertebrates. Insects during juveniles growth stage.

BREEDING

Starts at the end of March; the males establish territory in fallows and pastures – lek areas – where the breeding display takes place, it involves a calling and a jump with flapping of the wings; the nesting area is in pastures with high vegetation; 3 to 4 eggs are laid directly on the floor, covered by vegetation; after 22 days, the hatchlings hatch and are nidifugous; during their first weeks of life, the hatchlings need a diet exclusively composed of insects.

OTHER CHARACTERISTICS

Males emit a characteristic sibilant whistle, produced by the wind flapping on a primary feather, which originated its common name in Portuguese, “Sisão”.

CONSERVATION STATUS VULNERABLE

LESSER KESTREL
(*Falco naumanni*)

ORDER Falconiformes FAMILY Falconidae

DESCRIPTION

Small falcon of long and narrow pointed wings. The species presents sexual dimorphism, both in what concerns feathering (males present grey tones on the head and tail) and size (females are slightly larger).

SIZE

Wingspan: 58–72cm Weight: about 200g

HABITAT

Typical bird of open areas: they occur in natural steppe, pastures/grasslands and pseudo steppe.

FEEDING

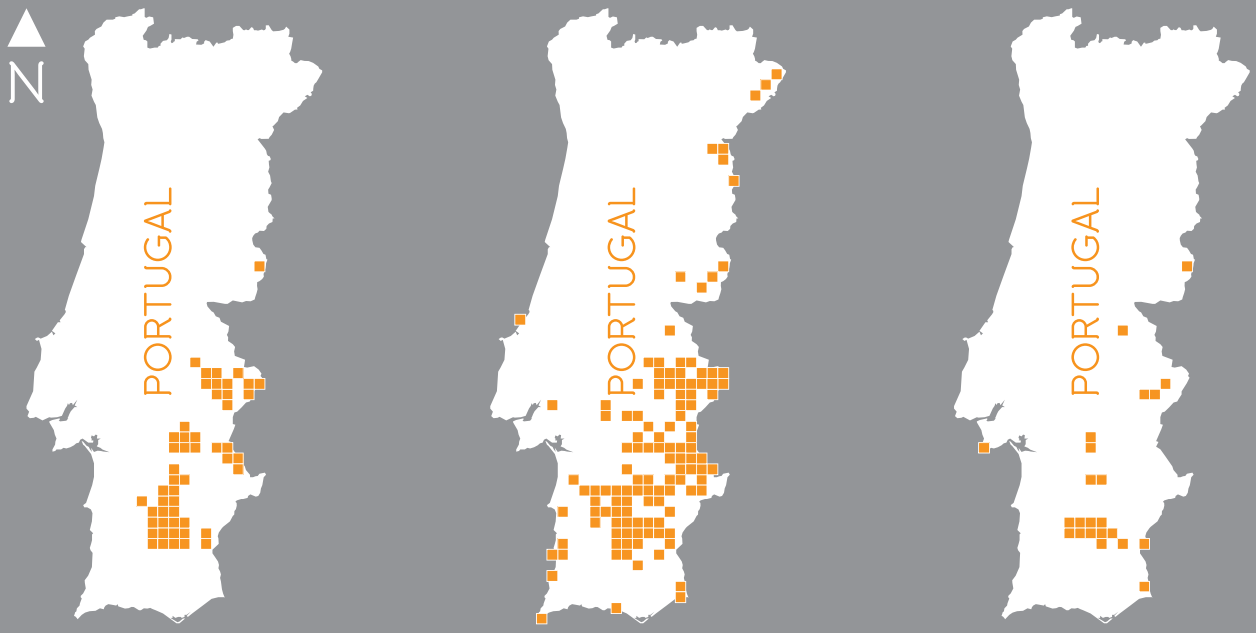
Insects (mostly), small mammals, birds, reptiles and amphibians.

BREEDING

They nest in holes in structures built by men (castles, churches, old houses, etc.), forming colonies that can have up to 500 couples; the couple remains together throughout the breeding season and shares the tasks regarding nesting; the hatch has between 3 and 5 eggs and the hatchlings depend on their progenitors after they are born, only being able to fly after about 6 weeks.

OTHER CHARACTERISTICS

It is a summer migratory species (winters in the African Continent) and has the ability to “hover”, hence its common name in Portuguese “Peneireiro”.



NATIONAL DISTRIBUTION

Mapping of records for probable and confirmed nesting locations of the species according to the “Atlas of Nesting Birds in Portugal” (1999-2005)

WHAT ARE CEREAL STEPPES?

In Portugal there are no true steppes but the **centenary existence of extensive farming "created" a habitat of similar characteristics**, located essentially on the Alentejo plains.

Agriculture based on the rotation between dry cereals crops (such as wheat, oat or barley) **with fallow lands,** in which the land "rests" in order to recover its fertility and is simultaneously used as grassland, lead to the creation of a habitat similar to the steppes, which is called **cereal steppes, cereal plains or pseudo-steppes**, because it was originated by human action.

Throughout the past centuries, many species, including birds, mammals, reptiles, amphibians and insects, have adapted to this habitat creating an ecosystem that depends on the maintenance of extensive agricultural activity.

The Great Bustard, Little Bustard and Lesser Kestrel are three of the species considered as steppe species because they depend on the preservation of this type of habitat and **function as symbols for the conservation of this unique ecosystem**.

The term steppe has its origin in the Russian word "stepj", which means a plain with no trees, composed basically by herbaceous plants.

THREATS

GREAT BUSTARD & LITTLE BUSTARD

LOSS AND FRAGMENTATION OF THE HABITAT

- Transformation of dry farming into irrigated farming or permanent crops
- Afforestation of farming lands
- Abandonment of the rural environment, with the emergence of scrub forests
- Disappearance of nesting holes
- Human pressure (roads, dams, etc.)
- Disappearance of fallows

HABITAT DEGRADATION

- Increase in the cut of hay during the nesting season
- Overgrazing
- Agricultural mechanization
- Use of agrochemicals
- Human disturbance

IMPACT OF FENCES

- Collision against barbed wire
- Barrier effect

IMPACT OF POWER LINES

- Collision against power lines
- Electrocution on the poles

OTHER

- Nest robbery
- Predation
- Climate changes

LESSER KESTREL

Project LIFE Estepárias

Everything began with the need to protect the habitat of the emblematic steppe birds that still occur in Portugal.

Project LIFE Estepárias "Conservation of Great Bustard, Little Bustard and Lesser Kestrel in the Baixo Alentejo cereal steppes" arose with the intention of **promoting the conservation of the Great Bustard, Little Bustard and Lesser Kestrel on their main areas of occurrence in Portugal**, in a long-term conservation perspective, and to contribute for the management of the Natura 2000 Network.

The three target species of this project are steppe birds **with urgent need of conservation measures, highly vulnerable to changes in farming practices** which, in the recent past, **caused the loss and fragmentation of their habitat.**

OBJECTIVES OF PROJECT LIFE ESTEPÁRIAS

- Promote the participation of farmers and hunters in the conservation of steppe birds
- Definition of adaptation measures and minimization of climate change
- Promote public participation
- Raise awareness and improve the dissemination of good management practices for the protection of steppe birds
- Maximize game management for the protection of steppe birds
- Protect the breeding display areas of the Great Bustard
- Minimize the impact of power lines (collision and electrocution)
- Minimize the impact of fences (collision and barrier effect)
- Promote the population reestablishment of the Lesser Kestrel
- Implement a recovery program for wounded steppe birds

WHERE DID PROJECT LIFE ESTEPÁRIAS TAKE PLACE?

Project LIFE Estepárias developed actions in four SPAs of the Natura 2000 Network in the Baixo Alentejo region: Castro Verde, Piçarras, Vale do Guadiana and Mourão/ Moura/Barrancos.

The Natura 2000 Network is the fundamental ecological network of the European Union, which consists of a set of essential areas for the preservation of natural habitats, fauna and flora, making it compatible with the economic, social and cultural demands.

The Natura 2000 Network is composed by Special Protection Areas (SPAs), for the protection of wild birds, and by Special Areas of Conservation (SAC), for the protection of habitats, fauna and flora.

HOW DID PROJECT LIFE ESTEPÁRIAS START?

The knowledge of the intervention areas and the experience of LPN with steppe birds were very relevant for the implementation and start of Project LIFE Estepárias.

Also, the collaboration with several organizations and researchers provided basic information for the creation of a Geographic Information System (GIS), which compiled, in a geo-referenced database, the existent scientific information about the project's target species and territorial data (such as power lines, game areas, parishes, municipalities and boundaries of the Natura 2000 Network). For this GIS some specific surveys were also conducted, such as fences and properties, among other data. This GIS was crucial for supporting and substantiating the implementation of the habitat management measures.

To execute some of the actions it was necessary to establish **Agreement Protocols with land owners (9 protocols) and game managers (12 protocols)**. To achieve these agreements, we carried out several contacts on the field, which were also useful for the dissemination of the Project.

Habitat protection for steppe birds

The breeding display areas, or*Lek* areas, represent the most sensitive locations for the Great Bustard. The areas with the most appropriate conditions for the display and establishment of hierarchies of the Great Bustard males are very specific sites, where disturbance must be reduced. In these areas it is crucial to maintain a favorable habitat conservation condition with an appropriate agricultural management.

These lands are also breeding areas for Little Bustard and foraging grounds for Lesser Kestrel.

The management of the acquired lands included:

- *The promotion of farming management compatible with the conservation of the steppe birds, by maintaining a rotation between dry cereal crops and fallows;*
- *The minimization of the impact of fences through the removal, signalization and installation of fauna pass ways;*
- *The minimization of hunting disturbance with the implementation of a refuge area, without game activities;*
- *The improvement of the breeding conditions for Lesser Kestrel with the building of a breeding tower with 80 new nest cavities.*

These new lands complement the **Biodiversity Reserves network held by LPN in the Castro Verde SPA, exclusively dedicated to the long term conservation of steppe birds**, which currently comprises a total of 1812 hectares.

Great Bustard in breeding display.

*With Project LIFE Estepárias LPN acquired **168 hectares of land in the Castro Verde SPA for the protection of display and nesting areas of the Great Bustard.***

Re-establishing reproduction areas for the Lesser Kestrel

Breeding tower for Lesser Kestrel. This structure comprises 80 new nesting spots.

To minimize predation, the dimension of the entry hole was adjusted to the size of the Lesser Kestrel, avoiding the access to flying predators, and a slipping strip was placed to avoid predation by climbing (of garden dormouse, for instance) or crawling species (snakes, for example).

The Lesser Kestrel is a colonial falcon, which, in Portugal, nests mostly in holes existing in buildings walls and rooftops.

Formerly this species nested in old churches, castles and walls, being common in many cities and towns of the Alentejo region. But the refurbishment of these areas eliminated the holes used for nesting and this bird became extinct in many sites.

Currently, the Lesser Kestrel nests on old rural houses that have become uninhabited. With time these houses begin to crumble, leading to the disappearance of the existing colonies.

One way to make good breeding sites available and to avoid the disappearance of this species from the Alentejo plains is by building specific structures.

During Project LIFE Estepárias ***two new nesting towers were built, creating a total of 160 breeding sites.***

The towers present a larger duration than the nest-boxes and are technically more effective against the high temperatures registered during heat waves.

One of the towers was built in the Mourão/Moura/Barrancos SPA with the objective of bringing the Lesser Kestrel back to this region. The other tower was built in the land acquired by this project in the Castro Verde SPA.

Lesser Kestrel using an artificial nest.

Fences, the danger of collision and habitat fragmentation

The depopulation of rural areas over the past decades has induced changes in the management of farms in the steppe plains. The use of fences for livestock management is one of the most common solutions.

For birds like the Great Bustard, **fences represent insurmountable barriers**, especially when the juveniles are not yet able to fly to follow their parents and only walk.

In the display areas of Great Bustard, **the setting of fences stops the free circulation** of males during the "combats" to establish hierarchies and during the breeding displays for the females, which can lead to the disappearance of the species from those sites.

On the other hand, there is the danger of **collision against the barbed wire fences**, which may result in serious injuries or even in the death of birds.

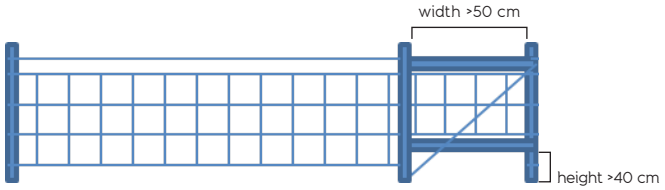
Throughout Project LIFE Estepárias different interventions were carried out to minimize the impact of fences and conciliate the agricultural and livestock activities with the protection of steppe birds.

2km of fences were removed in three breeding display areas of Great Bustard, making it easier for the birds to circulate freely.

To minimize the barrier effect of the fences, different types of wildlife pass ways were studied, namely for Great Bustard: soil depression, alternated poles, door in areas with bovine herds and smaller door in areas with ovine herds. During Project LIFE Estepárias LPN proceeded to the **installation of 184 pass ways in 28km of fences.**

*In the Castro Verde SPA, LPN conducted a survey of the fences in breeding display areas of Great Bustard. In about **10% of this SPA (8500 hectares) more than 300km of fences were mapped.***

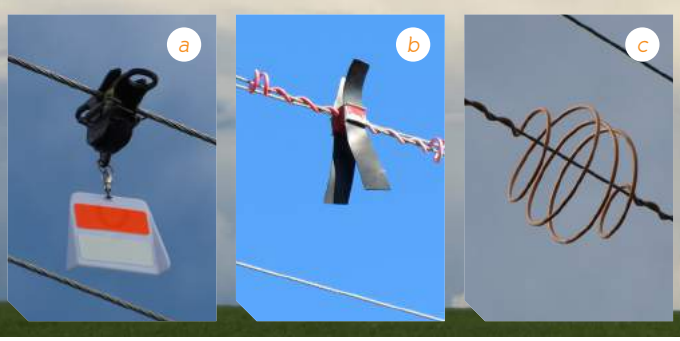
a) The barbed wire fences represent a deadly danger for the Great Bustard.
*b) The signalization of fences to avoid the collision was tested. **PVC plaques of two different colours (black sheets and white sheets)**, to maximize the contrast in different visibility situations, were chosen as the best practice to implement. **This was implemented in a 41km extension**.*



Scheme of a lower wildlife pass way of the "door" type (bovine herd).

The wildlife pass way of the "door" type for explorations with bovine herds was used by Great Bustard.

Power lines and the threat of collision and electrocution



Power lines signal devices of type a) "Rotational fireflies", b) "Ribbons fireflies" and c) "Double Spiral": ***the "Rotational firefly" have proven to be the most effective in the reduction of the mortality of Great Bustard and Little Bustard by collision.***

The power distribution lines may cause mortality in birds by collision with the power cables or by electrocution on the supports (poles), depending on the behaviour of the species.

Recent studies show that currently one of the most menacing threats for the conservation of Great Bustard and Little Bustard is the collision against power lines, being that these species are the most affected by this threat.

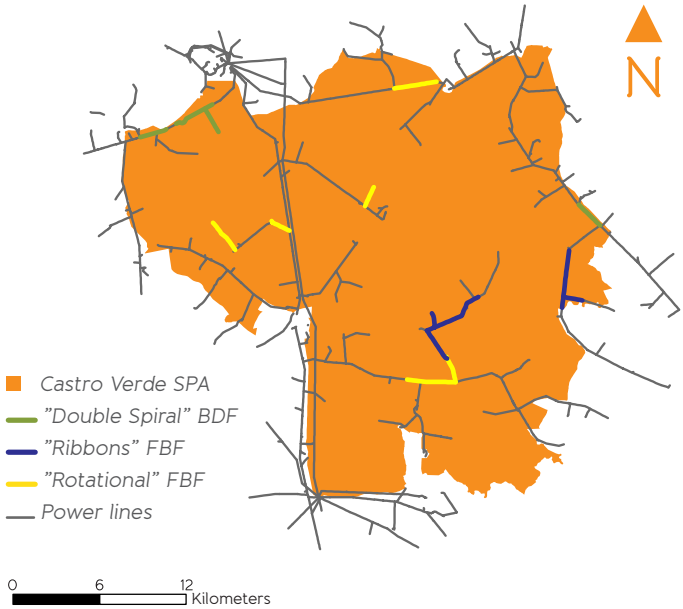
In the case of the Lesser Kestrel, that uses the poles as perches, there is the danger of electrocution.

This intervention involved the signalization of the medium voltage power cables with **three types of anti-collision signals**:

- *FBF (FireFly Bird Flappers) of the type "Ribbons": 14,9km;*
- *FBF of the "Rotational" type: 15,2km;*
- *BFD (Bird Flight Diverter) of the type "Two coloured double spiral": 9,8km.*

The supports of the most dangerous typologies for birds (namely the rigid triangle) were also corrected through the **isolation of the live parts**. The horizontal load switches were also corrected and placed in a vertical position. **In total, 146 supports were corrected.**

Power lines corrected throughout Project LIFE Estepárias.



During Project LIFE Estepárias, ***EDP Distribuição conducted a correction of 40km of power lines in the Castro Verde SPA****, which were considered to be dangerous to the Project species.*

Studying the impact of climate changes in the populations of steppe birds

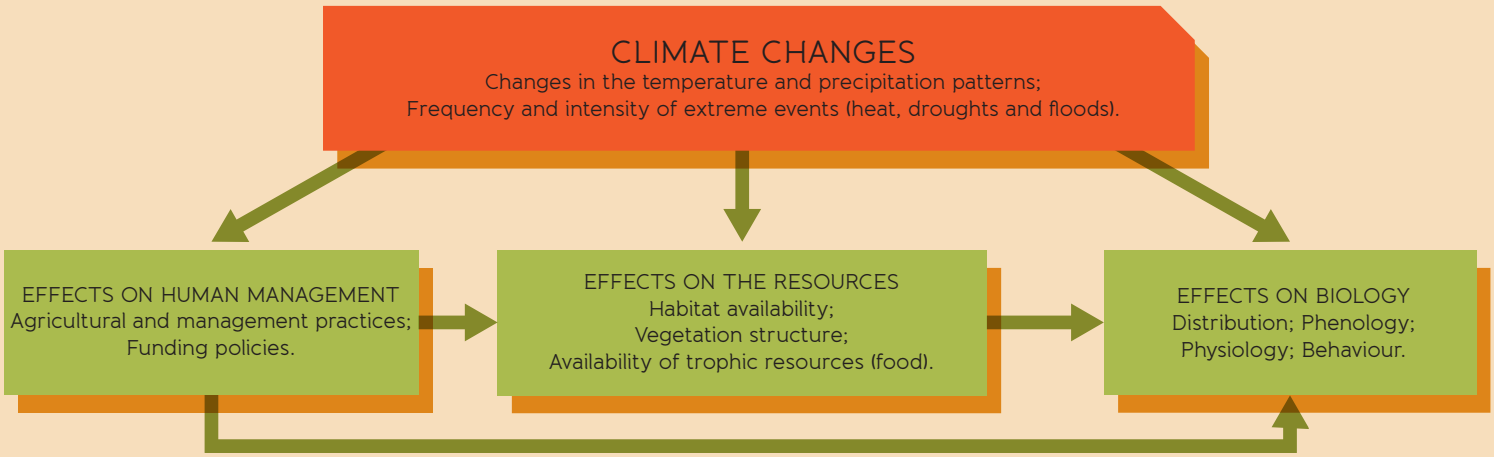
One of the works developed during Project LIFE Estepárias was a research study, conducted by the Centre for Applied Ecology Baeta Neves, of the Superior Institute of Agronomy, **to establish scenarios on the effects of climate changes on Great Bustard, Little Bustard and Lesser Kestrel**.

Climate changes will have a **negative effect on steppe birds**, essentially due to the **decrease of precipitation and the increase of temperature**, which will have the following consequences:

- *Lower water availability;*
- *Changes in the structure, composition and diversity of vegetation;*
- *Reduction in arthropod abundance.*

Despite the uncertainty regarding the effects of climate changes, it is important to timely define adaptation measures. Some management recommendations are:

- *Ensure the maintenance of the traditional agricultural mosaic, with dry cereal crops, pastures (fallows) and leguminous:*
  - *Keep the dry cereal crop area, making the culture cycle (plough, seed, harvest) compatible with the life cycle of the birds, adjusting it according to the changes that may occur on both of them;*
  - *Ensure the existence of pasture areas with no shepherding (set aside) before and during the breeding season.*
- *Adaptation of the Lesser Kestrel's nests to high temperatures;*
- *Promote the increase in the number of water points;*
- *Reduce the sources of disturbance (traffic, paths, fences, power lines).*



Climate changes may have a medium/long term negative effect on the conservation of Great Bustard, Little Bustard and Lesser Kestrel, conditioning their current areas of occurrence. However, in the short/medium term the threat associated with habitat management is more pressing, given that it heavily depends on agricultural policies.

Definition of climate change adaptation measures

a) Great Bustards look for water streams to drink.
b) The "concrete shackle" reservoir typology, with a 110 litres capacity, surrounded by a pile of stones, was considered to be the most appropriate one.
c) The low stone walls have a double function, given that they enable the accumulation of water for a longer period of time and also prolong the moisture of the soil, increasing the availability of vegetation and arthropods.

Looking to anticipate the effects of climate changes, throughout Project LIFE Estepárias LPN tested **additional watering and feeding points**, to be available for the Great Bustard during the dry period (summer).

Watering
One of the difficulties found was the existence of cattle on the plots, which can consume the water or knock over the reservoirs. Often fences are placed around the watering restrain due to the cattle, but these also prevent the access of Great Bustard to it.

During Project LIFE Estepárias, LPN tested four models of watering reservoirs, on its Biodiversity Reserves. **The reservoir of the "concrete shackle" type**, framed in a pile of rocks, was the best solution found.

An alternative to these watering points could be the placement of an auto-filling **sink at ground level on cattle drinkers**.

A very effective measure is the **existence of small dams**. Its less "artificial" aspect potentiates its use by wild birds. Despite the more expensive construction costs, it has the advantage of requiring less maintenance and keeping water all year, even during extreme drought years. In order to be more accessible for steppe birds these should not have fences around them, otherwise they should have wildlife pass ways.

Another solution that was tested was the implementation of **"low stone walls"** on the small water lines. This low stone walls allow water draining rate to decrease and soil retention rate to increase.

Additional feeding
In what regards additional feeding, one of the measures that farmers can implement is the **growing of springtime leguminous plants, such as peas or chickpeas**. This is one of the commitments of the Agro Environmental Measures in the SPAs of Project LIFE Estepárias.

Throughout Project LIFE Estepárias, three ways of making seeds available were tested (a total of 18 units): "tube" type feeders, spreading next to drinkers and spreading in "suvadouros" (dappled soil, threshing floor or leguminous strips). The seeds made available were of wheat, oat, pea and a standard bird mix (corn, red sorghum, split pea, green pea, wheat, white sorghum, barley, dry pods, black sunflower).

The additional feeding resembles stubbles, so the birds are already familiarized with its characteristics.

Synergies between game management and the conservation of steppe birds

The cereal plains are also the natural habitat of several small game species, such as the red-legged partridge, the rabbit, the hare, the turtle dove or the woodpigeon.

During summertime, being a critical period for their survival, the ecological demands of these species are very similar to the ones of steppe birds, such as the Great Bustard.

Most of the areas where Great Bustard occurs are inserted in Game Reserves where the management is made to favour small hunting game species.

With some adaptations, the resources (water and food) that are made available for the game species may also be available for species like the Great Bustard.

The management measures that were implemented included:

- *The implementation of **drinkers (35 units) and feeding points (37 locations)** for the Great Bustard. For the feeding points, around **12 tons of seeds** were distributed to be made available by spreading;*
- *The promotion of shelter areas for rabbits (as alternative prey species to minimize predation), with the **construction of 5 artificial rabbit burrows ("pile of stones")**, each one with 4 units;*
- *The reduction of disturbance in more sensitive areas, with the **identification of areas of refuge and planning of the game trips**.*

Monitoring confirmed the importance of the watering points for 18 species (3 of which were game species) and of the feeding points for 10 species (among which was the Great Bustard).

Given that Game Areas conduct a constant habitat management throughout time and in a large territorial area, the existence of measures adapted to the Great Bustard might be an alternative easily available on the field during situations of extreme drought.

*Throughout Project LIFE Estepárias, LPN made **Cooperation Protocols with 12 Game Areas**, which comprise an area of about **18.000 hectares.***

a) The Great Bustard, namely females and juveniles, consumed the seeds made available by spreading, both next to the drinkers as in ploughed strips.
b) The spreading of seeds in "suvadouros" (ploughed soil, threshing floor and leguminous strips) has been considered a good practice of additional feeding (Source: Bing maps).

Joint work between hunters and Project LIFE Estepárias officers during the placement of drinkers.

Recovery of wounded, ill or debilitated birds

The recovery of individuals from species with very reduced populations represents a positive contribution for the conservation of the global population. One of the goals of Project LIFE Estepárias was the specialization of a Wild Animals Rehabilitation Centre on the recovery of steppe birds. This measure had two components:

1. The acquisition of technical competence:

- *Conduction of a training session **for LPN officers** for the acquisition of competences in handling, treating, recovering and returning Great Bustard and Little Bustard to nature;*
- *Conduction of the **Workshop "Pathologies, treatment and recovery of Great Bustard, Little Bustard and Lesser Kestrel"**, in 2012, which promoted the exchange of knowledge and experiences in clinical treatment and recovery experiences of these birds among national and foreign experts (presentations and abstract available in the Project's website);*

2. Specialization of a rehabilitation centre:

- ***Adaptation of the facilities of RIAS** – Recovery and Investigation Centre for Wild Animals (under the management of ALDEIA, in Olhão), for the rehabilitation of individuals of the three target species of the Project;*
- *Conduction of an **awareness rising campaign for farmers**;*
- ***Collection and admission for recovery of 247 steppe birds** (60 in 2009, 42 in 2010, 22 in 2011 and 123 in 2012) being that it was possible **to return 121 recovered Lesser Kestrels to nature (49%)**.*

In terms of recovery of the steppe birds we determined that:

- *Admissions happened mostly during the months of June and July;*
- *The main cause of admission verified was the falling of nests;*
- *The main clinical diagnosis were related with fractures associated to a disease that affects the Lesser Kestrel (secondary osteodystrophia) or to trauma, and weakness;*
- *The birds with symptoms of weakness had a high recovery rate (82%);*
- *The experience of technicians, active vigilance on the field in critical periods (hay cutting seasons and heat waves, for example) and a fast response are determinant aspects for the success of these interventions.*

Poster "Nests in the Dry Cereal Crop Fields" for raising awareness among farmers.

***247 steppe birds (4 Little Bustards, 3 Great Bustards and 240 Lesser Kestrels)** were collected for recovery, being that it was possible to **return 121 recovered Lesser Kestrels to nature**.*

Environmental education: awareness and involvement of everyone in conservation

The conservation of steppe birds necessarily implies the awareness of people, namely of the communities living close to or involved in the management of areas of extreme importance for these species, because this is the only way to achieve a decrease of the threats that they are subject to. One of the most noticeable aspects of Project LIFE Estepárias was the environmental education activities conducted with schools.

Throughout three school years, these activities involved **1179 students of 68 classes from 20 schools**, from 8 of the 10 municipalities comprehended in Project LIFE Estepárias' intervention SPAs.
From the conducted activities, we point out the following:

- *Field trips for the observation of steppe birds;*
- *Presentation of the project in schools;*
- *The comics contest "Mission: protect the Great Bustard, the Little Bustard and the Lesser Kestrel";*
- *Reading sessions of the illustrated children's tale "The Adventures of Bertha, Samson and Julian";*
- *The plays inspired by this story and played by the students.*

Beside the activities with the schools, we conducted **8 guided field trips** for the observation of steppe birds and dissemination of the Project and its results.

Illustrated children's tale and poster of the comics contest.

Environmental Education activities.

Public participation: to know the opinions of the locals regarding the conservation

The CIS-IUL (Centre of Investigation and Social Intervention) tried to understand what was the attitude of local populations, living within the Project LIFE Estepárias' intervention SPAs, towards the conservation of steppe birds, through:

1 Knowledge of the locals' positions on:

- *Changes in the location and in the community and their evaluation;*
- *Conservation of local Nature and of steppe birds: Importance and Obstacles;*
- *Public Participation and conservation: involvement and obstacles to participation.*

2 Comparing the positions of the locals in the four SPAs of Project LIFE Estepárias;

3 Comparing the positions of the non-owner locals with the ones who are agricultural land owners.

For such, three stages of study were developed: qualitative (individual interviews and discussion groups), quantitative (phone surveys) and qualitative (discussion groups about civic participation).

The obtained results suggest that the **conservation of nature and biodiversity are understood as being globally positive.** However, they refer that there is a lack of practical support for assuring the conservation of nature, disarticulation and discontinuity in the policies and a gap in the involvement of local organizations and of the general community.

There is **great familiarity with steppe birds**, especially with the Great Bustard, which is **higher in the Castro Verde and Vale do Guadiana SPAs** when compared with Mourão/Moura/Barrancos SPA.

The knowledge of steppe birds seems to result of the contact with agricultural areas (owners and farmers).

The traditional agricultural practices of rotating cereal crops with fallows and the signalization of power lines conducted by EDP Distribuição are considered positive measures, however there is no common agreement regarding the plantation of olive groves, vineyards and forest in the areas with annual agricultural crops.

In the civic participation debates, the mostly identified actions are ones of formal contact between groups but protest is mainly individual (for instance, choosing not to participate in a specific measure or not fulfilling a regulation).

Communication and dissemination: LIFE Estepárias closer to everyone!

Meant for specific target groups or for general population, the communication actions of the Project worked as a dissemination tool, increasing the awareness for the conservation of the target species and the protection of their habitat, and also allowing the diffusion of the results of Project LIFE Estepárias.

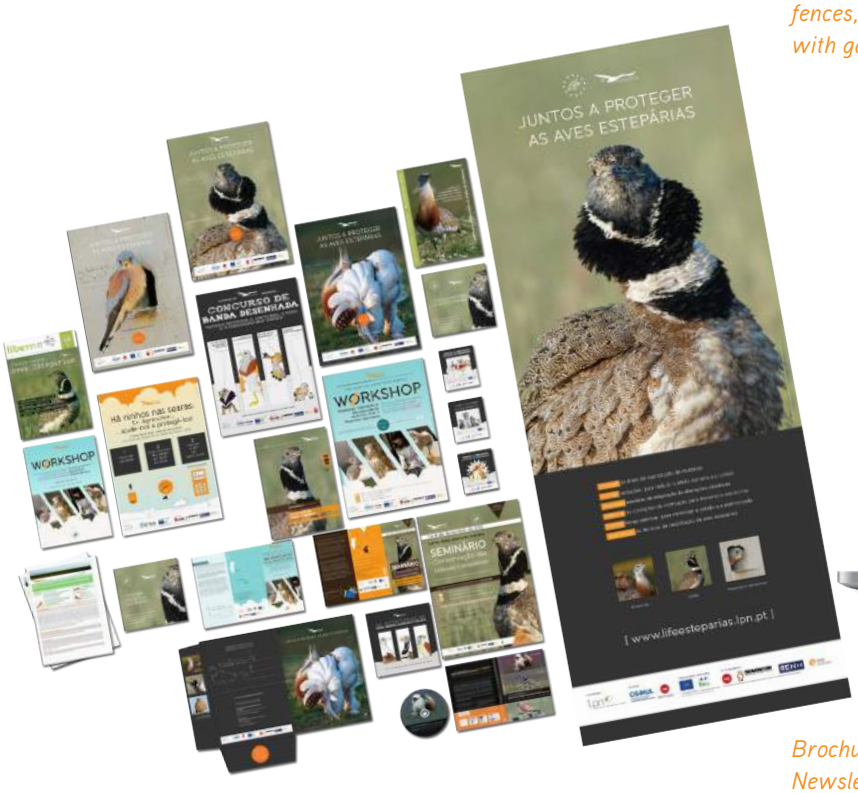
One of the main communication tools was the **Project LIFE Estepárias website [www.lifeesteparias.lpn.pt]** that provide contents about the three species of the Project, the interventions SPAs, the habitat management envisaged measures, the environmental awareness activities, children's space, LIFE programme and the Natura 2000 Network, gallery of pictures, videos and available documentation.

Throughout the Project we produced several materials and disseminated the Project to the media, with the elaboration of **6 press releases and regular news on the Project LIFE Estepárias website**. Also a **special edition of LPN's "Liberne" magazine** was dedicated to steppe birds.

The habitat management experience obtained throughout Project LIFE Estepárias resulted in the **production of two best practices manuals for farming and game activities** which gather the best techniques and management measures for the conservation of steppe birds (available on the Project's website).

For the diffusion of the final results obtained during Project LIFE Estepárias, in 2012 LPN organized the **Seminar "Conservation of the Cereal Steppes"**, closure event for the Project and a celebration of the 20th anniversary of LIFE Programme, which had the objective of updating and promoting the exchange of knowledge about these ecosystems and the threatened birds associated to them. The presentations conducted and the bilingual version of the Abstract book is available on the Project's website.

*To maximize the diffusion of Project LIFE Estepárias LPN produced **outdoor signs about the project**, which were placed on central locations of towns and villages in the intervention SPAs. To **divulge the management actions, outdoor signs next to the respective interventions were placed**: acquisition of lands, improvements in fences, birds' recovery, construction of nesting towers and synergies with game management.*



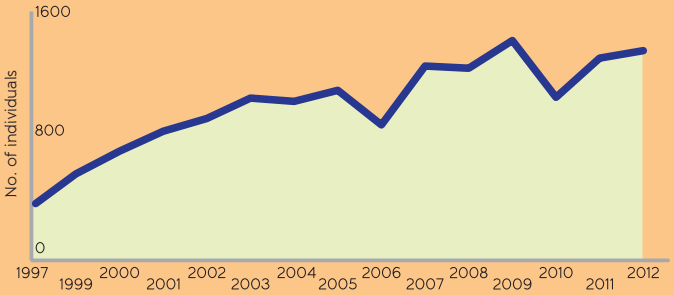
Brochure, DVD, Posters, Folders, Illustrated children's tale, Stickers, Newsletter, Layman's Report, special edition of "Liberne" magazine and Website.

How did the birds respond to the management actions?

Throughout Project LIFE Estepárias we carried out monitoring actions to evaluate the results obtained by the habitat management actions, namely by the pass ways in fences, the use of additional watering and feeding points and the effectiveness of the anti-collision devices on power lines.

The beneficial habitat management that has been conducted during the past years, including the actions of Project LIFE Estepárias, has had a very positive repercussion in the population tendencies of the Great Bustard, Little Bustard and Lesser Kestrel, mostly in the Castro Verde SPA.

GREAT BUSTARD



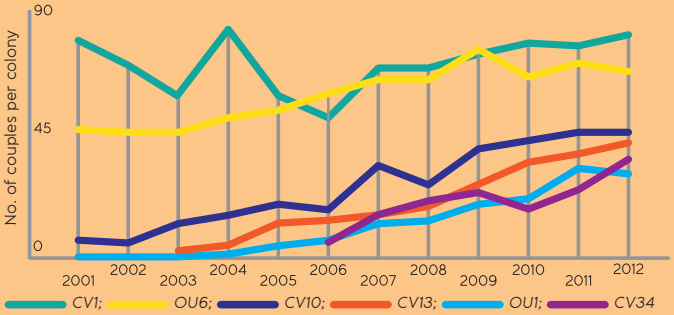
Graphic 1 – Over the past years, the population tendency recorded for the Great Bustard in the Castro Verde SPA was of growth. However it is possible to verify the impact of the extreme drought of 2005 in the decrease verified in 2006 (in 2010, the lowest value is due to constraints during the count).

LITTLE BUSTARD

Table I – The reproductive population of Little Bustard in the Castro Verde, Piçarras and Vale do Guadiana SPAs increased. In what concerns the Mourão/ Moura/Barrancos SPA, the reproductive male population has decreased. This decrease is most likely associated with the loss and degradation of the habitat, result from the conversion of dry cereal crops into permanent plantations, such as olive groves.

	Average density (no. of males/km^2)		
	Season of 2003/2004	Season of 2009	Season of 2010
Castro Verde	5,8	6,99	6,82
Piçarras	-	5,40	6,41
Vale do Guadiana	1,7	1,87	3,15
Mourão/ Moura/ Barrancos	3,21	1,87	2,13

LESSER KESTREL



Graphic 2 – The largest colonies of Lesser Kestrel in Portugal have been recording a growth trend. In general, the increase recorded in what concerns the number of breeding pairs is due to the implementation of improvement measures in breeding sites, making more nesting holes available. Some negative oscillations reflect the downfall of walls with nests or are the consequence of extreme drought events (2005).

What was the general impact of Project LIFE Estepárias?

ACQUISITION OF LANDS IN THE CASTRO VERDE SPA

- *Highly sensitive area for the Great Bustard (display grounds, nesting and overwintering areas), for the Little Bustard and Lesser Kestrel;*
- *Meant exclusively for the conservation of nature and protection of the Great Bustard and remaining steppe birds.*

RECOVERY OF WOUNDED BIRDS

- *Recovery and return of 121 Lesser Kestrels to nature;*
- *Involvement of farmers, land owners and hunters in the collection and referral of birds;*
- *Specialization and adaptation of a recovery centre for the treatment of steppe birds.*

DEVELOPMENT AND DEMONSTRATION OF WAYS TO SIGNAL FENCES AND INSTALL PASS WAYS FOR WILDLIFE

- *Decrease of the barrier effect and of the collision danger for Great Bustard;*
- *Solutions and information provided to support for decisions of entities involved in the management of Agro Environmental Measures.*

REMOVAL OF FENCES

- *Improvement and widening of three breeding areas for the Great Bustard;*
- *Decrease the danger for the circulation of the Great Bustard during mating displays and establishment of hierarchy between males.*

INNOVATIVE WORK DEVELOPED WITH GAME MANAGERS

- *Inclusion of measures accessible to the Great Bustard in game management (watering and feeding points);*
- *Establishment of bases for the field implementation of emergency interventions that might be necessary in drought years.*

CONSTRUCTION OF TWO BREEDING TOWERS FOR LESSER KESTREL

- *Higher durability and with a conception adapted to climate changes;*
- *Promoting the natural recolonization in locations of previous occurrence of the species, potentiating the enlargement of its area of distribution.*

CORRECTION OF POWER LINES IN THE CASTRO VERDE SPA

- *Minimization of associated mortality in 40km of power lines;*
- *Acquired knowledge regarding the best anti-collision signalization technologies for Great Bustard and Little Bustard;*
- *Important contribution for future interventions conducted by EDP Distribuição.*

ENVIRONMENTAL AWARENESS AND PUBLIC PARTICIPATION

- *Understanding of the local's positions regarding the conservation of steppe birds;*
- *Minimize the unawareness of the public in what concerns steppe birds and the importance of their preservation;*
- *Promote the involvement of everyone in the conservation of Great Bustard, Little Bustard and Lesser Kestrel.*

In the Portuguese Rural Development Program (Proder), in the scope of the Common Agricultural Policy, Agro Environmental Measures for the maintenance of the rotation cereal crop-fallow have been made available, which farmers can adopt in case they are interested. The articulation with the entities connected to the implementation of the Agro Environmental Measures has been conducted for the good practices in fences and watering points.

Some of the problematic approached by Project LIFE Estepárias are common to other areas of occurrence of these species and of the Natura 2000 Network, both in Portugal and in other European countries. Through the Good Practices Manuals and the network communication with other projects it was possible to maximize the replication potential of the measures developed and demonstrated during these four years of project.

The involvement and dedication of the Project team was a fundamental part of the success achieved in face of the goals that were initially proposed. The experience acquired in the meanwhile, built on the Post-LIFE Conservation Plan, will allow us to continue working for the protection of these threatened species in a medium and long term, counting also with the support and involvement of different partners.

Four years have passed since the beginning of Project LIFE Estepárias. Having finished this stage we feel safe to state that the conservation of Great Bustard, Little Bustard and Lesser Kestrel in the territories of the Natura 2000 Network where they currently occur is, today, more strengthened.

LAYMAN'S REPORT

Project LIFE Estepárias (Contract LIFE07/NAT/P/654)

"Conservation of Great Bustard (*Otis tarda*), Little Bustard (*Tetrax tetrax*) and Lesser Kestrel (*Falco naumanni*) in the Baixo Alentejo cereal steppes"

Beneficiary Coordinator: League for the Protection of Nature (LPN)

Associate Beneficiaries: CIS-IUL – Centre for Social Research and Intervention, Instituto Universitário de Lisboa and EDP Distribuição – Energias de Portugal

Duration: January 2009 to December 2012

Full amount of the Project: 1.604.021€ (75% of European Union financing)

LIFE Programme is EU's financing instrument for the environment. The general goal of LIFE is to contribute to the implementation, update and development of the EU's environmental policy and of the legislation for pilot projects or projects for the demonstration of European added value. In particular, the LIFE – Nature Programme finances Projects that aim to restore and conserve endangered natural habitats and protect species of urgent conservation in the EU.

Natura 2000 – Europe's Nature for you! This project was implemented within the European Natura 2000 Network. It was selected because it includes some of the most threatened species and habitats in Europe. All of the 27 European Union Countries are working together in the Natura 2000 Network in order to protect Europe's diverse and rich natural heritage to our common benefit.

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Text revision: Natasha Silva (LPN)

Translation: Pedro Dias

Photography: LPN (pp. 4-7, 9-14 with the exceptions noted hereafter), Luís Venâncio (portraits of Great Bustard and Little Bustard: cover, flap, pp. 2-4, 14-15), RIAS Olhão (Juvenile Great Bustard in rehabilitation - pp. 11), Shutterstock (pp. 1), Yves Adams (portraits of Lesser Kestrel: flap, pp. 5,14-15)

Sources of the graphics and table (page 15): Great Bustard | LPN and ICNF (DGAC-SOUTH/PNVG); Little Bustard | 2003-04 – SPEA and ICNB (LIFE Sisão), 2010 - Data of the Action A.4 Report, by ISA (LIFE Estepárias); Lesser Kestrel | 2001-02 – Aldina Franco, 2003-06 – LPN (LIFE Peneireiro), 2007-09 –Inês Catry (CEABN-ISA), 2009-12 (OU6) – ICNF (DGAC-SUL/PNVG), 2010-12 (remaining colonies) – Data of the Action A.4 Report, by ISA (LIFE Estepárias)

Graphic design: Gobius Comunicação e Ciência

Printing: Gráfica Comercial

Edition: LPN - League for the Protection of Nature, 2012

Circulation: 800 copies in Portuguese and 200 copies in English – 1st Edition, Castro Verde, 2012

Recommended quotation

Alcazar, R., Barosa, L., Estanque, B., Lousa, H., Marques, C., 2012; "*Together Protecting steppe birds, Project LIFE Estepárias - Conservation of Great Bustard (Otis tarda), Little Bustard (Tetrax tetrax) and Lesser Kestrel (Falco naumanni) in the Baixo Alentejo cereal steppes (LIFE07/NAT/P/654)*", Layman's Report; LPN, Castro Verde, Portugal

FSC Printed on 100% recycled paper, entirely from post-consumer wastes, using processes completely chlorine free

THE CONSERVATION

OF STEPPE BIRDS

DEPENDS ON ALL OF US.

ALL CONTRIBUTIONS

ARE IMPORTANT.

YOUR SUPPORT IS ESSENTIAL!

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E.U. Funding

LIFE07/NAT/P/654
Funded by the E.U. LIFE Program

Co-Funding

REN funding is a measure under the ERSE approved Environmental Performance Promotion Plan