INTERNATIONAL WORKSHOP

Restoration and habitat management to recovery breeding bittern habitat

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Fuentes de Nava, Palencia

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Preparatory Actions A.2 of LIFE-Nature Project (LIFE 06 NAT 1000213):»Wetland restoration and management: Canal de Castilla Special Protection Area»

GENERAL OVERVIEW OF THE FUNDACION GLOBAL NATURE

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Presentation

The Global Nature Foundation develops activities in different areas of Spain and has an international presence through cooperation projects and networks. The conservation activities of the Foundation have led them to acquire, lease or enter agreements to care for the land and preserve the ecologic values of these zones. We manage more than **7.000 hectares** directly.

Wetland Conservation

Wetland conservation and water resources (wastewater treatment) receive the largest share of the budget, more or less, the 60% of the total. **Tierra de Campos (Palencia)** contains some of the most relevant wetlands with which the Foundation has been working for years, such as the La Nava (300 ha) and Boada de Campos (40 ha) wetlands and more recently leased areas, such as Pedraza de Campos, with more than 80 ha of extension. A seventeenth century building has been acquired in Boada de Campos, which is to be restored as the site of the new Laguna de Boada Museum. In 2006 the actions within the LIFE-Nature project for the conservation of the aquatic warbler in the Nava-Campos Bird Reserve were completed, and the execution phase of the LIFE-Naturaleza project for the restoration and management of lakes: Bird Reserve of Canal de Castilla.

FGN also works around the Villacañas wetlands to promote environmental management in a complex of wetland areas in Toledo (**Castilla-La Mancha**), in Louro, a small coastal wetland located in **Galicia**, and for the management of small wetlands on livestock estates (**Extremadura**)

In the **Canary Islands** we are installing seven atmospheric water capture stations situated in various geographic and climatic locations (INTERREG III-B Europe programme)

The FGN, together with the Polytechnic University of Madrid, have proposed to demonstrate the efficacy of an innovative waste water treatment system using floating macrophyte plants and to promote the use of these new systems in Mediterranean regions. We have concluded the development of seven prototype constructions in Lorca (Murcia), carrying out scientific monitoring together with awareness raising and divulgation actions.

Agroenvironmental Management Projects

This activity includes projects such as the **recovery of wild rabbit** populations to improve habitat for endangered or vulnerable species in the area of the National Park of Monfragüe (Cáceres), and management of the Foundation's **farming and livestock estates** in Cáceres: "El Baldío" (284 ha dedicated to the recovery of native breeds of livestock in danger of extinction and to reforestation of farmland); "Aroche" (28 ha of mature forest, dense brush, meadows, olive groves, vineyards and watercourses dedicated to traditional uses) "Santa Clara" (El Payo, Salamanca) and "Las Peladas" (Villamiel, Cáceres), where we work of creating forested rangelands of Pyrenean oak (*Quercus pyrenaica*).

Network of Reserves of Southeastern Iberia

The creation of private reserves by signing agreements with landowners involves them in the conservation and management of land and water resources in SPAs, SCIs and other areas. The Network of Biological Reserves created by the Global Nature Foundation is one of the largest in Spain, presently grouping a total of 110 reserves and covering a land area of more than 6.500 hectares. We coordinate ecological and forest regeneration tasks and external assistance tasks were carried out within the framework of the LIFE project for the conservation of Bonelli's eagle in the SPA of Sierra de la Almenara, Cabo Cope and Las Moreras (Murcia).

International Cooperation Projects for Sustainable Development

The Global Nature Foundation is working in the terrain of Cooperation for Sustainable Development. Some of the actions under way are: Waste water

treatment in the Dominican Republic: 3 green filters situated on three watercourses that received effluents from Los Llanos, reduction of flood risk in the Municipal District of Chirino after the catastrophic floods of May 2004, and Strengthening the capacity of the community and municipal institutions to manage the endogenous resources of the town of Los Llanos in the Dominican Republic.

Environmental Education Centres

Three Environmental Education centres are located in the areas where the Foundation does conservation work and constitute centres for divulgation activities and training programs: **Tierra de Campos Environmental Study Centre, Fuentes de Nava (Palencia), "La Dehesa" Environmental Education Centre, Torrejón el Rubio (Cáceres), and Cortijo de la Tortuga Mora, Lorca (Murcia)**

From the Environmental Education Centres of the Foundation we work with young people from all over Europe, providing training experience for the purpose of making an active contribution to the construction of a united Europe through participation in transnational collective activities, such as work camps, international exchanges, internships, volunteer activities, etc.

A total of 10 volunteers have worked with the FGN at the work centres in Palencia and Cáceres, as part of the *European Volunteer Service*. This experience has allowed them to join and participate in nature conservation work and campaigns, learn about another culture, meet new people and acquire another language.

WETLAND RESTORATION AND MANAGEMENT: CANAL DE CASTILLA SPECIAL PROTECTION AREA" (LIFE06NAT/E/000213)

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ABSTRACT

Castilla (Castille) is the name of one natural region of the center of Spain. Castilla Channel is a navigation structure which was built between XVIII and XIX century (1753-1849). It´s objetive was to recover the economy and society of "Tierra de Campos" (Fields County), transporting agricultural products (mainly wheat) produced in the county to the ports of the north of Spain. At the end of the construction 400 barges (small boats) moved along 200 kilometers which finally were built.

This structure finished its transport use when the train appeared at the end of XIX century. As the transport use disappiared in the channel, another uses increased like: agricultural use and energy production. As the navigation had dissapiared and the structure was protected the water related environments recovered quickly. Nowadays Castilla Channel is a cultural and environmental protected heritage by cultural and environmental laws.

Channel was created removing soil from the ground without any cover so it has many filtrations which has developed into wetlands or riparian woods. Another way of wetland creation is when the channel cross a stream and there is no bridge to let the water of the stream cross under the channel.

Main Objetive of the Life Project is to Implement of a program for the recovery, management, and monitoring of 35 small wetlands associated to the Canal of Castilla (Palencia, Spain,) including three SPAs and one SCI.

The project proposes: (i) To Recover wetlands that have been seriously disturbed and drained; (ii) The management of helophytic vegetation to achieve a suitable habitat for the needs of species of water birds listed in Annex I of Directive 79/439EEC; (iii) To enhance appreciation of the wetlands of the Canal of Castilla among the local community by preparing materials for divulgation and environmental education and information activities.

Project means related with bittern are: (i) Improve systems for flooding 14 ponds; (ii) Management of helophytic vegetation in 15 wetlands; (iii) Planting of 84,400 trees and shrubs of autochthonous species to create 10,600 linear meters around the wetlands; (iv) Development, approval, and execution of a Management Plan for the Canal of Castilla SPA; (v) Control of wild boar and american mink populations responsible destroying the nests and the young of endangered species like (vi) Preparation of information material; (vii) Execution of monitoring and inventory tasks

THE HISTORIC AND ACTUAL STATUS OF THE BITTERN IN SPAIN

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ABSTRACT

From Carlos Urdiales' work in 1992, we are now able to know the precise historic evolution of the bittern in Spain over the 20th century. Unfortunately his work was never published. Its study showed the dramatic decline in the species population along the 20th century, from near 900 territories at the beginning of the century to just 100 at year 1976. The biggest populations were confined to the main marshes (Doñana and Ebro Estuary) and the Peninsula inland (La Mancha). Later on, the bittern reached a critical situation on the earliest '80, when the population set in an historic minimum of 15 territories. From them on, there were a slow increased up to 30 males in 1991. Carlos Urdiales' study documented 64 historic breeding locations, which at the end of the century only 13 remained (20,3%).

At the beginning of 21st century, there was an update of the Bittern's status on the Red Data Book and Breeding Atlas. The bittern's authors (Bertolero & Soto-Largo 2003, 2004) compiled data of 25 booming males distributed along 13 wetlands in Baleares, Cataluña, Levante, Navarra and Aragon. They reported the extinction in former significant wetlands for bittern in Guadalquivir Marshes and Ebro Estuary. Although they mentioned the temporarily return to La Mancha wetlands, they confirmed its absence on 2002. The main breeding population was found in artificial ponds used to irrigate lands in middle valley of Ebro river. Finally, they revealed some signs of reproduction at artificial wetlands of Castilla y León and coastal lagoons in Galicia.

The present revision shows the results from the monitoring of the species at most of the wetlands considered in the year 2002 study. Although the bittern population has doubled, its status in Spain remains critical and breeding bittern population highly variable. The estimated population at 2007 is 34-44 booming males

distributed in 21 wetlands. The main breeding population is located in middle valley of Ebro river. The return of the bittern has been confirmed at Doñana but the state of the bittern at Mediterranean marshes is highly vulnerable.

REVIEW OF THE BITTERN STATUS IN PALENCIA (N SPAIN)

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ABSTRACT

We have been realized a review of the historical referentes and recent sightings of the bittern in the province of Palencia (N Spain).

Until the decade of 50´ths, the species should have been a regular breeding in the reedbeds of La Nava wetland. With the drainage of this wetland the species disappeared also as breeding in this province.

We have been obtained a whole of 32 sightings during the period 1987-2007. Seven of them corresponds to the prenupcial migration period, eight during the postnupcial period, five during the wintering period and twelve for the breeding period.

The probably breeding of the species was confirmed in La Venta wetland during the 1997 and 1998 years, when there were at least 2 booming males. In 2007 was a booming male at La Nava wetland on April, thougt it is possible a migratory individual.

Finally, we analized the problems of these wetlands and exposed the actions that are going to do in the LIFE nature programme to try to recovery the breeding bittern habitat.

EUROPEAN BITTERNS: LINKING TOGETHER SOME NEW DATA FROM DIFERENT GEOGRAPHICAL AREAS

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ABSTRACT

In the western Palearctic Bittern is distributed heterogeneously, with scattered, small populations in western and Mediterranean countries and more abundant and widespread populations in Central and Eastern Europe. Wet areas of western Palearctic are very different as regard to many ecological conditions as hydrology, vegetation type and density, composition, abundance and distribution of prey, predator pressure. After an overview of the species reproductive biology, an analysis of various reproductive parameters from different countries is presented, highlighting the possible influences of the different ecological conditions faced by the Bittern through its wide range.

A comparison of spatial behaviour and habitat use at a Mediterranean site of two sympatric reed-nesting herons, the Bittern and the Purple heron, with opposite local population trend is presented.

Finally implications for conservation and management are discussed.

CONSERVATION OF BITTERNS IN THE NETHERLANDS: MANAGEMENT ON THE LOCAL AND ON THE LANDSCAPE LEVEL

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ABSTRACT

The Bittern is a threatened marshland bird in the Netherlands, nowadays with only around 200 breeding pairs (1975 around 700 pairs). A marshland bird conservation plan indicated the main drivers for its decline: marshland fragmentation and deteriorated habitat quality.

On the national level a spatial design of a main ecological structure of wetland and marshland habitats (ecological network) was developed to create the suitable spatial conditions for sustainable Bittern metapopulations. It indicates the preferrable size of marshlands and the way they have to be interconnected. Furthermore, the action plan resulted in the implementation of marshland restoration in various important marshland areas. Some of these site plans will be demonstrated and discussed. Important measures mainly deal with water table management, but also aim at creating sufficient feeding areas in reed beds. In many of our Natura 2000 sites the Bittern is one of the selection species. In the Natura2000 policy document of the Netherlands ambitious aims have been formulated for sustainable Bittern populations. In the near future this has to be elaborated in the site management plans. We expect a lot of management measures to increase habitat quality for Bitterns. Hopefully the species will benefit from it.

BITTERN'S SITUATION AT S'ALBUFERA DE MALLORCA. POTENTIAL REASONS OF THE FLUCTUATIONS OF ITS POPULATIONS

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ABSTRACT

S'Albufera de Mallorca is a coastal wetland of 1.650 hectares, protected as a Natural Park since 1988.

Before its complete draining, and subsequent filling of the area in the XIXth century, the place was a succession of many variable lagoons, surrounded by marsh vegetation. At present, the open waters are scarce, and big extensions of reed beds (*Phragmites australis, Cladium mariscus*,…) are very common and dominant. The wetland is fed by temporary mountain streams (about 20-24 hm^3/year) and subterranean waters. Seawater infiltration is important too, mainly when freshwater is not arriving in quantity enough to the Park.

Since the Park's declaration, the area is intensively managed, with the aim to recover the lost ecosystems in the wetland. The biodiversity indexes have been increasing since then, sometimes very quickly, in some floristic and faunistic groups, like for example aquatic birds.

The grazing of emergent vegetation by cattle and horses (and a few water buffaloes), has been decisive for that recovery, but this has not been the only cause. Dredging of lagoons, use of sluices and mechanic reaping of canal's vegetation has helped too.

In the grazed areas, generally reedbeds with or without other aquatic plants (like *Juncus* spp.), the number of species counted has been much bigger that the one present in non-grazed areas. That was so for plants and invertebrates, and in birds and other vertebrates too.

Among birds, herons have been greatly favoured by the management of the wetland. In winter months, numbers have been multiplied by 10 over last 20 years, and the same can be said for numbers of breeding pairs. New species have colonized the wetland, as night herons, little egrets, cattle egrets and squacco herons (absents as breeders in Mallorca before that). The bittern has re-colonized the area after its extinction in Mallorca in the 80's.

In 1990 the first booming male was heard in the Park, and by 1997 the population of booming males had increased to 10 birds. From 1998 onwards, bittern's population has decreased at the same speed. In 2005, and from then onwards, only 1 male is heard each year booming.

The reasons of these strong fluctuations are unknown, but some data can help to obtain some explanations:

1. The number of booming males has reduced a lot, but the number of wintering birds seems to be stable over years. Even the number of supposed females in spring seems not to be reduced. Means this that breeding males are still present in the Park, but they don't sing as much as did before?
2. Fluctuations in bittern populations are similar to the ones documented in other reed beds species, as purple herons (*Ardea purpurea*), moustached warbler (*Acrocephalus melanopogon*) or marsh orchids (*Orchis robusta*). Are we facing, so, with important "structural" changes in reed beds?
3. Over the last years, water's salinity has increased. The concentration of nitrates (and pesticides?) is higher, and the affection of fires in the reed beds is bigger. Are these the real reasons of the fluctuations in bittern's populations?

As can be seen, there are many questions and very few answers at all. More investigation is needed if bittern's habitat in s'Albufera de Mallorca has to be improved.

MANAGEMENT OF BITTERN HABITATS IN THE UK

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ABSTRACT

With the UK Bittern population declining to just 11 booming males in 1997, an intensive period of research was undertaken in order to better understand the Bittern's habitat requirements. Ambitious targets were set by the Government (and internally by the RSPB) for the restoration and creation of reedbed habitat and the associated recovery of the Bittern population. Two EU LIFE funded projects aimed to create a strategic network of reedbeds suitable for Bitterns. Most existing reedbeds have been restored, with notable success at Minsmere nature reserve in Suffolk, and new reedbeds have been created in old mineral working and on ex-farmland. The number of booming Bitterns in the UK has now risen to around 50.

However, many issues remain. Sea-level rise still threatens the majority of the population, and as yet, there has been little colonisation of inland sites. The future management of the new reedbeds is also a key issue, with new techniques and ideas being trialed.

BITTERN ECOLOGY AND REEDBED MANAGEMENT IN MEDITERRANEAN FRANCE

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ABSTRACT

Ecological requirements of Eurasian bitterns relative to habitat management in the largest reed marsh of the Camargue (3500 ha) were studied as part of a LIFE-Nature project in France (2001-2005).

Standardized protocols for counting and locating bitterns were developed, and field measures on reed structure, water level, and food availability were collected at booming, nesting and random sites. These data were complemented with landscape parameters (issued from digitized aerial photographs of 50-cm resolution) and submitted to multi-modeling analyses to identify the factors involved in habitat selection. In contrast to previous reports, bitterns avoided old reedbeds with water pools and concentrated in harvested areas characterized by a continuous cover of vegetation in shallow waters experiencing a summer drawdown. An experiment, whereby cutting was interrupted over 50% of two sites totalling 100 ha for up to four years, showed a preference of males and females for one-year reeds. Although fish and frog were locally abundant, bittern fed predominantly on the red-swamp crayfish, which accounted for 85% of the fresh biomass given to nestlings. This invasive species is well-adapted to fluctuating hydroperiods alternating with drought intervals typical of the Mediterranean region and provided a good food source to bitterns throughout the breeding season. The Mediterranean climate, in encouraging the early growth of reeds in spring, also contributes to reducing the impacts of reed cutting on the fauna, highlighting the

necessity of local ecological studies for drawing management recommendations of sensitive areas.