

The Ebro Delta

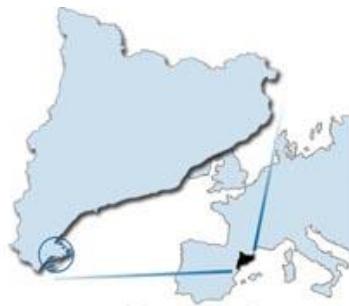
Natural heritage as the economic engine of a region

During the first of the two planned visits to Catalonia as part of the LandSea project, we will visit one of the most important areas of the Ebro Delta. The aim of this visit is to show how the delta's natural assets are managed and the relationship between this environmental management and the socioeconomic activities that take place in the area. Particular emphasis will be placed on ecotourism, without forgetting the backdrop of the effects of climate change, which are already evident.

Introduction

Geographical aspects

The Ebro Delta lies in the northeast of the Iberian Peninsula and covers the area where the River Ebro flows out into the Mediterranean Sea. The River Ebro is the second largest river on the Iberian Peninsula after the River Duero, with a length of 930 km and a basin of 83,093 km².



Covering an area of 320 km², the Ebro Delta is the largest wetland in Catalonia and encompasses a wide array of environments. River, sea, bays, beaches, dunes, wetlands, riverine woodlands, coastal lagoons, river islands and springs all make up the natural environment and, along with the rice paddies, are home to a large number of organisms that have adapted to the different habitats.

Protection

With the aim of seeking a harmonious coexistence between these natural assets and their use by the local population, and in response to demands from its inhabitants, the Government of Catalonia created El Delta de l'Ebre Natural Park in 1983, which covers an area of 7,802 hectares. The Park has two information centres, numerous lookout points and a large and varied network of walking trails.

In May 2013, the region of Les Terres de l'Ebre, where the Ebro Delta is located, was declared a Biosphere Reserve by UNESCO thanks to its wealth of landscapes, the representative nature of its Mediterranean ecosystems, and its model of biodiversity conservation.





Population, economic activities and governance

Some 50,000 people live within the delta plain, divided into six municipalities. The main economic activities are in the primary sector (farming, fishing, aquaculture, etc.), but in recent years tourism has become the other cornerstone of the Ebro Delta's economy, especially ecotourism—in other words, nature-based tourism.

The Delta is a fragile space and hugely complex in terms of its governance, given the large number of agents that converge around the same resources. Public agents on different levels (State, regional, local) coexist with a wide range of private agents (rice growers, fishermen, hunters, tourism companies, foundations, NGOs), often with quite contrasting views. That is why it is so important to have instruments such as the European Charter for Sustainable Tourism and its forums, which help to resolve any disputes.

Landscape

The landscape of the delta has a powerful personality; the totally flat terrain gives it a unique appearance. The vast rice paddies, which change according to the seasons (earthy in winter, flooded with water in spring, bright green in summer) dominate the physiognomy of the delta. Along the coast you will find one of the most attractive landscapes in the Mediterranean: extensive lagoons surrounded by reed beds and rushes, bordered by huge swathes of salt marshes and wetlands and long, deserted beaches backed by dunes topped with cordgrass and other plants that have adapted to this environment.

Rice paddies in the Ebro Delta during the rice harvest



Biodiversity

Flora and vegetation

The plant population of the Ebro Delta is unique in Catalonia, not just in terms of its quantitative potential (more than 700 species) but also for the rarity of its plant communities: wetlands, reed beds, riverine woodlands, etc. It is also worth mentioning the marine habitats of the bays, which are home to extensive seagrass meadows of tremendous ecological importance.

Fauna

Birds are the most characteristic wildlife group in the Ebro Delta and their qualitative and quantitative importance easily surpasses local interest, enjoying international recognition. The number of birds fluctuates between 50,000 and 100,000, made up of around 330 species that represent 60% of all European bird species.



Flamingos in El Delta de l'Ebre Natural Park

The other significant fauna group is fish, not only because of their abundance but also because of the important role that water plays in the delta and its varying degrees of salinity, ranging from negligible in the springs through to seawater, passing through different levels as the river converges with the sea.

Amphibians, reptiles and mammals are also represented, though to a much smaller degree.

Problems

Invasive alien species. The Ebro Delta is one of the areas in Catalonia with the largest number of invasive species, which have a direct impact on native biodiversity and also on production activities. In this respect, two invertebrates of foreign origin are causing million-euro losses in rice production: the island applesnail (*Pomacea maculata*), of Asian origin, and the red swamp crayfish, originally from North America. It is also worth noting that 50% of the fish in the irrigation channels are of alien origin.

Reduction in landmass and increased salinization. The plain of the Ebro Delta settles naturally, but in the last few decades this process has been exacerbated by the retention of sediment in



the more than 200 reservoirs that have been built along the river and due to the rise in sea levels caused by climate change. This results in a loss of surface area and increased salinization.

Pollution and freshening of saline systems in the bays. The drainage channels from the rice paddies discharge the irrigation water into the bays along with all the chemical products used to grow the rice. This causes a reduction in salinity and a rise in pollution, which is affecting both the habitats and the species in the bays, such as mussel production.

Complex governance. The tourism sector, in terms of both companies and visitors, is more and more important to the delta. Yet this has to coexist alongside a rich and diverse agricultural sector that preserves the authenticity and sustainability of this space. At the same time, public and private agents must reach an understanding if they are to jointly tackle the huge sustainability challenges of this fragile area.

Aerial view of the River Ebro flowing through the delta



STUDY TRIP TO THE EBRO DELTA

The aim of the visit is to observe the convergence and interactions between the different activities in the Ebro Delta and their management. This involves visits to different initiatives: conservation, production and ecotourism in a context of public-private governance.



Rice planting as a tourist activity

Private projects that promote conservation and ecotourism

The trip to the delta begins with a visit to the private enterprise MónNatura Delta de l'Ebre, managed by the Catalunya-La Pedrera Foundation. These lands have been rehabilitated from the former salt marshes of La Tancada and cover an area of 41.2 hectares. They highlight the environmental value of the area through the different spaces that can be visited and a range of recreational and educational activities that give people better insight into the importance of this area of lagoons. The experience revolves around three main activities: salt production, traditional fishing and birdwatching. Every September, MónNatura Delta organises the only international birdwatching festival held in Catalonia, the Delta Birding Festival, whose takings from ticket sales are used to support bird conservation projects.

Visits: We will visit the facilities, ascending to the main lookout point, and then, after a coffee break, move on to the Espai Delta facility to watch a video showing the Ebro Delta through the four seasons of the year.

Public projects to restore the environment and adapt to climate change

Since the creation of the Natural Park in 1987, numerous actions have been undertaken in the Ebro Delta to restore the environment, mainly by the public administration. However, in the last decade the projects have not only been aimed at preserving habitats and species but also at tackling the major problems mentioned earlier: the pollution of the bays and the loss of land mass due to climate change.

Notable projects in this respect include the following:

Barra del Trabucador

Description: The Barra del Trabucador is a narrow spit of sand stretching for 6 kilometres that connects with La Punta de la Banya (where there is a salt pan), separating Alfacs Bay from the open sea. It is a very fragile space that has been formed by deposits of marine sand by coastal drift currents.

Problems: During storms, the space is invaded by seawater, opening up channels between the open sea and Alfacs Bay and breaching the land link with the salt pan. At present, excessive human pressure, especially in summer, and vehicle traffic along the sand bar are the main factors having a negative effect on this space.

Actions: Various actions have been undertaken to restore connections and stabilise the sand bar (the creation of artificial dunes, filling in the breaches to the sea, etc.) and equip it for recreational use (car park, service area, etc.), but this has simply contributed to devaluing the landscape and has not always been effective.

Visit: During the visit, we will drive along the Barra del Trabucador, making stops at the most representative points.



Barra del Trabucador

Green filters

Description: The green filters (or purification wetlands) use their own aquatic vegetation systems and the microorganisms associated with them to eliminate pollutants from the water. They also allow the creation of spaces with high environmental value, restoring areas with great potential for establishing fauna and promoting ecotourism activities in the Natural Park.

Problem: The aim of the green filters is to improve the quality of the water that the drainage channels from the rice paddies discharge into the bays. During the rice production process, a number of polluting elements are added to the water (nutrients, organic matter, pesticides and other chemicals) that affect both the natural ecosystems and the production of mussels.

Actions: The Spanish Agency for Water Management of the Mediterranean Basin, Acuamed, which reports to the Ministry of Agriculture, has built two green filters in sensitive areas of the Ebro Delta.

Visit: A representative from Acuamed will lead a guided tour of one of the two green filters and provide information on how it works.





Productive activities: from rice paddies to mussel farms

Description:

The main productive activities in the Ebro Delta, in order of importance, are:

- *Agriculture*: This is easily the most important sector, as 65% of the delta is earmarked for rice production. The flooding necessary for this type of farming is guaranteed by a complex hierarchized irrigation network.
- *Fishing*: In terms of sea fishing, the port of Sant Carles de la Ràpita is Catalonia's fifth largest in terms of the volume of catches, registering 2,512 tonnes in 2017. There is also fishing in the lagoons and the river, both professional and recreational.
- *Aquaculture*: Mussels and oysters are grown on floating structures known as *batees*.
- *Salt production*: In La Punta de la Banya there is a salt production company that produces salt by evaporation from seawater, and consequently occupies a very large area.
- *Livestock farming*: This sector is negligible; there is only one farm in the whole delta.

Visit:

We will not visit a single rice paddy, fisherman or aquaculture company specifically, but their activities are constantly visible as the route wends its way between the rice paddies, where the fishing practices take place all year and the salt pan of La Punta de la Banya is visible from many locations.



Fishing for eels in El Delta de l'Ebre Natural Park

The tourism and ecotourism sectors

Description:

The Ebro Delta was the first region in Spain in which diagnostic and planning work on ecotourism was carried out in 1993 by Héctor Ceballos-Lascuráin, the coordinator of ecotourism programmes at the IUCN and the person responsible for coining this internationally-recognised term.

In 2007, El Delta de l'Ebre Natural Park joined the European Charter for Sustainable Tourism (ECST) network. At present, there are 32 companies in the delta that are recognised at a European level as being part of the ECST for their commitment to sustainability and to developing an environmentally-friendly ecotourism model, geared towards enjoying its natural and cultural values.

At present the Ebro Delta receives around 750,000 visitors per year who not only enjoy its beaches but also the delta's other features which, being completely flat with numerous water masses, makes it easy to enjoy nature through different sustainable modes of transport: walking, cycling, on horseback or in canoes.

Visit:

After lunch we will visit the Buda Island, the largest island in Catalonia with an area of around 1,000 ha and a length of 5 km, which forms part of El Delta de l'Ebre Natural Park. It is a very special spot, located at the easternmost edge of the delta, and entrance is restricted. Part of the island is private property, which has helped to preserve it through public-private collaboration. The little island is home to an agri-tourism establishment and rice is still grown here. In the interior we will see the lagoons of Calaix Gran and Calaix de Mar, which are home to a large number of birds.



Buda Island, in El Delta de l'Ebre Natural Park