



WWF

ANALYSIS

2016

SAVING DOÑANA

FROM DANGER TO PROSPERITY

AN ANALYSIS FOR WWF BY

Dalberg

DALBERG GLOBAL DEVELOPMENT ADVISORS

Dalberg Global Development Advisors is a strategic consulting firm that works to raise living standards in developing countries and address global issues such as climate change.

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WWF'S CALL FOR COLLECTIVE GLOBAL ACTION

THE DOÑANA WETLAND IS AT A CROSSROADS. POOR MANAGEMENT AND OVER EXTRACTION OF WATER ARE CAUSING DOÑANA TO DRY OUT, AND THE AREA NOW RECEIVES ONLY 20 PER CENT OF ITS NATURAL WATER INPUT. DOÑANA COULD BE DAMAGED FURTHER BY NEARBY DREDGING, MINING AND GAS STORAGE, IF THE SPANISH GOVERNMENT PROCEEDS WITH PLANS FOR SUCH ACTIVITIES.

To avoid the total loss of associated environmental, economic and social benefits, stakeholders must take imminent action to prevent the wetland from drying out completely. The new Spanish government must work with regional authorities, the private sector and civil society to implement a water management plan that maximizes conservation of the wetland so that it can deliver sustainable socioeconomic benefits to the region. Further, these stakeholders must not allow industrial activities to threaten the *outstanding universal value* of this World Heritage site.

If all stakeholders work together with the Spanish government to address the threats and to reverse existing damage, Doñana can sustain nature, support sustainable agriculture, fisheries and tourism, and provide valuable ecosystem services to current and future generations. Conversely, a failure to act will result in Doñana being added to UNESCO's List of World Heritage in Danger as early as June 2017.

WWF calls on **international institutions** to hold Spain accountable for mismanaging Doñana, including:

- The World Heritage Committee to initiate the procedure to inscribe Doñana in UNESCO's List of World Heritage in Danger if the Spanish government does not cancel river dredging or fails to protect the aquifer.
- The European Commission to enforce the implementation of European regulations, and not to provide funds for any activity that could harm Doñana's values, such as dredging of the Guadalquivir River.

WWF calls on **the Spanish government** to protect and recover Doñana's water sources. Specifically, it must:

- Cancel definitively dredging of the Guadalquivir River.
- Eliminate the 1,000 illegal wells, and 3,000 hectares of illegal farming fields as per the land use plan of the Andalusian government.
- Prohibit all mining and gas projects that could threaten Doñana.

WWF calls on **European retailers** to commit to source only legal and sustainable agricultural products from Doñana.

WWF calls on **Grupo Mexico** to relinquish the licence to operate the Aznalcóllar-Los Frailes mine, and to join the International Council on Mining and Metals in committing not to operate in World Heritage sites.

WWF calls on **Gas Natural Fenosa** to relinquish the licence to conduct gas storage and extraction projects inside Doñana's protected areas, and to commit not to operate in World Heritage sites.

WWF calls on **the public** to save our shared heritage.



WWF AND DOÑANA

In the late 1950s, Spanish biologist José Antonio Valverde and WWF founder trustee Luc Hoffmann joined forces to save an unspoiled wilderness in southern Spain, the Doñana marshes. In the 1960s, there was growing concern across Europe about urbanization encroaching upon the wetland, and plans for a vast drainage scheme.^{1,2} In 1963, after years of negotiations, WWF bought 6.794 hectares of Doñana and saved the marshes from destruction, a move that was one of the organization's first landmark conservation achievements. Two years later, the land was handed over to the Spanish National Research Council, which established the Doñana's Biological Station. That area, together with another property bought by WWF, the Guadiamar Biological Reserve, was declared a Spanish national park in 1969.³ WWF has worked ever since to keep Doñana's rich natural heritage alive for future generations.⁴

THE VALUE:

Doñana is an internationally recognized wetland that has economic, environmental and social values

The Doñana wetland complex includes a World Heritage site, a natural park and four Natura 2000 sites.⁵ It is famous for being Europe's most important area for migrating birds.⁶ Doñana is spread along the Guadalquivir River at its estuary on the Atlantic Ocean in Andalusia in southern Spain. Its diverse ecosystems include lagoons, marshlands, scrub woodlands, pristine beaches and sand dunes.⁷ Doñana

National Park, the largest protected area in the complex, was inscribed as a UNESCO Biosphere Reserve in 1980,⁸ a Ramsar Wetland of International Importance in 1982,⁹ and a UNESCO World Heritage site in 1994.¹⁰ Further, Spain designated the area surrounding the national park as a protected natural park,¹¹ and established four areas as European Natura 2000 sites, which aim to ensure the long-term survival of Europe's most valuable and threatened species and habitats.¹²

Doñana's diverse ecosystems provide habitats for up to six million migratory birds each year and half a million wintering birds.¹³ The area is home to over 4,000 species, including several rare and globally threatened birds. Doñana harbours over 1,500 plant species, almost 2,000 animal species and 500 species of microorganisms.¹⁴ Many of these are rare and iconic animals, including the imperial eagle,

the marbled teal, and the white-headed duck. Doñana is one of only two habitats for the endangered Iberian lynx, which is the world's rarest feline species.^{15,16} Its marshes are considered to be one of the most important wetlands in Europe, as 75 per cent of European bird types can be found there. For migrating birds, it is a major stopover point on routes between Africa and Europe,¹⁷ and it is also one of the largest heronries in the Mediterranean region.¹⁸

In addition to its environmental and conservation values, Doñana provides important local and global ecosystem services. Wetland ecosystems, such as Doñana, provide many services that support the livelihoods and well-being of people. These include fish, fresh water supplies, climate regulation, flood regulation, and coastal protection.¹⁹ In particular, Doñana provides important air and water purification, water regulation, and soil fertilization services.²⁰ It also acts as a net carbon sink,²¹ meaning that it removes carbon from the atmosphere, which helps to mitigate the impacts of climate change. Doñana also provides for important cultural services, such as nature tourism, which generates value for the local population.²²

Doñana's ecosystem services support socioeconomic activity, including providing jobs for the region's 200,000 inhabitants.²³ Doñana's unique biosphere attracts visitors from around the world. The value of beach, cultural and nature tourism in the park is estimated at €74 million per year,²⁴ and the industry is estimated to employ almost 50,000 people.²⁵ Doñana also supports agriculture, which is the largest employer in the region.²⁶ It has the most productive rice fields in Europe,²⁷ and produces 70 per cent of the strawberries grown in Spain.²⁸ Further, the estuary and the coastal zone bordering Doñana is an important fish and prawn spawning ground and nursery²⁹ that benefits fisheries all over the Gulf of Cádiz.



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DOÑANA SUPPORTS AGRICULTURE, FISHERIES AND TOURISM, BUT ITS ECONOMIC VALUE COULD SLIP AWAY.



FISHERS UNCERTAIN FUTURE

Juan is a small-scale fisher who works in the Guadalquivir River estuary on the border of Doñana National Park. The fishing sector here spans generations and is characterised by small, family-run boats, as well as land-based collection of crayfish and shellfish.

Poor water quality in the area where Juan and his son fish has caused a reduction in stocks. Juan also fears that proposed river dredging would further harm the fishery, which is his only livelihood. "If you touch the river to let a few big merchant ships go by, you'll kill us," he says.

THE THREATS:

Harmful industrial activities have depleted Doñana's water sources, and are threatening Doñana's environmental, social and economic values

At present, the Spanish government is not adhering to the international commitments it has made to safeguard Doñana.

Doñana is protected by several international conservation agreements, including the World Heritage Convention, the Ramsar Convention on the Conservation of Wetlands, and the European Commission's Birds and Habitats Directives. Each of these international agreements imposes obligations upon Spain, but the country is failing to uphold them with its current management efforts. For example, the Spanish government is required to protect the natural heritage found within its territory for current and future generations.³⁰ It must also conserve international wetlands,³¹ and implement the actions necessary to support these objectives,³² including taking appropriate legal, scientific, technical, and financial measures.

Harmful industrial activities, including intensive agriculture and river modifications, have reduced Doñana's water input to fewer than 20 per cent of its natural level.

Under natural conditions, Doñana receives water from the Guadiamar and Guadalquivir Rivers,³³ as well as from a large underground aquifer. The aquifer provides water to local streams and to the marshlands throughout the year.³⁴ The natural flow of water, however, has been altered in the last three decades by human activities.³⁵ Repeated river modifications have led to a large reduction in Doñana's water inputs,³⁶ and intensive irrigation for agriculture has overexploited the aquifer. Today, water levels in Doñana are critically low.

Intensive, illegal farming has been one of the main drivers of unsustainable water use from the aquifer.

Growth of berry production in Doñana has put an increased strain on the quantity and quality of its water sources.³⁷ About half of intensively farmed fields use water extracted from the aquifer without the necessary permits and licenses,³⁸ and 30 per cent of farms are using land illegally.³⁹ This illegal activity overexploits water sources and poses unfair competition to farms that respect the law. Spanish authorities have created a land use plan to address these problems, which would involve the closure of over 3,000 hectares of illegal farms.^{40,41} This plan was approved in December 2014 but still has not been implemented. As such, Spain's current resource management does not comply with European Union water legislation.⁴²

The problems of excessive water use have been reported since 1989, and as a result the wetland was added to Ramsar's Montreux List⁴³ of sites where negative ecological changes have occurred as a result of human interference.

⁴⁴ Since then, the UNESCO World Heritage Committee repeatedly has warned the Spanish and Andalusian governments about the consequences of unsustainable water use. Retailers also have expressed severe concern at the unsustainable production in the region. They have requested that the Andalusian and Spanish governments take action to improve water governance, to implement and enforce laws, and to adopt sustainable and efficient water management practices.⁴⁵ Most recently, the European Commission has opened a second infringement case against the Spanish government, and may refer the country to the European Union Court of Justice if the government fails to take the required actions as a matter of urgency.⁴⁶

Doñana's remaining water inputs are low quality and heavily polluted, which is causing widespread damage to the wetland. Intensive agriculture is releasing pesticides and fertilizers that are contaminating the aquifer⁴⁷ and surface water.⁴⁸ This has led to an increase in phosphate and nitrate levels across the marshland, especially over the past five years. As a result of additional nutrients in the water, there have been large, damaging outbreaks of invasive ferns across the wetland.⁴⁹

Changes to water inputs have reduced biodiversity, dried out lagoons, and resulted in negative changes to Doñana's natural value.

Over 80 per cent of the marsh has been lost since the beginning of the 20th century,⁵⁰ along with 90 per cent of the shallow seasonal lakes.⁵¹ Lagoons that were temporary or seasonal have dried, and lagoons that were permanent – and critical for many plant and amphibian species during the dry season – are increasingly becoming temporary and rain-dependent.^{52,53} Alteration of river-aquifer dynamics and a reduction in water inputs has resulted in the replacement of water-dependant plant species by drought-resistant plants.⁵⁴ Also, there has been a decline in certain bird species that used to breed in Doñana.⁵⁵ For example, the marbled teal, a critically endangered bird that was once the most common breeding waterfowl in Doñana, now rarely is seen.⁵⁶ Further, seven out of ten species of dragonflies and damselflies listed on the IUCN Red List of Threatened Species have disappeared from Doñana.⁵⁷

THERE ARE 1,000 ILLEGAL WELLS AND 3,000 HECTARES OF ILLEGAL FARMS STEALING DOÑANA'S WATER.



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GROWING SUSTAINABILITY

The Doñana area produces 70 per cent of all strawberries grown in Spain. Most are exported to other European countries. The industry generates €400 million in export revenue each year.

Unfortunately, illegal farms are exploiting water sources and posing unfair competition to licensed farms. In response, European retailers and other stakeholders have joined the Doñana Berries and Sustainable Water Management Group. Their hope is that together they can secure a long-term supply of sustainably sourced strawberries for European markets.



This damage has led to a decline in ecosystem services, which could affect the ability of the region to provide jobs, generate income, and support local people. The Doñana Berries and Sustainable Water Management Group, consisting of leading European retailers and other industry stakeholders, believes that without effective measures to control water extraction, there will be a reduction in the long-term availability of berries from Doñana.⁵⁸ This would threaten jobs and the €400 million export revenue generated by strawberries each year.⁵⁹ There has also been a decline in commercial fish populations due to a decrease in water quality.⁶⁰ Experts believe that the regulating services provided by Doñana have declined, alongside a decrease in flood buffering, pollination and soil fertility services.⁶¹ These services are vital for productive agriculture. In addition, there has been a decline in the area's ability to provide natural resources and to protect against floods,⁶² reducing the value of Doñana for local people.

Despite Doñana's fragile condition, there is a proposal to conduct further dredging in the Guadalquivir River, which would exacerbate existing damage and trigger inscription on UNESCO's List of World Heritage in Danger. The Port Authority of Seville, a city located upstream from Doñana, has submitted plans to deepen the Guadalquivir River. Dredging of the river would facilitate increased access for massive cargo and cruise ships to the port.⁶³ Seville requested European funds to support this project.⁶⁴ A scientific commission reviewed the plans in 2010, and reported that industrial-scale dredging to deepen the river would impact negatively on the water flows and biodiversity of the estuary. Such damage would be incompatible with the conservation of the Guadalquivir estuary, and, therefore, Doñana.⁶⁵

The UNESCO World Heritage Committee has threatened to inscribe Doñana on the List of World Heritage in Danger if the Spanish government fails to abandon permanently the dredging plan.⁶⁶ In March 2015, the Spanish Superior Court requested that the ministry of environment remove the dredging from the river basin planning documents,⁶⁷ as the court considered that the plan posed a threat to both the estuary and Doñana National Park. Further, the European Commission may refer Spain to the European Court of Justice if action is not taken.⁶⁸ Despite this widespread opposition, which also includes most national public agencies,⁶⁹ the Spanish government has not yet committed to cancel the project,⁷⁰ and the Seville Port Authority has stated its intention to continue with it.⁷¹

The Andalusian government is further jeopardizing Doñana's survival by sanctioning the reopening of a nearby mine that caused what was likely Spain's worst environmental disaster, and will put further pressure on Doñana's water sources. Twenty years ago, an area near the wetland was damaged severely by an accident at the Aznalcóllar-Los Frailes mine. A dam holding waste from the extraction process burst and released five million cubic metres of toxic sludge and acidic water into the Guadiamar River, which flowed downstream to the border of the park. The waste released from the dam was equivalent to the contents of 2,000 Olympic-sized swimming pools, and after the spill around 30,000 kilograms of dead fish were found. Efforts to clean up the spill took three years and cost around €380 million. The mine was reopened in 1999, but operated at a loss, and was closed in 2001, after receiving a subsidy from the government. In spite of this history, in February 2015, the Andalusian government awarded extraction permits to Mexican multinational Grupo Mexico, which plans to reopen the mine. In addition to the threat that the mine poses from another accident, operations would result in further water extraction from Doñana's already depleted sources.⁷²

There are also proposals for gas extraction and storage projects inside Doñana's protected areas which would put their ecosystems at risk, and threaten the area's ability to provide a global carbon sink. Gas extraction can have negative impacts on the environment, including pollution of underground water, explosions in the case of leaks in gas storage facilities, and seismic reactions causing earthquakes.⁷³ The UNESCO World Heritage Committee has stated repeatedly that oil, gas and mining exploration and extraction are incompatible with World Heritage status.⁷⁴ As a result, several companies have committed not to undertake extractive operations within World Heritage sites.^{75,76}

In spite of these warnings and commitments, the Spanish government has declared the area under Doñana as a strategic gas storage site, and has authorized Spanish utilities company Gas Natural Fenosa⁷⁷ to conduct a series of gas storage and extraction projects within the boundaries of Doñana's protected areas.^{78,79} A number of these projects have already had environmental impact assessments, but all were incomplete and conducted in isolation. The UNESCO World Heritage Committee has asked Spain to conduct an assessment that evaluates all possible cumulative impacts to the site's *outstanding universal value* before allowing any projects to commence.^{80,81} As stakeholders disagree with this recommendation, gas projects could be authorized by the Andalusian government in the future.

IN 1998, AN ACCIDENT AT THE AZNALCÓLLAR-LOS FRAILES MINE KILLED 30,000 KILOGRAMS OF FISH.



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NATURAL LEGACY

Alvaro is a fourth generation ranger in Doñana National Park. He often takes his daughter into the field to teach her about the World Heritage site's diverse plants and animals. His dream is that someday she, too, will devote her life to safeguarding this precious place.

Although Doñana is protected by national laws and international treaties, threats are mounting. Compromizing the park's natural value also puts in jeopardy the well-being of 200,000 nearby residents like Alvaro and his daughter. Only with a healthy environment will it be possible to achieve long-term sustainable development.

THE SOLUTION:

Immediate action is required to ensure that Doñana can continue to provide long-term social, economic and environmental benefits at local and global levels, and to prevent Doñana from being inscribed on UNESCO's List of World Heritage in Danger

The Spanish government must reconsider its current management practices, and work immediately with stakeholders to reverse the damage that has already occurred in Doñana, to protect it from future harmful activities, to position it as a driver of long-term sustainable development. The Doñana wetland has global ecological significance, and supports the livelihoods and well-being of almost 200,000 people living nearby. However, Doñana has been degraded by inadequate water management, and faces further damage from harmful industrial activities. This could result in Doñana being inscribed on UNESCO's List of World Heritage in Danger as early as June 2017. However, careful management of water use and activities could reverse past degradation, protect Doñana from further damage, and ensure that development in the region contributes to the 2030 Sustainable Development Agenda.

The five principles of sustainable management of World Heritage sites should be applied to Doñana to help decision makers maximize both conservation and sustainable development, which depends on a healthy wetland.

- 1 *Valuation that is socially conscious.* The Spanish government should ensure that environmental impact assessments consider the full, cumulative environmental and social impacts of activities in Doñana and the surrounding areas. Specifically, it should assess the cumulative impacts of all proposed gas extraction and storage projects, as requested by the UNESCO World Heritage Committee.⁸² The Spanish government should assess also the potential cumulative and synergistic impacts of conducting in the same area multiple activities that could impact negatively on the outstanding universal value of Doñana, such as gas extraction, mining and dredging.
- 2 *Investment decisions that focus on long-term value.* Investment that focuses on long-term value would favour sustainable agriculture, tourism and fisheries, over damaging intensive agricultural production, mining, gas extraction, and dredging in the Doñana area. Current illegal and unsustainable agricultural practices are jeopardizing both the health of the wetland and the long-term potential for continued production. Transitioning to sustainable agricultural practices would require closing all illegal farms. When combined with sustainable fisheries and tourism, sustainable agriculture would protect Doñana, provide stable income and jobs to local residents, and ensure that the region could maintain production for current and future generations. The pursuit of short-term gains through mining and gas extraction would risk the wetland's biodiversity and its provision of ecosystem services, and would not align with Spain's commitment to the UNFCCC Paris Agreement or to the Sustainable Development Goals. The Spanish government, therefore, should implement immediately a management plan for Doñana that prioritizes sustainable activities over damaging alternatives. In addition, the European Commission should avoid using European funds to finance harmful industrial activities in or near the site. Also, private companies, such as Grupo Mexico and Gas Natural Fenosa, should refrain from participating in projects that threaten Doñana, including mining, gas storage and extraction, and river dredging.

- 3 *Governance that is representative of all beneficiaries.* Local, regional and national stakeholders should work together to manage Doñana and the estuary area in a way that allows for restoration of the wetlands and its water sources, while supporting economic growth in the region. Local residents previously have reported feeling excluded from the management of Doñana,⁸³ and must have the opportunity for meaningful consultation in the future. This engagement could help to align conservation and development goals in the region, and will be a key factor in reaching sustainability and compliance with the OECD Guidelines for Multinational Enterprises. The Andalusian government should also respond to the urgent request from retailers and food companies to implement fully and immediately the 2014 land use plan. Doing so will respond directly to companies' desires to buy from legal, sustainable producers, as well as consumers' desires to buy sustainable produce.⁸⁴
- 4 *Policymaking that is evidence-based and transparent.* The Spanish government should consult civil society groups, non-governmental organizations and technical experts in the policymaking process, and decisions should be based on all available information and data. The Spanish government should consider fully the recommendations made by the European Commission, the UNESCO World Heritage Committee, and the Spanish scientific commission. Of particular concern are the threats posed by excessive water extraction, dredging the Guadalquivir River, reopening the Aznalcóllar-Los Frailes mine, and permitting gas extraction in the Doñana complex.⁸⁵
- 5 *Regulations that are enforced and followed.* The Spanish government should ensure that the 2014 land use plan is implemented swiftly. The Spanish government should also better regulate water extraction, and the Andalusian government should locate and close all illegal wells and farms, as well as prosecute those who are operating them. The European Commission should continue the infringement cases against Spain, and make referrals to the European Court of Justice where needed. Doing so will help to ensure that the Spanish government takes all actions possible to avoid further damage to the World Heritage site and the Natura 2000 sites in the Doñana complex. The UNESCO World Heritage Committee should also continue to enforce compliance with the World Heritage Convention, and should add Doñana to the List of World Heritage in Danger if Spain fails to take the necessary actions to protect the outstanding universal value that Doñana holds for all humanity.



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RESTORING HOPE

The world is looking to Spain to rescue this iconic World Heritage site. Together with regional authorities, the private sector and civil society, Spain can bring about a bright tomorrow for Doñana. By following the recommendations presented here, it will be possible to secure the park's natural treasures and realize its sustainable economic development potential.



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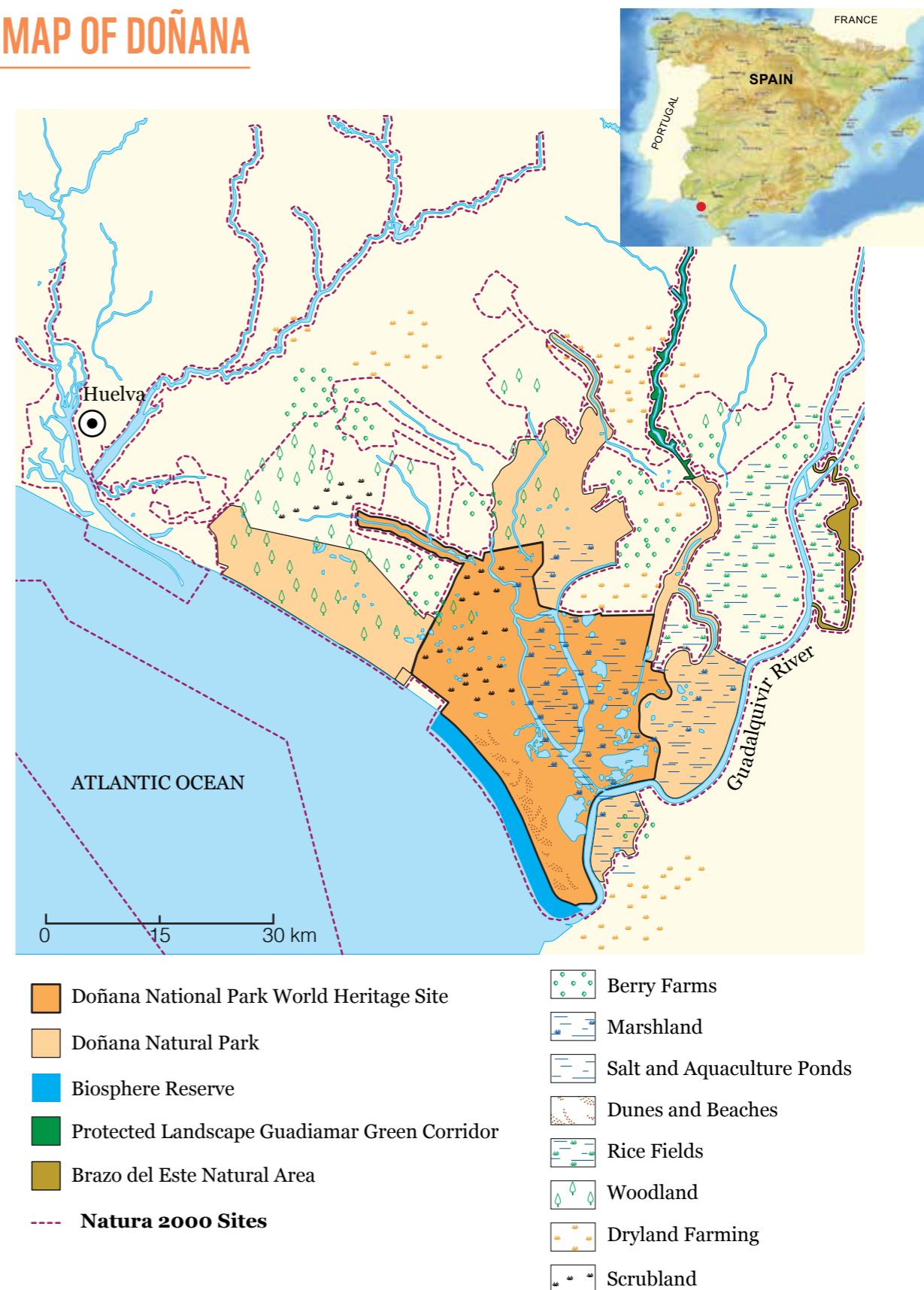
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MAP OF DOÑANA



The Doñana wetland in numbers



200,000

People living near the wetland depend on it for their well-being

6 MILLION

Migratory birds stop over each year



70%

Of the strawberries produced in Spain come from the area

1,000

Illegal wells are draining Doñana of its water

	<p>Why we are here To stop the degradation of the planet's natural environment and to build a future in which people live in harmony with nature.</p> <p>panda.org</p>
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