

Information Sheet on Ramsar Wetlands

1. **Date this sheet was completed/updated:** 3 September 1997
2. **Country:** SPAIN
3. **Name of wetland:** Las Cañas Reservoir (El Salobre Reservoir)
4. **Geographical coordinates:**

42°29'30" North
2°24'30" West

5. **Altitude:** 370 metres above sea level
6. **Area:** 100.9 hectares
7. **Overview:**

Las Cañas Reservoir (El Salobre) has a surface of 100.9 hectares (99.6 hectares of water and paludal vegetation and 1.3 hectares of pasture). It is part of an endorheic region near the Ebro River, a transitional area between a Miocene formation to the north and the high river terraces on the left bank of the Ebro River. The functions of the original lake have been substantially modified by the use of runoff from a water basin of 6,602 hectares outside the lake and the construction of internal and external dikes. It is a body of permanent, low saline water. This reservoir is an important wetland for the nesting and wintering of several species of aquatic birds and a resting point for migratory birds in the western Palaearctic that use the Navarro Pass through the Pyrenees during their pre- and post-nuptial migration.

8. **Wetland type:**

Sp, 6

9. **Ramsar criteria:**

3c

10. **Map of site included? Please tick yes -or- no**

11. **Name and address of the compiler of this form:**

Servicio de Medio Ambiente
Dirección General de Medio Ambiente
Gobierno de Navarra
Pamplona

12. **Justification of the criteria selected under point 9, on previous page:**

The Las Cañas Reservoir merits designation as a wetland of international importance because of the aquatic birds found there.

- There has been a population of *Nycticorax nycticorax*, for which a minimum of 75 mating couples is required, above this level since 1987,

reaching 470 couples in 1994. The most important colony of herons is in the valley of the Ebro.

- The population of *Ardea purpurea* has been more than the required 25 couples of birds since 1989.

- The presence of *Botaurus stellaris* has been recorded since 1988 and mating has been recorded since 1994. In the valley of the Ebro, the mating population of this species is found farther south.

- There are substantial populations of *Porzana parva*, *P. porzana* and *P. pusilla*, even though they have not reproduced with regularity.

It is important to point out that the strategic geographical situation of the Las Cañas Reservoir, at the extreme northern limit of distribution of the purple heron (*garza imperial*) and heron (*martinete*) on the peninsula and very distant from the other colonies, is another factor that makes this wetland worthy of designation as a wetland of international importance under the Ramsar Convention.

13. General location:

This wetland is in the municipality of Viana, near the border of Navarre and La Rioja, between the Viana-Logroño and Logroño-Mendavia highways, at a place called Salobre, in the Navarre autonomous region.

14. Physical features:

This wetland basin is on Tertiary sedimentary material (clays and sand) that forms part of the geological unit of the Ebro valley. The geomorphology is a slight depression formed on detritus and paleochannel materials of sand with original endorheic characteristics. Connection to the main drainage network of a broad water basin of 6,602 hectares, construction of a small dam (*pantano viejo*) and then a second dam (*pantano nuevo*) and then landscaping of this area have created an ecosystem used marginally for irrigating crops on the alluvial deposits near the Ebro River.

15. Hydrological values:

The geographic setting is determined by the influence of the Mediterranean climate: little precipitation, usually from storms originating in the Atlantic associated with winds from the northwest, and summer storms. Average annual precipitation is 443 litres per square metre in the form of rain storms. There are 2,500 hours of sun per year, with an abundance of clear days because of the influence of wind from the northwest, which prevents clouds from forming. Average annual temperature oscillates between 13 and 14°C. According to the classification of Rivas-Martínez (1994), the area of Las Cañas fits into, within the Mediterranean Region, the upper horizon of the middle Mediterranean bioclimate stage. Winters are cold because the average minimum temperature of the coldest month is 1.5°C at the nearest meteorological station (Logroño) from 1931 to 1980. The coldest period is -1°C to 2°C. Recorded annual precipitation is 443 mm, corresponding to a lower dry cloudy climate, with a range between 350 and 450 mm. The index of continentality (Ic) calculated for the station of Logroño is 46.4. This places it in the semicontinental category.

The Las Cañas Reservoir is located on clays with layers of sand from the continental Tertiary on the northern edge of the geological formation of the Ebro depression. This formation is formed in this area by an important mass of detritus Tertiary materials sometimes several hundred metres thick. From

the point of view of lithology, these Tertiary soils are formed by clays, muds, sands in paleochannels and thin layers of limestone. These materials originated in their deposit in the river or river-lacustrine basin that evolved from north to south. This is reflected in the variation in granulation in this direction because there is a greater density of paleochannels of sand in the north of the basin; while, toward the south, the size of grains becomes finer and the paleochannels of sand are weaker. In the southern part of the basin, there are primarily clays alternating with thin layers of limestone and layers of sand. On top of these Tertiary materials, a covering of a thin layer of Quaternary materials has developed to a maximum of 5 metres thick, originating from the fill materials in the valleys, deposited by tributaries, small streams and endorheic deposits. The lithology is clays and muds with broken edges in the centre.

The materials present in the area have a hydrogeological behaviour clearly differentiated among themselves. On the one hand, given their low porosity, the clays and muds mixed with sand from the Tertiary behave as a practically impermeable formation (only the sands offer tiny channels). Given the importance of this layer, this formation can be considered to form an impermeable base. The Quaternary materials forming a detritus covering in the area is the only layer with some permeability. But given that these Quaternary materials are of fine granulation and have clays with open spaces in their interior, their capacity as aquifers is low or non-existent.

The Las Cañas Reservoir, endorheic in origin, has lost this condition and is now a reservoir regulated by a contention dam and drainage canals. Its water is used for irrigation in the area. The lake covers approximately 100 hectares and has a maximum depth of 5 to 6 metres. The water basin is part of the Ebro depression, between the Sierra de Codés and the left bank of the Ebro River. It has a total area of 6,602 hectares. There are three main streams (Perizuelas, Valdevarón and Longar or Valdibañez). A series of tributaries flow out of Castillo de Lapoblación and Las Llanas in the northern part of the water basin to Las Cañas Reservoir, in the southern part of the basin. There is a secondary basin for the summer formed by the Valdearas stream that can be diverted into the lake depending on needs. This has the morphology of a fine dendritic basin, characterized by an arborescent ramification in which the tributaries join to a main stream at right angles. Its presence indicates homogeneous soils and an area of soft sedimentary and impermeable rocks.

16. Ecological features:

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17. Noteworthy flora:

The vegetative associations determined by the previously described climate is that of the meso-supra Mediterranean basophile, dry, Castellano-Argonés reed (*Querceto rotudifoliae sigmetum*). This type of reed develops on substrata rich in base elements. In the past it probably formed the primary vegetation around Las Cañas Reservoir. At the present time, there is no evidence of this formation in the area around the wetland and only serial communities substituting for the climax forest can be found: aromatic thickets of *Sideritido-Salvion* (*Salvio lavandulifoliae-Ononidetum fruticosae*) on soils formed in the sand of paleochannels and the high river terraces of the Ebro River, combined in mosaic with perennial pastures of *Lygeo-Stipetea* (*Ruto angustifolii-Brachypodietum retusi*).

The scrublands and pastures on the outside edges of the lake are populated by shrubs requiring high levels of nitrogen and pastures transformed by the grazing of cattle with the presence of *Brometalia*, *Poetalia* and *albardines*

mixed with the *Lygeo-Stipetalia*. These together with *ontinares-sisallares* of the *Salsolo vermiculatae-Artemisietum herba-albae* association form the vegetation of the northwestern basin of the Bardeno-Monegrino sector and are excellent bio-indicators of the Bardenero subsector with its steppe ecosystems.

The Las Cañas Reservoir is part of the Mediterranean region in the Bardeno-Monegrino section, close to the edge of the Riojano-Estallés section, a tip of which approaches the area of Logroño (Rivas-Martínez et al., 1991).

The Las Cañas Reservoir is classified as a steppe and endorheic lake, although it has been very modified and marked by its biogeographic position in the extreme northwest of the dry, semiarid area in the valley of the Ebro at its closest point to the EuroSiberian region (the Cantabrian Mountains). The following typical bands of vegetation are found from the centre outwards:

- Submerged grasses occupy the parts of the lake that remain flooded most of the year, but whose depth is usually no more than 2 metres. The most common species are *Chara* spp., which forms large underwater beds, and the emergent Polygonaceae, *Polygonum amphibium*, whose spikes of red flowers reach out of the water and which are very abundant in Las Cañas. Several species of Ranales dot the area closest to the shore: *Ranunculus aquatilis* and *Ranunculus fluitans*. *Potamogeton pectinatus* is an abundant hydrophyte that completes the list of underwater species most frequent in this lake.

- Reeds are found in a broad band of vegetation around the central body of water, formed primarily by *Phragmites communis*, dominated in areas by *Typha angustifolia*. Other plants such as the Cyperaceae *Scirpus tabernaemontani* and *Scirpus maritimus* are mixed in with the other reeds. The recognized halophytic association is *Typho angustifoliae-Phragmitetum australis*, found in eutrophic water subject to long periods of flooding.

- A belt of reeds that is covered with water only part of the time forms a band of vegetation of Monocotyledoneae belonging to the Juncaceae and Cyperaceae families. Most important is *Scirpus maritimus*, which colonizes large areas immediately outside the beds of reeds. Another species that is on this shore, but which tends to be separate from the water but not submerged because of its paludicolous nature is *Scirpus holoschoenus*. This species is always found in all of the reservoirs in Navarre, in areas where there is soil humidity but no surface water. The species that characterizes this type of vegetation is *Scirpetum maritimi*.

- Surrounding dry pastures with a predominance of Gramineae such as *Agropyrum repens*, *Agrostis stolonifera* and *Hordeum secalinum*.

- The river beds of the basin are colonized by an arboreal species, *Tamarix canariensis*, which is extremely important in Las Cañas for the nesting of Ardeidae, especially herons (martinete). This tamarisk is part of the *Inulo-Tamaricetum canariensis* association (Loidi and Bascones, 1995).

18. Noteworthy fauna:

There is only one species of strictly aquatic mammal, the *Arvicola sapidus*. In the breeding season, it can become a predator of chicks and eggs of aquatic birds. The European muskrat (*Mustela lutreola*) is present in all of Navarre. On isolated shores are found *Apodemus silvaticus*, *Crocidura russula*, *Erinaceus europeus*, *Mus musculus*, *Rattus rattus* and *Suncus etruscus*. Other mammals that visit the lake are the fox (*Vulpes vulpes*), wild boar (*Sus scrofa*), opossum (*Mustela nivalis*), badger (*Meles meles*), genet (*Genetta genetta*) and polecat (*Putorius putorius*).

The Las Cañas reservoir is important for species of nesting aquatic birds and is the leading wetland in Navarre in diversity of nesting species, including all of the Ardeidae that breed in this area, plus the greatest number of couples of these and Podicipedidae.

There is reason enough to justify the international importance of Las Cañas in function of two species: the heron (*martinete*) (*Nycticorax nycticorax*) and the purple heron (*garza imperial*) (*Ardea purpurea*). In both cases the definition of international importance is met both for the minimum number of couples (75 and 25 respectively) as well as over time, because the heron has been present with the required population for at least nine years and the purple heron for the past eight years. In addition, the presence of the *avetoro* (*Botaurus stellaris*) has been regularly recorded since 1989, although no reproduction had been recorded up to 1994. There are repeated recordings of chicks of the *Porzana parva*, *P. porzana* and *P. pusilla*. Although they do not reproduce with regularity, they contribute to the importance of this wetland. The common egret (*Egretta garzetta*) has a current population of 33 nesting couples, and the cattle egret has increased in population to 38 nesting couples as of 1997.

In surveys of wintering aquatic birds, Las Cañas is usually the second wetland of Navarre in diversity of species, although in 1991 it shared first place with Pitillas and in 1992 and 1994 it was first.

There is an important population of amphibians and reptiles, predominantly Mediterranean, at Las Cañas. The following list of species and an indication of the conservation status assigned to them by the "Catalogue of Endangered Species in Navarre" (NA = not endangered; DI = of special interest; SH = vulnerable to changes in habitat) is the following (Bergerandi and Gosa, 1989): *Alytes obstetricans* (NA), *Bufo bufo* (NA), *B. calamita* (NA), *Chalcides chalcides* (NA), *Coronella girondica* (NA), *Discoglossus galganoi* (DI), *Elaphe scalaris* (NA), *Emys orbicularis* (SH), *Hyla arborea* (DI), *Lacerta lepida* (NA), *Malpolon monspessulanum* (NA), *Mauremys leprosa* (DI), *Natrix maura* (NA), *Natrix natrix* (NA), *Pelobates cultripes* (DI), *Pelodytes punctatus* (NA), *Podarcis hispanica* (NA), *Psamodromus algirus* (NA), *Rana perezi* (NA), *Triturus helveticus* (NA) and *T. marmoratus* (NA). The presence of *Salamandra salamandra* has been reported, but not confirmed in an irrigation canal near Las Cañas Reservoir. It is not the only site outside the mountains and its presence might be because of isolated populations that survive in the more humid and cooler microclimates of the Ebro basin (springs and thickets). The category of sensitive to changes in habitat or of special interest for five of the species of reptiles and amphibians at Las Cañas increase the value of this enclave.

Data on fish are from 1979 and are based on observations of fishermen. The following fish have been reported: carp, American perch, eels, tench and common catfish. We know (personal observation) that the common golden carp is present. In all cases, the presence or absence of some species does not provide information on the unique ecological characteristics of this ecosystem because they have been introduced in response to a specific interest, sport fishing.

19. Social and cultural values:

This wetland is located along the Road to Santiago de Compostela, which runs along the northern edge and is posted with information on the existence of the wetland which is visited by pilgrims. On a hillock next to the Road to Santiago and overlooking the aquatic ecosystem is the visitor reception centre for the "El Bordón" nature reserve, constructed on the ruins of a former inn. There are displays of information on the history, origin,

evolution and points of interest in the ecosystem, fauna, flora, climatic characteristics, geology and hydrology affecting this biotype. The land use and management plan for the wetland provides for its management. There is a surrounding fence and areas prepared for trails and hiking. Fishing is permitted in a limited and marked area. Monitoring and regulating of visitors is carried out by staff contracted by the government of Navarre. Informative materials have been prepared (pamphlets), which are given to visitors. Organized groups of schoolchildren regularly visit this wetland.

20. Land tenure/ownership of:

This area is communal property of the Ayuntamiento de Viana.

21. Current land use:

At the site, the lake is considered to be unproductive land.

In the surrounding area, there are intensely cultivated fields of *barbecho blanco* and on the south, southeast and east *barbecho semillado* interspersed with vineyards, which occupy approximately 10 per cent of the area. In the northwest, there are three hectares of replanted pines of *Pinus halepensis*.

22. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land use and development projects:

At the site, construction of dams (one internal and the other external) and runoff.

23. Conservation measures taken:

This area was declared a nature reserve (RN-20) by Foral law 6/1987, on 10 April, of regional urban planning regulations for land conservation and use.

Declaration of a buffer area around RN-20, by Foral decree 307/1996 of 2 September 1996, which approved the posting of signs around the buffer area of certain reserves. A description of the area is included in Foral law 9/1996 of 17 June 1996 on nature areas in Navarre.

Designation as a Z.E.P.A. by decree 79/409/CEE in 1990.

Inclusion in the inventory of wetlands in Navarre (Foral decree 4/1997 of 13 January 1997).

24. Conservation measures proposed but not yet implemented:

At the present time, the general regulations for the use and management of RN-20 is established by Foral decree 138/1991 of 11 April by which regulations were created for the management of leisure and recreation activities in the Las Cañas Reservoir nature reserve. A specific use and management plan is being prepared to organize and provide for the management of this wetland within the framework of co-ordinated planning of all the wetlands of international interest in Navarre.

25. Current scientific research and facilities:

Annual surveys are made of wintering and nesting aquatic birds (Ardeidae), and the water is sampled to measure its physical and chemical properties. At the same time, the *avetoro* is monitored in order to determine the factors limiting the establishment of a nesting nucleus in this area.

26. Current conservation education:

The "El Bordón" visitors centre, created in 1995, is provided with staff and material to receive occasional visitors from Navarra and La Rioja or tourists on their way to Santiago de Compostela. The centre can receive groups of schoolchildren in organized visits accompanied by their teacher and a monitor. In the observatory, there is viewing material (telescopes and binoculars), pamphlets and posters, which provide support for environmental education activities for schoolchildren. This visitors' centre forms part of a network of educational centres maintained by the government of Navarre for educational activities, recreation and nature tourism. These activities are concentrated in the fall and spring.

27. Current recreation and tourism:

Tourism is limited to the area of the Road to Santiago (northern section) and the containment dam to the south. The seasonality of the activity concentrates visitors in the summer.

28. Jurisdiction:

Territory: Regional and municipal governments

Administration: Departamento de Medio Ambiente
Ordenación del Territorio y Vivienda
Gobierno de Navarra

29. Management authority:

Servicio de Medio Ambiente
Dirección General de Medio Ambiente
Gobierno de Navarra
Pamplona

30. Bibliographical references: