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## IUCN REVIEW

World Heritage Nomination

1. NAME: Parc National D'Joudq, Senegal
2. LOCATION: Sixty km. north-east of St. Louis in the delta of the Senegal River.
3. NOMINATED BY: The Conservator of the Park, March 1978.
4. DOCUMENTATION:
  - i) Nomination form.
  - ii) Supplementary documentation IUCN
    - a) Dupuy, Larivière, Senegal, ses parcs, ses animaux, 1978.
    - b) Assessment of Environmental Effects of the Proposed Developments in the Senegal River Basin, Sec. 3-5, Env. Assess. Council Inc. 1977.
    - c) Proceedings Heiligenhafen Conference on Conservation of Wetlands, 1974.
    - d) Dupuy, Les parcs nationaux de la République du Sénégal, 1972.

## 5. BACKGROUND:

The 16,000 ha. proposal was first submitted in March 1978. A decision was deferred pending further information with regard to potential impact of the projects of "L'organisation pour la mise en Valeur du Sénégal".

In November 1978, IUCN met with the consultants carrying out the environmental impact assessment for the OMVS.

The impact of the dams is not yet known primarily because there is no information available with regard to what modifications might be made to the project to ensure essential periodic inundation of the delta area.

The Environmental Impact study suggests in:

Section (3.3.2.1.1) "...the proposed project will have the most direct impact on the river and estuary regime".

Section (3.3.2.1.1.2) "... tidal exchange rates and patterns will be markedly altered".

Section (3.3.2.1.1.7) "...flooding will be reduced as a result of the flow regulation scheme ...".

It is feasible to artificially regulate water flow to simulate natural conditions. Whether this is feasible economically or politically is not known.

Comment: The delta of the Senegal and in particular the Parc National D'Joudj are very significant waterfowl breeding areas.

Recommendation: Because of the intensive development taking place in the region it is recommended that any decision on the area be deferred indefinitely. This recommendation is in keeping with the criteria for international wetlands developed at the Heiligenhafen Conference (i.e. The area must be "free from the threat of major impact of external pollution, hydrological interferences and land use or industrial practices").



International Union for Conservation of Nature and Natural Resources

April 1979

DJOUdj NATIONAL BIRD SANCTUARY (Senegal)

As frigid autumn winds begin to whistle into Europe from the north, a host of migratory birds are thinking of more hospitable climates to the south and start on their long annual excursion. After braving the obstacles of southern Europe, where every bush seems to hide a hunter with a shotgun, navigating the featureless Mediterranean Sea, and transversing the arid Sahara desert, the birds arrive at their first oasis: Djoudj National Bird Sanctuary.

Located in the delta of the Senegal River, near Senegal's border with Mauritania, Djoudj covers some 16,000 hectares of river channels, backwaters, streams, ponds, and a large lake (which covers about a quarter of the sanctuary). An estimated 1,500,000 aquatic birds live in these habitats, and Djoudj offers an important breeding ground for species such as the white pelican, purple heron, African spoonbill, large egret, lesser egret, aninga, cormorants, and many others.

In addition, the waters also hold populations of crocodile and African manatee, and the forests and grasslands hold species typical of the Sahelian zone of Africa.

But this wildlife haven is threatened from many sides. Agricultural chemicals are finding their way into the once-pristine waters of the Senegal river thus disturbing delicate links in the food chain, and a dam is being built which will disturb the annual wet-dry cycles which have brought life to Djoudj. A study sponsored by the World Heritage Committee has reported on the measures required to ameliorate the effects of the dam through an inexpensive series of dikes and sluice-gates and a carefully timed release of the life-bringing waters. It is hoped that the World Heritage status of Djoudj will help convince the government of Senegal to take the necessary measures.

SENEGAL

NAME Parc national des oiseaux de Djoudj

MANAGEMENT CATEGORY II (National Park)  
X (World Heritage Site - Criteria: iv)

BIOGEOGRAPHICAL PROVINCE 3.12.07 (Western Sahel)

GEOGRAPHICAL LOCATION In a low valley 15km north of Ross-Bethio and about 60km north-east of Saint-Louis on the Delta of the Senegal River, Region du Fleuve, in the extreme north of the country. 16°30'N, 16°10'W

DATE AND HISTORY OF ESTABLISHMENT 14 April 1971 by Decree No. 71-411. Nearby area (3ha) was first classified as a nature reserve by Decree No. 62-065 of 26 February 1962. Enlarged in 1975 by Decree No. 75-1222 (from 13,000ha to 16,000ha). Listed as a Ramsar site in 1980 and accepted as a World Heritage site in 1981.

AREA 16,000ha; adjacent to the proposed Diawling National Park in Mauritania

LAND TENURE Government

ALTITUDE From near sea level to about 20m

PHYSICAL FEATURES The park is in a vast basin of impermeable halomorphic soils forming saline flats in the Senegal River Delta between the main channel to the north, the Djoudj bayou and the Gorom, or bayou to the south. This delta, of which Djoudj is a small part, has been subject to flooding and to the development of dyke systems for many years, the latest in 1963. These dykes have allowed the retention of fresh water in the Djoudj basin longer than normal, which benefits the waterbirds. Salinity varies, from nearly fresh during the winter inundations to brackish as the water levels fall. The climate is Sahelian with alternate wet and dry seasons. Mean annual precipitation is 300mm and mean annual temperature 27°C. During the dry season, it is the wettest area in the region, but in recent years rainfall has been less than one fifth of the average and Djoudj has been much drier.

VEGETATION Vegetation reflects a low rainfall on unfavourable halomorphic soils. The Sahelian type savanna is dominated by spiny bushes, acacias such as Acacia nilotica, A. tortilis, A. seyal, tamarisk Tamarix senegalensis, and Balanites aegyptiaca. During the rains dense populations of Typha and waterlily Nymphaea spp. species appear in the flooded zones. Halophytic plants, particularly Salicornia, cover much of the area.

FAUNA The park was mainly established as the area is so important for birds, supporting three million waterfowl, and is one of the main West African sanctuaries for Palaearctic migrants. It is one of the first fresh water sources they reach after crossing 200km of the Sahara. From September to April, an estimated three million migrants pass through,

Infobase produced by WCMC, January 1992

including garganey Anas querquedula, shoveler Anas clypeata, pintail A. acuta, ruff Philomachus pugnax, and black-tailed godwit Limosa limosa. Thousands of flamingo Phoenicopterus ruber nest here regularly as well as 5,000 white pelican Pelecanus onocrotalus, white-faced tree duck Dendrocygna viduata, fulvous tree duck D. bicolor, spur-winged goose Plectropterus gambensis, purple heron Ardea purpurea, night heron Nycticorax nycticorax, various egrets Egretta spp., spoonbill Platalea leucorodia, African darter Anhinga rufa, common cormorant Phalacrocorax carbo, white-breasted cormorant P. lucidus and Sudan bustard Otis arabs. Mammals include warthog Phacochoerus aethiopicus and West African manatee Trichechus senegalensis (T), and several species of crocodile and gazelle have been successfully reintroduced into the area.

CULTURAL HERITAGE No information

LOCAL HUMAN POPULATION No information

VISITORS AND VISITOR FACILITIES More than 5,000 tourists visit the park each year. One camp is open from mid-November to mid-April (construction of a second on the north-east border is planned) and there are hotels in St Louis nearby. There are a dozen bird observation points on the borders of the most important waterbodies. Canoes can be hired. A small ecomuseum has been constructed by the St Louis Club Jeunes-Nature.

SCIENTIFIC RESEARCH AND FACILITIES Research includes rodent studies, bird ringing to investigate migration routes, and population dynamics. ORSTOM has sponsored research in this area since 1955. Studies of waders were carried out in 1983-1984 by Station Biozofique de la Tour du Valat, France. There is an and observation hut

CONSERVATION MANAGEMENT National Park wardens are stationed in five watch posts, one in the centre and four on the boundaries. Various administration zones are co-ordinated by a ranger. The park is closed three months of the year for park management. A dyke has been built right around the park as well as a dam system so that water levels will not be affected by the alternating flow of the River Senegal after the barrages have been built. With the operation of the Diama salt barrage in the Senegal River, the water supply for Djoudj is now much more secure than at any time in the recent past. However, because of the corroded condition of the sluice gates on the Djoudj marigot, one of the two water inlets into the park, staff are unable to control water levels which are largely determined by levels in the Diama reservoir (Dugan, pers. comm., 1987).

MANAGEMENT PROBLEMS Rainfall has been too low in the past few years for water levels to be normal. The Compagnie Sucrière Sénégalaise built a temporary dam just upstream of Djoudj at Kheune to prevent salt water flowing up the Senegal River in the dry season. This had the effect of reducing the supply of fresh water to Djoudj. The river's 1984 flood swept this away and Djoudj was replenished normally. In the 1984/1985 dry season, Djoudj was connected by canal with fresh water above the Kheune barrage in an attempt to stop it drying out. Water supply in this region is a problem, and permanent dams are being built to regulate the flow of

the Senegal River. Completion of the dam of Diama in 1986 would improve water supply for Djoudj although the effects of another dam at Monatali in Mali (expected 1984) are as yet unknown. However, the habitats at Djoudj are adapted to changing water levels, which may be altered by these dams. Djoudj was put on the list of World Heritage Sites in Danger because of this threat (Thorsell 1985).

STAFF Some 35 personnel directed by a conservateur

BUDGET Personnel: 17,857,000 francs CFA. Maintenance: 10,823,000 francs CFA

LOCAL ADMINISTRATION Conservateur, Parc national des Oiseaux de Djoudj, B P 80, Saint Louis

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