

FILE No 6

1. Source: Secrétariat d'Etat auprès du premier ministre
 chargé de l'environnement
 Direction de la Protection de la Nature
 14 boulevard du Général Leclerc
 92524 Neuilly sur Seine Cédex
2. Date: 1 September 1990
3. Name of site: La Brenne
4. Country: France
5. Ref: **7FR006**
6. Date of Ramsar designation: 8 April 1991
7. Geographical coordinates: 46°44'N 01°15'E
8. Location:

 La Brenne is situated in the department of Indre, in the Centre region. The site lies approximately 250 km to the south-west of Paris and is bounded by the vallée de la Claise to the north, the vallée de la Creuse to the south, RN 20 (Châteauroux - Argenton) to the east and CD 975 (Le Blanc - Châtillon-sur-Indre) to the west.

 IGN map no. 106 (1/250 000).
9. Area: Ramsar site: 140,000 ha
10. Altitude: 85 to 160 m
11. Overview:

 La Brenne is noteworthy for its ponds and the different environments in which they occur: heath, forest, meadows interspersed with woodland (bocages), dry meadows and cultivated land.

 Given the flatness of the terrain and the impermeability of the substrate, ponds can be created on the site simply by building earth-banks. This is why so many have been created since the Middle Ages and why they are still being created

today.

Used for fish-breeding and fishing and, more recently, for bathing and sailing, the ponds have helped to produce a richly diverse and unusual assemblage of flora and fauna. There are about 1,500 ponds in all, varying considerably in size and covering a total area of 7,000 ha.

Most of the ponds are encircled by dense vegetation consisting of species of reeds (*Phragmites*), rushes (*Juncus*), club rushes (*Scirpus*), sedges (*Carex*) and reedmace (*Typha*). The areas of rushes and sedge often provide a refuge for cattle during the summer droughts. They are of no use to the fish-breeder but are of key importance as a habitat of the avifauna, providing shelter in bad weather, a place of rest during migrations and a natural nesting ground.

12. Physical features:

La Brenne is a vast basin lying within a formation of Jurassic limestones, which were filled in during the Tertiary period by sediments from the Massif Central. Consequently, the soil is almost uniformly siliceous, consisting either of iron grèses (mounds) or of iron clays or sandy or ochreous clays.

La Brenne has the aspect of a gently undulating plateau. The Creuse marks the limit of two very different regions:

- to the north, **La Brenne des boutons**, small rounded grès mounds which are characteristic of la Grande Brenne and the lesser regions of La Brenne;

- to the south, **La Petite Brenne**, where the terrain is more rugged and the mounds disappear; slopes occur more frequently and the Creuse and Anglin rivers cut more deeply into the limestone rock.

With the exception of the 'Mer Rouge', which is 4.5 m deep at its overflow point, the ponds are generally shallower (1.5 to 2m) and have very gentle gradients (1%). They are mostly small (60% have an area of less than 10 hectares) and are interdependent and linked in chains by drainage channels.

13. Biological features:

The environmental diversity of the site arises from the rich diversity of its flora and fauna. Successions of biotopes are to be seen everywhere. Thus, for instance, we pass from bare grès on a mound's summit, through various communities of graminaceae on its flanks, to meadow at its base. Similarly, in the case of the ponds, various biotopes succeed each another in the ascent from the open water area up to the willow plantations.

The site is noteworthy as a meeting-point of plant species, some being associated with the northern, eastern or Mediterranean parts of Europe (*Erica scoparia*, *Vulpia ciliata*, *Carduncellus mitissimus*), others with its Atlantic region (*Ranunculus tripartitus*, *Ulex europaeus*).

The unusual diversity of the flora - 1,050 wild species occur in La Brenne, and some are rare (see point 23) - derives primarily from the juxtaposition of the particular pond and heath environments.

The main plant communities are:

* associated with the ponds and varying according to soil type and depth:

- in the centre: *Potamogeton*, *Nymphes*, *Myriophyllum*;

- around the centre: *Phragmites*, *Scirpus*, *Typha*;
Carex;
Juncus (meadows, often wooded);
Molinia (meadows);
Agrostis canina (meadows);
willow plantations;

* located around the ponds and at the base of the mounds:

- *Ulex nanus* and *Erica scoparia* (heath species);

* associated with the mounds, from base to grès summit:

- *Erica cinerea* and *Calluna vulgaris* (dry heath species);
- *Festuca ovina* and *Plantago carinata* (dry grasses);
- *Polytrichum piliferum* and *Polytrichum juniperinum* (moss and lichen);

On the periphery of the ponds is the bocage of La Brenne, consisting of heath (on the decrease), wet meadows, hedges and woods.

Because of the juxtaposition of biotopes, La Brenne is very attractive to birds (over 220 species recorded). It is a vast refuge for birds migrating between northern Europe and Africa.

The ponds attract many aquatic species: *Podiceps* (grebe), *Rallidae* (rail, crane, moorhen), *Anatidae* (duck, teal, pochard), *Ardeidae* (heron, bittern), *Pandion haliaetus* (osprey).

The riparian vegetation is used by the above species for nesting and is a source of food for many others. The abundance of the fauna in the paludous vegetation - reptiles, *Batrachia* and small mammals - attracts many raptors: *Circus aeruginosus* (marsh harrier), *Buteo* (buzzard), *Milvus migrans* (black kite).

This same vegetation provides roosts for huge flocks of migrating passerines: *Emberiza calandra* (corn bunting), *Emberiza schoeniclus* (reed bunting), *Hirundinidae* (swallow), *Motacilla* (wagtail), *Sturnus* (starling).

The plantations of submerged willows, most of which are situated near the 'queue' [= back ?] of the ponds, support *Ardea cinerea* (grey heron), *Ardea purpurea* (purple heron), *Nycticorax nycticorax* (black-crowned night heron) and *Egretta garzetta* (little egret).

The drainage channels linking the ponds are particularly favoured as nesting sites by *Alcedo atthis* (kingfisher).

Following an old La Brenne custom, the lakes are periodically emptied to reoxygenate the substrate. They are also regularly drained for fishing. The large temporary mud-holes resulting from these practices are used by the following migrating waders: *Tringa totanus* (redshank), *Tringa erythropus* (spotted redshank), *Tringa nebularia* (greenshank), *Numenius arquata* (Eurasian curlew) and *Calidris* (sandpiper).

They are also used as feeding grounds by a few passerines, e.g. *Anthus spinoletta* (water pipit), *Motacilla alba* (white wagtail), *Sturnus* (starling) and *Corvus corone* (carrion crow).

Wet meadows lie on the periphery of the paludous vegetation. A very special biotope, these are used for nesting by *Vanellus* (lapwing), *Numenius arquata* (Eurasian curlew) and *Limosa limosa* (black-tailed godwit).

The dry meadows are a favourite habitat of *Grus grus* (common crane), *Anser anser* (greylag goose), *Anser albifrons* (white-fronted goose), *Anser fabalis* (bean goose) and *Tetrax tetrax* (little bustard).

The hedges provide cover for numerous passerines, while the thickets, bushes and thorny shrubs accommodate the nests of *Lanius excubitor* (great grey shrike), *Lanius collurio* (red-backed shrike), *Lanius senator* (woodchat shrike), *Parus* (tit), *Saxicola* (wheatear), *Emberiza* (bunting) and *Sylvia* (warbler).

The heath is a habitat of *Circus pygargus* (Montagu's harrier), *Circus cyaneus* (hen harrier), *Asio flammeus* (short-eared owl), *Sylvia undata* (Dartford warbler) and *Circaetus gallicus* (short-toed eagle).

The woods and the forests are the domain of raptors such as *Hieraeetus pennatus* (booted eagle), *Buteo buteo* (common buzzard), *Pernis apivorus* (honey-buzzard), *Accipiter nisus* (sparrow-hawk), *Accipiter gentilis* (goshawk), *Milvus migrans* (black kite), *Milvus milvus* (= red kite ?) and *Falco subbuteo* (hobby falcon). They are also the habitat of *Picidae* (woodpeckers).

Reptiles and amphibians: 10 of the 31 species of reptiles and 14 of the 28 species of amphibians living in France are to be found in La Brenne. It has the largest French population of *Emys orbicularis*.

Entomofauna: 50 of the 90 or so species of dragonflies (*Odonata*) recorded in France occur in La Brenne.

14. Land tenure/ownership of:

Private and public property.

15. Conservation measures taken:

- site entered in 1980 in the list of environments to be

protected in France pursuant to EEC Directive 79/409 on the conservation of wild birds;

- site placed in category A and ranked fourth amongst the French wetlands of international importance by the International Union for the Conservation of Nature (IUCN);

- site entered in 1980 in the English inventory of wetlands of international importance for waterbirds in West Europe and North Africa, compiled by D.A. Scott for IWRB;

- Cherine nature reserve (145 ha; designated on 22.7.1985)

- La Gabrière ornithological reserve and refuge.

As part of the management of these reserves, their reed-beds are periodically scythed.

- wildlife refuge of la Haute Touche

- Parc Naturel Régional de la Brenne, created on 22.12.1989.

The Parc is encouraging coordinated management of the site, based on two priorities:

- * protection and improvement of the natural, cultural and architectural heritage of La Brenne;

- * economic development.

16. Conservation measures proposed:

The charter establishing the Parc Naturel Régional de la Brenne recommends a number of long-term management and conservation measures.

In this context, it is proposed to establish a network of vulnerable, fragile or noteworthy sites. The Parc will either promote this scheme itself or coordinate the work involved via agreements with the various management bodies (reserves, Ecomuseum, Office National des Forêts, etc.) covering experimental management (reintroduction of indigenous species such as the wild rabbit), promotional activities and education (for schools), facilities for the public (fact-finding tours), scientific programmes, security, water management and pollution control.

The Parc is to tackle the problem of the expansion of fish-breeding, which is disturbing the balance of the ponds' ecosystem, by making aid available for the creation of artificial lakes/ponds.

17. Land use:

- Agricultural activities: cattle rearing (extensive or moderately extensive), cereals

- Forestry (felling for firewood and wood for industrial use)

- Fish-breeding: production = about 1,000 tonnes per annum (60% carp)

- Amateur fishing

- Hunting (income accruing to the forestry administration)

- Tourism

- Quarrying (for minerals).

18. Changes in land use and development projects:

The cessation of farming and the expansion of fish-breeding are the two main changes affecting land use.

In 1990, a system of management agreements will be offered to farmers wishing to pursue environment-friendly farming practices (see Article 19 of the relevant EC statute).

In addition, the Parc is to introduce a system of agreements that will enable breeders to use large areas of pasture without payment of rent. This ought to check the current trend towards abandoning agriculture.

19. Threats and problems:

The crisis affecting agriculture and the inadequate development of the industrial and services sectors are hardly conducive to arresting the rural exodus or the exodus from farming, whose consequence has been, and continues to be, an increase in the amount of land lying fallow and in ('enrésinement' ?). It is this situation that constitutes the main ecological threat.

Other threats are posed by the growth of waterfowl hunting and fish-breeding and by pollution (all the more serious since the ponds are interlinked).

20. Hydrological and biophysical value:

La Brenne is one of the four large continental wetlands to be found in France. Given the importance of its role in storing and purifying water, regulating the hydrological regime of rivers, supporting a varied range of fauna and flora and providing a refuge for rare species and species threatened with extinction, its hydrological and biophysical value is beyond question.

21. Social and cultural values:

- aesthetic value (magnificent landscape)
- educational function (observation of nature)
- scientific interest
- social and recreational function (fishing, hunting, 'green' tourism)
- historical value (environment created by monks from the 7th century onwards).

22. Noteworthy fauna:

La Brenne supports many species of nest-building birds deemed to require special protection under EEC Directive 79/409: *Botaurus stellaris* (Eurasian bittern), *Circus aeruginosus* (marsh harrier), *Chlidonias niger* (black tern), *Chlidonias hybrida* (whiskered tern), *Podiceps nigricollis* (black-necked

grebe), *Haliaeetus albicilla* (white-tailed sea eagle), *Tetrax tetrax* (little bustard), *Himantopus himantopus* (black-winged stilt), *Egretta alba* (great white egret).

Other noteworthy or rare species: *Cygnus columbianus bewickii* (Bewick's swan), *Ardea purpurea* (purple heron), *Circaetus gallicus* (short-toed eagle), *Hieraeetus pennatus* (booted eagle), *Limosa limosa* (black-tailed godwit), *Alcedo atthis* (kingfisher), *Asio flammeus* (short-eared owl), *Circus cyaneus* (hen harrier), *Circus pygargus* (Montagu's harrier), *Falco subbuteo* (hobby falcon), *Numenius arquata* (Eurasian curlew), *Tringa totanus* (redshank), *Pluvialis apricaria* (golden plover), *Grus grus* (common crane).

23. Noteworthy flora:

Marsilles quadrifolia, *Isoetes tenuissima* (endemic species), *Caldesia parnassifolia*, *Damasonium stellatum*, *Orchis* (various species), *Carex cyperoides*, *Scirpus mucronatus*, *Ptychotis thorei*.

24. Scientific research and facilities:

Over the last two years, an experiment in meadow management, involving the grazing of 7 Camargue horses and 5 Casta cows, has been in progress in the Cherine reserve. If successful, it may be applied in other parts of La Brenne.

In addition, a rigorous scientific monitoring programme (involving botanists and ornithologists) is being implemented throughout the year in the Cherine and La Gabrière reserves. The latter are also involved in the 'pochard programme' of the Service de la Recherche, des Etudes et du Traitement de l'Information sur l'Environnement (SRETIE - Ministry of the Environment).

25. Educational value:

The site fulfils an educational function by promoting the exploration, study and protection of nature. Fact-finding tours, exhibitions, conferences and the training of nature guides are organized under the auspices of the Parc Naturel Régional.

The reserves are visited by several thousand people each year. They offer fact-finding tours of the entire region.

26. Recreation and tourism:

Fishing, hunting and 'green' tourism. The latter is on the increase.

27. Management authority:

- Communes

- Landowners, farmers, Syndicat mixte du Parc Naturel Régional de la Brenne
- Hunting and fishing associations and federations

28. Jurisdiction:

- Conseil régional de la région Centre, Conseil général de l'Indre
- Government agencies: DRAE, DDAF, DDE

29. Bibliography:

- Charter establishing the PNR de la Brenne - June 1989 - Syndicat intercommunal pour le développement de la Brenne.

30. Inclusion criteria:

La Brenne can be included in the list of wetlands of international importance inasmuch as it meets the following criteria, which were approved at the Third Conference of the Contracting Parties:

1a & c: It is a particularly good representative example of a western European continental pond ecosystem. It plays an important hydrological, biological and ecological role in the functioning of the river basin. It has been ranked fourth amongst the French continental wetlands of international importance by the IUCN.

2a, c & d: It supports an important assemblage of plant and animal species and sub-species which are rare or vulnerable or threatened with extinction.

It is of special value as the habitat of plants and animals at a critical stage of their biological cycle (stopover point for migratory birds, wintering ground).

It is of special value for one endemic plant species (*Isoetes tenuissima*).

3b: It is a site of international importance for *Butorus stellaris* (Eurasian bittern) and *Ardea purpurea* (purple heron).

31. Ecological changes linked to human intervention:

The environment is being transformed and degraded by the steady increase in the amount of land lying fallow and in ('enrésinement' ?).

32. Maps: Attached

