

## PARCO REGIONALE OGLIO SUD E RISERVA REGIONALE LE BINE

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Region: **Lombardy**

Area: **12,800 hectares**

**(96 hectares the reserve)**

Established in: **1988**

**(in 1987 the reserve)**

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### The Rebirth of the Oxbow

Hygrophilous ponds and woodlands instead of fields, to safeguard not only biodiversity, but also human settlements from the potentially devastating effects of floods. This is the mission of a recovery project carried out by Oglio Sud fluvial park in Lombardy, within one of its most valuable areas from a naturalistic point of view, that is Le Bine reserve.

The reserve protects a charming oxbow, where the marsh environment is surrounded by fields and poplar groves. The old meander of the river, which has been abandoned because of the changes in the river flow, is about two-kilometer long and borders in the north with the current flow of the river Oglio. Ducks, herons (with a nesting colony consisting of several dozens of couples), mud-dwelling birds and several birds of passage are the animals which can be more easily observed. Also newts, edible frogs, and the rare Italian agile frog – the symbol of the reserve – populate waters and banks, while among the mammals it is possible to sight badgers, weasels, hares, and the tiny Pygmy White-toothed Shrew, the smallest mammal in Europe: no more than ten centimeters long, including the tail.

Briefly, the aims of the project "Rinaturazione di un terreno agricolo nell'area di rispetto della riserva naturale delle Bine della golena del fiume Oglio" ("Recovery of agricultural land in Bine nature reserve safeguard area of the oxbow of the river Oglio"), are:

- increasing the extension and diversification of the reserve natural environment, restoring a wetland by following the lay-out of the ancient Oglio riverbed, in order to ensure the safeguard of vulnerable species which are influenced by the small size of the present protected area (i.e. Italian agile frog) and to promote the presence of the avifauna;
- promoting the capacity to control the floods, as established by the law for the soil defense (L.183/89) and by "Piano Stralcio delle Fasce Fluviali", drawn up by the Basin Authority of the river Po, within which the whole area of the reserve is enclosed.

The project has been divided into three lots, two of which have been already developed (1995 and 2001). In order to entirely implement the recovery of the wetland by following the ancient riverbed, it will be necessary to develop a third lot thus joining the first one, situated in the upper stretch of the ancient riverbed, with the second (object of the ongoing work) situated nearby the current marshy area.

Table I shows the change of the environmental scenery after the interventions regarding the I (1995), II (2001) and III lots (scheduled in 2006).

The measure aims at achieving the objectives set in the management plan of the reserve, in particular those regarding the identification of initiatives and activities to maintain and recover autochthonous marsh cenosis and to promote the safeguard of biological variety and diversity.

Among the most significant measures of the project, we should mention the creation of some ponds, with a maximum depth of two meters under the average basin level and very gentle slopes, in connection with the present agricultural area (from 6 to 12%) to promote the colonization of the banks by phytocenosis characterized by a vegetation consisting of emerging hydrophytes (canebrakes, cattail formations). The maximum depth is of 20,5 meters above sea level, a bit less than the depths found in the present marsh, but ideal if we consider the silting up process affecting the marsh.

The material that has been removed has been partially placed in the adjacent lands, following the natural morphology of the area, while the rest has been brought away from the reserve, according to the implementation of the "Determinazione in ordine al riutilizzo di residui inerti e sostitutivi di materiale di cava e miniera e modalità di comunicazione delle informazioni inerenti attività ed interventi derivati" ("Decision regarding the re-use of inert and substitutive rests of quarry and mine material and communication procedures regarding the information on relative activities and deriving measures") – Integration of the decision by the Regional Council 25<sup>th</sup> January 1994 n°5/47583 G.R. (D.G.R. of 1/7/94 n°5/54303)".

Briefly, the operations of morphological shaping consist of:

- Removal with a mechanical vehicle (tracked excavator) of the superficial layer for an area of 15,470 square meters. The resulting earth (about 13,000 cubic meters) will be partly spread out at the edge of the future basin, giving to the banks very gentle slopes (from 6 to 12%) and partly used to level the eastern bank leading to the farmstead.
- Excavation with mechanical vehicle (tracked excavator) of the removed superficial layer.

The material obtained from the excavation (about 30,000 cubic meters) will be left to the company, loaded with tracked excavator, and carried out of the construction site.

- Reshaping of the whole area with mechanical vehicle (tracked shovel) following the natural soil conformation as much as possible.

In the area of the reserve – managed in collaboration with WWF Italia – an important reforestation measure has also been implemented, with the aim to promote the introduction of potential vegetation. For the planting of autochthonous arboreal-shrubby essences (in particular willows, elms, and poplars), the hygrophilous gradient has been considered. The plants, young bare-rooted specimens of one-two years of age, have been purchased from nurseries guaranteeing the origin of the material. In the second lot, mulch layer is used to reduce the competition of infesting weeds, to improve the water balance, and to reduce management costs regarding the whole structure.

TABLE I

USE OF THE SOIL	BEFORE	I LOT	II LOT	III LOT
Cultivated agricultural area (ha)	69.83.10	63.53.10	59.69.80	56.68.90
Agricultural area with marginal cultivations (ha)	0.19.70	0.19.70	0.19.70	0.19.70
Rural buildings, farm track (ha)	6.28.13	6.28.13	6.28.13	6.28.13
Wetlands (stretches of water, canebrakes, hygrophilous woods...) (ha)	20.46.19	26.76.19	30.59.49	33.60.39
Total (ha)	96.77.12	96.77.12	96.77.12	96.77.12

