REWETLAND

Widespread introduction of constructed wetlands for a wastewater treatment of Agro Pontino

LIFE+08 ENV/IT/000406

CONSORTIUM FOR THE LAND RECLAMATION OF THE "AGRO PONTINO"

ACTION 5.3

FEASIBILITY STUDY FOR THE PILOT PLAN 3

BUFFER STRIPS ALONG THE DRAINAGE CHANNELS OF THE "AGRO PONTINO"

COMPILED BY GEOSPHERA STUDIO

Partner:

FEASIBILITY STUDY FOR THE PILOT PLAN 3: BUFFER STRIPS ALONG THE DRAINAGE CHANNELS OF THE "AGRO PONTINO"

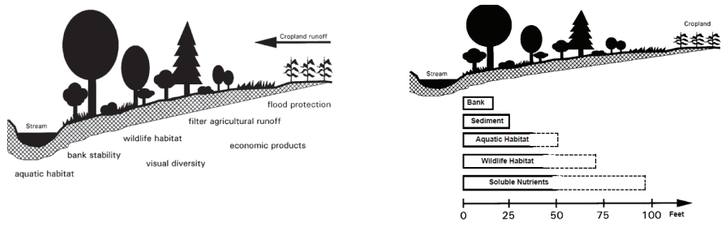

Figure 1 Source: *Riparian Buffers for Agricultural Land USDA – Natural Resource Conservation Service 1997*

[1]The principal Pilot Plan 3 (PP3) aim – **Drainage Channels Buffer Strips** – concerns the realization of nature restoration works on one or more parts, even in different parts of the plan, of the Consorzio di Bonifica dell'Agro Pontino (CBAP) drainage network, to set up natural standing vegetated strips.

The Vegetated Buffer Strips (VBS) are made up of vegetal linear formations with different structures (arboreal, schrubby-arboreal, shrubby, herbaceous) able to retain terrigenous fine sediments, nutrient and polluting substances in the stream waters.

The pratical VSB aspects, within the hydrological Pontina Plain conditions, are strongly connected to the different river cross sections types: actually they are first of all geometric drainage channel and, only sometimes, natural rivers modified by agricoltural and zootechnical practice and by morphotopographic and hydrogeological conditions.

The VSB implementation, in the original meaning of the word, is therefore predictable only for few Pontina Plain sectors: this is due to the morpho-hydraulic drainage network pattern and to the difficult management of the same VSB, that involve different use of territories usually addressed to productive activities.

Technical meeting, cartographic analysis and field survey lead to identify the intervention sectors and the relative typology, trying to find a good agreement between ecological-functional aspect of the new vegetal formations and the morphological and hydraulic state of the chosen sites.

For the PP3 four testing areas have been located:

1. Canale Allacciante Astura valley;

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1 This document is a summary of the italian version.

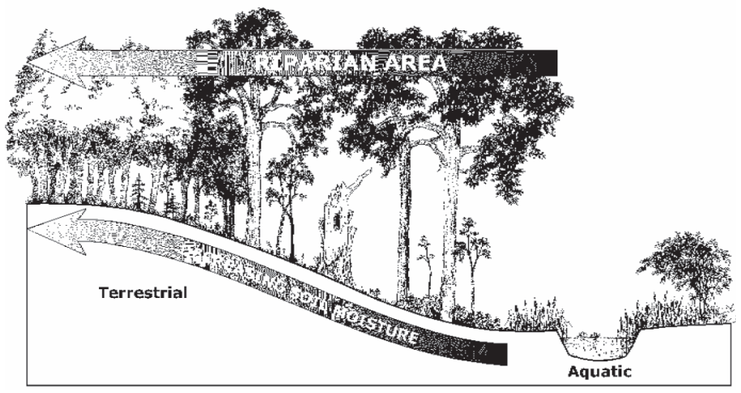

Figure 2 Transition from the aquatic habitat to terrestrial habitat in riparian areas
Source: Minnesota Forest Resources Council. *Sustaining Minnesota Forest Resources: Voluntary Site-Level Forest Management Guidelines for Landowners, Loggers and Resource Managers. 2005*

2. The Canale Allacciante di Fogliano riparian precincts;
3. The Forcellata water-scooping machine effluent channel (Canale Selcella);
4. The drainage network within the Lago di Paola basin, in the Circeo National Park.

The job n°4 in the Lago di Paola basin, strictly concern the drafting of a best practise manual for drainage network channel works, which the CBAP will draw up in the "Environmental restoration program by widespread constructed wetland purging systems (Azione 8)".

The Pilot Plan 3 is an independent project, however well-coordinated with the other REWETLAND Pilot Plans:

- Pilot Plan 1 – filter ecosystem in the Circeo National Park;
- Pilot Plan 2 – Marina di Latina linear Park;
- Pilot Plan 4 – agricultural water management good practise manual.

It is important to point out that the synergy between the different Pilot Plans could lead to the best resources management (not only from economic point of view): especially in the Fogliano Lake area converging actions, related to vegetal formations creation, are possible between Circeo National Park and CBAP.

The PP3 feasibility study draw attention to the environmental improvement opportunities connected with the experimental actions:

- Water resources protection;
- Biodiversity conservation and improvement;
- Landscape protection;
- Soil conservation;
- Energy saving and rational use;
- CO_2 emission control and global changing mitigation.

In relation to CO_2 balance, the feasibility study valuated that (extending the PP3 approach up to the 10% CBAP drainage network) we'll be able to adsorb about 10.000÷20.000 tons/year of CO_2 that means about 1.000÷2.000 hectares of compensation forest surfaces.

Although the experimental character and the small dimensioned proposed actions, they have a significant biomass production, due to the reed thicket growing and to vegetal schrubby-arboreal linear formations, which may also represent an interesting economical resource.

In addition to direct economic benefits, the vegetal formation creation lead to environmental nature public interest benefits, that can be defined as "environmental services".

The VSB and other vegetal formation implementation, as indicated in the experimental actions (Sites 1 – 4), may then reach environmental and social values.

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