

Artificial Wetlands In L'Albufera of Valencia

Natural reserves to improve biodiversity
and water quality.



LIFE ALBUFERA Project

Integrated management of three artificial wetlands in compliance
with the Water Framework Directive, and the Birds and Habitats directives



L'ALBUFERA OF VALENCIA

Wetlands are complex ecosystems of a great importance for nature conservation. L'Albufera is not an exception.

This space is home to different environments where the predominance of water makes it a focal point for biodiversity. More than 350 bird species find here the ideal habitat to feed, rest during their migratory trips and breed.

L'Albufera of Valencia also provides services to humans, who obtain benefits related to agriculture, landscape, tourism, fishing, flood protection or "green lung"...

Nevertheless, wetlands (and especially L'Albufera) are very fragile and suffer great pressures caused by human population growth. The existing biodiversity in these spaces is endangered by the negative impacts they are experiencing.



WATER quality

L'Albufera is surrounded by the metropolitan area of Valencia, with more than one and a half million inhabitants, an industrial and services zone and areas of intense agriculture. For many years, the growing populations surrounding the marsh have discharged their waste water into the lake with no treatment whatsoever or with a clearly deficient depuration.

This, together with the reduction of quality water inflow, has contributed to the eutrophication that is still affecting the lake despite the public administration's efforts to improve treatment and sanitation developed in the past few years. The concentration of organic matter in the water has resulted in a high proliferation of microalgae, leading to the opaque green tint of L'Albufera that only certain plant and animal species can endure.

HABITAT degradation

The disappearance of submerged aquatic plants that once colonised the whole lake, has been the first step of this system's degradation, followed by the erosion of emerging aquatic vegetation islands (which shelter many birds), mud saturated basin, and fish and other species reduction. This results in the survival of little demanding communities in detriment of the species in need of better preserved environments. L'Albufera of the 60's is very far from the ecological status that can be observed nowadays.



Loss of BIODIVERSITY

As a consequence of the habitats degradation aquatic macrophyte meadows were lost, exotic fish have replaced a great part of autochthonous fish and the most tolerant birds occupy ecologic niches that should harbour much larger number of species.

Many birds depend on their yearly trips, in search of more benign climates, for their survival. Wetlands are essential stopping points along these migratory routes.

Out of all the coastal wetlands that used to span the whole coastline of the Spanish Mediterranean less than a century ago, today only a few remain and they are highly vulnerable. The reduction and degradation of these "service stations" in the airways, makes things very difficult for migratory birds and seriously compromises their conservation.



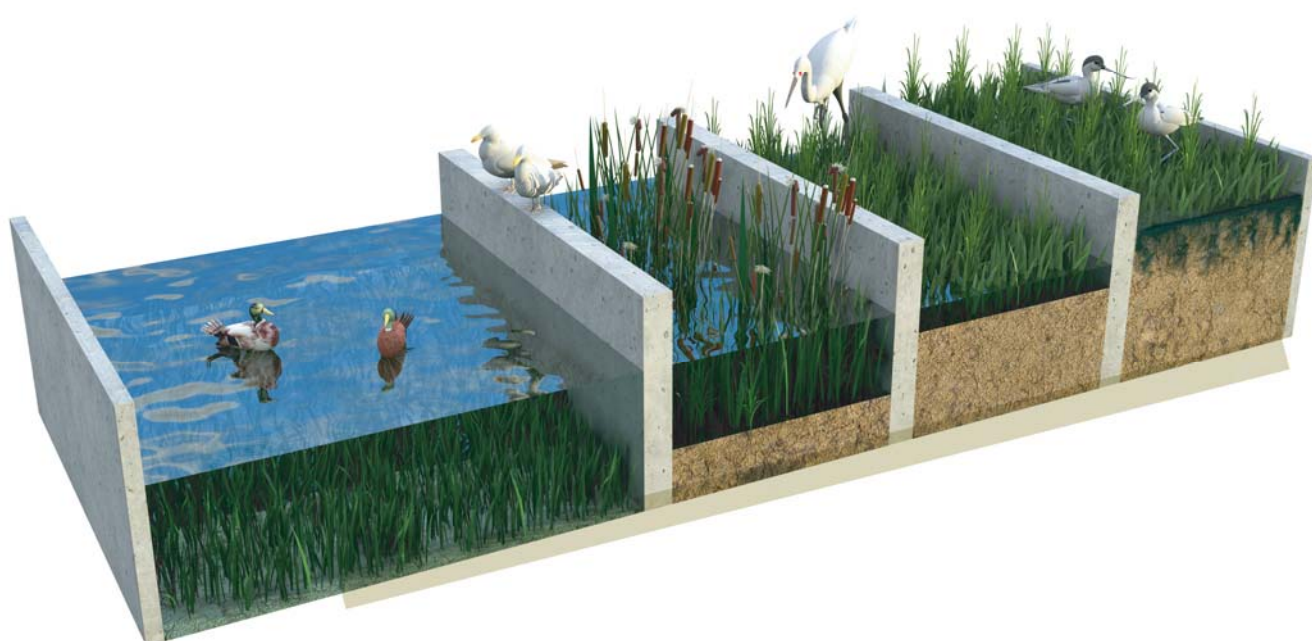
Possible solution: Artificial Wetlands << >> Natural Reserves

How can we recuperate the water quality in L'Albufera, regenerate degraded habitats and achieve the ecological potential of this space? Artificial Wetlands might be a part of the solution.

The basic principle of the constructed wetlands is the circulation of water along areas with vegetation. Plants feed from the nutrients present in the water, thus reducing their concentration and leaving a cleaner water. This simple system has been applied in small towns, isolated rural villages, camping sites and hotels for years.

Constructed wetlands in L'Albufera, also known as Green Filters in this area, are an innovative progress in application this depuration system, due to their size and treatment capacity. They are designed to recirculate water from the lake, reducing its organic pollution, and in some cases they can perform a subsequent treatment after the waste water treatment plants (EDAR).

Artificial Wetlands in L'Albufera have been placed in former rice fields where autochthonous vegetation has been planted. This vegetation, apart from depurating water from the lagoon, has a second and very important role: recreating natural ecosystems, scarce in L'Albufera, thus forming a Natural Reserves network of a great value for the visiting avifauna.



TANCAT de la PIPA >

It was built in 2008, on the North shore of the lagoon by the then Ministry of Environment, Rural and Marine Affairs through the Júcar River Basin Authority, and together with the Valencia Regional Government, within the framework of a collaboration contract subscribed by both entities.

It is currently managed through a land custody agreement by two renowned NGO's in the Natural Park: SEO/BirdLife and Acció Ecologista-Agró.



< TANCAT de MILIA

Located in the South shore of L'Albufera lake, this 33.4 hectare natural reserved was promoted by the public company ACUAMED for the current Ministry of Agriculture, Food and Environment. It commenced operation in 2012.

It is managed by Fundación Global Nature, experts in this type of systems, and has the double possibility of taking water from the lake for treatment or receiving water discharged by the waste water treatment plant of Albufera-Sur, thus providing one last refining treatment before the water reaches the lake.



TANCAT de L'ILLA >

It was built within the programme AGUA-ALBUFERA, like Tancat de Milia, and with the collaboration of the same organisations.

The 16 hectares site is located by the natural reserve of Estany de la Plana, in one of the canals that connect the lake with the sea. It can also treat water that has been previously treated the waste water treatment plant from Sueca.



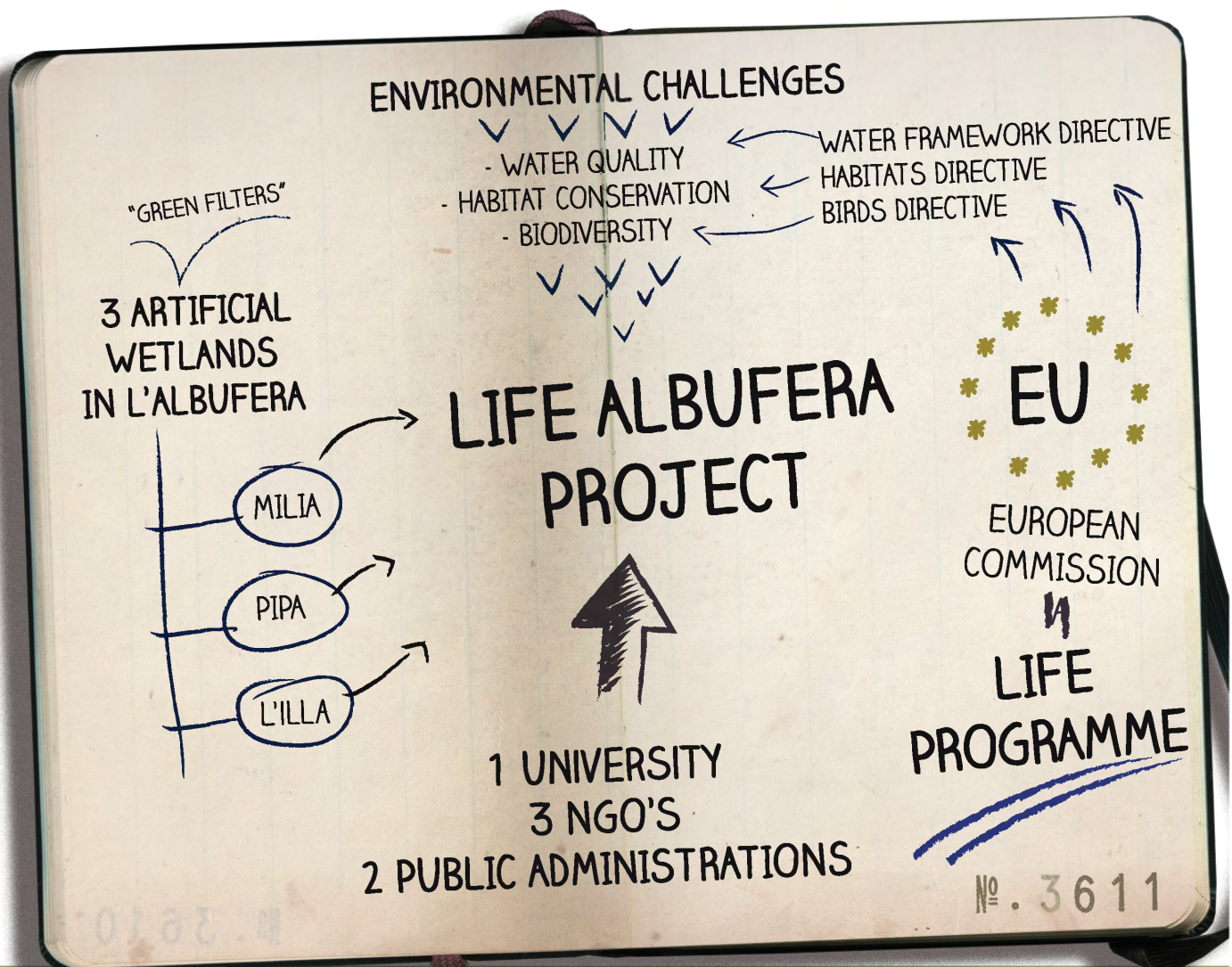
LIFE ALBUFERA Project

After the first few years, the triple functionality of the systems was proven:

- Artificial Wetlands successfully successfully treat water from the lagoon
- They have regenerated declining habitats and
- They provide natural reserves where biodiversity indices increase.

It was time to optimise their performance. Led by the Water and Environment Engineering Institute (IIAMA) of the Technical University of Valencia and the rest of stakeholders (Acció Ecologista-Agró, SEO/BirdLife and Fundación Global Nature), the project LIFE ALBUFERA was launched. It was cofinanced by ACUAMED, the Júcar River Basin Authority and the European Commission (through the LIFE+ Programme).

The objectives of the project are to increase, in a coordinated manner, the efficiency of all three constructed wetlands in order to accomplish the above-mentioned threefold objective (improving water quality, providing renaturalised habitats and protecting birds in the wetland).



WATER Framework Directive >

The European Union seeks, with Directive 2000/60/CE, the protection and management of water by preventing and reducing pollution, promoting sustainable water usage, environmental protection, improving aquatic ecosystems and mitigating the effects of floods and droughts.

Its ultimate objective is to achieve "good ecological and chemical status" of all Community waters by 2015.

BIRDS Directive >

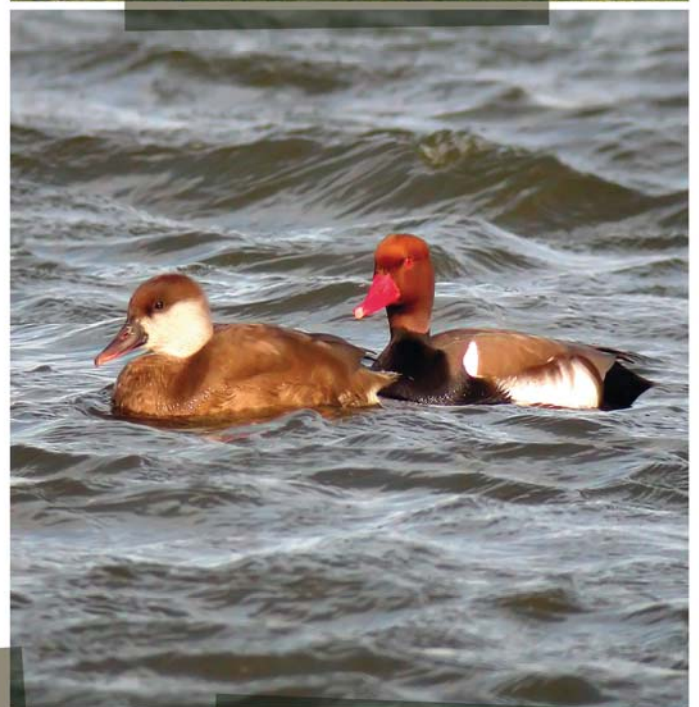
A large number of species of wild birds occur naturally in European territory and are in decline.

To reverse this trend, the European Union (EU), through Directive 2009/147/CE, regulates practices which threaten the conservation of bird species (killing and capturing of birds, destruction of nests, taking of eggs, etc.). The protection arrangements put in place also include the designation of special protection areas (SPAs) for endangered birds and migratory species which are subject to protective measures and habitat management measures.

HABITATS Directive >

Directive 92/43/CEE emerges in order to ensure biodiversity by conserving natural habitats and wild fauna and flora in the territory of the Member States. An ecological network of special protected areas, known as "Natura 2000", is being set up for this purpose. The network represents 18% of the EU territory.

All three wetlands in L'Albufera, as well as the whole Natural Park, are included in this network.





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Finishing date: 30/09/2016



IIAMA

Instituto de Ingeniería del
Agua y Medio Ambiente



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Y MEDIO AMBIENTE

CONFEDERACIÓN
HIDROGRÁFICA
DEL JÚCAR



www.lifealbufera.org

BUDGET: 1.446.234 Euro

UPV (Coordinator)	22,7 %	FGN	5,5 %
ACUAMED (Co-financer)	8,6 %	SEO/BirdLife	5,2 %
CHJ (Co-financer)	6,9 %	AGRÓ	1,0 %
European Commission 50,0 %			

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