KEYNOTE

The importance of the EU LIFE tool for the implementation of the NATURA2000 program: Case study of the Life+ LAG'Nature, implemented in southern France in order to preserve dune and coastal lagoon sites

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Life+ LAG'Nature was a five-year project (2009-2013) coordinated by the *Conservatoire d'espaces naturels du Languedoc-Roussillon* (CEN L-R). The project connected a network of land managers of exceptional lagoonal and dunal Natura2000 sites in the Mediterranean littoral zone, covering a total surface of more than 60,000 ha. GRAINE L-R and the ART'Dev research laboratory, both experts in the field of social science, developed both the 'Education on the Environment and Sustainable Development' and methods to analyse visitors to the area, as transverse components of the project.
This project was half financed by the European Union, the remaining 50 % having been subsidized by the French State, the Languedoc-Roussillon region, the *'Agence de l'Eau Rhône Méditerranée Corse'*, the four departments affected (General Councils), and leaders of associated projects. A number of technical partners facilitated the implementation of the project, led by *Conservatoire du Littoral, the Pôle-relais lagunes méditerranéennes*, and ATEN.

The general objective of Life+ LAG'Nature was to create a network of exemplar sites in the Languedoc-Roussillon littoral zone, so as to improve the condition of lagoonal, perilagoonal, and dunal habitats of (European) Community interest. These areas have a high value that is widely recognized, stemming from their biological richness, support of traditional economic activities, and space for tourist and recreational activities. However, the external pressures are substantial. The Mediterranean coastline is very attractive and pressure from urban expansion is increasingly significant, threatening natural areas. The growing population density occurs alongside record summer visitor numbers. Increasing the artificiality and fragility of natural areas encourages the growth of certain plant and animal species, said to be 'invasive'.

The Life+ LAG'Nature project considered all of these problems and concrete actions to restore habitats were carried out to try to renaturalize habitats degraded by certain human activities. Restoration of sites was implemented. Strategic knowledge and management of invasive plant and animal species progressed over the territory. All those actions were evaluated afterwards. A campaign to raise awareness among students and the general public was implemented. With the aim of sustainably managing visitor access to these areas, analytical methods were derived to capture visitor numbers as well as to understand the expectations and perceptions of the public, thereby enabling developments at each site.
All of these actions were designed to be in place over the long term. The project engaged a wide range of essential stakeholders in the territories.

We will see through the presentation first how Life was an efficient tool for achieving the objectives, and secondly how the specific governance of the project assured its sustainability.

CONTRIBUTED LECTURE

LIFE+Scalluvia restores alluvial forests and creeks in the flood control area *'Polders van Kruibeke'* (Belgium). The project features a successful combination of nature restoration, flood control, and recreation.

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Polders van Kruibeke is a 600 ha large flood control area along the river Scheldt. It is the biggest flood control

area in Flanders and makes the river basin 5 times more secure against floods. The project area is a part of the Natura2000 network.

LIFE+ Scalluvia (2013-2017) will substantially and permanently improve the state of conservation of 80 ha of **alluvial forests** with *Alnus glutinosa* and *Fraxinus excelsior (Alno padion, Alnion incanae, Salicion albae)* and 10 ha of **creeks** (natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*).

To improve the water quality and quantity for the forests and creeks, the wastewater from the town has been deviated for water treatment and adjustable dams will make the water level of the alluvial forests controllable. The construction of a **special five level fish passable flood control dam** will let fish migrate from and to the river Scheldt. The banks of the creeks will be reconstructed in an ecological manner and burrowing fish species will be removed. The forest itself will be cleared from invasive or exotic species and from former ponds and lodges. To improve the structure and the amount of dead wood, some big remaining poplars will be ring-barked and scrubs will be planted.

The habitat restoration will benefit the re-establishment of European bitterling, spined loach, blue throat, common kingfisher, little bittern, and purple heron. The Scalluvia area will acquire the protection status of Flemish nature and forest reserve.

The **benefits** of the *Polders van Kruibeke* **to society** are enormous. **Flood control** is the most important service. To build the flood control area, more than 600 ha have been expropriated and closed for public for more than 10 years. In 2014 the area was partly reopened for the public.

Recreation is since another important service to society and leads to acceptance. With Scalluvia, we invite people to (re)discover the area. After consulting the stakeholders, infrastructure for hikers, bikers and fishermen was built. Collective maintenance actions to experience nature, a smart phone game for animated walks, a play forest, field classes, training of guides, and guided walks constitute special topics.

To inform people about the area, time capsules are built. A time capsule is a place within the area where visitors can rest and receive information on the past, present or future of that place. Ample information is available through social and written media.

Furthermore, we experience with **site-specific art**, as nature often inspires and art can be the perfect way to invite people to visit and discover nature. We actually test the developed vision on the relationship between art and nature with two site-specific art works.

However, none of these measures may jeopardize the challenging nature goals or the functioning of the flood control area. In every action we **continuously balance nature goals, flood control and the demand for recreation.**

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WORKSHOP

Vegetation succession in the Zwin estuary 2010-2014. Effects of natural processes and nature management

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Introduction

Since 1987 we observe a progressive silt accretion of the mud flats and salt marshes of the Zwin. This situation led to a dramatic decrease in area occupied, amongst others, by the habitat type 1310 - *Salicornia* and other annuals colonizing mud and sand, and habitat type 1330 Atlantic salt meadows. Meanwhile, a *Halimione portulacoides* salt marsh community became dominant in the lower areas, whereas *Elymus athericus* did in more elevated areas. That resulted in a dramatic loss of plant and bird biodiversity .

The Flemish regional nature and forest agency aims at restoring this rich biodiversity by carrying out the large-scale LIFE program ZTAR - Zwin Tidal Area Restoration This program includes amongst others: