



Environment Policy & Governance

LIFE PROJECTS 2012

LIFE Environment

Environment



Tailoring hybrid membrane processes for sustainable drinking water production

Project background

Anthropogenic pressures and climate change are responsible for severe variations in fresh water availability and quality, and for the degradation of water sources by emerging contaminants that are of environmental-health concern because of their toxicity, mutagenicity and/or endocrine-disrupting behaviour. These include personal care products and pharmaceuticals; pesticides from agriculture; and cyanotoxins produced by toxic cyanobacterial (blue-green algal) blooms.

Such emerging contaminants are often dissolved organics, of intermediate-to-low molar mass, commonly present in very low concentrations (micro-contaminants). As such, conventional wastewater treatment plants and processes do little to remove them.

Project objectives

The LIFE HyMemb project's general objective is to demonstrate the feasibility and sustainability of advanced membrane processes for the treatment of drinking water, in order to provide a safer, more resilient barrier against emerging contaminants, with lower environmental impacts.

Specific objectives include:

- Developing an innovative hybrid process, using a low-pressure ceramic membrane (microfiltration - MF) and powdered activated carbon (PAC);
- Conducting a two-year field test of a PAC/MF prototype, to demonstrate its effectiveness, reliability and efficiency and to compare the advanced process with conventional treatment processes;
- Drafting recommended guidelines [for several Portuguese and European surface drinking water scenarios] on PAC/MF application for safe EU control with a reduced carbon footprint, i.e. with a 15% decrease in the consumption of chemicals and of sludge production, keeping energy consumption to a minimum; and
- Carrying out a cost-benefit analysis of the process using field data gathered during the project, as well as social indicators of stakeholders' attitudes towards membrane processes. HyMemb therefore expects to identify potential opportunities for using PAC/MF technology in drinking water treatment.

Expected results

The project expects to achieve the following results:

- To optimise the operating conditions of the hybrid

LIFE12 ENV/PT/001154
LIFE HyMemb



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

Laboratório Nacional de Engenharia Civil I.P.

Postal address

Av. do Brasil, 101
P – 1700-066 Lisboa
PORTUGAL
Phone +351 218443617
Fax +351 218443032
Email mjrosa@lnec.pt

Name of contact person

Maria João ROSA

Duration of project:

36 months (01/01/2014 – 31/12/2016)

Total budget in euro:

631,046.00

EC contribution in euro with %:

282,678.00 (45.55%)

Theme: Water: Water quality improvement

PAC/MF for effectively removing the emerging contaminants targeted, while minimising membrane fouling - thus increasing the technology's productivity and lifetime. The aim is to obtain a significant decrease (15% target) in chemicals consumption and sludge production, and to keep energy consumption to a minimum in comparison with optimised conventional treatment systems;

- The development of comprehensive technical guidelines for upgrading conventional drinking water treatment with PAC/MF and for its application Europe-wide;
- To identify the main values, beliefs and attitudes towards membrane processes and build a SWOT analysis on the use of PAC/MF for drinking water production;
- To build bridges between engineering and social dimensions for an effective technology transfer from R&D institutions to end-users; and
- To quantify the environmental, economic and social impacts of each technology studied.



Nature & Biodiversity

A close-up photograph of a hoverfly with a yellow and black striped abdomen and transparent wings, perched on a vibrant pink flower. The background is a soft, out-of-focus green field.

LIFE
PROJECTS 2012

LIFE *Nature*



Ecological Restoration and Conservation of Praia da Vitória Coastal Wet Green Infrastructure

Project background

About 500 years ago, before any human intervention, the bay of Praia da Vitória was a sandy, crescent-shaped area a few kilometres long. It was connected to a network of coastal wetlands of brackish water, the dynamics and stability of which was guaranteed by the dynamics of the coastal dunes. Human settlement, however, led to disturbances such as the drying and filling of the wetlands.

Wetlands targeted by the project, LIFE CWR, have been reduced to a few square metres in size, threatening the dynamics and future existence of the ecosystem. The project proposes to ensure the continuation of a network of wetlands that form a green infrastructure of such areas, with shoreline characteristics and functions similar to the original ecosystem. This will be achieved through the restoration and redevelopment of three key wetlands: Paúl da Praia da Vitória, Paul do Belo Jardim and Paul da Pedreira. This type of integrated network of wetlands has characteristics associated with a range of American and European birds species.

Project objectives

The main objectives of the project are to:

- Recover and restore a network of wetlands in the coastal area of Praia da Vitória;
- Provide a larger and more suitable sheltered area for migratory birds in the likely scenario of increased frequency of storms at these latitudes;
- Increase the socio-economic sustainability of Praia da Vitória by increasing the ecological services of wet green infrastructure and its value to the local economy; and
- Demonstrate the potential co-existence of highly populated areas and ecosystems rich in biodiversity, such as wetlands.

Expected results

Ecology level:

- Increased biodiversity in the coastal area of Praia da Vitória;
- Establishment of a network of wetlands that integrates three areas with very different characteristics:
- Paúl da Praia da Vitória: intersection zone of the base aquifer and sea water without dynamic (moving) dune;
- Paul do Belo Jardim: possibility of recovering a wetland with dynamic dune; and
- Paul da Pedreira: wet areas with rocky substrate permeable to the rising tide and influenced by the surface micro-basin that comprises it;

LIFE12 BIO/PT/000110

LIFE CWR



Beneficiary:

Type of beneficiary

Local authority

Name of beneficiary

Município da Praia da Vitória

Postal address

Praça Francisco Ornelas da Câmara

P - 9760-851 Praia da Vitória

PORTUGAL

Phone +351 295540200

Fax +351 295540210

Email geral@cmpv.pt

Name of contact person

Elisabete NOGUEIRA

Duration of project:

60 months (01/08/2013 - 31/07/2018)

Total budget in euro:

2,213,312.00

EC contribution in euro with %:

1,106,656.00 (50.00%)

Theme: Habitats: Coastal

- A larger wetland area with improved ecological conditions for supporting migratory birds in the North Atlantic;
- Restoration of populated wet areas;
- Increased visitation of migratory bird species;
- Increased numbers of species and individuals per resident species;
- Increased knowledge of the ecological functioning of coastal systems in this humid biogeographic region; and
- Possible discovery of new species, resulting from the monitoring of communities of lesser known species such as arthropods or bryophytes.

Socio-economic level:

- Greater socio-economic sustainability;
- Development of an economic system based on the ecological services produced by the wet green infrastructure, including bird watching;
- Creation of a team specialised in the restoration of wetlands; and
- Increased number and duration of visits by international birdwatchers.

Recovery of the species and land habitats of the Natura 2000 sites Ponta de São Lourenço and Desertas Islands

Project background

The Natura 2000 sites Desertas Islands (located in Deserta Grande and Ilhéu Chão) and Ponta de São Lourenço on the Madeira archipelago are home to unique habitats listed in Annex I of the Habitats Directive: vegetated sea cliffs with endemic flora of the Macaronesian coasts and low formations of euphorbia close to cliffs.

These areas consist of a large number of species (218) and subspecies that are endemic to the Macaronesian bio-geographical region, Madeira and the Natura 2000 sites themselves. Seabirds, terrestrial molluscs, arthropods and plants are of greatest concern to conservationists. The flora and fauna of these islands have been threatened by numerous factors since their discovery, especially the introduction of invasive alien species. The implementation of appropriate management measures to control or eradicate these threats can help restore the area's natural biodiversity.

Project objectives

The long-term objective of this project is to ensure the ecosystems of the targeted Natura 2000 network sites reach a stable, 'favourable' and self-sustaining conservation status. This objective will be reached by creating the conditions for the recovery of the habitats and species present in these areas, namely through the eradication and control of introduced vertebrates, invertebrates and plants.

Specific objectives include:

- The creation of an exclusion zone free of invasive alien vertebrates on Ponta de São Lourenço via the eradication of rabbit, rats and mice populations; a significant reduction in the goat population; a significant reduction of the populations of invasive plants; and the control and stabilisation of yellow-legged gulls populations;
- Control of the populations of Argentine ants;
- Removal of an overhead power line in Ponta de São Lourenço;
- Draft and have approved action plans for those species listed in the Habitats or Birds directives whose conservation status is not favourable; and
- Foster strong public support for the conservation of these Natura 2000 sites, not only by improving the conditions for visitors to the areas, but also through a large-scale information campaign.

LIFE12 NAT/PT/000195
LIFE RECOVER NATURA



Beneficiary:

Type of beneficiary

Park-Reserve authority

Name of beneficiary

Serviço do Parque Natural da Madeira

Postal address

Quinta do Bom Sucesso - Caminho do Meio

PT - 9064-512 Funchal

PORTUGAL

Phone +351 291214360

Fax +351 291214379

Email pauloliveira.sra@gov-madeira.pt

Name of contact person

Paulo OLIVEIRA

Duration of project:

48 months (01/10/2013 - 30/09/2017)

Total budget in euro:

1,409,020.00

EC contribution in euro with %:

700,105.00 (49,02%)

Theme: Biodiversity issues: Invasive species

Expected results

The project's expected results include:

- Elimination or significant reduction of those agents contributing to poor ecosystem functioning;
- Approval of species action plans and revised management plans;
- Evaluation of population densities and distribution of goats, rabbits, rats, mice, invasive and endemic plants, gulls, terrestrial molluscs and insects;
- Evaluation of the impact of the Argentine ant;
- Evaluation of the feasibility of removing an overhead power line in Ponta de São Lourenço;
- Eradication or significant reduction of the populations of goats, rabbits, rats, mice and invasive plants;
- Creation of an exclusion zone free of alien vertebrates;
- Creation of conditions for the recovery of endemic plants, terrestrial molluscs and bats;
- A reduction in problems caused by seagulls;
- A reduction in seabird mortality; and
- Improved taxonomic knowledge of the sites' terrestrial molluscs.

Conservation of Macaronesian Sparrowhawk and Laurissilva habitat in Madeira Island

Project background

The distribution area of the Macaronesian sparrowhawk (*Accipiter nisus granti*) is restricted to the island of Madeira and to some islands of the Canary archipelago. It is a bird of prey that favours forest environments, especially low-growing shrub areas. However, the species can still be seen near agricultural fields, open spaces or urban areas, which it uses as hunting grounds.

Although there are no accurate data on its actual population on the island of Madeira, it is estimated at between 1 000 and 2 500 individuals, whereas in the Canary Islands it is thought that the population is between 250 and 1 000 pairs. The species is faithful to its territory, building a new nest each year in a location close to the previous one. Considering recent changes in its habitat, particularly due to the expansion of invasive exotic plants, which have significantly reduced the potential nesting area, the recovery of areas of laurel forest habitat is essential in order not to compromise the reproductive capacity of the species, and thus its conservation.

Project objectives

The project is targeting the conservation of the Macaronesian sparrowhawk and its habitat, the Madeira Macaronesian laurel forest. Specific objectives include:

- Controlling the invasive alien plant populations in the laurel forest;
- The recovery of a significant area of burnt laurel forest, including the production of native vegetation in nurseries, and the creation of suitable conditions for its natural re-establishment;
- The training and establishment of a team, specialised in controlling invasive alien species;
- The implementation of conservation measures for the laurel forest, which contribute to the conservation of the Macaronesian sparrowhawk and other biodiversity;
- Improving knowledge about population trends of the Macaronesian sparrowhawk on Madeira and the Canary islands, providing essential information about its ecology; and
- The creation of executive and scientific commissions to follow up on the management of the Laurissilva habitat and the Macaronesian sparrowhawk, in the framework of a long-term strategy.

LIFE12 NAT/PT/000402

Life Fura-bardos



Beneficiary:

Type of beneficiary

NGO-Foundation

Name of beneficiary

Sociedade Portuguesa para o Estudo das Aves (SPEA)

Postal address

Avenida João Crisóstomo 18 4º Dto

P - 1000-179 Lisboa

PORTUGAL

Phone +351 291241210

Fax +351 291241210

Email madeira@spea.pt

Name of contact person

Ana Isabel FAGUNDES

Duration of project:

48 months (01/07/2013 - 30/06/2017)

Total budget in euro:

1,637,635.00

EC contribution in euro with %:

1,227,947.00 (75.00%)

Theme: Biodiversity issues: Invasive species / Species:Plants

Expected results

In general terms, the expected results include: the recovery of a significant area of laurel forest habitat (76.20 ha), as a result of the eradication of invasive alien plants (re-establishment of 14.6 ha in Ginjas and 21.6 ha in Assumadores), the plantation of 40 000 native plants and the reforestation of 20 ha (distributed by 40 ha) of burned areas in Terra Chã with 22 000 native plants.

Also expected is the generation of increased knowledge about the distribution, ecology and population trends of the Macaronesian sparrowhawk on Madeira and the Canaries; the establishment of adequate conservation measures for this priority sub-species, cited in the Birds Directive; and greater awareness about the species and ecosystems in question among the general public, local farmers and stakeholders.

Active protection of Azores bullfinch and its habitats and sustainable management of Pico da Vara/Ribeira do Guilherme SPA's

Project background

The "Pico da Vara /Ribeira do Guilherme" Natura 2000 site is a major hotspot for biodiversity within the EU and the Macaronesia biogeographical region. It is home to one of Europe's most endangered birds - the Azores bullfinch (*Pyrrhula murina*). Listed as a priority species for conservation in the EU Birds Directive, it is severely threatened by the growth of invasive alien plant species (IAS), which are destroying the native forests, heaths and shrubs, including the priority, Habitats Directive-listed, Macaronesian laurel forests – which provide a vital food source. The control of IAS, particularly on islands, is one of the priorities of biodiversity conservation in the EU.

The conservation of the Azores bullfinch was the target of a previous LIFE Nature project at this site, "PRIOLO" (LIFE03 NAT/P/000013). Selected as a 'Best of the Best' LIFE project, it resulted in new techniques of IAS control, habitat restoration and the improvement of economic benefits to local communities. However, some significant gaps still need to be filled in order to complete this work and secure the site's priority species and valuable habitats.

Project objectives

The project's main objective is to implement sustainable management measures for the conservation of the priority Azores bullfinch and the preservation of rare and endangered habitats.

Specific project aims are to:

- Improve habitat quality and access to food sources throughout the year for the targeted bird species;
- Connect recovered areas of priority laurel forest, by recovering sensitive and sloping areas between the habitats;
- Assure the long-term stability of bird populations and reduce the impact of alien predators;
- Raise awareness among stakeholders and local people and involve them in the conservation of the site;
- Promote coordinated management of the site – including developing sustainable public use and increased revenues for local people and for the São Miguel Island nature park, through the promotion of sustainable tourism.

Expected results

Some of the project's many expected outputs are:

LIFE12 NAT/PT/000527
Life Terras do Priolo



Beneficiary:
Type of beneficiary
NGO-Foundation

Name of beneficiary
Sociedade Portuguesa para o Estudo das Aves (SPEA)

Postal address
Avenida João Crisóstomo 18, 4º Dto
P - 1000-179 Lisbon
PORTUGAL
Phone +351 213220430
Fax +351 213220439
Email luis.costa@spea.pt

Name of contact person
Luis TOSTE COSTA

Duration of project:
60 months (01/07/2013 - 30/06/2018)

Total budget in euro:
3,502,600.00

EC contribution in euro with %:
2,626,950.00 (75.00%)

Themes: Biodiversity issues: Invasive species / Habitats: Freshwater

- Recovery of 78.4 ha of habitat on the islands' higher and steeper slopes;
- Recovery of 24 ha of habitat on slopes of between 300 m and 900 m, including areas completely taken over by IAS;
- Recovery of 4 ha of water line areas;
- Ecological recovery of 6.3 ha of landslide areas;
- The creation of 9.6 km of access trails for visitor use;
- The planting of 200 000 plant specimens from more than 25 native species grown in nurseries;
- Guidelines for the production of native plants;
- Best practices in the ecological recovery of slopes;
- Methodologies for the control of IAS on sloping areas of *Pittosporum undulatum*, *Sphaeropteris cooperi* and *Dicksonia Antarctica*;
- Strategies for combating IAS;
- A socio-economic impact report;
- Detailed mapping of site vegetation; and
- A similar-type mapping of the site's natural habitats.

TAXUS – Restoring yew thickets

[9580 * Mediterranean Taxus baccata woods]

Project background

Yew thickets are sciophilous formations, common to river banks in encased mountain valleys. They are mainly of a scarce and relict nature, dominated by the common yew but include to varying degrees several other species, such as the common holly, the white birch, the English oak, the Pyrenean oak and the European mountain ash.

The dominant species in this habitat, the common yew, is a dioic species, the reproductive structures being unisexual, with the feminine and the masculine structures present on different individuals. It has a long lifespan and is found in Portugal only in two Natura 2000 sites: in 'Peneda-Gerês' (Atlantic and Mediterranean biogeographic regions) and in 'Serra da Estrela' (Mediterranean biogeographic region). The main threats to its habitat have been identified as forest fires, direct cutting, grazing and invasion by exotic species.

Project objectives

This project aims to contribute to the restoration of rare Mediterranean yew habitat listed as priority for conservation in Annex I of the Habitats Directive. It will thus maintain the diversity of the forest mosaic by enhancing the existing species and increasing its occupation area in the targeted Natura 2000 sites. It will also raise awareness of the urgent need to preserve a very rare forest habitat that is extremely vulnerable to climate change. Actions will take place in the 'Peneda-Gerês' Natura 2000 site, focused on improving the habitat's conservation status, and in the 'Serra da Estrela' Natura 2000 site, where in addition to improving the habitat's conservation status, the project will also aim to extend the area occupied by yew thickets.

Expected results

The project will produce a total of 25 000 plants (10 000 yew plants and 15 000 trees and shrubs existing in the habitat). Some 18 000 of these will be used to increase the habitat area by 15 hectares in 'Serra da Estrela' and the remaining 7 000 will be used to ensure the continuation of the project's goals after it ends.

Active management of 50 ha in 'Peneda-Gerês' and 10 ha in the 'Serra da Estrela' will focus on improving the habitat conservation status and ensuring that in the future, the area will only be subjected to natural disturbances.

LIFE12 NAT/PT/000950
LIFE TAXUS



Beneficiary:

Type of beneficiary

NGO-Foundation

Name of beneficiary

Quercus – Associação Nacional de Conservação da Natureza

Postal address

Centro Associativo do Bairro do Calhau

PT - 1500-045 Lisboa

PORTUGAL

Phone +351 937788473

Fax +351 284321326

Email biodiversidade@quercus.pt

Name of contact person

José Paulo MARTINS

Duration of project:

42 months (01/07/2013 - 31/12/2016)

Total budget in euro:

380,565.00

EC contribution in euro with %:

285,423.00 (75.00%)

Theme: Habitats: Forests

The project's results will directly reach 30 000 people through the "Quercus Ambiente" newspaper (which has a bimonthly circulation of 10 000). The project will also target 10 000 junior and high school students and teachers. Dissemination materials will include:

- 10 000 flyers;
- 1 500 brochures;
- 5 000 posters;
- An interpretative exhibition, a pedagogic exploration guide, and an educational game about the species, for students in local schools;
- Three promotion spots (one minute each) and a documentary (20-25 minutes); and
- 15 000 vouchers for the support of the yew thickets for the post-LIFE period.

Conservation of Temporary Ponds in the Southwest Coast of Portugal

Project background

Mediterranean temporary ponds (CTMs) are seasonal wetland habitats, subjected to extreme and unstable ecological conditions. Due to their uniqueness and scientific value, they are listed as a priority habitat for conservation in Annex I of the EU Habitats Directive. The coastal plain of southwest Portugal is a Natura 2000 (N2000) site (Costa Sudoeste) and hosts a large number of such temporary ponds, as a consequence of climatic and edaphic (soil-related) characteristics.

However, over the last two-decades, modern industrialised agriculture and tourism have caused a steep decline in the condition of this habitat in the N2000 site. Traditionally seen as non-productive areas, CTMs are nowadays subjected to strong anthropogenic pressures, such as deep soil turning, accelerated drainage, flattening of the surface topography or transformation into permanent reservoirs for irrigation. Therefore, urgent action is needed in order to halt this downward trend and assure their long-term protection.

Project objectives

The project's overall aim is to enhance the conservation status in south-west Portugal of CTMs. Specific aims are to:

- Compile, in a coherent and homogeneous database, the available biological information and updated cartography;
- Promote the reduction and elimination of known threats, halting the destruction of this habitat type;
- Demonstrate management and restoration techniques that will improve and enhance the conservation status of the temporary ponds;
- Create and establish a seed bank, primarily as a tool for conservation and restoration actions, and also for safeguarding biodiversity;
- Promote locally the dissemination of knowledge about the ecology and function of temporary ponds, through demonstrations of sustainable management practices; and
- Contribute to the long-term protection of temporary ponds, engaging landowners, farmers and decision makers.

Expected results

The project's main expected result is to halt the loss of temporary ponds in the Costa do Sudoeste N2000 site, reversing the declining trend observed in the past few years. Conservation and demonstration actions are

LIFE12 NAT/PT/000997

LIFE Charcos



Beneficiary:

Type of beneficiary

NGO-Foundation

Name of beneficiary

Liga para a Protecção da Natureza (LPN)

Postal address

Estrada do Calhariz de Benfica, 187

P - 1500-124 Lisboa

PORTUGAL

Phone +351 286328309

Fax +351 286328316

Email rita.alcazar@lpn.pt

Name of contact person

Rita ALCAZAR

Duration of project:

54 months (01/07/2013 - 31/12/2017)

Total budget in euro:

2,293,522.00

EC contribution in euro with %:

1,720,139.00 (75.00%)

Theme: Habitats: Freshwater

planned for at least 16 temporary ponds, and in some of the ponds more than one type of conservation action will be applied simultaneously. The following outputs are expected:

- Updated cartography of temporary ponds in the Costa do Sudoeste site and a database assembling all available biological information;
- Improved knowledge of the hydrological functioning of the ponds;
- A CTM conservation status assessment index;
- Management guidelines for the conservation of each temporary pond or complex;
- Preservation in the long-term of at least 80% of the plant species in the ponds;
- Demonstration of the sustainability of extensive grazing at a minimum of three ponds; and
- Promotion of pond connectivity to decrease habitat fragmentation at a minimum of two pond complexes.