



European  
Commission

# Best LIFE Nature projects 2011



LIFE Nature

Environment





## EUROPEAN COMMISSION ENVIRONMENT DIRECTORATE-GENERAL

**LIFE** (“*The Financial Instrument for the Environment*”) is a programme launched by the European Commission and coordinated by the Environment Directorate-General (LIFE Units - E.3. and E.4.).

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Cataloguing data can be found at the end of this publication.

Luxembourg: Publications Office of the European Union, 2012

ISBN 978-92-79-25968-5

ISSN 1977-2734

doi:10.2779/61418

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*Printed in Belgium*

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**Julien Legros**

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## Foreword

This is the fourth year that the LIFE Nature Best Awards have taken place, once again offering the LIFE Nature Unit the opportunity to shine a light on the most outstanding projects completed by the end of the previous calendar year.

As the LIFE Programme's National Focal Point for France, I was responsible for coordinating the selection of projects, which followed the by now well-established procedure: after an initial review by the external monitoring team, the European Commission identified from among the many excellent LIFE Nature projects completed by the end of 2011, a group of particularly outstanding examples that offer a template for others of what a well-designed, well-executed, innovative and inclusive project should look like.

The Member States and external monitoring team then reviewed this initial selection of 13 "Best" projects, drawn from a total of nine Member States and awarded the four most exemplary projects "Best of the Best" (BoB) status (see p. 4).

I would like to take this opportunity to thank the other National Focal Points and members of the monitoring team who helped evaluate the contenders for the awards and to thank the project beneficiaries and their partners for their excellent work in favour of nature conservation and biodiversity.

The broad range of endangered species and habitats targeted by the award-winning projects, including two "BoB" projects that demonstrated an effective transnational approach to nature conservation, illustrates the valuable impact of the LIFE programme in support of the implementation of the Birds and Habitats Directives and the Natura 2000 network.

The presentation of the LIFE Nature Awards 2011 formed part of a special event held during Green Week in Brussels (May 2012) to mark the 20<sup>th</sup> anniversary of the LIFE programme, the Habitats Directive and Natura 2000. The widespread recognition and celebration of the work of the LIFE programme in this, its 20<sup>th</sup> anniversary year, is a fitting tribute to such an important and well-managed funding stream. Long may LIFE continue to support meaningful projects whose efforts and impact resonate for many years to come.



BEST LIFE NATURE PROJECTS

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# The “Best” of LIFE

The LIFE Best Nature Awards 2011 highlight the demonstration value of the LIFE programme and the importance of replicable project results with a long-term impact.

The objective of the LIFE Nature Awards programme is to help improve the transmission of project results by using a set of criteria to identify those projects with the highest potential for long-term maintenance of “favourable” conservation status of natural habitats and species, and support for the implementation and management of the Natura 2000 network. Thus, for the last four years, EU Member States represented on the LIFE Committee and the European Commission’s LIFE Nature Unit have acknowledged those projects that are just a little bit more outstanding than the rest by awarding them “Best of the Best” and “Best” project status.

Projects are judged against a set of criteria developed by the Commission in cooperation with the Member States. These include: Short-term improvement in conservation status; short-term leverage effect; long-term sustainability of improved conservation status; long-term leverage effect; and long-term regional / national / international impact.

The award ceremony for outstanding LIFE Nature projects completed by the end of 2011 was a double cause for celebration, as it coincided with a special event held during Green Week in Brussels (May 2012) to mark the 20<sup>th</sup> anniversary of the LIFE programme, the Habitats Directive and Natura 2000.

The 13 winning projects all contribute to LIFE Nature’s main objectives: supporting the implementation of the EU’s Habitats and Birds directives and the establishment and management of the Natura 2000 network of protected sites. Actions ranged from the conservation of individual species to projects targeting several species and habitats across one or more sites. In presenting the latest round of awards, Bruno Julien, a

former head of LIFE Environment and Nature Units, DG ENV, noted that LIFE projects had convinced people in many countries of the worth of the Natura 2000 network.

## “Best of the Best”

The four most exemplary projects were awarded the title, “Best of the Best” LIFE Nature Project 2011. These included a transnational project to increase the population of the fire-bellied toad in a region where it had been extremely threatened. The German-led ‘Bombina in the Baltic Region’ project (**LIFE04 NAT/DE/000028**) also attracted significant international media coverage for its Eurovision-style “Bombina Song Contest”. The ‘Salzstellen Brandenburg’ project (**LIFE05 NAT/D/000111**) developed links with local land users to improve the conservation status of inland salt marshes in Brandenburg, Germany. Long-term management agreements with landowners were also an important feature of LIFE ‘Regain’ (**LIFE04 NAT/DK/000022**), helping to ensure the continuation of the wetland restoration actions instigated by this Danish project. Finally, ‘LIFE-Projekt Maifisch’ (**LIFE06 NAT/D/000005**) implemented a successful reintroduction of the once abundant fish species, allis shad (*Alosa alosa*) to one of Europe’s great rivers: The Rhine.

The nine ‘Best’ LIFE Nature projects 2011 targeted a wide range of species, big (the continent’s largest land mammal, the European Bison) and small (the endangered Orsini’s viper). Bird species to benefit from the latest award-winning projects included Saker falcon populations in Hungary and Slovakia and the extremely rare Bugio’s petrel in Portugal’s Madeira archipelago. Projects also targeted a number of important European habitats, whilst several included actions to promote biodiversity.

Winners of the LIFE Nature Awards 2011

Photo: ECSCORPIX







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# BEST OF THE BEST PROJECTS

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# Germany: Inspiring transnational toad conservation



At first glance, 'Bombina in the Baltic Region' may seem a quite conventional LIFE Nature project involved in improving the conservation status of an endangered amphibian species. However, a closer examination reveals an impressive range of added value outcomes that combine to provide excellent demonstration value and truly deserve the accolade: "Best of the Best".

The fire-bellied toad (*Bombina orientalis*) is a distinctively colourful and notably vocal member of the toad family. Population sizes of this amphibian had been in decline along the northern edge of its EU distribution range (covering an area stretching around the Baltic coast from Sweden, through Denmark and Germany over to Latvia). Problems for the toad reached such a state in 2000 that it was officially classified by the IUCN Red List of endangered species as being highly threatened in the Baltic region and requiring protection.

Shifts in farming and forestry practices were considered to be the main cause of concern for the toads, which favoured semi-natural grassland habitats and wetlands. Large expanses of these habitat types had however been lost or fragmented as intensive arable, piggery and forest systems replaced more traditional and toad-friendly land uses around the Baltic. A transnational approach was thus designed to make use of LIFE Nature co-financing as a tool



*With its open water and hiding places, this pond in a pasture on the Baltic Sea island of Fehmarn provides an ideal habitat for the fire-bellied toad*







Photo: Hauke Drews

LIFE project manager Hauke Drews holding a fire-bellied toad (*Bombina orientalis*)

for implementing consistent and synergetic approaches to *Bombina* conservation along its northern distribution range.

Considerable successes were achieved by this transnational LIFE project, which played a key role in reversing the population decline of fire-bellied toads and contributed to a more favourable conservation status in the target areas for this priority protected species.

### Improving genetic diversity

Hauke Drews from Germany's Schleswig-Holstein region was the LIFE project coordinator. Reflecting on the project's success factors he notes the important part played by a LIFE Nature-Starter project (**LIFE02 NAT/ST/D/000006**) that helped the partnership come together and carefully plan the tools it needed to fulfil its goals. "We drew a lot on the experience and ideas from our Danish partners who had already used LIFE to restore fire-bellied toad habitats", says Mr Drews. "Mr Lars Briggs from Denmark had developed some very interesting approaches to the species re-

*Fire-bellied toads on a surveying net in a restored pond*



covery during which time he had made useful contacts in Sweden and Latvia.

"Sweden, for instance, had carried out scientific analysis that offered scope for us to adopt and expand in order to inform and modify the toad conservation work as it progressed. Hence the LIFE starter funds helped us to identify the benefits of integrating a population genetics study as a core component of the larger LIFE transnational project plan. This provided us with valuable data to confirm genetic diversity, identify colonisation patterns among toads, detect and avoid inbreeding risks, and develop suggestions for safeguarding strong mixed populations," explains Mr Drews.

He adds that the project's activities "were boosted by the parallel scientific study which, in addition to generating vital data, also demonstrated the potential of the project for knowledge transfer between countries. Latvia was extremely grateful to be able to access the genetics expertise that we developed under the project and LIFE's role as an international capacity building instrument was clear here. In fact we could say that the LIFE project was instrumental in helping to kick-start a broader programme of amphibian conservation for Latvia."

### Innovative solutions

Another noteworthy example of knowledge transfer and synergy created by the LIFE project came in the form of a novel method for reintroducing semi-natural habitat functions. Mr Drews explains that, "Our planning process included an agreement to test a technique that had been applied elsewhere in the Baltic region with support from LIFE for promoting grassland grazing. We wanted to introduce a natural system for maintaining the newly restored toad habitats that had been created by the project. Ponds and grasslands needed to be protected from becoming overgrown, so hardy cattle breeds were proposed to graze the land. These would be able to survive outside all year and act as natural lawnmowers. However we were aware that farmers in some countries may not be able to afford to buy and rear such cattle and we also knew that farmers in other countries may not be interested because they had already specialised in other agricultural systems. We needed to find a way of taking the risk out of introducing grazing for landowners and we wanted to explore an innovative approach."

The system applied by the project involves a conservation agency buying livestock (using LIFE funds) and then leasing the livestock cost-free to the farmer for a number of years. "Say for example we leased eight cows and two bulls to a farmer. The lease agreement requires the farmer to graze these animals on the target habitat all-year round,"





*Catching toads*

explains Mr Drews. “Over the years, the farmer breeds the cattle to enlarge their herd, say for example this results in fifteen cows and five bulls. At the end of the lease period the farmer returns to the conservation agency eight cows and two males, but the farmer keeps the other seven cows and three bulls. The farmer then benefits from gaining a ‘free’ herd of cattle that can be further bred and expanded for continued grazing on habitats, which can be subsidised by agri-environment payments.

“The conservation agency then leases the eight cows and two bulls that it received from the first farmer to a second farmer in order to extend grazing to a new site. A ‘domino effect’ was thus possible from an initial investment in a relatively small herd of livestock. This was the methodology that the Danish partners wanted to test with the LIFE project and its results were very positive.”

However, Mr Drews points out that, “It took some time to persuade a Danish farmer in a toad habitat area to test this approach because pig farming was the mainstay of the agricultural sector in the priority areas. Local farmers had become specialised in pig rearing and they did not think it was possible for cattle to survive outside in a Danish winter. The LIFE project’s test case therefore attracted a lot of interest from the neighbouring pig farmers who, at the beginning of the winter, started to contact the demonstration farm and warn them that the cattle should be taken inside. As the winter progressed the ‘I am worried about your cows’ phone calls from neighbouring farms decreased and were steadily replaced by ‘I am amazed that your cattle look so good’ phone calls.”

## Economic bonus

LIFE support for this innovative method of introducing habitat grazing helped to demonstrate to Danish pig farmers that hardy cattle could not just survive a Danish winter, but they could do so very successfully, and without the need for expensive feed. Consequently LIFE indirectly raised awareness about a diversification option for the Danish rural economy that was not thought possible beforehand.

Such win-win-win benefits demonstrate the effectiveness of low-cost natural habitat management methods and provide opportunities for low-cost beef production using hardy breeds through an approach that creates the chance for landowners on protected habitats to set up a beef business without the initial outlay on livestock.

Rural development bonuses like this were unexpected and have shown farmers that introducing hardy cattle breeding can help diversify the rural economies of Danish islands, which had previously been largely dependent on a single type of agriculture production. Dependency can be considered a weakness in situations such as food scares that may reduce demand for certain products, and hence a rural economy that is able to support itself from a variety of different products remains more robust and capable of surviving in times of crisis. LIFE nature conservation activities on this project have therefore indirectly been the catalyst of new ideas and opportunities for strengthening the diversified structure of local rural economies in the Baltic and the methodology has considerable scope for wider replication.

*The project dug new ponds to enhance species connectivity*





The project made effective use of public relations, most notably through its Eurovision-style Bombina Song Contest

## Transnational benefits

Several other successful innovations were also produced by the project. These included transnational cooperation on in-situ conservation and rearing of reserve populations of the toads. German partners were able to use the in-situ facilities that had been built up by the previous Danish LIFE project. This cooperation saved costs by avoiding duplication of effort and it also provided the partners with access to experienced technical know-how from the University of Copenhagen. Latvia's in-situ programme was able to learn from the Copenhagen experts as well. Results proved effective for protecting the long-term survival of genetically unique populations in the different countries.

Further added value benefits from the LIFE-funded transnational cooperation led to modifications in Germany's legal system that helped to better facilitate nature conservation activity. Mr Drews describes how this happened saying, "German planning controls were very strict about the definitions of pond dimensions, depth and exact locations on farmland. This lack of flexibility hindered the project's ability to adapt its pond digging plans if monitoring showed that a pond might be better dug in a different location or to a different dimension than was initially envisaged and approved. Such situations were expected to happen because the team were testing different types of pond creation

techniques to identify the optimum parameters for foraging, breeding and rearing ponds.

"Discussions about the problem between German and Danish partners revealed that Danish laws were more flexible and so an exchange was arranged for the German authorities to meet with their Danish counterparts. [This] led to toad conservation considerations being introduced into German laws and this would not have happened without the LIFE transnational cooperation project."

## Added value

LIFE's contribution to making German law more wildlife sensitive was one of the reasons for this impressive project being awarded the "Best of the Best" prize, and the transnational team can also boast a variety of other added value outcomes with high relevance for elsewhere in Europe. These include a new lifecycle approach to holistic habitat restoration covering all of the target species' habitat components and biological functions. Good practice methods in exit strategy planning were also carried out leading to the project actions being mainstreamed in Germany, Denmark and Sweden, whilst they were extended in Latvia using a new LIFE project.

What's more, the transnational LIFE project has become well known around the Baltic region through a highly effective public relations strategy that includes an ongoing 'Eurovision'-style song contest for the toads. This continues to attract strong media coverage and involves nature enthusiasts from around the Baltic region recording the songs of calling male toads. All of the songs are uploaded to the project's website and a public vote is launched to find the favourite toad song from the participating nations.

Mr Drews and his transnational partners are very satisfied with the results of their cooperation and he concludes by saying, "The future for the fire-bellied toads is much brighter now that we have learned through LIFE what to do to help them."

**Project number:** LIFE04 NAT/DE/000028

**Title:** Bombina in the Baltic Region - Management of fire-bellied toads in the Baltic region

**Beneficiary:** Stiftung Naturschutz Schleswig-Holstein

**Contact:** Hauke Drews

**Email:** drews@sn-sh.de

**Website:** www.life-bombina.de

**Period:** 01-Apr-2004 to 31-Dec-2009

**Total budget:** €2 266 000

**LIFE contribution:** €1 064 000





# Denmark: LIFE provides multiple benefits to wetlands

The 'Regain' project demonstrated effective ways of involving landowners in nature conservation, identified useful EU-level policy lessons, and piloted successful integrated links between Natura 2000 and the Water Framework Directive.

Denmark is one of Europe's most intensively farmed countries. Arable agriculture predominates and this results from a long history of land reclamation, drainage and rationalisation of field structures. The upsurge in intensive land use systems helped to support the rural economy but it has had a negative impact on Danish wildlife. High value nature areas now only exist in relatively small-scale sites and habitats are often fragmented. Such a situation represents a serious conservation challenge for Danish nature authorities, but a pool of outcomes from an exceptional LIFE project have helped to identify new opportunities for strengthening the country's nature resource base in ways that also continue to support the rural economy.

This LIFE 'Regain' project took a regional approach to improving nature in the River Odense and Odense Fjord on the island of Funen. "The project was designed to help reduce the amount of nitrates that were leaching from the fields through the river systems and out into the Baltic Sea at the fjord," explains project team member, Annita Svendsen. "We wanted to take a regional approach that involved carrying out coordinated actions in different parts of the island that would combine to create synergies for tackling the nitrification problem."

The project selected inland areas along the River Odense where more natural hydrological conditions were to be restored; it also targeted coastal habitats. The river works targeted improvements to the conservation status of such endangered EU species as the thick shelled river mussel (*Unio*

*crassus*), brook lamprey (*Lampetra planeri*), and two species of protected snails (*Vertigo moulinsiana* and *Cobitis taenia*). "Along the fjord coast we wanted to improve the conservation status of important meadow habitats that were threatened by overgrowth and drainage and this area is also used by birds that are protected by EU law such as the whooper swan (*Cygnus cygnus*) and Eurasian wigeon (*Anas penelope*)," adds Ms Svendsen.

Much of the project's main physical works took place inland on the island near the village of Nr. Broby. Here is where the project achieved some significant outcomes in terms of establishing effective ways of including landowners in nature conservation. "This was a really big achievement and we think it is probably part of the reason why the project has received such good attention," says Ms Svendsen. "In Denmark, most of our Natura 2000 sites are on private land and we do not have the same amount of national parks or public nature conservation areas as other countries have. This means we need to find workable ways of getting private landowners such as farmers involved in nature conservation. It is challenging but we have some good tools at our disposal - one of these is of course LIFE."

For the 'Regain' project, LIFE was used in association with the Danish government's Land Distribution instrument which offers land of equivalent commercial value and productivity

*The project restored sections of the River Odense to a more natural course*



to farmers who agree to give up using intensive agricultural methods on land that is part of the Natura 2000 network. LIFE funding supported the works on the Natura-designated land to reinstate and strengthen its river habitat features.

## Coffee power

In addition to the Land Distribution tool, Ms Svendsen observes with a smile that another of the key ingredients for achieving the project's outcomes is coffee. "We Danes drink a lot of coffee and it took a lot of meetings with farmers to finalise the structure for the LIFE project's conservation agreements. During these meetings we drank a lot of coffee and the results have been enormously advantageous. Our approach to involving farmers in the conservation process is very participatory and we believe this is the best way to achieve outcomes that the farmers feel ownership of. The participatory process also means that we all properly understand each others' priorities and needs from the beginning.

"We facilitate (the farmers) decision-making process about how much land they calculate they are able to provide for the habitat work. It's a bit like trying to work out how to put together all the different pieces of a puzzle. We use our position as facilitators to maximise the gains for the farmers and for the habitats. It takes time, patience and special skills to complete the puzzle but it pays off and we very much appreciate LIFE's support in helping us carry out this participatory approach to nature conservation. The knowledge we gained from fine-tuning this technique through 'Regain' has been indispensable and we are able to replicate it in other habitat restoration projects."

A further interesting aspect of the project that the LIFE team intend to replicate elsewhere is its collective approach to habitat management. A 'grazing guild' was formed by a group of landowners who worked with the LIFE project to develop a territorial-style approach to the wetland conservation actions. Economies of scale can be achieved through this joined-up approach to cooperation using consistent techniques. "We want to encourage

*Annita Svendsen reviews one of the 'Regain' information panels at a site where landowners provide access to the public*



Photo: Tim Hudson



Photo: Tim Hudson

*The assistance and agreement of local farmers was crucial to the project's success*

more landowners to make use of the EU funds that encourage collective approaches to providing environmental services such as nature conservation," says Ms Svendsen. "We find that our partnership with the grazing guild continues to be a very efficient method of operating. It has generated unexpected outcomes such as the farmers making a voluntary arrangement to allow public access to the wetland sites. This may not have happened without LIFE's initial intervention."

Outcomes of the coffee meetings with landowners and grazing guild members led to agreements being made that allowed long-term changes in the river catchment habitat, including reintroducing two kilometres of natural meanders, riparian zones, ponds and other wetland features. Some 350 ha of priority habitat were covered by the LIFE project's nature conservation activity, areas where extensive approaches to grassland and wetland management are now practiced. The LIFE team estimate that this helps to retain approximately 60 tonnes of nitrates in the landscape each year, and thus prevents it from leaching into the Baltic Sea.

## Coastal conservation

'Regain's coordinated actions along the Baltic coast were also achieved through the same type of participatory approach with local landowners. Here the LIFE team were able to encourage farmers to introduce extensive cattle grazing as a business diversification option that would help manage the coast's high nature value meadow habitats. Farmers involved in this conservation work include Uffe Hansen and his wife Inge Huus from the small island of Tornø in the Odense Fjord.

"We were asked if we would be interested in grazing hardy cattle breeds on our land that could survive outside all-year round with relatively minimum inputs," recalls Mr Hansen. "As a farmer and businessman I found the idea attractive and I was very curious about the hardy cattle that the LIFE team talked about. I did some research and this indicated that breeds such as Galloways could perform well in harsh winter conditions so we agreed to participate in the LIFE project." His wife comments that, "Our island is situated within a nature reserve which is designated for protecting rare plants and birds





Photo: Tim Hudson

*Ongoing habitat management using a herd of Galloway cattle*

that live here. We find that our Galloway cattle like to graze the shoreline meadows and this prevents the plant habitats from becoming overgrown, so our cows are protecting the wildlife here.”

The family are happy with the hardy cattle and Mr Hansen has become a member of a Danish Galloway producer's group. “We started with just six Galloways and LIFE helped us to provide fencing to manage their grazing. We now have a herd of 60 and I have learned a lot about rearing this type of livestock through the LIFE project staff's advice who provide useful guidance and support to our producer's group.” The LIFE team provided information that helped the farmers apply for agri-environment funding, which covers payments for each hectare of grassland that is managed extensively.

A number of concerns have been identified about the lack of flexibility in the agri-environment scheme, and ‘Regain’ stakeholders are pointing to the benefits that could be achieved if future schemes were able to be designed like LIFE (in ways which allowed them to be adapted to more locally-specific circumstances). This type of policy-based lesson from the LIFE project has relevance throughout the EU and another important European-level outcome relates to ‘Regain’s success in integrating Natura 2000 operations with the Water Framework Directive (WFD).

## Integration benefits

“‘Regain’ was one of 13 projects chosen by the EU to explore how Natura 2000 designations can complement the WFD,” notes Ms Svendsen. “This was important because in Denmark we could do more to improve the way that authorities work together. Organisations responsible for reducing nutrient levels in water courses for example may often tend to work independently on their tasks, and people who work with biodiversity also often work mainly with other nature conservation initiatives. ‘Regain’s inclusion in the EU pilot programme provided us with the incentive to be more proactive in the way that the different organisations cooperate. This was the first time that

we had been able to work together in this way and we showed that Natura action could make very significant contributions to reducing nutrient levels in a way that contributed to the goals that our WFD colleagues were pursuing.

“LIFE demonstrated how Natura can integrate well with the WFD and I think that could be an important mission for LIFE elsewhere as well. Our project highlights the benefits that can be gained if we take a more holistic viewpoint. This makes sense because the more reasons we have to carry out nature conservation work the stronger our argument is for winning the essential funding. These justifications are particularly important at times of economic crises and we believe that holistic approaches can be used to generate socio-economic outcomes from nature conservation. We are now looking to see how we can use LIFE for testing, validating and explaining this type of integrated project approach.”

The beneficiary is now looking to extend the scope of its partnership approach to forge links with more partners. “One area with potential is climate action,” says Ms Svendsen. “Wetland habitats provide natural flood management functions and so we are exploring how climate adaptation action could be integrated within LIFE support for habitat conservation and/or vice versa.”

Rural tourism is another sector that could be integrated within biodiversity projects, believes Ms Svendsen. “Economic development authorities in southern Funen, for instance, are very keen to promote local tourism as a diversification opportunity. This is something that LIFE could help contribute to by integrating nature tourism facilities for visitors in habitat conservation proposals. We did this through ‘Regain’ and similar approaches should prove fruitful for boosting the overall budget of an integrated LIFE project. This is good because it can help to refute common misconceptions about Natura 2000 being a potential problem for business, and it can highlight the real value of (the network) as an effective tool for long-term environmentally-sustainable development from which everyone can benefit.”

**Project number:** LIFE04/NAT/DK/000022

**Title:** Regain - Regional Actions to Improve Nature in River Odense and Odense Fjord

**Beneficiary:** Danish Nature Agency, District Fyn

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**Website:** [www.naturstyrelsen.dk/Naturbeskyttelse/Naturprojekter/Projekter/Fyn/OdenseAa/LIFE/REGAIN.htm](http://www.naturstyrelsen.dk/Naturbeskyttelse/Naturprojekter/Projekter/Fyn/OdenseAa/LIFE/REGAIN.htm)

**Period:** 01-Apr-2004 to 30-Sep-2010

**Total budget:** €3 852 000

**LIFE contribution:** €1 926 000



# Germany: Water buffaloes aid inland salt marsh restoration

The 'Salzstellen Brandenburg' project successfully achieved its objectives and improved the conservation status of inland salt marshes of Brandenburg. Its actions led to the extension of this rare habitat type, stabilisation of the water regime and the establishment of appropriate management procedures – including the use of water buffaloes. Moreover, a largely sceptical stakeholder audience has been won over to its aims.

**S**alt meadows and pastures are semi-natural environments that first developed through their extensive use as prairies and pastures. The inland salt meadows in Brandenburg, near Berlin, are geological and botanical rarities providing important links with the salt meadows of Northern and Western Europe and those of the more eastern continental areas. They are generally of small size, but relatively numerous and contain several plant species endemic to Central Europe.

Inland salt marshes are created where saline ground water rises to the surface. The salts come primarily from the Zechstein formation which came into being some 250 million years ago when a sea covered today's Central Europe. Normally, thick layers of clay prevent the rise of saline water into the freshwater near the surface. In places where there is no such clay, saline water can rise to the surface. The salt levels can be quite low, but are enough to provide a competitive advantage for particular kinds of vegetation, such as sea arrowgrass (*Triglochin maritima*), strawberry clover (*Trifolium fragiferum*) and the orchid *Orchis palustris*.



A Brandenburg salt meadow







Photo: LIFE05 NAT/ID/000111 - Holger Rössling

The removal of overgrowth was essential to restore the ecological balance of the salt marshes

Extensively used wetland meadows such as salt meadows are also the preferred habitats of many breeding birds, including the northern lapwing (*Vanellus vanellus*), common snipe (*Gallinago gallinago*) and meadow pipit (*Anthus pratensis*); waders, cranes and thousands of Nordic geese also stopover at the site during their annual migration. In addition, some species of beetles and other invertebrates have specially adapted to the saline environment:

However the salt meadows are threatened both by overgrowth - caused by the abandonment of extensive grazing - and by intensification of agricultural use. Furthermore, conditions for saline vegetation have significantly worsened in the last decades. Notably, the marshes are suffering from salt imbalances caused by changes in the hydrological conditions, previously regulated by traditional irrigation and drainage systems.

### Special conditions

The overall objective of the 'Salzstellen Brandenburg' project was to contribute to the conservation and regeneration of the inland salt marshes. Project manager Holger Rössling explains that for these very rare habitats (natural inland salt meadows are among the rarest of EU habitat types) you need special nature conditions: The project therefore sought to restore the characteristic habitats and species of the most representative salt marshes (at 19 sites) and to introduce sustainable management practices.

Specific measures included:

- Restoring the hydrological balance of several marshes and saline areas;
- Removing overgrowth affecting the marshes; and
- Initiating and maintaining extensive cultivation of the meadows.

### Easy to miss

The inland salt meadows are inconspicuous and easy to miss. Therefore another project goal was to stimulate local interest in the project's aims and activities and to implement measures aimed at boosting the development of tourism in the area.

An important aspect of the project was the successful cooperation between the project beneficiary and nature organisations, NaturSchutzFonds Brandenburg and the Heinz Sielmann Foundation, as well as local land users.

According to Dr Rössling, the project's main challenge - and therefore greatest achievement - was to organise, together with the landowners and farmers the "really good management" of the salt meadows. The farmers participated in programmes of extensive grassland management (voluntary, or in the framework of the Natura 2000 *Schutzgebietsverordnung* regulation). He says "a lot of talking" was necessary in order to gain the trust and confidence of the (30) participating farmers and to discuss and test the different management systems: "I and my colleagues spent many hours at the kitchen table talking and listening... And it worked. Sometimes they [the farmers] were a little wary at first, but as long as they could see the positive aspects, they were generally in favour." A key output is an Action Plan for farmers with recommendations for the further development of grassland management and agri-environmental support in Brandenburg.

One of the project's more innovative aspects concerns the measures carried out to restore stability to the hydrological balance of the salt meadows. Dr Rössling explains that this proved more difficult than anticipated, as the geological conditions varied considerably between sites, requiring different solutions. For example, some sites are very saline and didn't



need much intervention; while others are really sensitive. With the aid of experts from the State Office for Mining, Geology and Minerals (Landesamt für Bergbau, Geologie und Rohstoffe), a number of hydraulic works were successfully carried out. These included: constructing a ground sill in the Marstallwiesen, near Storkow, in order to raise the water level permanently; re-connecting some 1 000 m of old meanders; and removing five old weirs along the Nuthe river.

Overall water levels were increased across an area of 312 ha, which was an excellent result. The project showed how water levels in several meadows could be regulated according to the requirements of the target species and the current weather conditions. Detailed knowledge of the local hydrology, and notably, the local knowledge and experience of the farmers, was found to be essential to the success of such restoration measures.

### Bringing in buffalo

The Brandenburg salt meadows are located in swampy lowlands. The meadows are normally moist and wet from early autumn until late spring. In springtime the water slowly recedes from the meadows and the plants begin to grow. In summer, when the last of the water has evaporated, the surface of the meadows begins to dry out and salt crystals start



Photo: LIFE05/NAT/D/000111 - Michael Zaif

*The project's use of water buffaloes has attracted widespread interest*

to form. Occasionally sediments rich in lime are also located nearby, so that lime-loving and saline plants grow next to each other.

Not all the salt meadows, however, dry out. Another innovative aspect of the project concerned the introduction of water buffaloes to graze and maintain the especially difficult areas: We had 100 ha of "really wet meadow areas", says Dr Rössling,

## Tourism pioneer

Werner Krumbein, Tourism Manager of Storkow, a small municipality (population c. 9 000) in the Oder-Spree district of Brandenburg, is something of a nature tourism pioneer: When he moved to the district – which encompasses the Dahme-Heideseen Nature Park and several tiny villages, including, the quaintly-named Philadelphia and Neu Boston (named after their grander American counterparts by Frederick II of Prussia in 1772) – there was nothing in the way of tourism infrastructure. He didn't even have an office!

Today, thanks to his vision, and with the support of EU rural development grants and cooperation in the LIFE Nature project, he heads up the tourism team working from the 'Visitor and Information Centre' located in the refurbished Storkow Castle.

Centre staff direct visitors from the nearby cities of Berlin and Potsdam to an 8.5 km 'Salt Trail', which was constructed during the LIFE project. There's also a viewing platform on the trail and a permanent exhibition at the castle about the creation, vegetation, water balance and significance of the salt meadows.

"It was important to see whether tourism could help to replace some of the many jobs lost in this region in the

1990s [following German reunification]," says Mr. Krumbein. The Storkow Castle Information Centre and exhibition help to make our district interesting to visitors. And the Salt Trail is very special."

*Project manager Holger Rössling (left) and Werner Krumbein outside Storkow Castle Information Centre*



Photo: Wendy Jones



explaining that although this land could be cleared annually using special machinery, the team wanted to find an “easier and cheaper solution” that could function over the longer term. They decided to try grazing with water buffaloes and putting them to work on the really rough conditions. The animals have proved successful – managing the tricky terrain – surviving the last four especially severe winters (with temperatures falling as low as minus 24°C) and proving popular with farmers, local residents and visitors. Supported by various agro-environmental subsidies, there are now an estimated 300 or so water buffaloes grazing the Brandenburg wetlands.

Other important practical works targeted habitat restoration. These included: mowing of reeds on 196 ha; clearing of shrubs and trees from 27 ha; planting of 240 m of groves; and the creation of 11 ponds. The interventions were shown to benefit salt marsh biodiversity. More than 150 monitoring points were set up under the project and salt levels will continue to be monitored by the beneficiary every three-to-four years. In several project sites, rare salt meadow plants creeping marshwort (*Apium repens*) and marsh angelica (*Angelica palustris*) have been identified for the first time. Also during the project, germination tests were carried out in cooperation with the Potsdam Botanical Garden, using soil samples from the project area, mainly excavation material from the water holes dug for the water buffaloes. The Botanical Garden also installed “show beds” with typical plant species of salt meadows.

Land purchase was “really important” in enabling the ongoing management of some of the most important sites, says Dr Rössling: “In our proposal we had already identified some plots of land that were most in need of saving. If we had not been able to buy this land, it would have been much harder to complete the conservation picture.” The project purchased 96 ha of land and the beneficiary was provided with a further 18 ha.

To raise awareness of the project, its importance and its achievements, the beneficiary produced various information leaflets and a salt-trail map and also organised a number of scientific seminars. A comprehensive technical study was also produced, which has been very well received by the scientific community. It covers all important inland salt marshes of Brandenburg including good practice examples of management methods. Another notable output was a film on the Brandenburg water buffaloes produced by German TV channels RBB and 3 SAT.

### ‘Something special’

The project also made Brandenburg’s inland salt meadows better known amongst local people and visitors, for instance by creating a ‘Salt Trail’ near Storkow, complete with viewing platform. Another observation platform was installed at See-



Photo: Wendy Jones

Holger Rössling shows one of the viewing platforms built along the 8.5 km Salt Trail

hausen, on the northern edge of the Schorfheide-Chorin Biosphere Reserve and there are information boards at a number of sites.

Dr Rössling sums up the project’s achievements by saying that it has created a real “EU added-value: A connection has been made between one of the rarest of EU habitat types and the local community. Through the project, we had the opportunity to talk about it and for the local people to see it, to accept it and to realise that it’s something special.”

**Project number:** LIFE05 NAT/D/000111

**Title:** Salzstellen Brandenburg - Conservation and development of the inland salt marshes of Brandenburg

**Beneficiary:** Landesumweltamt Brandenburg (LUA), now Landesamt für Umwelt, Gesundheit und Verbraucherschutz (LUGV)

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**Period:** 01-Aug-2005 to 30-Jun-2010

**Total budget:** €1 855 000

**LIFE contribution:** €1 391 000



# Germany: Celebrating the return of the *maifisch*

**An ambitious LIFE project has successfully returned the allis shad (*Alosa alosa*) to the Rhine in Germany. It captured and bred the fish in France before driving them hundreds of kilometres to be released. It has taken a major step to restoring a sustainable population in the Rhine.**

The allis shad is a herring-like migratory fish that was once common in European rivers. The fish had long been economically and culturally important along the Rhine basin. Towards the end of the 19<sup>th</sup> Century, more than 250 000 were caught each year in Dutch waters alone.

The fish appeared in paintings, writings and festivals from the period and the spawning season was so well known for its noise and splashing that the German name for the fish – *maifisch* – comes from the month of May when it occurs.

However, from the mid-20th Century it was considered extinct in most Atlantic tributaries.

Causes of the eradication were increased river pollution, destruction of spawning grounds and the construction of river obstacles such as dams and weirs. The allis shad could no longer return to its spawning grounds in adequate numbers. What populations remained in northern European rivers were over-fished.

In more recent times, the German region of North Rhine-Westphalia (NRW) developed a migratory fish programme to remove or overcome obstacles in rivers, for example by constructing fish ladders across weirs. The programme, and increasingly strict legislation on river pollution, saw num-

*These young allis shad were the first observed in the Rhine in decades*



Photo: LIFE06 NAT/01/000005 - A. Scharbert

*This fish pass allows anadromous species such as the allis shad (*Alosa alosa*) to migrate upstream without hindrance*

bers of important migratory fish such as salmon and North Sea houting increase in the Rhine.

## European partnership

The problem facing the allis shad was that numbers in the river had fallen so low that the species did not seem capable of restoring itself to sustainable levels. There had been no evidence of successful reproduction of the species in the Rhine for decades. Nor was natural migration from other areas likely to happen in any significant numbers. Dr Heiner Klinger from the project beneficiary, the NRW State Agency for Nature and the Environment, remembers it becoming “increasingly clear to the agency that the fish needed a helping hand.”

The idea to develop an allis shad reintroduction programme was championed by the Rhineland Fishing Association (RhFV). The fishermen had a strong interest in the return of a healthy population to the river. As Dr Andreas Scharbert of the RhFV explains, “It is clearly important biologically to improve the conservation status of the fish. But there is also a strong cultural and human element.”





The partners in Germany knew that relatively large spawning populations of the allis shad had survived in a few rivers in south-west France, notably the Garonne and the Dordogne. They therefore joined forces with CEMAGREF - a French public environmental research institute with some experience with captive breeding programmes - to investigate together whether and how fish could be taken from the sustainable populations in France and transferred to the Rhine in Germany.

They approached Dutch partners with competence for controlling the Rhine river delta and expertise in tracking other migratory fish, such as salmon. They also found an American expert who had experience in capturing, breeding and transporting a very similar species, the American shad (*Alosa sapidissima*). The result was the team that successfully delivered the LIFE 'Maifisch' project.

Preparatory investigations by American and French experts financed by the HIT environmental foundation explored whether the River Rhine genuinely provided suitable habitat types. They found that despite the extensive hydraulic modification of the river for shipping, there were sufficient areas of accessible habitat for spawning and growth of juveniles. Work in laboratory suggested that risks to juveniles from shipping should not prove excessive. Genetic studies confirmed that the French population in the Garonne was a suitable source for a restocking population.

The team therefore pressed ahead with its plan for a European captive breeding and restocking strategy for the allis shad. However, as Dr Scharbert remembers: "Every aspect of the conservation programme was a major challenge for us. Capturing, breeding, transporting and releasing the allis shad... we had no experience of any of these stages." Yet the US example showed that it could work and all the partners contributed their expertise and experience to overcome each new challenge.

### Optimising capture, breeding and release

CEMAGREF shared its knowledge of capturing fish in fish lifts with MIGADO - the Association for restoration and management of migratory fish in the Garonne and Dordogne basins - which was responsible for catching and transporting fish for breeding. Capturing the fish in the lifts ensured that only those fish that were already sexually mature enough to be migrating upstream were caught and without unnecessary stress to the fish.

Once MIGADO had enough of each gender, it moved the fish into round channel containers with oxygen inflow for transportation. They were taken to a fish farm nearby in Bruch, where the project had funded additional facilities



Photo: LIFE06 NAT/D/000005 - H. Schütze-Wiehenbrauck

*The Ministers of the Environment of North Rhine-Westphalia (left) and Hesse return the first captive-bred allis shad to the Rhine*

for the breeding programme. Several important developments and optimisations were made in the captive breeding process. Firstly, a hormone was injected into each fish to stimulate the release of gametes.

Optimum temperatures, light conditions, salinity and water flow were identified for each stage of the process, particularly to encourage spawning in the pools provided. Optimum fertilisation was achieved with a ratio of between 2:1 and 3:2 males to females. The fertilised eggs dropped through an outlet in the pools into an oxygenated water circuit. Once hatched - approximately four days after fertilisation - the larvae ate their yolk and passed over the rim of their incubation jars into a rearing basin.

The project ran a simultaneous captive breeding programme for *Artemia salina* larvae which provided a near-natural food source for the fry. These were fed into the basin through an automated dosing system during the early stage of the shad's lifecycle. As the shad grew, cheaper dried food was used instead. Impressively, from the first attempts in 2008 to the end of the project in 2010, survival rate of eggs during incubation increased from 28% to 65%, the survival rate of larvae from 49.8% to 95.6% and the number of larvae per female increased from 9 412 to 24 696.



## Monitoring and future developments

A final key innovation during the breeding stage was to mark the fish by immersing them in a fluorescent dye solution when they were still just a few millimetres long. As Dr Scharbert explains, "It is not viable to raise young allis shad in captivity to a size where they can be visibly marked on the outside before release." The project experimented with exposing the fish to different concentrations of the dye oxy-tetracycline (OTC) for different lengths of time before settling on the optimum levels of 300ppm OTC solution for four hours.

The marked larvae were transported to Germany in large plastic sacks filled with one-third water and two-thirds pure oxygen, and containing up to 12 000 larvae. Release sites connected to the Rhine were chosen for their accessibility to the transportation vans, the quality of the habitat they offered the young fish and low risks from predators, strong currents and wash. The project experimented successfully with a pre-release stage so that fish could get accustomed to the water and be provided with food within the safety of an enclosure. Full release was usually at night to minimise the risk from predators.

Success of the restocking was proved when the first juvenile fish was caught downstream by a fisherman near to where the Rhine enters the Netherlands in September 2010. "We

*Optimum temperatures, light conditions, salinity and water flow were identified for each stage of the breeding programme*



*The project used hormone treatment to stimulate female allis shad to release their eggs*

were delighted when we heard that someone had caught an allis shad in the Rhine. Then they caught 30 in two months!" remembers Dr Klinger. The netted fish were an impressive 12 to 14 cm in length and their markings revealed that they came from the captive breeding programme, a good sign that the released population was doing very well.

However, despite the tremendous successes of the Maifisch project, there is much work still to do. A follow-up LIFE+ project, 'Alosa alosa', (LIFE09/NAT/DE/000008), was developed with the twin aim of continuing the restocking programme into the Rhine and conserving the donor populations in France. It was noticed during the first project that return rates to the rivers in the Gironde watershed were declining unexpectedly and the new project is exploring the reasons so they can be overcome.

Monitoring work will continue under the new project to confirm increases in the return of mature shad to the Rhine. The new project also aims to restock a further 7.5-10 million shad larvae into the Rhine and develop another pilot capture and breeding programme in Germany itself. It is hoped these efforts will build on the successes of the 'Maifisch' project and secure the long-term sustainability of an allis shad population in the Rhine.

**Project number:** LIFE06 NAT/D/000005

**Title:** LIFE-Projekt Maifisch - The re-introduction of allis shad (*Alosa alosa*) in the Rhine System

**Beneficiary:** LANUV – the North Rhine-Westphalia State Agency for Nature and the Environment

**Contact:** Heiner Klinger

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**Website:** <http://www.lanuv.nrw.de/alosa-alosa/en/index.html>

**Period:** 01-Jan-2007 to 31-Dec-2010

**Total budget:** €956 000

**LIFE contribution:** €478 000







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# BEST PROJECTS

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# Belgium: Brewing a successful habitat restoration

This project in Antwerp province demonstrated how LIFE funding and community engagement can help scale up existing nature conservation programmes.

The 'LIFE Liereman' project involved the restoration of the 'Landschap De Liereman', a nature reserve situated in the north of Belgium's Antwerp Province. The reserve includes a complex mosaic of habitats, from dry heathland on the hills to oligotrophic ponds in the valleys, as well as continental dunes and Nardus grassland.

Changes in land use brought about by the agricultural intensification and the forestry industry have had a negative impact on these habitats, however, and by the end of 20<sup>th</sup> century the area had lost most of its conservation value to habitat fragmentation, conifer plantations, changes in the natural hydrology and lack of appropriate land use.

LIFE funding was secured to bolster the project beneficiary's existing efforts to restore, protect and manage parts of the nature reserve. This enabled a large-scale coordinated programme of action based around a comprehensive management plan that sought to reduce habitat fragmentation and start restoration works.

Prior to restoration, the beneficiary commissioned a detailed hydrological study of the project sites. This was used to model the geo-hydrology, with this model then applied to test five different possible management scenarios for restoring the habitat.

The project purchased some 143 ha of mainly agricultural land and pine plantations for habitat restoration. Land purchase helped the beneficiary incorporate strategic sites and reduce fragmentation, with the initial investment seen as a way to start long-term sustainable management of the site, including controlling visitor access to more fragile areas.

Restoration actions included the clearance of pine plantations and invasive black cherry (*Prunus serotina*) trees on close to 100 ha. Thirty-four wooden chalets were demolished and removed in cooperation with a social employment project to enable the natural redevelopment of heath. Amongst other actions, the team also restored five oligotrophic ponds and redirected a stream crossing the site that contained eutrophic water leaching from farmland. To ensure the ongoing management of the mosaic of habitats, the project introduced extensive grazing over an area of more than 131 ha, supported by mowing of some 93 ha.



Controlling bog hydrology led to the restoration of Erica Tetralix heathlands

The value of the management actions was shown by the return of important fauna and flora, including the natterjack toad (*Epidalea calamita*), European nightjar (*Caprimulgus europaeus*), and white-flowered buttercup (*Ranunculus ololeucos*).

Crucial to the success of the project was its ability to secure the involvement of local stakeholders, both in drawing up the management plan and, through the construction of hiking trails, in visiting and engaging with the nature reserve. In another, innovative, example of community engagement, the beneficiary is also exploring opportunities to develop the economic potential of the reserve, including through the production and sale of beer at its visitor centre, using ingredients harvested on site. The beer is named Gageleer after one of its key ingredients, bog myrtle (*gagel* in Dutch), an indigenous plant that grows throughout the reserve.

**Project number:** LIFE04 NAT/BE/000010

**Title:** Liereman - Habitat restoration in Landschap De Liereman

**Beneficiary:** Natuurpunt Beheer v.z.w.

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**Period:** 01-Jan-2004 to 30-Sep-2010

**Total budget:** €3 819 000

**LIFE contribution:** €1 521 000





# Belgium: Managing military land for conservation

**A partnership approach to management of ecologically important military land in Belgium has improved its conservation value whilst letting the Belgian Army get on with its business.**

**M**ilitary sites are often areas of high ecological value having avoided land use intensification, but such sites are too often threatened by a lack of proper management. In Wallonia, Belgium the LIFE 'NATURA2MIL' project was launched to restore deteriorating habitats on military land and introduce management plans for their conservation.

The project restored more than 700 ha of *Nardus* grassland, a priority habitat under the Habitats Directive, and heath habitats in three large military training grounds in Wallonia: Marche en Famenne, Lagland and Elsenborn. The project area far exceeded the foreseen 380 ha. Restoration work included the removal of shrubs and the stripping of topsoil (44 ha) of heath and grassland to remove some of the nutrients that were causing changes in the species composition.

Another main aim of the project was the restoration of hydrological conditions in marshes in the project area. At the Lagland site, which is made up of a large number of small ponds and drainage systems, the water level was improved and the management of pasture land secured through the enclosure of 77.3 ha under agricultural contracts.

At Elsenborn, 28.4 ha of Alpine fennel prairie was restored, far exceeding the target of 9 ha – the mowing of the prairies will continue thanks to contracted agricultural activities. The project team cleaned 80 disused targets and restored fire locations. The technique of fire management was perfected for future use over an area of 752 ha (twice the size foreseen). In addition, the pro-

ject restored 2.86 ha of peatland at Elsenborn, exceeding the objective of 2 ha.

GIS mapping of all the sites was carried out ahead of the drawing up of management plans for the three areas. Plans included the introduction of continuous grazing of the open habitats. At Marche-en-Famenne, management actions included the construction of a sheepfold and the introduction of a flock of sheep. Around 300 ha of pasture land are now professionally managed.

## Army takes ownership

The success of the project relied on the setting up of a technical coordination team for the three sites under the auspices of the army which is responsible for nature conservation on all areas. Four military personnel are charged with carrying out an after-LIFE conservation plan in collaboration with the forestry management department of the Walloon region of Belgium.

Moreover, at the Belgian Army's military camps, a revision of hunting practices was encouraged following scientific studies into the activities of wild boars. An expert working for the military will ensure the ecological management of hunting in the target areas. Overall, the infrastructure established during the project will ensure the continuation of the pasture and ploughing activities on these rich military-owned lands.

*The project restored deteriorating habitats on military land*



**Project number:** LIFE05 NAT/B/000088

**Title:** NATURA2MIL – Rehabilitation of habitats in military camps in Wallonia

**Beneficiary:** Direction Générale Opérationnelle «Agriculture, Ressources naturelles et Environnement» (DG03) - Departement de l'Etude du Milieu Naturel et Agricole (DEMNA)

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**Period:** 01-Jan-2006 to 31-Dec-2010

**Total budget:** €3 447 000

**LIFE contribution:** €1 724 000



# Belgium: Improving upland habitat connectivity

Environmental benefits for endangered EU species and economic benefits for an isolated upland area have all been created by a LIFE project's successful approach to coordinated habitat improvements on the Tailles Plateau.

Much of the upland environment of Belgium's Tailles Plateau is included in the Natura 2000 network because of the relatively unique mix of habitats and species found there. For example, although the plateau is no higher than 650 m, it supports interesting specimens of mountain vegetation and endangered species. Bogs, forests and grasslands are all present on the plateau, which provides an important stepping stone for species moving between other high plateaux of Wallonia, including birds and insects protected by EU nature conservation law, such as black stork (*Ciconia nigra*) and violet copper (*Lycaena helle*).

Land use changes over previous decades had however created threats to the overall integrity of this Natura 2000 asset. The DGRNE thus called on LIFE funds to help the municipal authorities put in place a strategic restoration package that has succeeded in safeguarding the long-term conservation of key habitats and species.

The project focused in particular on tackling habitat fragmentation, with actions aimed at reconnecting pockets of important plateau habitats and setting up a green infrastructure. Significant achievements were made here via different types of work involved in restoring and reintroducing habitat 'corridors' or 'stepping stones' throughout the Natura 2000 site.

LIFE 'PLTAILLES' applied conservation tools and techniques that involved: clearance and treatment of areas suffering from problematic vegetation (some 325 ha of spruce plantations were removed and 45 ha of infertile meadows mowed); restoration of deciduous forest (on 150 ha); improvement in the hydrological status of a network of wetland bog areas (600 new pools and water surfaces were formed); introduction of a new and fully controlled extensive grazing regime (on 100 ha of heaths and alluvial meadows); and establishment a strategic scientific approach to better understanding the plateau's conservation requirements over the long term.

Meetings with landowners during the preparatory stages of the project paid particular dividends, since, as well as creating favourable conditions for the beneficiary to conclude land purchase agreements (72 ha) that enabled the establishment



The project reconnected pockets of habitats, such as this mire

of a new nature reserve, the liaison work also led to a number of landowners signing land management agreements that required them to carry out complementary nature conservation actions, such as mowing and extensive grazing, which have laid the groundwork for the implementation of the project's After-LIFE conservation plan. Habitat connectivity was further strengthened by three local municipalities who committed some 330 ha of public land for nature conservation.

The inclusion of nature tourism measures such as observation towers and walking trails meant the project also had beneficial multiplier effects for the local rural economy. Such good practice integration of economic benefits into the nature project outcomes contributed to the project's "Best" LIFE Nature award.

**Project number:** LIFE05 NAT/B/000089

**Title:** PLTAILLES - Rehabilitation of natural habitats on the Tailles Plateau

**Beneficiary:** Direction Générale Opérationnelle Agriculture, Ressources naturelles et Environnement (DGRNE)

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**Period:** 01-Jan-2006 to 31-Dec-2010

**Total budget:** €3 753 000

**LIFE contribution:** €1 877 000





# Czech Republic: Combating an alien plant invasion

With LIFE support, the 'Moravka' project trialled and implemented various techniques to combat the spread of invasive non-native plants in alluvial forests.

The Beskydy Natura 2000 site, situated in the Morávka River Basin in the north-east of the Czech Republic, is a biologically and geomorphologically rich area. It is characterised by several valuable wetland forest habitat types that are protected under the Habitats Directive. These include the last remnants in the country of naturally transverse drifting streams in gravel alluvium, also known as running wild rivers. Annex II Habitats Directive-listed plant species, including two 'critically endangered' flora species of the Czech Republic, *Myricaria germanica* and horsetail (*Equisetum variegatum*) are part of this habitat. A number of very rare insect species also occur here, including the grasshoppers, *Tetrix tuerki* and *Chorthippus pullus*.

The site's valuable habitats and species, however, are under threat from invasive Japanese knotweed (*Reynoutria japonica*) and another non-native plant species, Himalayan balsam (*Impatiens glandulifera*). Several steps to remove the Japanese knotweed had already been unsuccessful, because of limitations of scope and scale. The lack of an overall River Basin Management Plan for the area's important water resources had also hindered removal of the invasive plants. The project's main aims, therefore, were to preserve the target habitat types from the spread of invasive plants; and to draw up and implement a plan for combating the unwanted plants in a way that would also revitalise habitat biodiversity.

## Successful implementation

The project was well implemented and achieved its objectives. Extensive fieldwork resulted in more than 90% of the Japanese knotweed within the project area being removed. Outbreaks of Himalayan balsam were also tackled.

Methodological approaches developed by the project highlighted useful lessons for the beneficiary and its partners. These included safe techniques for using herbicides in wetland environments; methods that were disseminated to other interested parties. For example, Japanese knotweed was eliminated on a total area of 350 ha by spraying with a degradable herbicide during spring and summer. The injection method was used in the most sensitive areas (i.e. close to



Research coordinator Barbora Jazora next to the invasive alien species, *Reynoutria japonica*

drinking water environments). The 24 testing plots were regularly checked and in the event of re-occurrence, the herbicide was re-applied. Clearing started immediately after the first frosts. Himalayan balsam however, was eliminated by pulling out and mowing, rather than chemical treatment.

In addition, two subsequent measures - sowing of native herb species and planting of trees and shrubs - were applied to establish cover to prevent the return of the invasive species and to support acceleration of the overall habitat restoration process.

As well as actions concerning invasive species, the project team raised public awareness through several seminars for local residents and more than 40 field trips for schoolchildren and students from the region.

**Project number:** LIFE06 NAT/CZ/000121

**Title:** Preservation of alluvial forest habitats in the Morávka River Basin

**Beneficiary:** Moravskoslezský kraj

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**Period:** 01-Jan-2007 to 31-Dec-2010

**Total budget:** €1 015 000

**LIFE contribution:** €704 000



# Hungary: bringing land users on board to protect rare raptors

**LIFE funds from a transnational project in the Carpathian basin have demonstrated good practice approaches for achieving stakeholder participation and led to important improvements in the conservation status of an endangered European falcon species.**

Landowners, land managers and other land users are commonly key stakeholders involved in LIFE Nature projects, and it is important to have credibility with such conservation partners. Credibility can be won or lost on the strength of evidence that exists to back-up the rationale behind proposed changes that might be necessary to conserve a protected species or habitat. Without such evidence it can be difficult to convince stakeholders to provide the often essential inputs that their contributions represent. A good example of how LIFE co-finance can be used to help furnish such evidence is shown by a transnational initiative from Hungary and Slovakia supporting the conservation status of the Saker falcon (*Falco cherrug*).

Saker falcons are endangered at EU level. The species suffered a sharp decline in numbers at the end of the 20<sup>th</sup> century and fewer than 500 pairs were thought to remain in the wild in Europe, with some 40% of these recorded as being reliant on semi-natural habitats in Hungary and Slovakia.

Changes to land use patterns across the bird's habitats in the Carpathian basin were thought to be contributing to its decline. However, a knowledge gap existed about exactly what measures could be taken to create more favourable conditions for supporting the sustainability of the remaining falcons. LIFE provided a solution to help fill this information gap and identify a long-term set of conservation actions based on informed know-how about the falcon's recovery needs.

*Barnabás the Saker falcon*



Photo: LIFE06 NAT/H/000096 - Mátyás Prommer

LIFE funding was used to build up a body of evidence about the issues that threatened the species and was then invested in helping to bring stakeholders on board in a package of activities to tackle these challenges.

Initial work led to a GIS database being developed that detailed habitats and provided a new knowledge base about the impacts of specific agricultural practices and subsidy systems on the species. Further scientific analysis from Hungary resulted in a new population dynamics model for the falcon, and this is now being used to help stakeholders in both countries better understand the conservation requirements of the species. Actions on the ground included a considerable amount of effort to mitigate mortality threats from overhead electricity cables. Stakeholder participation from power companies helped to insulate the cables and successfully reduce electrocution risks. The project team also worked with local land managers to improve nesting opportunities for the birds and boost availability of their prey. A comprehensive awareness-raising campaign encouraged stakeholder participation based on the crucial evidence gathered by the project earlier.

The project has created a lasting legacy that is being taken forward through adherence to its After-LIFE conservation plan, which sustains and expands the project activities and provides a long-term commitment to protecting this endangered species. In doing so it acts as demonstration of good practice that can be replicated elsewhere.

**Project number:** LIFE06 NAT/H/000096

**Title:** Conservation of Falco cherrug in the Carpathian basin

**Beneficiary:** Bükk National Park Directorate

**Contact:** Jozsef Fidloczky

**Email:** fidlojo@gmail.com

**Website:** <http://sakerlife.mme.hu/en/content/show>

**Period:** 01-Oct 2006 to 30-Sep-2010

**Total budget:** €2 152 000

**LIFE contribution:** €1 607 000



# France: Restoring meadow viper habitats

This award-winning project helped reconnect fragmented French habitats of the endangered Orsini's viper (*Vipera ursinii*) and restore them.

Populations of Orsini's viper (*Vipera ursinii*) are known to exist in just 12 locations in France (with unconfirmed sightings in three other places). These populations are highly isolated from other European ones (the closest of which are found in central Italy) and make up the western edge of the species's range. Thus, the current situation increases both their risk of extinction and the potential value of conservation measures.

ARPE, a public authority in Provence Alpes Côte d'Azur, instigated a LIFE project that set out to protect and restore the mountainous grassland, heath and scrubland habitats favoured by the viper and increase its viability. Other targets of the project, which focused on the Natura 2000 sites where 60% of the French Orsini's viper population is found, were to limit the negative effects of recreational activities, reduce collection and killing of snakes and encourage better management and protection of populations in France.

## Favourable results

The project restored more than 570 ha of favourable habitats and fragments of disconnected habitats were reconnected. This was achieved through three different techniques: experimental controlled fires to limit the growth of bushes and brushwood without destroying habitats or populations (c. 20 ha of grasslands); brushwood clearance to restore open habitats (c. 200 ha of forests or woods); and tree-felling to restore open habitats (350 ha).

The project was also successful in limiting the damaging impacts of recreational activities on two sites, by defining actions that were then included in local management plans, developing partnerships with the various stakeholders and undertaking surveillance operations. The beneficiary also developed a protocol to ensure that viper conservation is taken into account during major cycle races such as the Tour de France and Tour de Mondovélo.

On some sites, surveillance was carried out annually during the project to prevent any illegal removal or deliberate destruction of vipers. The presence of the surveillance team on-



Photo: LIFE06 NAT/FD00143 - Frédéric Larné/Thomas Roger

Orsini's viper (*Vipera ursinii*)

site seems to have had the required deterrent effect since no such operation was observed. This action also helped in informing people and raising awareness of the species and its conservation. Another innovative awareness-raising tool was a partnership with a local organic brewery, which printed information about the project on the labels of its beer bottles.

Monitoring shows that Orsini's viper has already started re-colonising one of the sites where habitats had been restored. Prospects also look to have improved for the other sites. Finally, a National Action Plan for the viper has been developed, largely based on the LIFE project's work and results. Its recent validation by French authorities should ensure the continuation of the project's activities.

### Project number:

**Title:** Vipère D'Orsini - Conservation of French populations of Orsini's viper (*Vipera ursinii*)

**Beneficiary:** Agence régionale pour l'environnement Provence Alpes Côte d'Azur (ARPE)

**Contact:** Corinne Dragone

**Email:** c.dragone@arpe-paca.org

**Website:** www.vipere-orsini.com/fr

**Period:** 01-Aug-2006 to 30-Apr-2011

**Total budget:** €1 492 000

**LIFE contribution:** €746 000





# Poland: Conserving where the European bison roam

A wide-ranging series of measures in Poland's Białowieża Forest has helped increase the population of Europe's largest land mammal, the European bison (*Bison bonasus*).

The size and majesty of the European bison was no defence against the humans who hunted it to extinction in the wild in the early 20<sup>th</sup> century. Following a successful programme to reintroduce the species to the Białowieża Forest in the 1950s, it continues to face serious threats to its existence and is classified as "vulnerable" in the IUCN Red List. Today the European bison is located in small and restricted areas, where the concentration of individuals is too high and food resources poor and declining; and these areas are fragmented and isolated, resulting in low genetic diversity and high susceptibility to disease. A further threat comes from the fact that the species often is seen as a 'problem' by the local population.

To counteract these threats, the 'BISON-LAND' project set out to establish a new strategy for the sustainable conservation of European bison in the Białowieża Forest. Central to this would be the creation of new corridors surrounding the primeval forest to improve the range of the species; measures for improving food sources and habitat conditions; and the introduction of an effective system of bison population monitoring. In addition, the project aimed a three-pronged strategy at improving local communities' attitudes towards the species, focusing firstly on information and education; secondly on preventing conflicts with farmers by implementing a scheme to let meadows from them in which the bison could feed; and thirdly on developing tourism based around the presence of the bison in the region.

The first stage of the project involved conducting an ecological audit of the project area and drawing up proposals for the ecological corridors that were then included in spatial plans for Podlasie region and 11 local areas.

Specific habitat management actions aimed at improving bison dispersal in the forest included the reclamation of some 46 ha of meadows for the species, plus the creation of drinking holes, planting of wild fruit trees (a food source for the bison), and construction of supplementary winter feeding sites stocked with hay gathered as part of an agri-environment scheme to mow the meadows on an annual basis.

Use of satellite and radio telemetry to monitor the size and movements of the European bison population in the Białowieża Forest revealed the impact of these LIFE-funded habitat improvements: the number of individuals grew by 13.6% and the number of mixed herds of bison from seven to 12; furthermore, the total area covered by the population was found to have grown by some 32% in the course of the project.

To help ensure the long-term health of the species, genetic screening also took place. The project team collected a total of 430 DNA samples, which were then deposited in the European Bison DNA Collection, with the results of subsequent analyses added to the European Bison Genetic Data Bank. The project also drafted a set of bison genetic variability preservation guidelines.

Threats to the species remain, but the future for the European bison looks much brighter, particularly as the beneficiary has secured additional funds that will enable the continuation of the recurring and non-recurring management activities started with the help of LIFE.

European bison (*Bison bonasus*)



Photo: LIFE06 NAT/PL/000105 - Tomasz Kaminski

**Project number:** LIFE06 NAT/PL/000105

**Title:** BISON-LAND - European Bison conservation in the Bialowieza Forest, Poland

**Beneficiary:** Mammal Research Institute, Polish Academy of Sciences (MRI PAS)

**Contact:** Jan M. Wójcik

**Email:** kniedz@bison.zbs.bialowieza.pl

**Website:** <http://www.krainazubra.pl>

**Period:** 01-Oct-2006 to 30-Sep-2010

**Total budget:** €1 382 000

**LIFE contribution:** €956 000



# Portugal: Fighting to save an endemic petrel

The 'SOS Freira do Bugio' project aided the conservation of the threatened Fea's petrel (now Bugio's petrel) by optimising conditions for its recovery in Madeira, Portugal, whilst encouraging public support for the conservation of the species and its habitat.

The Desertas Islands are home to 90% of the breeding population of the rare Fea's petrel (*Pterodroma feae*) (173-258 individuals), as well as other bird species listed in Annex I of the Birds Directive and considered priority species for LIFE funding.

The petrel faces a number of threats to its continued existence on the Desertas Islands: the disturbance and destruction of nests by rabbits; habitat degradation as a result of the introduction of vertebrates; the concentration of at least 90% of the breeding population in a single limited area (less than 20 000 m<sup>2</sup>); a lack of knowledge amongst the local population and visitors of the existence of important feeding and dispersion areas for the species, which leads to both direct and indirect impacts from human activities; and predation of the species by small mammals and other birds.

## LIFE brings change

A LIFE project was set up to develop management tools – it drew up a Management Plan for the Desertas Islands and an Action Plan for the target species – and these have greatly improved the conservation status of the petrel. Another outcome was a change in the taxonomic status of the species: it is now named Bugio's petrel in recognition of it being an endemic species of the Desertas Islands.

Moreover, the project yielded information of the species's reproduction and ecology that should prove extremely valuable for its future management. Studies involved the tagging of 252 individuals. Although tasks concerning the expansion of the species to other geographical locations were abandoned (as a result of it not being possible to establish a population with the expected number of individuals), the species responded very positively to the improvement of its breeding conditions. The beneficiary has high hopes for the future recovery of Bugio's petrel.

Habitat recovery proved to be very successful. Erosion was controlled through the installation of some 1.2 km of coconut meshing, while rabbits, mice and goats were removed from the southern plateau of the island of Bugio. Eradication of rabbits



Information about the reproductive patterns of Bugio's petrel gathered by the LIFE project should help with its future management

was particularly successful with no individuals reported in the project area since 2008. To increase the vegetation cover and aid soil retention, seeds of 10 different species collected in the project area were directly dispersed on the top of this plateau.

Monitoring confirmed the presence of 11 active nests of Bugio's petrel on the island of Grande Deserta. Of the 24 artificial nests built during the project, during the 2010 breeding season 12 were occupied by pairs (four with successful juveniles) – a good indicator of the acceptance of the nests. The substantial data amassed by the project team did not change the marine IBA boundaries, established in 2009; it did, however, identify new feeding areas outside the Madeira archipelago.

Finally, the project's awareness and dissemination campaigns (including visits to the project) attracted a very high number of participants and have helped to increase knowledge about the species amongst the local population.

**Project number:** LIFE06 NAT/P/000184

**Title:** SOS Freira do Bugio - Urgent measures for the recovery of Bugio's petrel, *Pterodroma feae*, and its habitat

**Beneficiary:** Serviço do Parque Natural da Madeira

**Contact:** Paulo Oliveira

**Email:** paulooliveira.sra@gov-madeira.pt

**Website:** <http://www.sosfreiradobugio.com/>

**Period:** 01-Feb-2006 to 31-Dec-2010

**Total budget:** €966 000

**LIFE contribution:** €724 000



# United Kingdom: Restoring active blanket bog in Wales

**Active engagement with the local community helped a project in North Wales exceed its targets for improving the condition of blanket bog and provided valuable lessons for the management of this important habitat elsewhere in Europe.**

Despite their Natura 2000 network Special Area of Conservation (SAC) status, the “Berwyn and South Clwyd” and “Migneint-Arenig-Dduallt” SACs in North Wales (UK), areas notable for their active blanket bog (and breeding upland bird populations), faced a number of threats at the start of this LIFE+ Nature project. Chief among these was the fact that much of the blanket bog within the two SACs is managed by private farmers in ways that are detrimental to its conservation status. The digging of drainage ditches in the 1920s and 30s, creation of Sitka spruce (*Picea sitchensis*) plantations in the 1970s and spread of the invasive rhododendron (*Rhododendron ponticum*) have all contributed to the current “unfavourable” condition of much of the habitat, whilst over-grazing, inappropriate burning management and uncontrolled fires have caused heather (*Calluna vulgaris*) to be lost on the remaining areas of blanket bog.

The overall goal of the ‘Active blanket bog in Wales’ project was to restore this important habitat to a “favourable” status through actions that would enable the re-wetting of the bogs (blocking of drainage ditches and removal of plantation forests and of regenerating non-native species). Given the fact that local farmers managed much of the land, persuading them of the value of the project would be essential to its success.

## Community engagement

As the project team began the restoration work, it was able to allay farmers’ fears by demonstrating the beneficial results, converting initial scepticism and opposition into local support for the actions. An important factor in winning the community over was the beneficiary’s decision to make extensive use of local contractors, bringing jobs and other economic benefits to the area. Furthermore, by using the same contractors throughout, the project was able to exceed its targets (blocking 485 km of drains, removing almost 35 ha of plantation forests, and eliminating rhododendron and other non-native species from some 500 ha in total), as well as ensuring that a lasting bog habitat restoration skills base was established locally.



Active blanket bog in North Wales

The success of this community engagement approach was shown by the fact that in the final year of the project, a further 10 farmers invited the beneficiary to block drains on their land, enabling the project to carry out work on areas outside the original target area.

Long-term benefits are expected to result from the project, particularly as it managed to ensure that the management of bog habitat was included in the next agri-environment scheme for Wales, starting in 2013. The publication of five scientific papers as a result of the actions carried out by the project also greatly added to the knowledge surrounding bog habitat restoration. An analysis of the bog’s role as a carbon sink was just one valuable input for similar actions elsewhere in Europe.

**Project number:** LIFE06 NAT/UK/000134

**Title:** Active blanket bog in Wales - Restoring active blanket bog in the Berwyn and Migneint SACs in Wales

**Beneficiary:** The Royal Society for the Protection of Birds (RSPB)

**Contact:** Jared Wilson

**Email:** gorgorscymru@rspb.org.uk

**Website:** <http://www.blanketbogswales.org>

**Period:** 01-Aug-2006 to 31-Mar-2011

**Total budget:** €3 765 000

**LIFE contribution:** €2 824 000





# Available LIFE Nature publications



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Period covered (LIFE+) 2007-2013.

EU funding available approximately EUR 2 143 million

Type of intervention at least 78% of the budget is for co-financing actions in favour of the environment (LIFE+ projects) in the Member States of the European Union and in certain non-EU countries.

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Luxembourg: Office for Official Publications of the European Union

2012 - 32p - 21 x 29.7 cm

ISBN 978-92-79-25968-5

ISSN 1977-2734

doi:10.2779/61418

