
LIFE-PROJECT WENGERMOOR

Member of the Salzburg
Federal State Government
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INTRODUCTION

The "Wengermoor" Life Project demonstrates what "active" nature conservation can achieve within the framework of a large project taking place over a number of years. The Federal State of Salzburg together with the municipal co-operative for water affairs and the local land owners can be proud of this fine example of partnership nature conservation. Only as little sovereign nature conservation as is necessary and as much partnership nature conversation as possible – it was with this credo in mind that the first Life Project in Salzburg, the "Wengermoor Project" was carried out. Working together with the local people and their very determined support are absolutely vital for the success of such a project; nature conservation has to be a shared matter. The Life Project has given us the chance to tackle comprehensive and sustainable measures with the support of the EU, the Federal Government and the Federal State Government to preserve the habitat of the Wengermoor. We have been able to secure and in part restore an extremely valuable eco-system.

Although a leaflet was issued confirming the end of a project, the measures for the moorland should and will be allowed to be left in effect. During the project, awareness for the whole matter of nature conservation in this area was aroused by means of accompanying information and PR work. In the long term we would like to see nature conservation and experiencing nature existing in harmony side by side by means of targeted regulation of the flow of visitors.

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Taking on the management of this nature conservation project was a pleasant task and quite a challenge at the same time. Now at the end of the project and in the light of the many measures which were implemented and being able to see the actual results, it can be seen that it was definitely worth the effort. Such results can only be achieved with good and inter-disciplinary teamwork and with the active participation of all those affected. There were, of course, conflicts and interests first had to be co-ordinated. The willingness to compromise, "do something", actively think about nature, finally made the success possible; the success which is due to all of us.

Project Manager
Ulrike Seidel

PEAT-BOG

WHY A LIFE PROJECT?

The nature conservation area "Wallersee-Wengermoor" is, ecologically speaking, one of the most valuable moorland areas in the region of the Flachgau. It is particularly the raised bogs such as the Zeller and Wengermoor, after which the whole area is named, which are nowadays so rare. The nature conservation area covering 300ha is made up of a small scale mosaic comprising raised bogs and fens, moorgrass and humid hay meadows, forests, rivers and a part of the shore of the Wallersee. It is home to extensive numbers of species of plants and animals which have become rare or are endangered such as the *Crex crex* and the *Numenius arquata*, the *Drosera spec.* and the *Iris sibirica.* This is the reason why the area has been protected for more than 30 years. Due to the fact that a number of habitats and species of animals found here are of great importance throughout the EU, the "Wengermoor" was declared a Natura 2000 area and is, as a result, part of a network of conservation areas across the EU. This was an important precondition for the Life Project.

The "Wengermoor" did, however, still suffer as a consequence of previous interference. The raised bogs were drying out as a result of the drainage ditches dug when peat was still extracted from the moorland. The Eisbach had, to a large extent, been artificially straightened out and a man-made riverbed added and it had all but lost its function as a habitat. Many meadows which had formerly been moorgrass meadows had either had spruce trees planted on them or had been transformed into mesophile hay meadows. In addition to this, the increase in the number of visitors and the fact that where they went was not being regulated meant that the birds here were being increasingly disturbed.

For these reasons, a Life Project, sponsored by the EU, was put into effect between February 1999 until January 2004 in the Wengermoor (Life is the EU's sponsored programme for Natura 2000 areas). The aim was to preserve the intact parts of the Wengermoor and to reverse the effects of previous interference by means of active nature conservation measures.

In implementing this project it was subdivided into 5 parts:

- Re-wetting the raised bogs
- Restoring the Eisbach to its natural state
- Ecologically optimising the Wallerbach
- Restoring moorgrass and humid grass meadows
- Regulating the flow of visitors, providing information and PR work

THE WENGER RAISED BOG

Two raised bogs characterise the central part of the Natura 2000 area: the Zeller and the Wenger raised bog. The Wenger raised bog is the bigger and better preserved of the two. The raised bog began to develop after the end of the Ice Age approximately 10,000 years ago. The mass of peat grew, layer by layer, from dead *Sphagnum spec.* and other plants growing on the raised bog. This is an extremely slow process and a raised bog "grows" only approx. 1mm per year. In the Wenger raised bog this process resulted in a mighty layer of peat, 6m in depth. It acts like a sponge and holds back the rain water. However, due to the drainage ditches which were dug when peat was still being extracted, both the raised bogs in the project area were constantly having their rain water drained away and as a result they dried out. As a consequence, the originally open raised bog became overgrown with *Calluna vulgaris* and bushes, the developing forest spread and the typical raised bog vegetation comprising *Sphagnum spec., Drosera spec.* and *Andromeda rosmarinifolia* were no longer able to grow.

The measures of the Life project are to stop this negative development, to re-wet the actual moorland and thus regenerate the raised bog vegetation. In the long term, the raised bog should "grow" again, which means that new layers of peat should form.

To achieve this

- 10ha of trees atypical to a moorland were cut down and deposited in the former peat workings and drainage ditches
- 12 former peat workings up to 50m wide and a large number of smaller ditches were sealed up with very thick planks cut from fir trees in order for the raised bog to retain rain water.

These measures were unfortunately not applied in the Zeller moorland due to the fact that an agreement could not be reached with one of the landowners.

What should the measures achieve? That the moorland water level rise until just below the surface over the next few years. The result: the present pre-dominant peaty heath will give way to the original mosaic of red and green *Sphagnum spec, Eriophorum vaginatum, Drosera spec., Andromeda rosmarinifolia* and *Vaccinium oxycoccos*. This change in vegetation clearly needs more time than it takes to raise the water level and will clearly take decades to come about. In order to document the development of the raised bog, certain areas have been earmarked for long term monitoring with regard to changes in vegetation and the water level will be measured even after the Life Project has finished. The drainage ditches and areas from which peat was formerly extracted which have filled up with water will first be colonised by floating, green *Sphagnum spec.* Through the decades, indeed centuries, the expanses of water will become overgrown from the surface downwards and will eventually silt up.

MEASURES FOR THE WENGER RAISED BOG






First, spruce trees and pine trees were cut down and placed in the drainage ditches with the aid of an excavator. The trunks of the trees were to serve as a platform for working on and as a support for the embankment-type dam.

01

The next step was to create a block in the drainage ditches. Here an excavator designed for moorland work was used (wide chains, minimal pressure applied to the ground) to push very thick planks cut from fir trees and up to 6m in length tongue in groove one by one into the ground.

02

A total of 42 barriers were put in place. The longest of these is almost 100m in length. They will prevent rain water from draining away from the moorland.

03

To increase durability these barriers were then covered with peat thus making them air-tight. In a few years time these barriers will no longer stand out as structures in the landscape.

04

The success of these measures was soon to be seen: the ditches quickly filled up with rain water and new expanses of water were created. Floating, green Sphagnum spec. will colonise these expanses of water before anything else and new peat will come into being.

05

From an aerial view of the site shortly after the measures had been completed in September 2003, one can clearly recognise the former peat workings which are now filled with rain water due to the damming up measures.

06

EISBACH AND WALLERBACH

The Eisbach was straightened in the 30s of the 20th century. It was given a trapezoid profile using stone blocks as a lining and thus lost its ecological function to a large extent. It was only at the mouth of the river where it flows into the Wallersee that its original, natural character survived. Due to its location between the two raised bogs, great importance is attributed to the Eisbach and its adjacent meadows.

The Wallerbach is one of the almost unspoilt rivers which have become so rare in the pre-Alpine region of Salzburg. Its banks are, to a large extent, free of any man-made structures and the typical bushes along its banks are still intact. The Wallerbach is, therefore, an ideal habitat for species of plants and animals which are bound to rivers. Here one can find various species of fish such as *Leuciscus leuciscus, Salmo trutta f. fario* and *Cottus gobio*. But there were also ecological problems on the Wallerbach. An arm had been removed and filled in. Wetland forests had been turned into cultivated spruce woodland.

In 2001 and 2002, in two phases of construction, the **Measures of the Life Project** implemented the following on the Eisbach

- It was restructured over a distance of 1,200m, meanders were restored and its banks were made as natural as possible
- Bushes, typical to rivers, were planted along its banks as an initial measure
- A strip of land, 20m wide, was acquired along the entire length of the river to allow a typical *Alnus glutinosa/Fraxinus excelsior* forest to develop in the long term
- A lane used for agricultural purposes was moved away from the direct vicinity of the river in order to provide space for riverbank dynamics
- Mesophile hay meadows adjacent to the river were acquired and are to be only minimally managed in the future.

Overall, these measures achieved a state which was close to that before human interference took place.

To improve the Wallerbach

- The old arm of the river which had been severed was again linked up with the Wallerbach
- Cultivated spruce woodland was removed from alongside the river and a young wetland forest comprising *Alnus glutinosa* and *Fraxinus* was planted
- A footpath running near the edge of the river was moved a further 5m away from the bank
- A buffer zone, 600m long and 10m wide, between the river and the adjacent agricultural land has been permanently removed from intensive management and has been allowed to develop naturally.

Eisbach

MEASURES FOR EISBACH AND WALLERBACH






WALLERBACH

The cultivated spruce woodland which had been planted at an earlier date was removed, thus creating space for the typical wetland forest.

01

To make sure the new wetland forest would develop quickly, Alnus glutinosa and Fraxinus excelsior were planted. The footpath which had previously run directly alongside the Wallerbach was moved further away to give the river more space for riverbank dynamics

02

EISBACH

The canal-like bed of the Eisbach can hardly offer life to flora and fauna. Concrete steps created a barrier for fish and there were no bushes on the riverbanks.

01

By buying land on both sides of the river it became possible to widen the bed of the Eisbach. Only on the outside edge of bends in the river which are in danger of being eroded was the riverbank strengthened with living willow rods

02

Shortly after completion the first "green" results were to be seen – the willows were sprouting. Only at a few isolated points were bushes planted on the banks. The rest will be allowed to develop naturally just as the river has created its own structures due to the dynamics of the water.

03

The result is a river which can flow freely. Meanders, an uneven riverbed with steep undercut banks, gravel banks and inlets offer the flora and a large variety of creatures living on and in the river new habitats.

04

MOORGRASS AND HUMID GRASS MEADOWS

Bordering the belts of reeds around the Wallersee and along the sides of the rivers one can find extensive areas of meadows with particularly colourful moorgrass and humid grass meadows with a great diversity of species. These meadows are only cut once or twice a year and the application of manure and fertiliser has been stopped. This means that particularly in spring and summer they are the breeding and feeding grounds for a variety of rare birds (meadow birds) and are furthermore a refuge for specialised flora. One can, for example, find the *Crex crex* and the *Numenius arquata*, the *Iris sibirica* and the *Gentiana pneumonanthe*. The *Crex crex* was of particular interest for the project because it is a species which is severely endangered throughout the EU. In the 60s of the last century a great many of these meadows were afforested with spruce or transformed into mesophile hay meadows. The habitat of the meadow birds was thus drastically reduced. »

The aim of the Life project was to restore the moorgrass and humid hay meadows which had been lost in the core zone of the nature conservation area. The habitat of the meadow birds was to be increased and disturbance reduced by measures regulating the flow of visitors.

With this in mind

- Areas which had been afforested with spruce were cleared and again transformed into meadows with a low level of management and no application of manure and fertiliser whatsoever
- Meadows which had hitherto been intensively managed were acquired and will in future be only minimally managed
- The times for hay-making were synchronised to the requirements of the meadow birds. This was achieved by adapting the nature conservation contracts.

On these newly created meadows with low-level management tall herb communities rich in nutrients or humid hay meadows with species such as *Filipendula ulmaria* and *Caltha palustris* will appear during the course of the first few years.

These can be used as a habitat right from the very beginning by the meadow birds. Only after a longer period of time when the level of nutrients has had a chance to fall will real purple moorgrass meadows be able to re-establish themselves. Then species of butterfly such as the *Maculinea nausithous* and the *Maculinea teleius*, which are of great importance in the EU, will be able to find their feeding grounds again.

The increasing number of visitors, unmarked and undefined paths, owners allowing their dogs to run freely, etc. mean a tremendous disturbance for the meadow birds.

For this reason

- The path running around the edge of Wallersee was newly "designed" (signposting, new clearly defined paths, etc.)
- Visitors have been informed by means of information boards and circulars distributed throughout the municipality as to the right attitude and behaviour to protect the sensitive meadow birds.













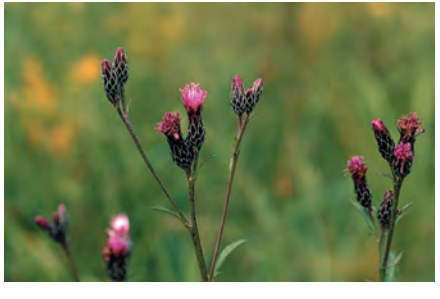



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FACTS AND FIGURES

MOORLAND
re-wetted area of raised bog, 35ha

MEADOWS
1 Restored moorgrass meadows, previously cultivated spruce forest approx. 3.3ha
2 Meadows with low-level management, previously mesophile hay meadows approx. 2.2ha

RIVERS
1 Eisbach: restored to its natural state with buffer zone, 1.2 km
2 Wallerbach: original arm re-connected, 150m in length
3 Wallerbach: newly created *Alnus glutinosa* + *Fraxinus excelsior* 0.6ha
4 Wallerbach: buffer zone, 600m, 0.6ha

— BOUNDARIES OF THE NATURA 2000 AREA

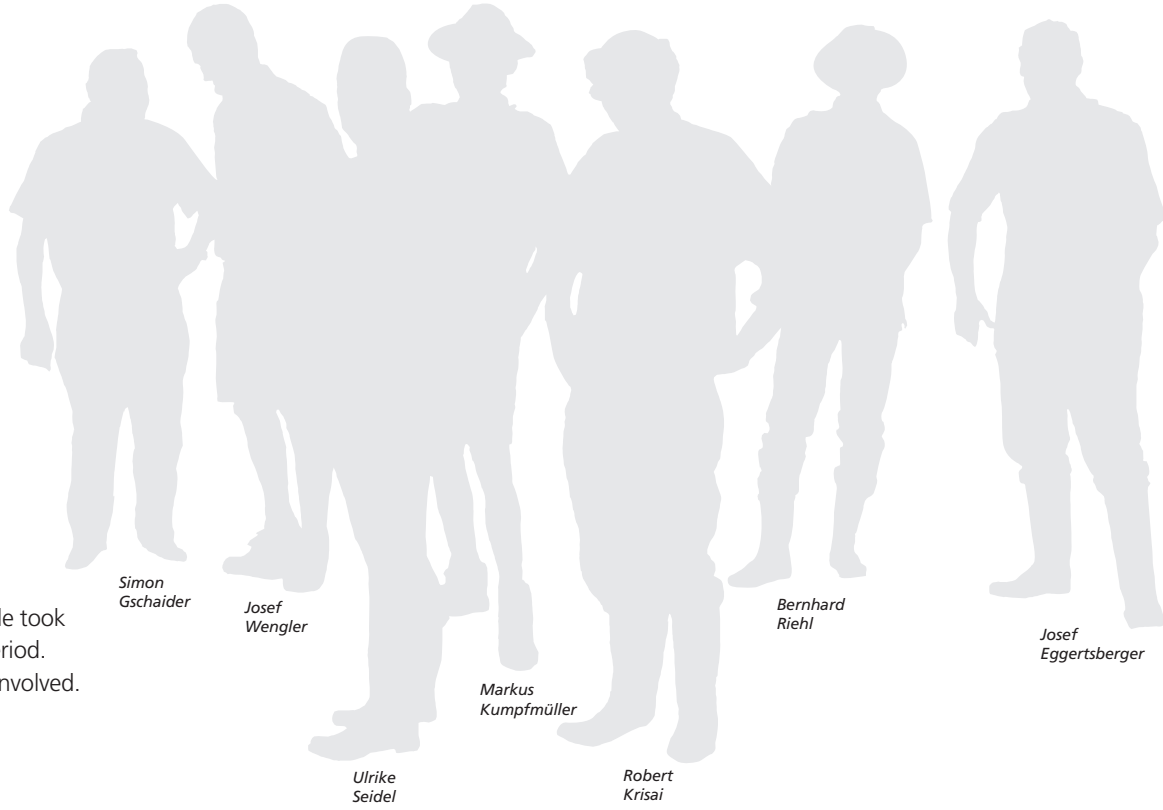
--- FOOTPATH ALONG THE WALLERSEE
Newly created footpath along the Wallersee covering a distance of approx. 2km

Project area:	300 ha
Time span:	1. 2. 1999 until 31.1. 2004
Financing:	approx.1.6 m. Euro overall budget 50% EU, 47% Salzburg Federal State Government, 3% Federal Government
Project sponsors:	municipal water cooperative for Wallersee, Seekirchen
Project management:	Salzburg Federal State Government , Nature Conservation
Project co-ordination, & landscape planning:	DI Markus Kumpfmüller Agency, Steyr
Planning and implementation of hydraulic engineering:	Salzburg Federal State Government, Water Authorities

PROJECT TEAM & THOSE INVOLVED

Simon Gschaider	hydraulic engineering
Josef Wengler	farmer/landownerr
Ulrike Seidel	Project manager
Markus Kumpfmüller	Project co-ordinator, landscape plannig
Robert Krisai	moorland ecologist
Bernhard Riehl	landscape planning
Josef Eggertsberger	hydraulic engineering

Apart from this core team more than 50 people took part in the project over the five year project period. Approximately 30 different landowners were involved.



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