



LIFE-project Gail - Concise Report

# THE GAIL ONCE MORE FULL OF LIFE AND SAFE





LAND KÄRNTEN Abt. 8 - Kompetenzzentrum Umwelt. Wasser und Naturschutz



MINISTERIUM FÜR EIN LEBENSWERTES ÖSTERREICH

# Prefaces



In the past five years, much has happened at the middle section of the Gail in the municipalities of Feistritz, Nötsch and

St. Stefan. Not only on site at the river, but also in the minds of the people. They have once more experienced their river, the Gail, and have learned to value it – as a life vein, a local recreation area or simply as a source of employment in a rural region.

The LIFE-project repeatedly served as a catalyst: by removing the trees and bushes growing on the banks of the Gail in the pilot stretches, a view of the river was opened up for the first time in years, the transformation of the monotonously regulated Gail freed up space for near-natural structures and showed how much development potential the Gail still has. School action days and celebrations familiarized the population with their river. Hence, when in future a ribbon of water bodies, riparian forests and wet meadows will accompany the Gail, this will not only be a paradise for migratory birds and animals of the riparian forest, but also a special local recreation area for all the people of the Gail valley.

May all inhabitants and visitors of the Gail valley continue to enjoy their unique river! *Rolf Holub* 

Member of the Carinthian Government, responsible for Water, Environment and Nature protection



With the LIFE-project at the Gail, the Federal Water Engineering Administration in Carinthia has set an impressive

sign. The project shows a common path for an optimum of ecological amelioration and simultaneous adherence to the guidelines set by flood protection.

On three pilot stretches along the Gail, different variants of measures for the maintenance of the discharge profile were implemented. The results show how the river reacts to different measures and which of them have the potential to improve the ecological situation in the long term without limiting flood protection. The experiences gained in the course of the

LIFE-project at the Gail will later be of great use at other rivers with similar problems. I offer my sincere thanks to all contributors to the success of the project and wish them the energy for all future revitalisation measures – for an Austria worth living in. Content

Welcome to one of Nature's jewels – The Eu The Gail – a heavily regulated river..... The LIFE-project Gail – A model for integrat An Overview of the Measures..... A new bed for the Gail – A test with three " Measures outside the Gail.... Project Bitterling – Aiding small fish.... Newly experiencing the river Gail – Visitor Monitoring – The results are impressive.... "Networking" – Exchanging experience de Additional Information.... Participants – Many hands working toget



Andrä Rupprechter Federal Minister for Agriculture, Forestry, Environment and Water Management

uropean Protected Area Görtschacher Moos4
6
ted river development8
pilot stretches"12
r facilities20
oes the trick24
25
ther26

# Welcome to one of Nature's jewels

## The European Protected Area Görtschacher Moos

Approximately 20 km west of Villach (Carinthia, Austria), the European Protected Area Görtschacher Moos-Obermoos, with a size of 1242 hectares, is situated in the bottomland of the Gail between the Pressegger Lake and the village of Nötsch. The Gail flows through the area for 14 km and it is characterised by an especially high level of groundwater. Today, it is one of the largest interconnected wetland areas of Carinthia. 2010-2014 it was site of a LIFE-project.

Its particular value lies in the small-scale interconnectedness of mowed wet meadows, wet fallows, riparian forests, swamp forests and bodies of standing water with reeds, floating leaf vegetation and aquatic plants. This great diversity of habitats is reflected in the high number of animal species: More than 800 animal species, 300 of them butterflies, are known to live in the protected area. Also fish species which are protected on a Europe-wide basis live in the Gail and its oxbow lakes – for example the Danube salmon, the souffia, the bullhead, the European brook lamprey and the European bitterling. Furthermore, the protected area is of international importance as a resting place for birds and is a breeding and feeding area for more than 50 bird species, some of them under special protection according to the EU-Birds Directive such as the European honey buzzard, the Western marsh harrier, the grey-headed woodpecker, the kingfisher or the red-backed shrike. Among the amphibians which live in the area populations of the Balkan moor frog, the Italian crested newt and the European Tree are particularly remarkable.

In 2000 the Görtschacher Moos was designated as a Natura 2000 protected area together with the Gail. It has been a European Protected Area since 2011. The aim is to preserve and advance this jewel of nature in accord with the local government, agriculture and flood protection. The LIFE-project at the Gail between 2010 and 2014 has been a first promising step in this direction.

Species-rich wet meadow. Characteristic for the middle stretch of the Gail valley.





🕋 The European Protected Area Görtschacher Moos-Obermoos is situated in the middle stretch of the Gail valley (Carinthia, Austria). It includes the siltation areas of the Pressegger Lake, the floodplains of the Gail and the Gail itself. A number of protected and endangered species of plants and animals live in this wetland complex, one of the largest in Carinthia. Framed in red: the area of the LIFE-project.



Oxbow lake of the Gail. It was saved from destruction and is now a natural heritage site.

**Danube Salmon:** The Gail is one of the most important areas for the Danube Salmon in Carinthia.



European Honey buzzard above the Gail.



Ttalian crested newt. Protected on a Europe-wide basis. Has always been at home in the European Protected Area.





 Bitterling: A highly endangered small fish species. It has survived in several oxbow lakes of the

← Kingfisher: The "flying gem" hunts small fish in the oxbow lakes of the Gail

# The Gail: a heavily regulated river

## Background of the LIFE-project

The inhabitants of the Gail valley have seen highs and lows over the past one thousand years. The Gail (Illyric for "the foaming one") has always been a very dire opponent. A lot remains to be done today.

Again and again floods turned the valley into a gravel desert. After the rockslide of the Dobratsch in the year 1348 the situation worsened. Behind the dammed-up Gail with its meander bends, the valley bottoms became marshy. The farmers reacted by using these areas as horse meadows and specialising in the breeding of Noriker horses – a tradition which has survived until today.

In 1875 river regulation work commenced at the Gail. The river bed was deepened and large-scale meliorations were carried out. The area of land gained through the regulation was enormous – people called it a tenth province of Austria – but also necessary to sustain the population.

Since the "General Project 1935" the large forelands have been used as flood basins for the mitigation of discharge and the control of flood discharge. This successful concept was further optimised in the "General Gail Development Project 1970" and is valid until today: Settlements and important traffic routes are protected by dams designed for a 100-year flood. Extensive retention basins delay the discharge of catastrophic floods into the surrounding area and protect the settlement area from being submerged.

However, the river regulation caused new problems: the Gail carries a lot of fine material, sand and mud in its middle reaches. These materials are deposited on the banks and the channel becomes increasingly narrow. If the flood security is to be maintained, these depositions have to be removed repeatedly with a lot of effort. Furthermore, the river between the dams has very few structures and is ecologically impoverished.

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Twenty retention basins between Kötschach-Mauthen and Arnoldstein are able to retain ca. 40 million cubic meters of water in the case of a 100-year flood and discharge it into the Gail in small doses after the event. The settlements further down the river are protected. This is a precedent-setting concept for flood protection in Europe.



★ Noriker horses on the Feistritzer Moos in 1965. Until the mid-20th century, bedding meadows were used economically like this.

Regulation work using floating dredgers in the 1930s.

➡ Flood 1965 at the Gail in the area of Nötsch-Feistritz (today part of the area of the LIFE-project).





■ Laser scanning measurements show, how the discharge profile is narrowed through the raising of the berms.

**Deficit: monotonous, narrowly regulated Gail.** No room for structures typical of the river.



KARAWANKEN





The flat Gail valley bottom between Nötsch and Feistritz. 650 years in the past the Gail was dammed up here due to a rockslide of the Dobratsch.



← Deficit: the Gail is being overgrown. On the berms of the dams a lot of sand and mud is deposited during high water.

# **The LIFE-project Gail**

## A model for integrated river development

The LIFE-project at the Gail has the character of a pioneering project and is supposed to be a model for similar rivers in Europe, showing how rivers with dams in Natura 2000 areas can be revitalised. For the solution of the problems outlined above the project relied on an integrative cooperation between conservation, hydraulic engineering, land owners and local government.

### Project aims for flood protection ...

In three pilot stretches, the Gail was restructured in such a way that it can clear itself of fine deposits in the future, which not only reduces the amount and cost of maintenance work, but also brings about ecological improvements. Follow-up investigations (so-called monitoring) in these three model stretches are supposed to show how this aim can best be reached.

### ... for nature

Using conservation funds, the habitat complex along the Gail in the project area was improved and purchased areas in the proximity of the river were transformed into ecologically valuable habitats such as water bodies in the wetlands, riparian forests, rough pastures, or dry grassland.

### ... and for humans

The LIFE-project also provided funds to enable people to experience the new river oasis. A hiking trail including a viewpoint hill and on-site information boards inform visitors about the project without disturbing nature.

"What we expect from the LIFE-project are insights into how sustainable flood protection in the European Protected Area at the Gail could look like in the future." DI Norbert Sereinig, AKL 8, project manager



Project area: The Gail, ca. 20 km west of Villach (Carinthia, Austria)

Duration: 1.1.2010 - 31.12.2014

### **Project partners:**

- Federal river engineering administration, represented by the Carinthian state government department 8 (AKL 8), subdivision Flood Protection (project leadership)
- The Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW)
- Carinthian state government department 8 (AKL 8), subdivision Conservation and National Park Law

### **Costs:** 2.54 Mio. € €

### Funding:

- The Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management (natural hazard protection): 0.98 Mio. €€
- European Union (LIFE): 1.27 Mio. € (50 % of total funds)
- Carinthian state government department 8 (AKL 8), subdivision Conservation and National Park Law: 0.25 Mio. €€
- The Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management (DG. I/8 National Parks/Nature Conservation & Species Protection): 0.04 Mio.€

### Municipalities involved in the project:

• Feistritz an der Gail, Nötsch im Gailtal, St. Stefan im Gailtal

### Most important measures:

- Purchase of 8 hectares of land for conservation purposes
- Revitalisation of the Gail on a stretch of 1.2 km
- Creation of a "Lauenbach" with a length of 2 km
- Creation of 4 standing water bodies
- Restoration von 3 oxbow lakes
- Creation of riparian forest areas and habitat complex
- Creation of visitor facilities at the river



The Gail as a near-natural recreation area. The LIFE-project can provide stimuli



**With a symbolic groundbreaking ceremony** in the presence of many celebrities and more than 150 visitors, the implementation of the conservation project began on the 14th of October 2010.





### What is Natura 2000?

The Gail in the European Protection Area Görtschacher Moos-Obermoos is integrated in the European conservation network Natura 2000. This aims at preserving Europe's richness in wild animals, plants and their habitats.



### What is LIFE?

LIFE is a project by the European Union promoting conservation projects in Natura 2000 areas. LIFE-projects are supposed to contribute to the implementation of the Natura 2000 network in the member states of the EU and to thus make a lasting contribution to the conservation of wild animal and plant species in Europe.

With the help of LIFE, Austria has implemented 46 conservation projects since 1996, which cost a total of 154 million Euros, among them the river revitalisation projects at the Drava and the Lavant. Further information can be found under:

http://www.bmlfuw.gv.at/umwelt/ natur-artenschutz/life-natur/ 20 jahre LIFE.html



1 200 visitors came to the celebration for the completion of the project, many children from the local schools among them.

# Overview of the Measures (year of implementation)

- Pilot stretch 1, remodelling of the discharge profile through alternation (2013-2014) 1
- Pilot stretch 2, remodelling of the discharge profile by structuring groynes (2012-2013) 2
- Pilot stretch 3, remodelling of the discharge profile by widening as much as possible (2011-1012) 3
- Restoration oxbow lake 1 "Black puddle" (winter 2011/2012) 4
- Restoration oxbow lake 2 "Old Gail" (2011/12 and 2013) 5

- 6 Restoration oxbow lake 3 "Feistritzer Moos" (summer 2012)
- Small Gail (2011-2012)
- Standing water body 1 (2011-2012) 8
- Standing water body 2 (2013)
- Standing water body 3 (2011-2012)



- **11** Standing water body 4 (2011-2012)
- 12 Hiking trail (2013)
- 13 Viewpoint hill with resting place (2011-2013)
- 14 Resting place at the bridge at Vorderberg (2014)

## Legend

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### Measures Life-project

en 🔳	Standing water bodies (new)
	Oxbow lakes (restored)
	River revitalisation
-	Small Gail
Visitor fa	cilities
	Hiking Trail

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Parking lot Viewpoint hill

Horse rest

Bat house

Resting spot, access to the river

# A new bed for the Gail

## A comparison of three "pilot stretches"

Because sand deposition and vegetation growth on the dams of the Gail lead to an increasingly narrow discharge profile and the maintenance work increases, various models for the remodelling of the discharge profile of the Gail are applied on three pilot stretches.

The aim is to return enough space and dynamics to the Gail so that it can keep its bed free of depositions by itself. This is supposed to minimize the future maintenance work on the dams of the Gail. At the same time, it is supposed to create structures typical for the Gail such as gravel and sand bars.



Modern planning leaves nothing up to chance. Before planning began, the project area was measured precisely using laser scanning and echo sounding. Using computer-aided 2D models, the effects of the variants on water depth, flow velocity and the frequency of floods were investigated. From this, a prognosis of the future development of vegetation growth and the overall ecological situation could be made. At the end of the project, a scientific monitoring will review the success of the measures.

On three "pilot stretches" with a total length of 1.2 km, the Gail will receive a new bed. The banks were widened and the dams newly sealed. In between there is space for near-natural river development.



## **Pilot Stretch 1**



 After the completion of construction work in September 2014. View upstream on the right side of the river.



Aerial view on pilot stretch 1: before (small image, above), after (September 2014). The oscillating movement can be clearly seen.



The principle: On pilot stretch 1 the Gail will alternate more between the dams in the future. For this purpose, the berms were removed alternately on the left and right bank and the banks were reshaped alternately as flat and steep. In addition, the dam will be newly sealed on the erosion bank.

## Pilot Stretch 2



One year after the completion of construction work (September 2014)



**The principle:** Pilot stretch 2 relies on structuring groynes. Half of the berms were removed and the banks were levelled. On these, groynes were arranged, which reach up to the original banks and are integrated into the dam at their back ends.

## Pilot Stretch 3



Two years after the completion of construction (September 2014)



Aerial view on pilot stretch 2: before (1999, left) and approx. one year after the completion of construction work (2014, right).

▲ Aerial view on pilot stretch 3: before (1999, left) and two years after the completion of construction work (2014, right). A gravel bar has formed in the widening of the river.



**The principle:** On pilot stretch 3 the river bed was widened as much as possible. The berm was removed and replaced by steep banks. In the river bed, "moving" gravel bars are supposed to form. There is no plan for the creation of additional structures. The dams were then resealed.

# Measures outside the Gail

## The "Small Gail"

The "Small Gail" was constructed as a side stream of the Gail with the type of a "Lauenbach" in mind. This type of river or stream is characterised by slow movement, clear water, its location in riparian areas, and by being fed by ground water. The type has become very rare in the Gail valley.

The stream is sustained with water from a former oxbow lake of the Gail, called the "Old Gail", which in turn is supplied by the Strittnig stream (ca. 50 l/s) and ground water. Starting at the oxbow lake, the Small Gail moves first to the north and then to the east, where it flows into the river through a construction with a backflow trap after a length of 2.5 km. The river bed has an average breadth of 2-5 m and a depth of 1-2 m. Between autumn 2012 and spring 2013, a total of 25,000 m<sup>3</sup> of material were excavated and with it a viewpoint hill was built. Since June 2013, the water supply has been optimized so far that the "Small Gail" carries water even during dry periods. The "Small Gail" occupies an area of 3.7 ha, for the most part low-value greenland. The largest part of this area was bought through LIFE and transferred into public water goods.















🕋 "Small Gail": The stream traverses the new riparian zone as a 2.5 km life vein. It passes big, newly established standing water bodies and several restored oxbow lakes

## **Restoration of oxbow lakes**

The oxbow lake at Emmersdorf was already revitalised in 1997. Now, three meanders on the opposite side of the river followed suit.

Many oxbow lakes along the Gail are threatedend to dry up and therefore disappear. Within the Life-project the remains of the old Gail meanders were carefully excavated and water once more flows through them. The surrounding riparian forest was treated carefully and the volume excavated was kept low.

At the June 2013 school action day the Small Gail was thoroughly explored.











• oxbow lake 2, excavation work in January 2013

• oxbow lake 3, after the restoration in January 2013

# Measures outside the Gail

## Standing water bodies

# Approximately 2.3 ha wetland water bodies were newly established and now offer additional habitats for protected plant and animal species.

The four new bodies of standing water provide aquatic organisms with flat (0-0.3 m), medium (0.3-2 m) and deep zones (2-3 m). This ensures that the fauna can survive even when ground water levels are low. Due to the annual variations in ground water levels, the water level in the standing water bodies varies by an average of one metre. The different conditions in these spots cause the development of structurally diverse, species-rich habitats.

Excavating to a depth of up to 4 m resulted in a moved volume of 40.000 m<sup>3</sup>. This material was only transported a short distance and used for design measures (flood plain dike, dike shoring, viewpoint hill).

Water body 1: after completion of construction work (November 2011, left), ca. 1 year later (September 2012, right)

# **Project Bitterling**

## Aiding small fish

Water pollution and habitat loss have decimated populations of freshwater mussels all over Europe. At the same time, the Bitterling is disappearing. In the Gail valley, the ongoing LIFE conservation project takes care of the little fish's future.

The bitterling measures 3-7 cm and is thus the smallest fish indigenous in Austria. It lives in muddy riparian water bodies rich in plants. It lays its eggs into swan mussels with the help of its ovipositor. The standing water bodies newly established in winter 2011 were stocked with the small fish and their partners – swan mussels – in 2012 and 2013. The animals were raised at Payr fish farm in Feldkirchen, Carinthia. With a lot of commitment, the people there succeeded in breeding the Bitterling in captivity.

The Bitterling depends on swan mussels for its own reproduction. With a tube, the female lays its eggs in between the mussels' shells. ➡ June 2012: The first bitterlings bred in captivity are released into a standing water pool.

Ecological profile through the LIFE-Gail project area





Approx. 200 additional swan mussels ensure the little fish's reproduction.





# Newly experiencing the river Gail

## Visitor facilities

In order to make it possible for visitors to experience the revitalised Gail and to make it accessible as a nearby recreation area for local residents, a hiking trail with a viewpoint hill and information boards was created as part of the LIFE-project.

On the day of the festive opening of the hiking trail, which was at the same time the official celebration of the end of the LIFE-project, about 100 people hiked to the new viewpoint hill next to the Gail. There a sculpture by renowned artist Herbert Unterberger awaited its unveiling, surrounded by benches, trees providing shade and information boards. Two metres high and widely visible, the marble stele thematises four central aspects of the Gail valley: nature, movement and dance, the river Gail and the world-famous art scene of the Nötscher Kreis. But first and foremost, the artist's intention is for the newly created space to be a place for quiet and reflection in an ever-louder world.

**The new viewpoint hill:** with information boards,

marble stele, seating-accomodation and trees provi-

ding shade.

➡ Visitor guidance system. The hiking trail is also open for cyclists.



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Unveiling of the sculpture by artist Herbert

Unterberger (right).

View from the starting point of the hiking trail towards the viewpoint hill, with marble stele in the background. The trail leads above a bridge over the Small Gail along standing water bodies and rest areas.

■ By means of a model, pupils and teachers are shown how the massive flood detention areas contribute to flood security.



The diggers' seats are of course also open for the children to try out.



**Each group plants "their" tree at the river banks.** Their sponsorship for the planted tree is sealed with a name plaque.



**Hunt with the brailer.** Kids catch little creatures out of the standing water bodies.



**Action Days** 

### Schools bring "action" to the Gail.

On June 5<sup>th</sup> 2013 the primary schools of Hohenthurn and Nötsch/St Georgen moved their classes onto the banks of the river at their "doorstep". On the schedule: the river Gail and the ongoing LIFE-project. For this, the water management Hermagor had prepared four thematic stations. On July 3<sup>th</sup> 2013 the pupils of the primary school St Leonhard/Siebenbrünn also spent an entertaining and interesting action day at the river Gail. Supported by experts from the areas of flood protection and nature conservation, they explored the Small Gail and learnt a lot about the LIFE-project.



★ The catch results of electrofishing are investigated. Danube salmon, European chub, bitterlings and swan mussels are close enough to be touched.



★ Where does the tree frog sit? Experts had a bag of stories to tell about the little creatures from the pond.

# Monitoring

## The results are impressive

### In the years 2010-2014 scientists studied the effects of the measures applied.

Regular measurements of riverbed and banks show that the deposits of undesirable fine sediment in the discharge cross-section have been marginal so far. However, so far there have been no large floods. The measurements will be continued beyond the LIFE-project.

The **analysis of habitats** shows that the set goals were reached. The newly established water bodies are already up to the European protected status. The other acquired areas, which had been farmed intensively beforehand, are now developing into poor grassland, dry grassland and riparian forest under a specially laid out management plan.

**Amphibians** have multiplied strongly in the newly established bodies of standing water, in particular grass frogs and water frogs. The inventory of amphibians moreover includes the Alpine newt, smooth newt, tree frog, Italian crested newt and the agile frog.

Concerning **fish**, in 2014, for the first time, some young Danube salmon were caught in the pilot stretches. An overall concentration of fish populations was observed in the pilot stretches, indicating the structures' positive effects. The bitterlings too have developed well since their introduction into the standing water bodies. The fish biomass in the Gail is however too low to be satisfactory yet.

The project area is an important resting place for transitory **birds**. In spring and autumn, the stretches around the new bodies of standing water bustle with many species of migratory birds, among their numbers species protected on the European level such as purple heron and wood sandpiper. Other rare species breed in the area, like the kingfisher, the whinchat, the red-backed shrike, the honey buzzard and the woodpecker. Sightings of the common sandpiper and the little ringed plover are particularly delightful, as they are characteristic species at near-natural alpine rivers and thus a strong indication for the success of the measures taken.

The results of the monitoring of **spider and insect populations** are quite remarkable. At the new shores in the pilot stretches, some spectacular finds were made: the Xysticus viduus first and only sighting in Carinthia, giant riverbank wolf spider (only few populations at the Upper Drau, the Gailitz and the Gail), Saldula xanthochila (only known population in Austria) or Poecilus subcoeruleus (last detected in the 50s). Conclusion: even small measures with open sand and gravel bars have – at least in the short term – positive effects.



High-tech. Survey of the Gail riverbed using an echo sounder.



**Fine sediment deposits** after flood in

pilot stretch 3.

★ Water frog – one of the most frequent amphibians in the project area.



The brook lamprey lives in the sand bars of the Gail's shores.





**Kingfisher.** Observed repeatedly before this successful snapshot.







Fish survey of the Gail using an electric fishing boat

Rarity: riverbank wolf spider.



**Anchomenus cyaneus.** Populations in Carinthia are only known at the Gail.

← Little ringed plover. A breeder in the area.



**Scientist** at the Gail's shore hunting for grand beetles

# "Networking"

## Exchanging experience does the trick

Repeatedly, experts from various countries and different subjects visited the LIFE-project at the Gail. Often, they have to manage similar tasks in a field of tension between conservation and flood protection. Sharing experiences creates new impulses for both sides.

The national and international experts who informed themselves about the LI-FE-project came from specialties as different as administration, planning, research and ecomarketing. The topics under discussion were manifold as well, ranging from sustainable shore management, over the integration of conservation measures into existing flood protection systems, to the administration and management of Natura 2000 protected areas. The importance of river renaturalisation for biodiversity and ecomarketing also was the subject of an excursion.

On May 7<sup>th</sup> 2014, experts of the Department of Hydraulic Engineering of the Autonomous Province Bozen, South Tyrol, visited the LIFE-project at the Gail

A high-ranking delegation from Slovenia visiting the LIFE-project area (September 5<sup>th</sup> 2014).

Representatives of the Serbian Department of the Environment made an extensive stop at the Gail on May 11<sup>th</sup> 2012.



🗢 On June 9<sup>th</sup> 2014, the association Bio-Austria made a stop at the Gail with its initiative "Bio pilgert". The participants, for the most part organic farmers, see the project as a prime example for the positive effect highly diverse landscapes can have on plants, animals and people



# **Additional Information**

LIFE-Homepage

www.life-gail.at is continuously updated with the latest news relating to the project.



### **Folder**

English and German.



### LIFE-postcard with flip images

shows the changes at the Gail. Try it yourself!



### Got the newest mug yet?

Right on time for the concluding celebration on October 24<sup>th</sup> 2014, a LIFE-mug was designed and distributed among the participants. – A special souvenir of an extraordinary project.

Free folder and postcard order at Abt8.Posthe@ktn.gv.at

### LIFE touring exhibition

LIFE-project Gail is touring the region till the end of 2015 still. The six-part mobile posters are exhibited in schools and public buildings. Interested? Just put in a call.

A folder on the LIFE-project was published and is available in

An unusual postcard with a lenticular image effect vividly

# **Participants**

## Many hands working together

A total of 30 project team meetings, 4 action days and numerous excursions accompanied the LIFEproject. The success of the project became possible only through the aid of a large number of persons and their strong commitment. They deserve our most sincere thanks!

Management team: Norbert Sereinig, Gernot Koboltschnig (project managers), Dietmar Koller, Hannes Poglitsch (hydraulic engineering), Klaus Kleinegger, Gerald Kerschbaumer, Thomas Friedl (nature conservation and freshwater ecology), Dieter Mörtl (mayor of Feistritz/Gail), Gerhard Schwach (BMLFUW), Josef Sattler (Federal River Engineering Administration), Klaus Michor, Marian Unterlercher (project coordinators)

Planning, construction supervision, public relations: Thomas Pipp (construction site manager), Rudolf Matti (foreman), Margit Iskrac (accounting), Thomas Krassnitzer (hydraulic engineering planning), Susanne Korber, Gernot Guggenberger, Ingo Mohl, Jürgen Petutschnig, Hannes Kapeller (ecological planning and construction supervision), Christian Anfang (GIS), Karoline Angermann (visitor information, habitat management concept), Tina Tomasch, Jürgen Müller (homepage), Katharina Posch (graphic design, brochures, folder), Marian Unterlercher (reporting and public relations), Susanne Brandstätter (public relations at BMLFUW), Jörg Dalmatiner (earthwork mechanics)

Further support: Drobesch, Singer und Katschnig (project auditing), Kovsca (owner of fishing rights), Klaus Krainer / Arge NATURSCHUTZ, Model Aircraft Association Feistritz/Gail (permission to use club house as venue for events), Obermann (aerial view documentation), Payr (pisciculture), Pinus GmbH (owner of fishing rights), Pflüger (owner of fishing rights), Herbert Unterberger (sculptor) and many more

Scientific support (monitoring): Peter Mayr (river morphology monitoring), Matthias Gattermayr, Christian Ragger (bird monitoring), Harald Kaufmann, Edgar Lorenz (fish monitoring), Christian Komposch, Thomas Frieß, Wolfgang Paill (insect and spider monitoring), Martin Jaindl (amphibian monitoring), Anna Gruber (habitat monitoring)

Companies and suppliers (selection): Jenul, Lussnig, Mineral Abbau, Seiwald, Strasser, Urschitz and many more

Schools: Primary schools Hohenthurn, St. Georgen, St. Leonhard/Siebenbrünn, music school Feistritz/Gail

Former land owners: Franz Michelz, Franz Asseg, Hubert Kaiser, Raimund Pipp, Thomas Pipp, Claudia Katnik

Project municipalities and their mayors: Dieter Mörtl (Feistritz/Gail), Johann Müller (Nötsch), Hans Ferlitsch (St. Stefan im Gailtal)

Project controlling on behalf of the EU: Brunhilde Rack, Arnoud Heeres (ENV.E.3 - LIFE Natur), Cornelia Schmitz (Astrale GEIE)





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### LIFE-project Gail

In the years 2010-2014 the middle Gail around 20 miles west of Villach became the site of a LIFE-Nature project. The river Gail, previously regulated monotonously, was restructured into a near-natural state on three pilot stretches. Widenings between the Gail dams have improved discharge and simultaneously offer room for near-natural structures. The river is now fringed by a band of newly established pools, riparian forests and wetland meadows. The cost of roughly 2.5 million euro is borne, for the most part, by the EU and the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management.

# www.life-gail.at