

# Led by nature

Projects to protect and restore biodiversity in Europe



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Nature restoration and conservation provide a cost-effective and efficient way to address the biodiversity crisis. They also have the potential to help tackle climate change while delivering environmental, social and economic benefits.

Financing for these measures is available through different European Union (EU) funding programmes. In view of the EU's ambitious objectives to allocate 7.5 per cent of the EU budget to biodiversity action by 2024, and then 10 per cent through 2026, more attention should be paid to these funding opportunities.

Currently, financial allocations earmarked for nature restoration and conservation measures remain low and the available EU funding for Member States to address biodiversity loss is not being taken advantage of.

The implementation of such restoration and conservation projects is often site-specific, so exactly replicating them in new sites and different countries is impossible. Nevertheless, there is a vast range of opportunities to receive and upscale financing throughout the EU. The aim of this paper is to provide useful past and ongoing examples that may be able to be replicated elsewhere.

A number of highly successful projects that provide natural solutions to tackling biodiversity loss have received financing in the recent past. The projects described below are decentralised, nature focussed and based on partnerships with local authorities and non-governmental organisations. As such, they should inspire and guide the EU in the coming years to meet key biodiversity objectives and to lead by example in taking action to tackle biodiversity loss.

The following cases from several European Member States demonstrate some of the many ways EU funds can and should be used to support nature restoration and conservation projects, which are instrumental to addressing the biodiversity crisis across sectors while also building a greener, fairer future.

## Dinara dry grasslands:

A step up for biodiversity and regional sustainable development



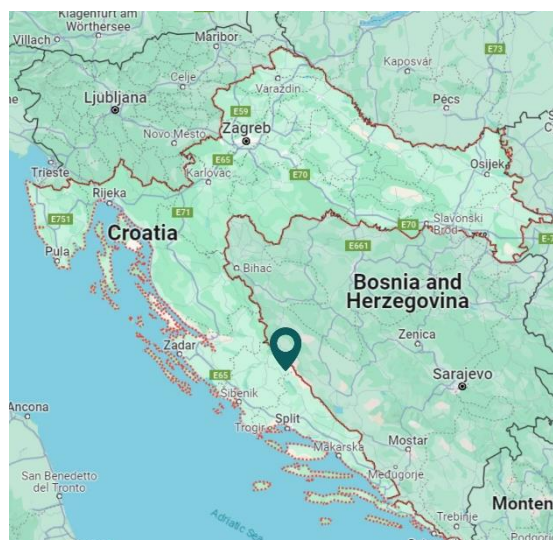
Photo: Melani Glavinić, Association Biom

CROATIA

### Key information

- **Duration:** January 2020 – November 2023
- **Total project value:** EUR 1 296 509
- **Funded by:** EU LIFE Programme (EUR 777 903), Environmental Protection and Energy Efficiency Fund (EUR 222 271), Government of the Republic of Croatia Office for Cooperation with NGOs (EUR 79 155) and Split-Dalmatia County (EUR 10 617)

[Project website](#)



### Project overview

Situated amidst the Dinaric Alps, the Dinara range spans over 100 kilometres between Croatia and Bosnia and Herzegovina and is recognised for its great ecological significance. Designated as both a Special Protection Area (SPA) and Site of Community Importance (SCI), Mount Dinara is part of the Natura 2000 network and constitutes the youngest Croatian Nature Park (established in 2021).

Led by Association BIOM (BirdLife Croatia) alongside the Local Action Group Cetinska Krajina, the Faculty of Agriculture at the University of Zagreb and Croatian Forests Ltd, the restoration project ‘Dinara back to LIFE’ aimed to address both environmental and socio-economic problems in this area.<sup>1</sup> Depopulation has been an especially significant issue in this region for the last couple of decades and has resulted in the abandonment of traditional human activities on which many habitats (especially grasslands) and species depend.

Thus, the main focus of the project was to restore pastures and protect bird species like the ortolan bunting (*Emberiza hortulana*), short-toed lark (*Calandrella brachydactyla*) and stone-curlew (*Burhinus oedicnemus*)<sup>2</sup> that are dependent on this type of habitat. In addition to professional conservation activities for dry grasslands restoration, one additional branch of activities was to promote and implement concrete measures related to sustainable grazing (livestock procurement, restoration and construction of new grazing infrastructure) and green tourism.

## Problem identification

For generations, the grasslands atop Mount Dinara flourished and were regulated by traditional grazing practices. However, as the local population dwindled over the years and traditional methods of tending to these pastures were abandoned, a significant change unfolded. Enormous swathes of pasture land have been reclaimed by shrubs and other woody plants, leading to the unfortunate loss of habitat for various species that rely on the open grasslands to thrive.

## Project approach

In order to restore these habitats, a number of measures were taken in order to remove unwanted woody vegetation. Through manual removal 112.3 hectares of open grassland were restored, as were 56.7 hectares through controlled burns. Since grazing is the best long-term measure for maintaining these habitats, an important aspect of this project was to promote it and improve practical preconditions for its implementation. For this purpose, livestock infrastructure was restored or built anew. These measures include the restoration of 11.5 kilometres of livestock and mountain paths, nine wells, two kilometres of dry stone walls and 11 ponds. Complementing this infrastructure, collaboration with 16 local cattle breeders resulted in the introduction of mixed herd grazing as a restoration method on 536.03 ha. Because each livestock species feeds on different plants and avoids others, mixed herd grazing creates the best outcomes for biodiversity.

## Benefits for nature and people

Although the project has recently concluded, its positive effects are already evident:

- There has been a notable increase in the number of pairs of short-toed larks (*Calandrella brachydactyla*) and ortolan buntings (*Emberiza hortulana*) have migrated to more favourable habitats that were enhanced during the project’s implementation.

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<sup>1</sup> Association BIOM et al., [Dinara back to LIFE - Layman’s Report](#), Association BIOM, 2023.

<sup>2</sup> Ibid., 4.

- Activities aimed at restoring livestock infrastructure and introducing additional animals to diversify herds are anticipated to directly benefit livestock farming by streamlining the work of breeders.
- Collaboration councils established during the project have united representatives from various sectors including cattle breeders, hunters, beekeepers, tourism professionals, local authorities and mountaineering associations. Together, they have generated ideas for potential restoration as well as educational and tourism initiatives.
- Twelve business and marketing plans were developed for local family farms which sustainably utilise the Dinara region's natural resources, thereby contributing to nature preservation and biodiversity. Furthermore, an online platform called the 'Digital Marketplace' was launched to promote agricultural products and tourist services from the Dinara region.

This project exemplifies how genuine habitat restoration can align with the enhancement of the local economy.

### **Leading by example**

The challenges connected to the disappearance of traditional ways of using grasslands (either as pastures or as hay meadows), particularly the issue of overgrowth, are not specific to Mount Dinara. The measures and activities implemented in this project could potentially be replicated in other depopulated mountainous areas in the region and beyond, provided that necessary funds are available.



## Restoration of wetlands in the Middle Danube basin

CROATIA



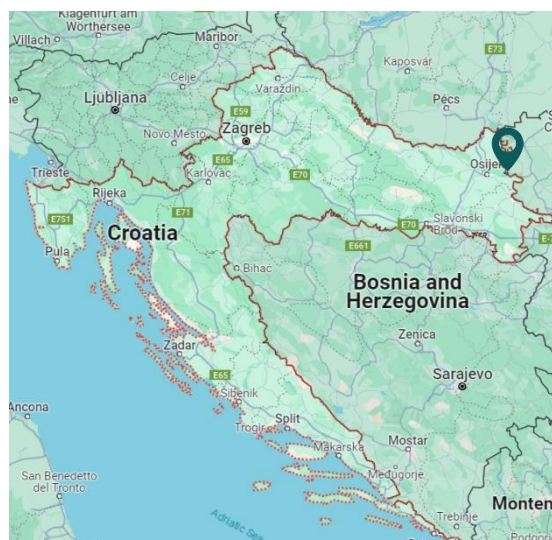
Photot: Zeleni Osijek

### Key information

- **Duration:** June 2019 – December 2021
- **Total project value:** EUR 981 848
- **Funded by:** 85 per cent EU Interreg IPA CBC Croatia-Serbia (EUR 834 571), 15 per cent own contribution from project partners.

[Project webpage](#)

[More on the project in English](#)



### Project overview

‘WetlandRestore’, spanning the borders of Croatia and Serbia along the Middle Danube basin, aimed to protect wetlands and biodiversity in this ecologically vital region through harmonious cross-border collaboration. The Middle Danube area, the place where the Danube and Drava rivers meet and form an internal delta, is one of the last significant wetland areas in Europe.<sup>3</sup> Due to the attractiveness of the landscape, as well as the exceptional wealth of flora and fauna (it is the second largest breeding ground for

<sup>3</sup> Zeleni Osijek, [Wetland Restore - Obnova vlažnih staništa u srednjem Podunavlju](#), *Zeleni Osijek*, 3, 2021.



water birds and fish hatchery in Europe, after the Danube Delta),<sup>4</sup> it is often referred to as the heart of the ‘Amazon of Europe’.

Under the lead of the Serbian Nature Conservation Movement of Sremska Mitrovica, implementing bodies brought together partners from Croatia and Serbia: Green Osijek (Croatia), the public institution for the management of protected natural values in Osijek-Baranja County (Croatia) and two water management authorities, Croatian waters (Croatia) and Vode Vojvodine (Serbia).

## Problem identification

In the last 200 years, flood plains across Europe were gradually converted into arable land and populated areas.<sup>5</sup> These processes did not entirely bypass the Middle Danube region, but historical developments resulted in the relative preservation of this area when compared to what happened along other major European rivers. However, a significant loss of freshwater habitats has been recorded along the Danube.<sup>6</sup> In order to contribute to the long-term preservation of the area, as well as to restore parts of the biodiversity already lost, several activities were implemented along the Danube.

## Project approach

With the aim of establishing a unique, standardised system of biological monitoring in the area, indicator species were defined by experts in the field of wetland restoration, representatives of the Institute for Environmental and Nature Protection and managers of protected areas. In addition, a practical biodiversity monitoring guide for wetlands in the cross-border area between Croatia and Serbia<sup>7</sup> was produced. Field research in two pilot areas of Croatia were put in place in order to record the biodiversity present, as well as to assess the area’s conservation status and identify the main threats. In addition, restoration plans through rewetting and reflooding were developed for six pilot areas (three in Croatia and three in Serbia) as a basis for future projects. Two of them, on the Croatian side, should get financing through the Recovery and Resilience Facility.

## Benefits for nature and people

Alongside the development of monitoring guides and restoration plans, concrete restoration measures were implemented in two of the pilot areas:

- In the Čarna area (Croatia), 900 metres of the Ivovac side branch, the formerly overgrown and biologically degraded tributary, was restored. The side branch now has a constant inflow of water throughout the year which enabled the return of several wetland plant species, amphibians and rare birds. This also had a positive impact on sustainable tourism offerings in the area.

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<sup>4</sup> Ibid., 4.

<sup>5</sup> Zeleni Osijek, [Wetland Restore - Obnova vlažnih staništa u srednjem Podunavlju](#), 3.

<sup>6</sup> Laurice Ereifej, Szilvia Ádám, Andreas Beckmann, [Restoring rivers and wetlands at scale](#), WWF CEE, 4-5, 2021.

<sup>7</sup> M. Bartula (Ed.), [Vodič za monitoring bioraznolikosti vlažnih staništa u prekograničnom području Hrvatska - Srbija](#), Zeleni Osijek, 2020.

- In the Zasavica area (Serbia), restoration was performed along 33 kilometres of the former side branch of the Sava River. Sediment was removed along 100 metres of the upper part of the side branch and 0.6 hectares of natural depressions and ponds located on a nearby meadow were deepened, ensuring a more favourable hydrological regime.
- As an added value of the project, an educational program called ‘Restoration of wetland habitat’ was designed, which includes educational materials, toolkits and other work material. Finally, several stakeholder events were organised in order to raise capacity and awareness about the importance of protection and restoration of wetland habitats.

### Leading by example

Wetlands restoration has an enormous potential to benefit biodiversity and to help mitigate some of the consequences of climate change such as flooding, CO<sub>2</sub> emissions and droughts. Throughout the EU, many similar wetlands areas have been drained because of irrigation, extraction and intensive farming. The project, particularly due to its transborder governance, provides relevant and applicable examples that other regions could follow.

## The Tisza–Túr dry retention basin: Restoring habitats to help farmers adapt to floods and drought

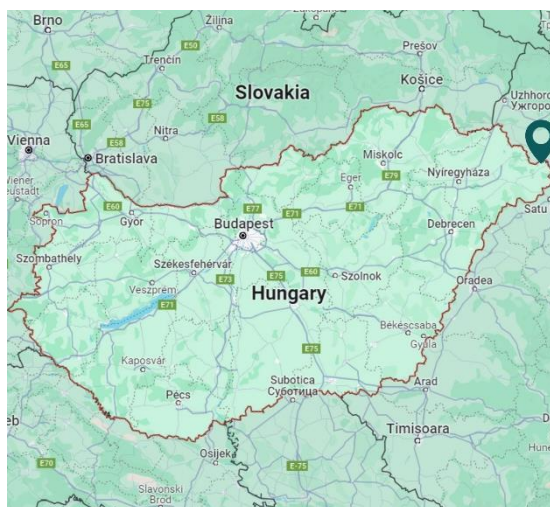


Photo: Béla Habarics

### Key information<sup>8</sup>

- **Duration:** April 2016 – November 2023
- **Total project budget:** HUF 35 billion (approximately EUR 94 million)
- **Funded by:** EU cohesion policy funds through the Environment and Energy Efficiency Operational Programme

[Project website](#)



### Project overview

The Tisza is the longest river in Hungary. The Túr, its tributary, joins the Tisza close to the Hungarian–Ukrainian border in north-east Hungary. The Tisza–Túr dry retention basin is located close to the Túr estuary. It is a large natural depression that used to regularly flood in the past.

<sup>8</sup> Upper Tisza Region Water Management Directorate, [Tisza–Túr dry retention basin](#), Upper Tisza Region Water Management Directorate, accessed 30 November 2023.



The project covers a total area of 2,686 hectares. The basin, roughly 1,600 hectares in size, is a highly diverse area containing cropland, meadows, pastures, orchards, creeks, channels, fishponds and several backwater lakes and is surrounded by embankments. The basin is dry most of the time in order to accommodate agricultural activities. However, in the event of flooding water can be released into this area from the river, reducing pressure on the river's embankments. Hence, using controlled flooding and draining methods, the basin serves the dual purpose of preventing floods and droughts. Planning for the retention basin project started in 2014, with construction finishing in October 2022.

The dry retention basin is managed by the Upper Tisza Regional Water Directorate, the water administration authority for the region, while the project developer was Viziterv Environ, a water planning company.

## Problem identification

Due to climate change, extreme floods now occur in the area every 25 to 30 years. While still rare, these floods pose a significant threat to existing settlements. At the same time, sinking groundwater levels and droughts are becoming more and more common. For centuries, people have had to drain excess rain and flood water from agricultural areas as quickly as possible to be able to grow more crops. Now they increasingly have to think of ways to retain that water for longer periods of time. To ensure the region is properly prepared for these threats, a change of approach to water management is currently underway and this project is an excellent example of it.

## Project approach

Two hundred years ago, the river regularly flooded the area. Today, however, the riverbed runs deeper, which prevents water from reaching the retention basin by gravitational flow. To overcome this, different structures and processes have been put in place. This includes a large floodgate which can be opened to decrease extreme water levels during flooding by letting the water flow to the retention basin and a drain gate which enables the excess water to leave the retention basin. In addition, embankments were built along part of the retention basin.

Channels and sluices play an important role in the water management system, especially from an environmental perspective, as they maximise water retention within the basin. In order to ensure the availability of water during dry periods, two pumps were installed that have a total capacity of 1.1 cubic metres (m<sup>3</sup>) per second. These pumps contribute to supplying these areas with much-needed water during dry periods. The pumps operate exclusively on solar energy, thanks to solar panels that have been installed nearby.

This ingenious system enables the soil to be replenished through controlled flooding, mimicking natural ecological processes and encouraging more sustainable farming practices.

In the second phase of the project, which began in 2023, this infrastructure will be put into use as part of a sustainable landscape management strategy to ensure that the fields have enough space to accommodate the inflow of water. However, the success of these endeavours will depend on the active involvement, consensus and cooperation of the farmers and other stakeholders (residents, local non-governmental organisations and municipalities) in the region.

## Positive results for nature and people

Details about the overall results and benefits of this project will be available after the next flood event, when the full potential of the project will be on display. However, there are high expectations, especially in regards to Natura 2000 habitats and species and improvements of agricultural practices:

- The dry retention basin includes Natura 2000 grasslands, home to foxtail-grass species. The Hortobágyi National Park Directorate expects the endangered corncrake (*Crex crex*), a type of bird species, to reappear as soon as the grass grows tall.
- The reliable supply of water is also likely to improve the ecological state of the hedgerows, which provide an important habitat for the eastern egg moth (*Eriogaster catax*), a designated Natura 2000 species.
- Stakeholders plan to advise the Hungarian Ministry of Agriculture on proposed amendments to the Common Agricultural Policy (CAP) Strategic Plan with the hope of ushering in a more integrated and holistic approach to landscape management.

Some positive impacts could already be seen in autumn 2022 in the backwater lake of Haláborszegi, a protected Natura 2000 site located in the basin. The lake area is owned by the state, with the local Hortobágyi National Park Directorate serving as the asset manager. In recent years, the lake has been severely affected by the effects of climate change, so much so that the structure and composition of the biological community in the area has begun to change, a process known as ecological succession. As part of a combined restoration effort, the National Park Directorate and Viziterv Environ worked together to design a water supply system for the lake. As a result, water began flowing from the Tisza, which helped attract amphibians, reptiles, herons, egrets, kingfishers and otters back to the lake for the first time in many years.

## Leading by example

Many Hungarian villages, including in Szabolcs-Szatmár-Bereg, are experiencing a decrease in population and waning interest in farming. Indeed, many farmers are unable to continue, as the demands of the business become ever more stressful. Nevertheless, providing farmers with a reliable water supply mitigates one major risk, protects their yields from drought and can give them peace of mind.

Adopting a bottom-up approach requires specific professional and soft skills, sensitive communication, respect, empathy and, of course, time. Thanks to the efforts of a participating local organisation, the E-misszió Nature and Environment Protection Association this participatory approach to sustainable development is starting to bear fruit. The association holds regular meetings with farmers to foster collaboration and help them make joint decisions on important actions, such as when to flood their fields and to what depth. If implemented properly, this approach can have significant positive effects on biodiversity and support the ecosystem in the retention basin and the surrounding area. This approach can be implemented in other areas where a sensitive balance between nature, biodiversity and local community is needed.

Tackling drought and floods requires land use changes which can lead to conflict. The replicability of this project depends on the ability to implement collaborative processes and manage conflict as well as taking advantage of supporting legislation and financial support.

## Wetland restoration and grazing on the Gerje-Perje plain

HUNGARY

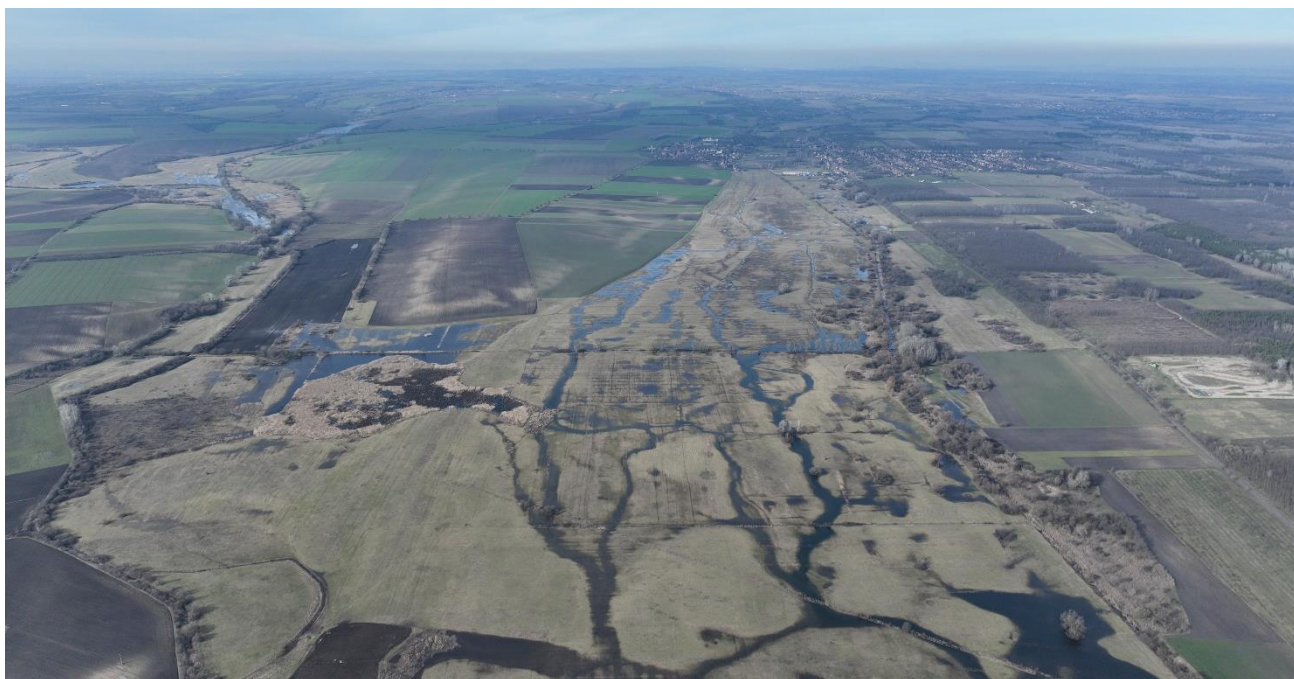
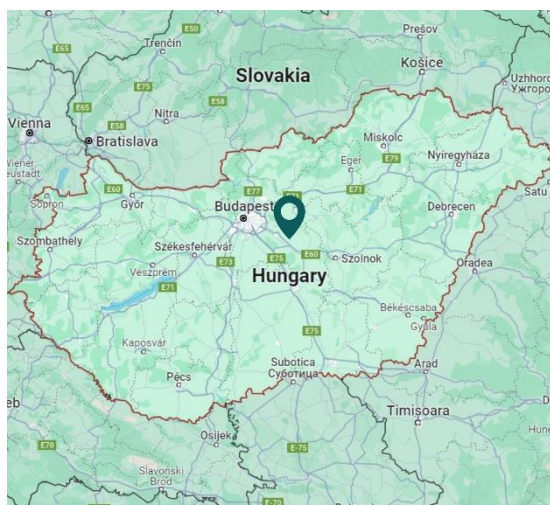


Photo: Balázs Szendrői

### Key information<sup>9,10</sup>

- **Duration:** January 2016 – August 2022
- **Total project budget:** HUF 600 471 817 (approximately EUR 1.5 million)
- **Funded by:** Cohesion Funds through the Competitive Central Hungary Operational Programme

[Project website](#)



### Project overview

The site is in Pest County, located between the two great rivers of Hungary, the Danube and the Tisza, on the northern edge of the Great Hungarian Plain. The broader landscape features oak woodlands, loess grasslands, dunes and saline wetlands.

<sup>9</sup> Turizmus Online, [Megújult a Famosi Madárvárta és az Egreskátai Major](#), Turizmus Online, accessed 1 February 2024.

<sup>10</sup> András Németh (Duna-Ipoly National Park Directorate, Head of the Nature Protection Ward District) e-mail message to author, 2 February 2024.



The project's main objectives were to ensure the supply of water to several wetlands in the area, secure long-term water coverage and have a positive effect on groundwater levels. Another key objective was to develop a farmstead suitable as winter accommodation for the animals that graze the Natura 2000 meadows.

## Problem identification

The area featured several wetlands and enjoyed regular flooding prior to the building of extensive water management works in the past two centuries. Canals were built and marshes and bogs have been drained and turned into cropland. This land use change has been typical in the country and caused groundwater loss almost everywhere.

## Project approach

In the framework of the project 'Restoration of rare Pannonian saline wetlands on the Gerje-Perje Plain', thirteen water management structures in the form of sills (including additional structures such as embankments and sluices) were built along nine watercourses. These can release water in a controlled manner into old riverbeds, estuaries, saline flats, bogs and meadows.

A key aspect of the project was to ensure long-term water coverage and to make sure the water can seep into the ground slowly, which positively affects groundwater levels. This was done through the partial redirection of existing creeks into meadows, through which the waters could slowly flood into the surroundings.

Another element of the project was the development of high-quality winter accommodations for grazing animals — the traditional Hungarian grey cattle. A herd of more than 200 such animals belongs to the Duna-Ipoly National Park. Grain fodder storage, an anti-fire pond, new drinking fountains, a new concrete paddock and a fence were built to serve as winter accommodation for the animals, which graze the largest meadow of the Tápió-Hajta-Vidéke protected area from spring to autumn.

## Benefits for nature and people

There were numerous positive results of the project both during the implementation and after:

- The Körös Creek, which was dry for almost a century, has regained its functions and is now a functioning watercourse and wetland habitat.
- The previously barren landscape is now home to bustling life: migratory birds rest here, the common redshank (*Tringa totanus*), the stork (*Ciconia ciconia*) and various amphibians have also reappeared.
- Beavers (*Castor fiber*) appeared around 2019 and further improved some of the man-made sills.
- The flooding affected agricultural activities in a positive way. After the water has disappeared from the field (seeped in or evaporated), the area is used for livestock grazing. Much of these lands are private property. Local farmers welcomed these interventions because they understood that

groundwater replenishment is necessary for successful farming. Thus, cooperation between conservation and agriculture worked well here.

### Leading by example

In the long term, the investment ensures the sustainability of the extensive grazing practices of the National Park on the 600 hectares of the Nyík meadow, and through this, the preservation of the Natura 2000 species and habitats in the Hajta mente Special Area of Conservation. These interventions are exemplary and are necessary in many other areas which suffer from drought. Unfortunately, in most cases the National Park directorates can only implement projects that involve land use change where they are the landowners. This is why enhancing cooperation between sectors and creating the institutional infrastructure for joint work is indispensable.

## Support for the development of Blooming Meadows

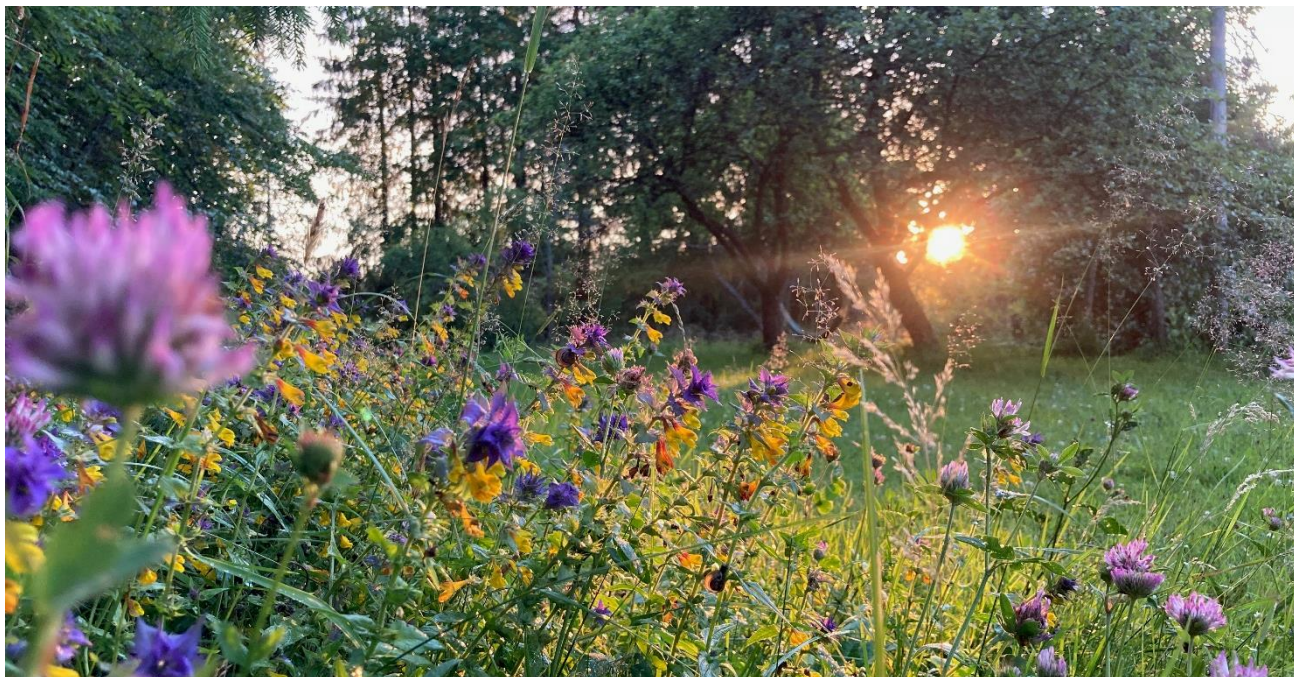


Photo: LIFE IP LatViaNature

### Key information

- **Duration:** October 2022 – December 2026 (The pilot programme will run from 2023 to 2026)
- **Total project budget:** EUR 19.49 million
- **Blooming Meadows pilot programme budget:** EUR 405 000 is available to support farmers over the four year period.
- **Funded by:** EU LIFE programme (EUR 11.69 million), Latvian Environmental Protection Fund of the State Regional Development Agency and project partners' co-funding (EUR 7.79 million)

[Project website](#)

### Project overview

A new pilot programme in Latvia called Blooming Meadows was developed under the larger project<sup>11</sup> 'LIFE IP LatViaNature'. The pilot programme aims to increase biodiversity in potentially biologically valuable grasslands that have not been ploughed for some time and where characteristics of a natural grassland have started to return.

<sup>11</sup> LIFE IP LatViaNature, [LIFE Integrētais projekts: Natura2000 aizsargājamo teritoriju pārvaldības un apsaimniekošanas optimizācija LIFE19 IPE/LV/000010](#), LIFE IP LatViaNature, accessed 11 December 2023.



The goal is to help the grasslands achieve the status of an EU protected habitat, which would allow the manager of the grasslands to receive continuous support from CAP funding in the future. The pilot programme provides grassland owners and managers with consultations and expertise from grassland habitat experts, as well as financial aid.<sup>12</sup> The support in this programme has been marked for 675 hectares of permanent grasslands across 70 farms which have been selected from all over Latvia as part of an open call and selection process.

‘LIFE IP LatViaNature’ is led by the Nature Conservation Agency and implemented by a team of ten organisations in Latvia representing both public and non-governmental sectors, including scientific institutions.

The Blooming Meadows pilot programme is organised by the Nature Conservation Agency in collaboration with the Ministry of Environmental Protection and Regional Development, the Vidzeme University of Applied Sciences, the Latvian Rural Advisory and Training Centre and the University of Latvia.

## Problem identification

The main problem addressed by this investment is the rapid disappearance of EU protected grassland habitats. Currently, of the 12 EU protected habitat types found in Latvia, 11 have been assessed as having a status of ‘unfavourable-bad’,<sup>13</sup> meaning that they are under grave threat and rapidly declining in area and quality.<sup>14</sup> One hundred years ago these meadows took up a third of the country's territory. Today they represent approximately 60,000 hectares, just 0.9 per cent of Latvia’s land surface.<sup>15</sup> Simply preserving these shrunken habitats is insufficient. It is crucial to foster the development of new EU protected habitat areas in places such as permanent grasslands that have not been tilled or fertilised for a long period of time.

## Project approach

The latest data from habitat monitoring shows that there are more than 15,500 hectares of grasslands with the potential to become EU protected habitats. If restored and managed properly, these could increase the area of EU protected grasslands in Latvia by 26 per cent. Thus, the consultative and financial support provided by this pilot programme to develop potentially biologically valuable grasslands is a truly welcome novelty in Latvia. It is also a measure that could garner additional support in the future, since the development of these grasslands has not received large-scale incentives or support.

In contrast to other rural support programmes in Latvia, this initiative does not disburse funds only according to work done (e.g. whether grass is cut or animals are grazing), but considers the results achieved.

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<sup>12</sup> LIFE IP LatViaNature, [The pilot programme Blooming Meadows launched to increase grassland biodiversity](#), LIFE IP LatViaNature, accessed 11 December 2023.

<sup>13</sup> Rūsiņa (Ed.), [Protected Habitat Management Guidelines for Latvia. Volume 3. Semi-natural Grasslands](#), Nature Conservation Agency, Sigulda, 83-90, 11 October 2021.

<sup>14</sup> Nature Conservation Agency of Latvia, [Dabas skaitīšanas dati: Latvijā visliktāk šobrīd klājas zālājiem, arī pārējām biotopu grupām nepieciešama pārdomāta ilgtermiņa apsaimniekošana](#), Nature Conservation Agency of Latvia, 11 May 2023.

<sup>15</sup> Nature Conservation Agency of Latvia, [Informatīvais ziņojums “Par Eiropas Savienības nozīmes aizsargājamo biotopu izplatības un kvalitātes apzināšanas rezultātiem un tālāko rīcību aizsargājamo biotopu labvēlīgas aizsardzības stāvokļa nodrošināšanas un tautsaimniecības nozaru attīstības interešu sabalansēšanai”](#), Nature Conservation Agency of Latvia, 16 May 2023.

The amount of funding for particular grasslands is reassessed every year (although a certain pre-agreed baseline is maintained) depending on changes in grassland structure that takes place during the period of the support, such as the presence of natural grassland plant indicator species, changes in the area covered by invasive or expansive species, litter layer, amount of shrubs and other characteristics that signal that the management is focused towards biodiversity.

The financial feasibility and sustainability of this investment is based on the projection that after the grasslands have achieved (or are closer to achieving) the status of EU protected habitat, they will qualify for yearly support from CAP funds specifically designated for biodiverse grasslands.

Support for the development of biodiverse grasslands can provide an extra incentive for rural communities to earn decent income and maintain their rural lifestyles. As a complementary activity in the 'LIFE IP LatViaNature' project, a natural grassland product label is currently being developed, which aims to both create new business opportunities and grassland products and promote the protection of semi-natural grasslands.<sup>16</sup>

## Benefits for nature and people

The programme is in the early stages of the implementation period and according to the implementers, the first report will be published in spring 2024.

The main benefits of the investment will be the creation of EU protected grassland habitats and the information and experience gained by the implementers in this pilot-programme:

- This is the first time a results-based payment approach<sup>17</sup> is being piloted in Latvia. The approach is based on experience in other European countries such as Ireland, the U.K., Romania, Slovenia, Germany, Estonia and Lithuania.
- Farmers and landowners are closely involved in monitoring results in collaboration with habitat experts.
- During the dispersal of financial support, implementers will track the number of consultations with landowners and document the best approaches to take in regards to their potential biodiverse grasslands.

The first results indicate that the main challenge faced by managers is the expansion of unwelcome, aggressive plant species. Preliminary lessons have been learned in regard to data quality, planning the monitoring process, and managing communication and administration between participants.<sup>18</sup>

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<sup>16</sup> LIFE IP LatViaNature, [Pļavu īpašnieki aicināti pieteikties jaunam dabisko pļavu produktu zīmolam](#), LIFE IP LatViaNature, 21 February 2023.

<sup>17</sup> Result based payments network, [About result based payments. Result based payments network](#), Results based payments network, accessed 11 December 2023.

<sup>18</sup> Maija Medne, e-mail message to author, 15 February 2024.

## Leading by example

This investment is considered to have a high degree of replicability, especially in Latvia, since the pilot programme takes local conditions into account in regards to the soil and characteristic vegetation, as well as the nationally approved criteria for habitat mapping methodologies. In addition, this project may have a positive impact on future rural support payments.

There is a huge interest and potential for replication; 240 farmers representing a total area of 2,500 hectares of land applied to this project. We hope that in the future, similar support programmes could be mainstreamed into CAP support or other funds, which will be devoted to supporting rural farmers and landowners.



## Restoration of EU protected habitats and species



Photo: Jānis Saulītis

### Key information

- **Duration:** February 2021 – December 2023
- **Total project value:** EUR 3.53 million
- **Funded by:** European Union Cohesion Fund (EUR 3 million), Latvian state budget (EUR 529 411)

[Project website](#)

### Project overview

The project ‘Implementation of Management Measures in Specially Protected Nature Areas and Micro-Reserves to Improve the Conservation of Habitats and Species’ was led by the Nature Conservation Agency of Latvia and executed together with ten Latvian municipalities and two enterprises: the joint stock company Latvia's State Forests and the state enterprise Latvian State Roads.

The overall goal of the project was to help habitats of EU importance and species habitats in 30 specially protected nature territories (Natura 2000 sites) across Latvia achieve favourable conservation status. The specific goal was to create suitable conditions for the sustainable existence of 20 EU habitats and at least eight species habitats, as well as to promote responsible management of 13 protected tree alleys, which are at the same time habitats of protected species. The project carried out concrete restoration actions of

EU habitats and species habitats on 1,785.85 hectares of land and positively influenced at least 13,800 hectares.

## Problem identification

In Latvia, various private landowners as well as state and municipal bodies own lands which are EU protected habitats and protected species habitats. Only 10 per cent of habitats and 29.5 per cent of protected species have a good conservation status, meaning that there is a need for significant improvement in the quality of protected habitats.<sup>19</sup> The existence and quality of EU protected habitats and species habitats (including grasslands, wooded meadows, marshlands, grey dunes and heaths, as well as tree alleys, fast-flowing river segments and forests) is heavily reliant on proper management. Targeted restoration and management of these areas improves living conditions for species associated with these habitats.

## Project approach

This project focused on the EU and nationally protected habitats and species that are included in the prioritised action framework for Natura 2000 in Latvia and whose conservation status has been reported as poor or bad. In the selection of the project sites, the implementers gave priority to actions which would provide the biggest contribution to either conservation goals connected to a specific Natura 2000 site or to favourable conservation status of a species or habitat on a state level. Additionally, they evaluated the overall ecosystem services and economic benefits of the site. For example, a large part of the restoration activity was focused on EU protected grassland restoration, which is beneficial to landowners and managers who will be able to derive grassland related products. Sites with lower maintenance costs after restoration were prioritised. The restoration work included a wide range of actions, such as:

- Making grasslands manageable by restorative mowing, cutting excess shrubs and other actions,
- Improving plant composition by sowing biodiverse grassland seeds (through hay dispersal),
- Restoring and optimising hydrological regimes of the sites,
- Removing excess vegetation and debris from freshwater habitats (fast-flowing streams and lakes) through mowing, by hand and with machinery,
- Managing the canopies of alley trees,
- Combatting invasive species,
- Removing excess vegetation to ensure the necessary open landscapes in heaths and other habitats,
- Fixing access roads and water management infrastructure for better future management.

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<sup>19</sup> European Commission, [Biodiversity Latvia factsheet](#), *Biodiversity Information System for Europe*, accessed 19 February 2024.

## Benefits for nature and people

The Nature Conservation Agency of Latvia and Latvia's State Forests carried out the restoration works. Ten municipalities and the state enterprise Latvian State Roads participated as landowners who own part of the area where restoration activities took place. Additionally, an agreement was made with 150 private landowners for the restoration of rivers, alleys, meadows and species sites on their lands.

The main results are:

- Conditions were improved on 20 EU protected habitat types, including coastal, freshwater, heath, grassland, peatland and forest habitats.
- Thirty protected tree alleys were improved, nature positive management was directed to more than 3,700 trees, primarily for the protection of the hermit beetle (*Osmoderma barnabita*).
- In total eight EU protected species habitats were improved, including habitats for the western capercaillie (*Tetrao urugallus*), the hermit beetle (*Osmoderma barnabita*), marsh angelica (*Angelica palustris*), the sand pink (*Dianthus arrenarius*) and others.

Detailed information on the specific conservation actions and the initial results in each protected site is provided in the final report of the project.<sup>20</sup> The report also provides an analysis of the performance of the restoration methods that were used and a description of the management and monitoring that was necessary after restoration, which helps achieve replicability.

## Leading by example

The project is a successful nationwide collaboration between state institutions, state enterprises and municipalities. Although the project's budget was rather modest in comparison to many other nature restoration projects, given the large area of the project and the scope and diversity of the activities, it was highly focused on deriving the most benefit for nature and thus can be considered as an efficient example. The detailed report<sup>21</sup> provides more specific insights into the methods and performance of the project. More detailed information is available from the project implementers upon request.

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<sup>20</sup> Nature Conservation Agency and Latvia's State Forests, [Projekta īstenošanas izvērtējuma ziņojums. ES Kohēzijas fonda projekts "Apsaimniekošanas pasākumu veikšana ĪADT un mikroliegumos biotopu un sugu aizsardzības stāvokļa uzlabošanai](#), Nature Conservation Agency and Latvia's State Forests, December 2023.

<sup>21</sup> Ibid.



## The Wisłoka: Overcoming barriers on a Polish river

POLAND

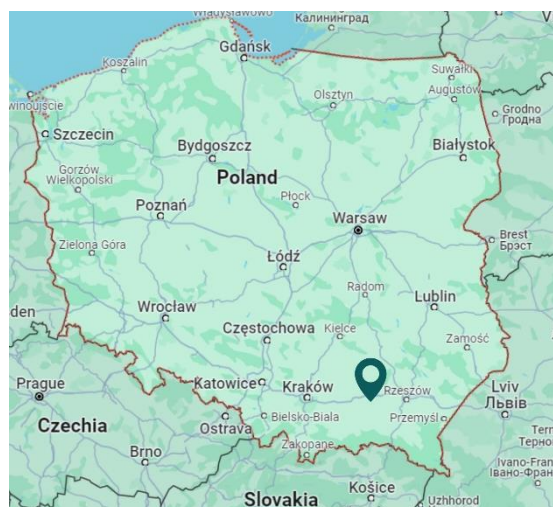


Photo: Karol Cieżak

### Key information

- **Duration:** 2018 to end of 2021
- **Total project value:** PLN 28.7 million (EUR 6.7 million)
- **Funded by:** EU financing from the Cohesion Fund – PLN 24.4 million (EUR 5.7 million) (85 per cent), the remaining amount through national sources

[Project website](#)



### Project overview

Like many European rivers, the Wisłoka River has been heavily impacted by man-made structures that fragment habitats and block the migration of fish and other species. Lately, the situation started to improve thanks to the project ‘Removal of migration barriers for aquatic organisms on the Wisłoka River and its tributaries – Ropa and Jasiołka’ (in short ‘Wisłoka without barriers’). The project enables fish and other aquatic organisms to move freely up and down the Wisłoka River and its tributaries again. It was achieved by building fish ladders along the migration barriers (weirs, steps, and sills) built over the years.

The project was implemented between 2018 and 2021 by the project leader, Krakow's Regional Water Management Authority. To provide the required nature supervision for the project implementation and the monitoring of the effectiveness of the fish passages, a private company, the Institute of Ecological Research, and a non-governmental organisation, Society for the Earth, took part in the project.<sup>22</sup> The project was implemented on the Wisłoka, a river in south-eastern Poland that is the right-bank tributary of the upper Vistula covering 164 kilometres and which has a catchment area over 4,110 square kilometres.

## Problem identification

The Wisłoka River and its tributaries, like other Carpathian tributaries of the Vistula, used to be a habitat and breeding ground for migratory bi-environmental fish.<sup>23</sup> The construction of barrages and channel regulation works carried out in the second half of the 20th century led to the extinction of sturgeon, salmon, sea trout and bream in the river. The populations of mono-environmental river fish species (i.e. which do not migrate between freshwater habitats and the sea) have been severely depleted and fragmented.

## Project approach

Prior to the start of the project, a detailed inventory of hydro-technical facilities and an engineering consultation were carried out to find ways to overcome migration barriers for aquatic organisms while maintaining the previous functions of the modernised objects. Nature-friendly solutions that mimic the conditions found in a natural river have been adopted in the form of fish ladders. It is important to note that the best way to ensure that fish can pass the migration barriers would be the removal of barriers. However, where this is not possible, properly designed and well-monitored fish ladders can be of use. The designs of fish ladders on the Wisłoka took into account the migratory requirements of different fish species, including size, swimming speeds, typical behaviour and timing of migration.

## Benefits for nature and people

The activities implemented in the 'Wisłoka without barriers' project have been described as a good example in the EU's river restoration manual 'Guidance on Barrier Removal for River Restoration'.<sup>24</sup> The project was also awarded the prestigious Fish Passage 2022 international award. Activities on the Wisłoka aimed to upgrade or construct seven fish ladders at migration barriers.

The results could be seen very quickly:

- 'Wisłoka without barriers' successfully made 254 kilometres of river corridor covering the Wisłoka River and its tributaries the Ropa and the Jasiołka passable for different fish species, enabling their migration.

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<sup>22</sup> These are unofficial English translations of the names of Polish private company Zakład Badań Ekologicznych, and the non-governmental organisation: Towarzystwo na Rzecz Ziemi.

<sup>23</sup> Bi-environmental fish are migratory fish species like salmon, sturgeon and eel that live in the sea and fresh water. See: Wikipedia, [Fish migration](#), Wikipedia, accessed 22 February 2024.

<sup>24</sup> Directorate-General for Environment, [Guidance on Barrier Removal for River Restoration](#), Directorate-General for Environment, 39, 21 December 2021.

- Video monitoring installed at the Mokrzec fish ladder (the biggest in the project) shows that newly reopened corridors are now being used by large flocks of hogfish, barbel and cherts to flow into the upper basin.
- Monitoring on the Mokrzec weir also showed that it has become a habitat and migration route for 21 species of fish and 3 species of bivalve molluscs.

## Leading by example

There are many aspects that can be transferred and adapted to similar projects on other rivers where the complete removal of dams and barriers is not possible. One of these is to rely on using natural structures made of large mutually wedged boulders. This approach with more natural materials and nature-friendly design is also more durable than the traditional concrete and steel approach.

Throughout the design and construction process there was positive collaboration between engineers and biologists, without which, implementers said, the fish ladders would not have been successful. This positive collaboration was the result of a change in the approach of supervisors; instead of serving simply as watchdogs, they took an active advisory role, which was key to fulfilling the project goals.



## Supporting natural flood retention in the Oder River valley

POLAND

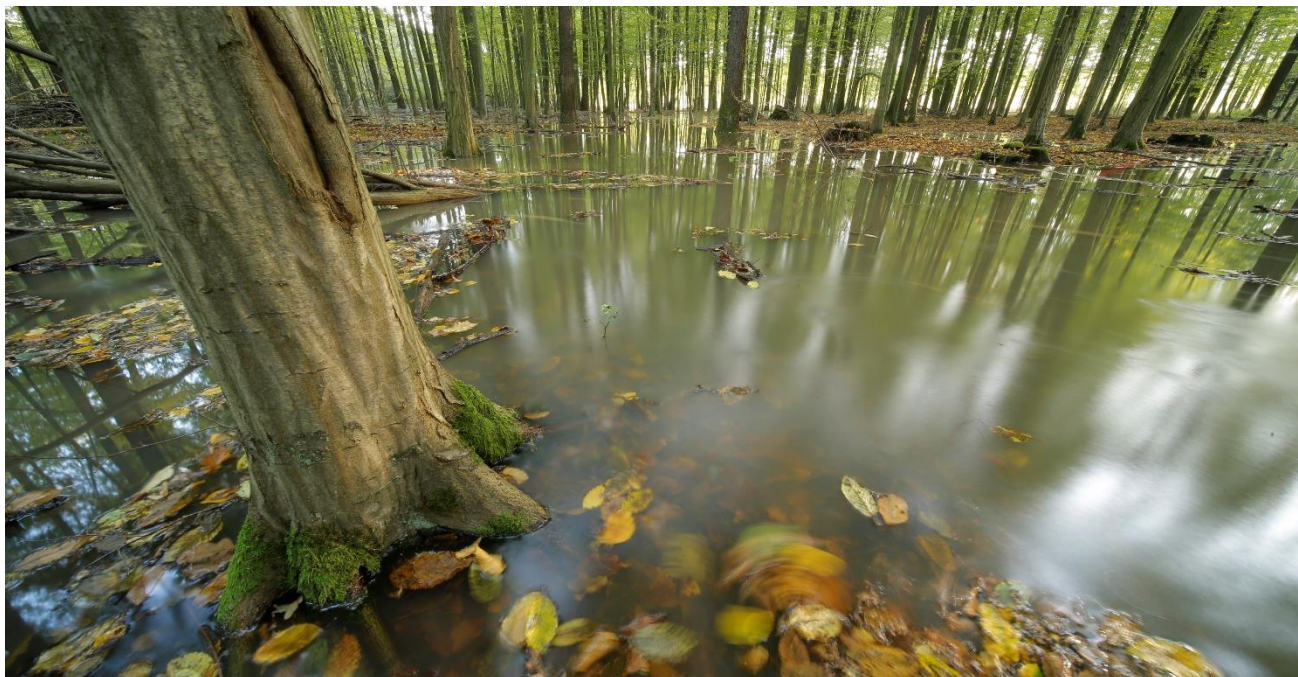
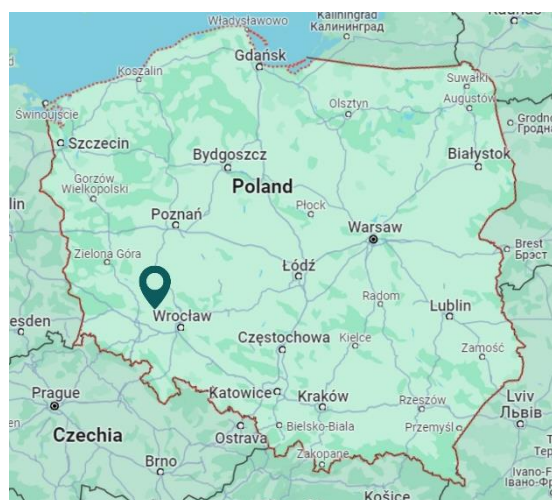


Photo: Krzysztof Koniczny

### Key information<sup>25</sup>

- **Duration:** 2007 – 2015
- **Total project value:** EUR 4.3 million
- **Funded by:** EU European Regional Development Fund (EUR 3.7 million from the Operational Programme Infrastructure and Environment for the 2007 to 2013 programming period), World Wildlife Fund (WWF) (EUR 250 000), Deutsche Bundesstiftung Umwelt (EUR 210 000) and other smaller sources like Program Odra 2006 (EUR 60 000)

[Project website](#)



### Project overview

The project's main objective was to relocate river embankments away from the Oder riverbed in order to allow water to spill over into a 599 hectare floodplain. Almost seven kilometres of new embankments were built at a maximum distance of one kilometre from the old embankments, which had been built only a few

<sup>25</sup> P. Nieznański, P. Nawrocki, E. Jaszczuk, [Projekt Domaszków – Tarchalice. Dla ludzi i dla przyrody](#), *Ratujmy rzeki*, 20 May 2015.

dozen metres from the river. This has contributed to the restoration of the natural environment of the Oder riverbed, its habitats and biodiversity.

The project was implemented between 2007 and 2015. It started as an NGO idea with WWF taking the lead role. The main partners were the Lower Silesia Board of Amelioration and Water Structures in Wrocław and the Regional Water Management Board of Wrocław.

## Problem identification

Most river management in Europe is based on building structures like groynes, dams and other barriers, as well as large embankments that function as flood control measures. These embankments have cut rivers off from their floodplains for centuries and created narrow corridors that fill up easily during floods. During major floods, these embankments do not provide reliable protection. In addition, these structures sever the lateral connection between a river and its floodplain, which results in a loss of biodiversity and negative impacts on groundwater levels.

There are major problems related to spatial planning in Poland, in particular, a pressure to commercially develop floodplains. This increases flood risks. Unfortunately, the standard approach to flood protection in Poland is based on an overconfidence in economically questionable technical methods and a neglect of non-technical methods. The Domaszków–Tarchalice project managed to overcome this distrust of non-technical methods and demonstrates the effectiveness of nature-friendly approaches.

## Project approach

The project represents an innovative approach to flood protection and improvement of the environment. Embankment replacement, as a primary activity, represents an alternative approach to national flood control plans such as reservoir construction.

According to Piotr Nieznański,<sup>26</sup> the idea of the project was to restore natural retention and connect the river to former floodplains without using artificial pumping systems or digging reservoirs. Several cuts were made in the old embankments that had been built right along the river. This enables water to spill over beyond the embankments. In this way, water from the swollen river fills first the old floodplain and then the rest of the space between the new and old embankments. Everything happens by gravity, in a natural way, without additional technical mechanisms. The activities allowed for the restoration of habitats in the valley of the Oder River by recreating the natural relationship between the river and the former floodplains. Reconnecting floodplains to rivers prevents the degradation of wetland habitats and biodiversity loss.

## Benefits for nature and people

The main activity of the project resulted in the shifting of the embankment away from the main riverbed, allowing more space for the river. The main results include:

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<sup>26</sup> Piotr Nieznański (Save The River Coalition, WWF Poland environmental policy expert, the founder of the Domaszków – Tarchalice project), in discussion with the author, Warsaw, Poland, February 2024.

- Recovery of approximately 600 hectares of floodplain due to the reallocation of the old embankment. By restoring natural retention, valuable ecosystems are recreated to retain water where there is room for it when floods occur.
- Restoration of the lagoons in the Oder Valley contributed to the improvement of habitat conditions for characteristic species: fire-bellied toad (*Bombina bombina*), crested newt (*Triturus cristatus*), grey heron (*Ardea cinerea*) and others.
- There was a significant decrease of peak flows during floods.
- More than 1,600 hectares of land and 427 inhabitants are now better protected against floods.
- The section of the Oder Valley covered by the project is well known for its large riparian forests with species like pedunculate oak (*Quercis robur*), white elm (*Ulmus laevis*), field elm (*Ulmus minor*) or ash (*Fraxinus excelsior*). It is also part of the Łęgi Odrzańskie Natura 2000 site and the work carried out by the project was crucial for protecting this conservation area's natural functions.
- The existing forest management system has been adjusted to fit the requirements of flooding patterns so as to create a natural flood water retention area. The topography of the area allows it to be flooded and drained naturally without the need for any technical modifications.
- The project has also generated social benefits in the form of local community involvement in the decision-making process and increased awareness of the natural value of the Oder floodplains. It also provides a good basis for educational activities. Other benefits include reductions in costs arising from flooding downstream.

## Leading by example

The Domaszków – Tarchalice program is a good benchmark for river restoration. Eliminating excessive constriction of the river by moving the embankments further is recognised as an environmentally friendly method of shaping river channels and is recommended in the 'Good river maintenance practices' guidebook.<sup>27</sup> This method is not limited to a specific type of river or an area's unique topography, although both need to be taken into account during planning. Above all, it requires a bold approach to flood protection and the support of state water institutions and local governments.

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<sup>27</sup> P. Prus, Z. Popek, P. Pawelczyk, [Dobre praktyki utrzymania rzek](#), WWF Poland, 2018.



## Ecosystem restoration of the lower Drava River

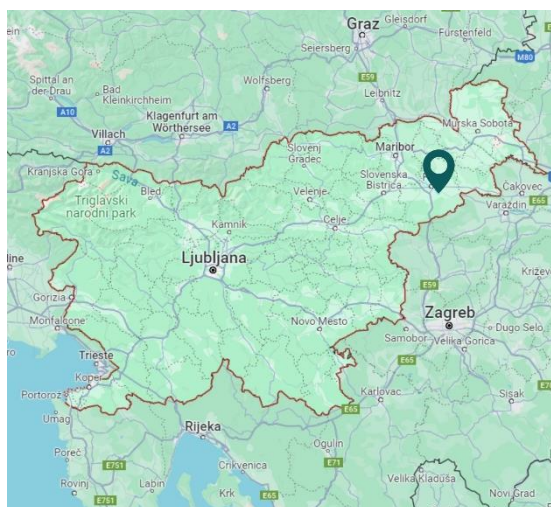


Photo: Tilen Basle

### Key information

- **Duration:** September 2012 – December 2017
- **Total project value:** EU 4.1 million
- **Funded by:** EU LIFE program (50 per cent); Co-financers Dravske elektrarne Maribor d.o.o., Ministry of the Environment and Spatial Planning, Municipality Ormož (43 per cent); and Beneficiaries (7 per cent)

[Project website](#)



### Project overview

Along the Drava River between Maribor and the town Središče ob Dravi, encompassing the Natura 2000 site of the Drava, the project area is located in an alluvial plain in northeastern Slovenia. Between 2012 and 2017, DOPPS – BirdLife Slovenia (the lead partner) in partnership with VGB Maribor d.o.o., DRAVA Vodnogospodarsko podjetje Ptuj d.d., and the Municipality of Ptuj worked to improve the conservation status of the riparian ecosystem and of local species.

## Problem identification

The riparian ecosystem of the Drava River has been significantly degraded by human intervention such as hydropower dams, barriers and riverbank enforcement for the purpose of flood protection. This has resulted in the deepening of the riverbed, disruption of sediment transport, a loss of connection between different parts of the riparian ecosystem, disruption of key ecosystem functions and the disappearance of key habitats and species.

## Project approach

In order to address issues around the river basin, the project focused on the following actions:

- Gravel bars along the river were cleaned through the removal of woody vegetation. This action covered a total surface of 14 hectares and facilitated nesting and breeding of little ringed plovers (*Charadrius dubius*) and other locally present birds such as the common sandpiper (*Actitis hypoleucos*).
- The riverbank was restored through the removal of stone enforcements and other barriers in order to facilitate the creation of a natural riverbed. Side arms were connected to the riverbed.
- The former wastewater basins of a nearby sugar factory were completely restored. A new water supply system was built and waterbird habitats restored. Management of the site has been established. The area was officially declared as a Nature Reserve.

## Benefits for nature and people

Since the project's end, many promising results have proven its efficiency in restoring ecosystems allowing species to recover and come back to the sites to breed:

- The little ringed plover's population increased by 35 per cent and the common sandpiper population increased by 20 per cent.
- The number of sand martins (*Riparia riparia*) and kingfishers (*Alcedo atthis*) has increased. After more than 20 years they have returned to becoming regular breeders along the Drava River between Maribor and Zavrč. As a result of improved management on artificial breeding islands, 118 pairs of common terns (*Sterna hirundo*) bred at Lake Ptuj in 2017, which was the largest number in the last 14 years.
- For the first time water-engineering works for the river were harmonised with nature conservation guidelines. Green solutions were implemented, achieving flood safety and conservation goals at the same time.

## Leading by example

After the project implementation, the riparian river ecosystem has become more suitable for the nesting of target Natura 2000 species. Conditions for nesting species along riverbanks, especially those requiring

nesting islands, have improved. The Ormož Basins, along with Lake Ormož, have become key resting sites during migration, as well as for breeding. A new public nature reserve was created. For the first time in Slovenia, significant river renaturation measures have been implemented on a larger river, showing that it is not only tributaries and smaller river stretches that can be restored. The Drava, because of its economic importance and size, is a key example proving the feasibility of a project when experts work hand in hand with local stakeholders.



## Restoring and conserving habitats and birds in the Škocjanski Zatok Nature Reserve

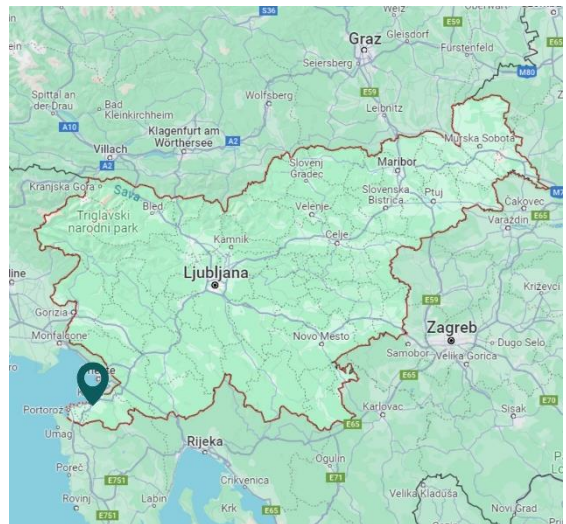


Photo: Borut Mozetič

### Key information

- **Duration:** July 2001 – June 2007
- **Total project value:** EUR 581 869
- **Funded by:** LIFE: EUR 290 935, with other contributions from Port of Koper d.d., National Water Directorate – Ministry of Natural Resources and Spatial Planning
- **Economic returns:** The financial investment primarily supports indirect returns through the development of green tourism in the surrounding area, as the reserve plays a pivotal role in local tourism.

[Project website](#)



### Project overview

Škocjanski Zatok is the largest brackish wetland in Slovenia. Comprising the wetland and its surrounding areas, this ecosystem holds significant ecological value for Slovenia, owing to its proximity to the sea, the Mediterranean climate, and sub-Mediterranean vegetation. The wetland exhibits diverse habitat types,



including wet meadows, shallows, mudflats, tidal areas, shores, a brackish marsh, reedbeds and a freshwater marsh. Together, these habitat types foster a rich biodiversity of plant and animal species, particularly birds. Currently, the reserve hosts 266 different bird species, of which 50 are breeders. Among these, particularly rare and therefore relevant for conservation are the common tern (*Sterna hirundo*), little tern (*Sternula albifrons*), black-winged stilt (*Himantopus himantopus*), redshank (*Tringa tetanus*), Kentish plover (*Charadrius alexandrinus*) and avocet (*Recurvirostra avosetta*). Along with these characteristic birds of the brackish lagoon habitat come notable species in the freshwater section of the reserve, including the little bittern (*Ixobrychus minutus*), water rail (*Rallus aquaticus*), zitting cisticola (*Cisticola juncidis*), purple heron (*Ardea purpurea*), common pochard (*Aythya ferina*), European turtle-dove (*Streptopelia turtur*) and many others.

The project started on 1 July 2001 and concluded on 30 June 2007. It was executed by DOPPS – BirdLife Slovenia in partnership with the Slovenian Ministry of the Environment and Spatial Planning. The creation of suitable breeding and feeding habitats was prioritised to ensure the favourable conservation status of endangered bird species.

## Problem identification

Due to the reserve's proximity to the urban area of Koper, human activities such as industrial pollution had been degrading the habitat since the 1980s. These stresses on the water supply and quality made the habitat more fragile, particularly in light of its mixed freshwater/semi-saline environments and in regards to breeding among protected bird species.

## Project approach

The project sought to raise environmental awareness among local communities and enhance positive public perceptions of the reserve as well as implement concrete restoration measures and promote sustainable development in Koper and its environs.

Furthermore, the restoration of habitats in the reserve has successfully created more breeding opportunities and increased the water quality. Concretely, this required preventing wet meadows from overgrowing and adjusting the water regime with grass cutting and grazing (achieved through the introduction of Camargue horses and old Istrian cattle). The freshwater part of the nature reserve is located in Bertoška bonifika close to Koper city and was artificially created during the reserve restoration in 2006 – 2007 as a substitute habitat for the wetlands lost near Koper.

## Benefits for nature and people

The area of the reserve was initially earmarked for industrial development. Instead, it now serves as a popular recreation spot, with infrastructure that facilitates human presence while preserving biodiversity conservation efforts. This has significantly improved the quality of life for Koper's residents. Additionally, the reserve has emerged as a notable nature tourism destination.

The nature reserve now covers a surface area of 122 hectares and accounts for more than 259 bird species during the year.

## Leading by example

The Škocjanski Zatok Nature Reserve, often referred to as an ‘Oasis on the Doorstep of Koper’, is situated within a densely urbanised environment. As Koper transitions from a trading hub to a university centre, the demand for green spaces and recreational areas has become increasingly apparent among its residents. Many have actively engaged in nature conservation efforts and have recognised the intrinsic value of the reserve. Initially met with scepticism, the Municipality of Koper now acknowledges the positive impacts of the reserve on the local community.

Škocjan Zatok serves as a model for successful habitat restoration and conservation efforts, demonstrating the potential for similar projects with public support to be replicated in other regions, particularly those aiming to utilise green spaces for both recreational purposes and nature conservation.