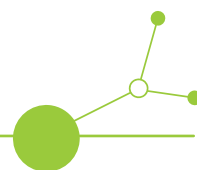


# Pilot action fact sheet

ReCo Pilot Region 1

Fichtelgebirge and Smrčiny Mountains (DE, CZ)



25.04.2025





# PILOT ACTION - FACT SHEET

## Pilot action factsheet for ReCo Pilot Region 1 Fichtelgebirge and Smrčiny Mountains (DE, CZ)

### D.2.2.3 Habitats - Mountains

#### O.2.1 Joint Pilot action 1 "Habitats" implemented in 4 ReCo pilot regions (partial)

Location, country	<p>Pilot Region 1 (Fichtelgebirge and Smrčiny Mountains); Germany/Czech Republic</p> <ol style="list-style-type: none"> <li>1. Humboldtgraben site (WGS 84 - 50.309326,12.121888)</li> <li>2. Erlenbächlein site (WGS 84 - 50.2792874,12.0968043)</li> <li>3. Perlenbach site (WGS 84 - 50.2272312,12.0813988 and WGS 84 - 50.2331059,12.0723078)</li> <li>4. Lužní potok / Zinnbach site (WGS 84 - 50°17'3.386"N, 12°8'6.633"E): A close-to-nature side channel constructed for rearing young pearl mussels.</li> <li>5. Rathsam Nature Reserve (WGS 84 50°5'42.625"N, 12°14'4.820"E): Overgrowing alluvial meadows in a nature reserve.</li> <li>6. Brodivý potok (WGS 84 50°18'59.918"N, 12°6'39.410"E): A meadow with small streams.</li> </ol>
Pilot action (PA) title (as indicated in AF + related deliverable number (no.))	D.2.2.3: Implementation Joint Pilot Action 1.2 "Habitats - Mountains" in 2 pilot regions (DE/CZ,SI)
Project Partner (name, no.)	<p>BUND, LP</p> <p>Ametyst, PP4</p>
PA aim	<ul style="list-style-type: none"> <li>• Improve the ecological functionality, connectivity and biodiversity of streams while enhancing conditions for the freshwater pearl mussel (<i>Margaritifera margaritifera</i>).</li> <li>• Restoration of the food supply of the pearl mussel population, which is provided by one of the important tributaries of the main Rokytnice river.</li> <li>• Removing fine sediments from the gravel bed, ensuring the survival of juvenile freshwater pearl mussels.</li> <li>• Restoration of rare vegetation in the creek valley to allow the development of a rare butterfly marsh fritillary (<i>Euphydryas aurinia</i>) food plant - <i>Succisa pratensis</i>, also known as devil's-bit or devil's-bit scabious.</li> <li>• Reconstruction of the distribution facility in the stream of Lužní potok is a step needed to keep good conditions for rearing young pearl mussels in an artificial stream and thus ensuring the population survival.</li> </ul>



	<ul style="list-style-type: none"> <li>• Removal of trees and shrubs from alluvial meadows in the Ohře floodplain - Rathsam Nature Reserve supported local biodiversity. It will be followed by creation of small pools supporting water retention.</li> <li>• Enhance water retention and retain water in the landscape to restore natural wetland conditions.</li> <li>• Additionally, scientific monitoring is conducted to assess the effectiveness of the measures.</li> </ul>
<b>PA concept/summary including technical description</b>	<p><b>1. Humboldtgraben site</b></p> <p>The Humboldtgraben is an artificial, straightened tributary of the southern Regnitz River. The straightening has disrupted natural water dynamics, reducing biodiversity and water quality. Key measures at Humboldtgraben site include:</p> <ul style="list-style-type: none"> <li>• Dredging a section to restore water structure.</li> <li>• Creating bulges and filling the base with various types of gravel.</li> <li>• Establishing gravel bays with diversion structures made of gravel, stones, rootstocks, and trunks to enhance mussel breeding.</li> <li>• Initiating one-sided natural meandering while preserving adjacent properties.</li> </ul> <p><b>2. Erlenbächlein site</b></p> <p>The Erlenbächlein area in the Rehauer Forest is a mosaic of flat moors, spring moors, wet meadows, and sedge-rich wetlands. However, drainage, degradation, and afforestation have fragmented this landscape. Key measures include:</p> <ul style="list-style-type: none"> <li>• Creation of ecological corridors to connect habitats and allow flora and fauna movement.</li> <li>• Dismantling drainage systems to restore natural hydrological conditions.</li> <li>• Removing non-native afforestation to reinstate original open landscapes.</li> <li>• Rewetting of degraded wetland areas to regenerate typical wetland flora and fauna.</li> </ul> <p><b>3. Perlenbach site</b></p> <p>The Perlenbach near Rehau is a headwater stream of the Swesnitz, fed by three tributaries: Lohbach, Lauterbach, and Stockbach. The riverbed is clogged with fine sediment, preventing young mussels from surviving. Key measures include:</p> <ul style="list-style-type: none"> <li>• Mechanical desilting of two 100-meter-long, 2-meter-wide sections.</li> <li>• Sediment removal up to 0,5 meters deep to restore suitable breeding grounds.</li> <li>• Cleaning and reintroducing gravel after silt removal.</li> <li>• Building a sediment trap (5m x 2m x 1m) to capture fine particles and prevent re-clogging.</li> </ul>



	<ul style="list-style-type: none"> <li>Planned addition of 40 m<sup>3</sup> of local fine gravel was not necessary, as initial monitoring showed a sufficient amount of gravel already present in the streambed.</li> </ul> <p><b>4. Lužní potok / Zinnbach site</b></p> <p>Replacement of a wooden dividing object. A side channel was previously (2001) constructed on Lužní potok brook to create a nursery habitat for juvenile pearl mussel development. A wooden divider (sluice) was built on the main stream. Water is fed from the main stream into the side channel, which is richly meandering, has a suitable structure and specialised management is carried out on its banks. This measure has proven to be effective. Several thousand juvenile pearl mussels have already entered the Lužní potok and are finding suitable conditions for their development. Currently, the wooden dividing object was at the end of its functional life and it needed to be replaced. The new object was made in the same way as the original one. Material - oak wood.</p> <p><b>5. Rathsam Nature Reserve</b></p> <p>Removal of shrub and small trees from an overgrown meadow and in the area of the disappearing pool - 241m<sup>2</sup>; cutting of bushes - willows on waterlogged area - 179 m<sup>2</sup>; mowing - suppression of unwanted plant species - 164 m<sup>2</sup> to improve the condition of the natural habitat and future restoration of the pool.</p> <p><b>6. Brodivý potok</b></p> <p>Mowing and removal of old biomass along the small streams (from about 500m<sup>2</sup>). Removal of mud from the small tributaries, their widening and ensuring stable flow. On the Czech side alone, about 150 m of the streams were restored.</p>
<b>PA timing (start and end date)</b>	6/2023 - 2/2025
<b>Expected solution derived from PA</b>	<ul style="list-style-type: none"> <li>Restored ecological balance by reintroducing natural watercourse dynamics.</li> <li>Revitalized freshwater pearl mussel habitats and breeding conditions, supporting their survival, reproduction and future population growth. Increased survival rates for juvenile freshwater pearl mussels due to cleaner spawning grounds.</li> <li>The cleaned small tributaries will bring suitable food to the important pearl mussel population in Rokytnice river.</li> <li>Reduced sedimentation through the use of a sediment trap.</li> <li>Increased biodiversity through habitat restoration and connectivity.</li> <li>Improved water retention to counteract drying trends and maintain a stable year-round water flow.</li> <li>Restoration of rare vegetation in the creek valley supports the development of a rare butterfly Marsh fritillary food plant - <i>Succisa pratensis</i>, however, regular management needs to be assured there.</li> </ul>



	<ul style="list-style-type: none"> <li>• In the next 20 years or so, the operation of the pearl mussel nursery on the Lužní potok / Zinnbach will be secured thanks to the measure. Until the sufficient natural reproduction rate of pearl mussels is restored in the project area, it is necessary to maintain this facility and continue supporting the population through semi-artificial breeding. Large-scale restorations are planned, and natural functions of the landscape should gradually be restored. However, achieving optimal conditions can be expected to take decades.</li> <li>• Removal of shrub and old biomass from the meadow in the Rathsam nature reserve is a first step for the meadow restoration and creation of small pools to improve and restore the water regime.</li> <li>• Scientific insights from monitoring to guide future river restoration efforts.</li> <li>• Sustainable conservation through long-term land protection and management strategies.</li> </ul>
<b>Preparatory work done so far</b>	<ul style="list-style-type: none"> <li>• Negotiations with stakeholders - site managers.</li> <li>• Tenders and selection of suppliers.</li> <li>• The nature conservation authorities, water management authorities, and respective landowners have been closely involved throughout the process.</li> </ul>
<b>Permits required for the investment (contract, availability etc.)</b>	<p>All necessary permits have been fully granted. The nature conservation authorities, water management authorities, and respective landowners have been closely involved throughout the process. The required approvals, including water law permits from the district administrative authority, deforestation approvals from the forestry authority, and permissions from landowners, have all been issued.</p> <p>On the Czech side no permits were necessary. The activities are in-line with the approved management plans of the sites and they are implemented in cooperation and according to the instructions of the site managers.</p>
<b>PA/Investment progress update (what has been achieved so far/every 6 months, status of implementation and progress)</b>	<p><b>1. Humboldtgraben site</b></p> <p>The restoration of the Humboldtgraben has made significant progress, successfully improving watercourse structure and habitat quality. The measures taken have enhanced biodiversity and created better conditions for the freshwater pearl mussel.</p> <p>Key Achievements - Improving Natural Watercourse Dynamics</p> <p>Several targeted actions have helped restore more natural flow patterns and improve habitat conditions: Dredging a section to restructure the watercourse and enhance flow variability. Creating bulges and filling the base with various types of gravel, supporting ecological diversity. Establishing gravel bays with natural diversion structures (gravel, stones, rootstocks, trunks) to improve breeding conditions for freshwater pearl mussels.</p>



	<p>Introducing one-sided natural meandering, increasing habitat complexity while ensuring no disruption to adjacent properties.</p> <p><i>Scientific Insights and Cross-Border Knowledge Transfer</i></p> <p>A key success factor was the integration of knowledge and experience from the freshwater pearl mussel rearing channel in the Czech Republic. The lessons learned there helped refine the habitat restoration strategy, ensuring optimal conditions for juvenile mussel development.</p> <p>Additionally, ReCo played a central role in initiating, advising, and coordinating the project, ensuring best practices in ecological restoration were applied.</p> <p><i>Next Steps - Ongoing Improvements and Long-Term Sustainability</i></p> <p>The water management authorities, responsible for implementing and funding the project, will carry out further adjustments in spring 2025. These refinements, based on practical experience, will further optimize water flow and habitat conditions, securing sustainable success.</p> <p><b>2. Erlenbächlein site</b></p> <p>The restoration and connectivity efforts in the Rehauer Forest have made remarkable progress, laying the foundation for a thriving and interconnected ecosystem. In a strategic and well-coordinated approach, we have successfully advanced key preparatory and implementation steps that will significantly enhance biodiversity and hydrological balance in the region.</p> <p><i>Strategic Land Acquisition and GIS-Based Planning</i></p> <p>To support long-term conservation success, strategic land acquisition along the streams (conducted solely with non-ReCo funding and not being part of the ReCo project) was integrated in both the landscape planning activities as well as the consultations with stakeholders. A GIS-supported communication and acquisition plan was developed, providing a structured and transparent approach to securing land for conservation. Three key properties have already been acquired through a combination of own and additional external funding. For seven additional properties, the funding approval for acquisition is in the final stages. Further properties are designated for acquisition beyond the ReCo project timeline, supported by BUND Naturschutz and the district of Hof, ensuring long-term ecological sustainability.</p> <p>These secured areas pave the way for vital ecological restoration actions, including:</p> <p>Removing non-native afforestation to reinstate original open landscapes. Creating ecological corridors to connect fragmented habitats and enhance species movement. Rewetting degraded wetland areas to regenerate typical wetland flora and fauna.</p>
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	<p><i>Implementation of Restoration Measures within ReCo</i></p> <p>Significant restoration work has already been successfully implemented on adjacent properties owned by BUND Naturschutz and the district of Hof.</p> <p>Non-native afforestation was removed, restoring the natural landscape and improving ecological connectivity. A key challenge arose due to a forest road separating the two areas, which Bayerische Staatsforsten still requires for operational purposes. To enable the crucial rewetting of the BUND Naturschutz area without permanently flooding the road, an innovative water management solution was implemented: The road was elevated to allow for controlled water transfer. A broadened water passage beneath the raised road now directs water towards the district of Hof's property, enabling future large-scale rewetting efforts. A monk drainage system was installed, allowing for flexible water level management on BUND land, ensuring that mowing operations remain feasible when needed.</p> <p><i>Next Steps - Optimizing Water Retention for Long-Term Success</i></p> <p>During the winter of 2024/25, the elevated road structure proved to be only partially watertight. While the system effectively facilitates rewetting, minor adjustments are required to achieve optimal water retention levels. In close collaboration with higher and lower nature conservation authorities, the Water Management Office will implement final refinements by May 2025. These adjustments will ensure full functionality, optimizing water retention while maintaining necessary land-use flexibility.</p> <p><i>Looking Ahead - A Model for Future Conservation Efforts</i></p> <p>Through strategic land acquisitions, habitat restoration, and innovative water management, the project has set the stage for long-term ecological improvements. By securing additional land and enhancing ecological connectivity, we are building a resilient and self-sustaining ecosystem that will support biodiversity, climate adaptation, and regional conservation goals for years to come.</p> <p><b>3. Perlenbach site</b></p> <p>The restoration measures implemented in this pilot action mark a significant milestone in river ecosystem conservation, addressing a key bottleneck for the survival of young freshwater pearl mussels. By tackling excessive fine sediment accumulation in the riverbed, the project is not only restoring the natural habitat of this endangered species, but also paving the way for a breakthrough in freshwater pearl mussel protection on a much larger scale.</p> <p><i>Successful Implementation of Key Measures</i></p> <p>The targeted interventions have already yielded outstanding progress, improving the quality of riverbed substrates and enhancing the overall ecological function of the stream: Mechanical desilting has been successfully carried out on two 100-meter-long, 2-meter-wide sections, removing excess fine sediment and restoring suitable breeding grounds. Sediment removal down</p>
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to a depth of 0.5 meters has been completed, ensuring that the essential interstitial spaces within the gravel are re-established, where young mussels can settle and develop. Cleaning and reintroducing gravel after silt removal has improved substrate conditions, ensuring a stable and oxygen-rich environment. A sediment trap was installed, providing an effective long-term solution to prevent fine sediment re-clogging of the restored sections. An additional 40 m<sup>3</sup> of local fine gravel, originally planned, was found to be unnecessary, as initial monitoring confirmed that a sufficient amount of suitable gravel was already present in the streambed.

#### *Scientific Monitoring - A Potential Breakthrough for Conservation*

One of the most exciting aspects of this project is the comprehensive monitoring program, which is tracking substrate conditions before and at multiple time points after the intervention. The data collected will not only evaluate the effectiveness of these measures but could also lead to a transformative breakthrough in the protection of freshwater pearl mussels: If the results confirm that these restoration techniques effectively support juvenile mussel survival further downstream, this could be a game-changer for species conservation. This would allow mussel populations to expand beyond their last remaining refuges in spring-fed headwaters - areas that are increasingly at risk of drying out during summer due to climate change. The impact extends beyond the mussels: By considering the riverbed as an integral part of stream restoration, many other aquatic species also benefit from improved habitat conditions.

#### *Looking Ahead - Expanding the Impact of this Innovation*

With these measures now in place, the next phase will be to assess long-term effectiveness and scale up successful interventions to other river systems. If the expected survival benefits for young mussels are confirmed, this method could serve as a model solution to counteract the devastating impact of climate-induced habitat loss.

#### **4. Lužní potok / Zinnbach**

Reconstruction of the distribution facility in the stream of Lužní potok: Completed.

The aim of the measures is to ensure sufficient water and thus food supply for the young developmental stages of pearl mussels. They are reared in the side channel of the Lužní potok (Zinnbach) Brook, where they are provided with an optimal environment. The existing distribution object had reached the end of its life and needed to be replaced or repaired. It is a wooden sluice gate that can be used to adjust the flow of water in the side channel.





	<p><i>Successful Implementation of Key Measures</i></p> <p><u>The continuation of a very important measure to protect the pearl mussel habitat has been secured</u></p> <p><i>Next Steps - Optimizing Water Retention for Long-Term Success</i></p> <p><u>Furthermore, we are counting on the use of the nursery element and the continuation of the rearing of young pearl mussels. This should ensure a common Czech-German population of this highly endangered species. Future works are assured by the site manager the Nature Conservation Agency of the Czech Republic (NCA CR), in cooperation with BUND Hof on the German side, in line with the Pearl Mussel Rescue Programme and the site management plan.</u></p> <p><i>Looking Ahead - A Model for Future Conservation Efforts</i></p> <p>The measure is a good example of conservation efforts that require international cooperation. It is impossible to protect a rare species and its habitat without the cooperation of all stakeholders on both sides of the national border.</p> <p><b>5. Brodivý potok (brook)</b></p> <p>Restoration of the food supply of the pearl mussel population. Completed.</p> <p>The creek is a small but very important tributary of Lužní potok / Zinnbach. It provides food for pearl mussels, along its banks there are species-rich meadows with habitat of Marsh Fritillary (highly endangered butterfly).</p> <p><i>Looking Ahead</i> - sustained and long-term care is always important in the care of endangered species. Such care can also be provided by NGOs whose activities are based on genuine interest and volunteerism. The care of the Brodivý potok/book is the result of such interest. Future maintenance of the tributaries is expected after about 10 years; management of the meadow will be assured by NCA CR.</p> <p><b>6. Rathsam Nature Reserve</b></p> <p>Removal of trees and shrubs from alluvial meadows in the Ohre floodplain - Rathsam Nature Reserve: Completed.</p> <p>Preparatory work - removal of shrubs and old vegetation - has been carried out so that further measures can follow in the coming years. The aim is to improve water retention in the landscape and to restore the water pools and wetlands in the Ohre floodplain.</p> <p><i>Looking Ahead</i> - The ultimate goal is to restore wetlands and the natural water regime in the Ohre floodplain. Future measures will be assured by the site manager Regional Office of the Karlovy Vary Region. This is an important wetland site on the Czech-German state border with a number of endangered and rare species.</p>
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<b>Stakeholders involved</b>	<ul style="list-style-type: none"> <li>• Nature Conservation Agency of the Czech Republic and German nature conservation authorities - close cooperation</li> <li>• German water management authorities</li> <li>• Various NGOs</li> <li>• The respective landowners</li> <li>• Regional Office of the Karlovarský Region - close cooperation</li> <li>• General public - information on websites and FB profile</li> </ul>
<b>Citizen science approach (if applicable)</b>	Not applicable
<b>Joint cooperation dimension (in partnership)</b>	<p>The collaboration between BUND (Germany) and Ametyst (Czech Republic) has fostered a strong cross-border partnership, enabling a continuous exchange of knowledge, technical expertise, and joint implementation of ecological restoration measures. Experts from both countries actively contributed and shared best practices, ensuring a well-coordinated approach to conservation. This cooperation has led to the development of harmonized ecological strategies that support effective habitat restoration, common conservation goals, and the long-term success of implemented measures. The ongoing exchange of methodologies enhances regional ecological planning and lays a solid foundation for future initiatives.</p> <p>For the Humboldtgraben measure, knowledge and experience gathered over recent years from the freshwater pearl mussel rearing channel on the Czech side were successfully applied in a German stream. For the Perlenbach activity, LP was able to draw on knowledge and experience gathered over the past years by German and Czech stakeholders.</p> <p>The results of the monitoring efforts are eagerly anticipated on both sides, as they will serve as a crucial basis for shaping future conservation strategies for the freshwater pearl mussel, a species of high ecological responsibility. Furthermore, the LP is running the semi-artificial rearing of pearl mussels at Hushermühle. A part of these pearl mussels will be placed in the artificial stream on Lužní potok in the near future; therefore, the reconstruction of the distribution facility was necessary to ensure good conditions in the stream.</p> <p>On the Czech side, long-term cooperation in the protection of the pearl mussel habitat between state authorities and non-governmental nature conservation organisations continued.</p> <p>The pilot region was visited by the project partners during the Peer review visit on 19-21 August 2024. The peer review team recommended focusing on securing the continuation of the action and possible expansion of the practices to wider area. On the other hand, the PA serves as an example of good practice for other partners and other stakeholders along the EGB, especially in practice in meadow management and stakeholder involvement/local authorities involvement.</p>



<b>Personnel involved</b>	<p>BUND:</p> <ul style="list-style-type: none"> <li>• Wolfgang Degelmann</li> <li>• Jörg Hacker</li> </ul> <p>Ametyst:</p> <ul style="list-style-type: none"> <li>• Ondřej Volf</li> <li>• Michala Mariňáková</li> <li>• Jana Pohlová</li> </ul>
<b>Related investment description (incl. no, name)</b>	<p><b>1. Humboldtgraben site</b></p> <p>The implementation measure involved partly dredging Humboldtgraben, creating bulges, and filling the base with various types of gravel. Additionally, gravel bays were established, incorporating diversion structures made of gravel, stones, rootstocks, and trunks to support mussel breeding. The measure was carried out by and funded through the water management authorities, while ReCo played a key role in initiating, advising, and coordinating the project. The water management authorities, as the executing agency, will implement further adjustments in spring 2025 based on our recommendations.</p> <p><b>2. Erlenbächlein site</b></p> <p>No CC5 or CC6 spending, solely costs for external services.</p> <p><b>3. Perlenbach site</b></p> <p>CC6: Ecological restoration of a small flowing water in pilot region 1 - stream bed restoration 18.567,48 €</p> <p><b>4. Lužní potok / Zinnbach</b></p> <p>No CC5 or CC6 spending.</p> <p><b>5. Brodivý potok</b></p> <p>No CC5 or CC6 spending.</p> <p><b>6. Rathsam</b></p> <p>No CC5 or CC6 spending.</p> <p>Relating to 4-6: PP4 Ametyst has a 40% flat rate budget. Thus, there is neither spending nor underspending in CC5 and CC6.</p>
<b>Investment budget spent per item (only CC5 equipment)</b>	<p>No CC5 equipment, only CC4 and CC6 on German side. No CC5 Equipment on the Czech side, only CC6.</p>