

Project name: Promoting sustainable freshwater pearl mussel populations in Czech-Bavarian transboundary green belt NATURA 2000 sites.



Cíl EÚS
Česká republika –
Svobodný stát Bavorsko
2014–2020



Evropská unie
Evropský fond
pro regionální rozvoj

Project number: 221

Project location: European Special Areas of Conservation in the border areas of Czech Republic, Bavaria and Saxony: Bystřina - Lužní potok, Südliche Regnitz und Zinnbach, NR Dreiländereck, NR Bystřina, and the National nature monument Lužní potok. The watercourses Rokytnice/Südlicher Regnitz, Lužní potok/Zinnbach, Bystřina/Wolfsbach, Pekelský potok/Höllbach, Újezdský potok/Mähringsbach, Perlový potok/Perlenbach, and Bocksbach are also connected with the project.

Programme: Cross-border Cooperation Operational Programme Czech Republic –Free State of Bavaria ETS Objective 2014-2020

Funding source: 85% ERDF (European Regional Development Fund), 15% MoE

Total budget: € 323.774

Project duration: 01/2018-12/2020

Main project partner: Bund Naturschutz in Bayern e.V.

Project outcomes:

- Hiking through the Hranicko landscape in search of the pearls of local nature – search game and [colouring book](#)
- Pearls of Aš area nature – [brochure](#)

Video:

- Life of freshwater pearl mussels ([video](#))

The objectives, measures and activities of the project respond primarily to the decline of species diversity in the Czech-Bavarian-Saxon border area. They focus on the protection and promotion of the population of the freshwater pearl mussel (*Margaritifera margaritifera*) and at the same time contribute to the improvement of habitat conditions for other endangered plant and animal species - especially those bound to oligotrophic waters and non-forested habitat types.

The freshwater pearl mussel has a complex life cycle with an obligate phase of host dependence. This host is the river trout (*Salmo trutta* morpho *fario*), which in turn indicates the water quality and character of the stream where they live. It is a very clean, nutrient-poor body of water with a natural meandering streambed and a sandy-gravelly bottom. Sufficient water temperature and the presence of a rocky-sandy substrate in which they can hide are important for the development of the young mussels. To build their shells, pearl mussels need organic calcium, which they obtain from detritus, which also serves as food for them.

The current state of the freshwater pearl mussel population in the Aš region can be described as gradually declining. The size of the population is about 30 000 individuals, but the abundance is very

unbalanced within the streams – from a few dozen (Bockbach) to hundreds (Bystřina) to few thousands (Lužní potok and Rokytnice). This is due to the fact that the species cannot reproduce naturally in some parts of the catchment. Although habitat quality has improved locally, natural reproduction is not expected to recover to a level that would ensure the stability and conservation of the species under current conditions. The missing juveniles in the over-aged population can be replenished through increased breeding.

In the past, several releases were made in the region to rejuvenate the population. However, they were carried out only in the streams with the lowest abundance - Lužní potok, Rokytnice and Bystřina. These reared individuals can already be found in the populations of these streams, the total increase of the population can be estimated at 1000-2000 individuals.

One of the main problems of the existing hatcheries is the lack of knowledge of favourable sites for releasing juvenile mussels. On the Lužní potok, this problem has been partially solved by the construction of hatcheries, but on other rivers, these sites are not known. Moreover, despite the relatively high total number of individuals in the region (one of the highest in Central Europe), the fragmentation of populations within rivers, the gradual loss of the colonial character of the range, which negatively affects the possibility of natural reproduction and the ability of the species to withstand unfavourable conditions, is a major problem.

Project activities

- Restoration and improvement of the function of feeding canal (Wolfsbach/Bystřina, Brodivý brook, Zinnbach/Lužní potok). Maintenance of the breeding canal on the Zinnbach/Lužní potok. Maintenance of spring areas, small meadow beds and restoration of pools.
- Management of meadow areas along streams to increase the proportion of flower meadows with *Succisa pratensis*.
- Lighten riparian vegetation on streams to reduce stream shading, achieve higher water temperatures, and enhance woody vegetation with a supporting drainage function.
- Acquire glochidia and juvenile trout for infestation as part of population enhancement measures for rearing.
- Development of a genetic analysis of the individual trout populations in the Südliche Regnitz/Rokytnice catchment area in order to ensure the highest possible efficiency of population support measures for rearing.
- Rearing juvenile freshwater pearl mussels in special breeding canals and subsequent release of juvenile guinea fowl in suitable sections of individual streams.
- Conduct a physicochemical survey of waterbodies to determine the best locations for introducing juvenile pearl mussels.
- Conduct bioindication testing to determine juvenile pearl mussel recruitment and mortality rates.
- Prepare documentation for informational materials and training, conduct field trips and educational programs for local school facilities.

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