Beaver-engineered wetland restoration in Brdy, Czechia

Year of issue

2025

Summary

The case is in the Padrťské rybníky area on the Klabava stream, inside the Brdy Protected Landscape Area, Czechia. The site is part of the Natura 2000 EVL “Padrťsko”, designated for species including stone crayfish. Brdy PLA was established on 1 January 2016.

Beavers settled here around 2020. From 2021 they started building a cascade of dams below Dolejší Padrťský rybník, extending works again in 2024. Their activity restored wetland hydromorphology on a previously straightened reach and reconnected historical traces in the floodplain. A human-led revitalisation prepared for the same area became unnecessary. The state avoided roughly CZK 30 million.

Hydrological effects observed on site: clear water retention with attenuation of peak flows due to the pond cascade, and rewetting of the floodplain. Water retention enables sedimentation of fine particles, especially during pond drawdown, and shifts physico-chemical conditions, increasing nutrient status and pH. Biodiversity benefits include habitat gains for stone crayfish and ideal breeding conditions for common toads and frogs. Management reports regular site visits but no targeted beaver monitoring scheme. The setting is non-conflict, in a former military area without settlements or economic use.

After these outcomes, the site received exceptional international media exposure, widely reported as an emblematic example of nature-led wetland restoration and cost savings.

Photo Gallery



Location

49.7, 13.8

Sector

Hydromorphology

Installation Date

2025

Implementation status

Completed

Contact

Nature Conservation Agency of the Czech Republic (AOPK ČR)

Overview

Location of the project

Padrťské rybníky area, along the Klabava stream below Dolejší Padrťský rybník, inside CHKO Brdy

Sponge measures implemented in the case study

Controlled reintroduction and conservation of beavers

Wetland restoration and management

Objectives

Restore wetland hydromorphology on a straightened stream.
Retain water and attenuate peaks.
Trap fine sediment during pond drawdown.
Improve water physico-chemistry and nutrient status.
Support habitats for stone crayfish and amphibians.

Involved partners

Authority type	Authority name	Authority role	Comments	Authority responsibility
Nature park	AOPK ČR, Správa CHKO Brdy.	Monitoring	site management, monitoring, communication	Responsible
Regional / sub-national water authority	Povodí Vltavy (river basin authority).	Other	held a building permit for a planned revitalisation that became unnecessary	Responsible

Site Information

Climate Zone

Cool temperate moist

Precipitation

565.00 mm

Temperature (°C)

8.20 °C

Elevation range

600 m

Soil type

Cambisols

Vegetation class

Wetlands and meadows around Padrťské ponds; habitat for stone crayfish (Austropotamobius torrentium).

WFD Ecological status

Moderate

WFD Chemical status

Good

Water quality status

Sediment-laden and chemically distinct water pulses during pond draining noted as relevant; beaver wetland promotes sedimentation and changes in physico-chemistry.

Design and Implementation

Project scale

Micro

Principles

Nature-led river and floodplain restoration by beavers. Water retention and peak-flow attenuation. Sediment and nutrient retention including N and P reduction. Reconnection of historical channel traces.

Constraints

Previously modified and straightened channel. Former military area without settlements or active economic land use.

Financing

Total cost information

Avoided public cost of about CZK 30 million because planned human works became unnecessary.

Compensations

Non

Policy and Governance

Policy description

CHKO Brdy was designated by Government Regulation 292/2015, effective 1 January 2016. The site lies within the Natura 2000 EVL “Padrťsko” (CZ0214042), designated 3 Nov 2009, including habitats and stone crayfish. Beaver management in Czechia is coordinated by AOPK ČR under the national beaver care program; general measures by regions apply countrywide. For CHKO Brdy, no OOP is issued given local conditions. PAF 2021–2027 frames Natura 2000 financing needs nationally.

Land ownership

CHKO Brdy

Target remarks

Re-wet floodplain and improve stream morphology. Retain water and sediment. Improve water quality parameters. Support protected species such as stone crayfish.

Pressure remarks

Straightened channel and impacts linked to pond drainage pulses.

Part of a wider plan

Non

Public consultation

Non

Has contractual arrangements

Non

Impacts and Monitoring

Monitoring System

Monitoring requirements

No targeted beaver monitoring program. Regular site visits track beaver activity and the extent of waterlogged area.

Impact Assessment Methodology

Biophysical impact assessment method

Qualitative monitoring through regular inspections.

Socio-economic Impacts

Direct benefits

Positive public communication value. Non-conflict setting.

Biophysical impacts: Hydrology

Information on retained water

Wetland is very effective in holding back water. Water returns to original habitats and historical channel traces. Peak flows are reduced by the cascade of beaver ponds.

Biophysical impacts: Biodiversity

Information on improved biodiversity

Benefits for stone crayfish, the EVL’s protection target. Ideal breeding habitat for Bufo bufo and Rana temporaria. Dead wood adds habitat complexity.

Biophysical impacts: Water & Soil Quality

Information on water quality overall

Retention enables sedimentation of fine particles, especially during pond draining. Changes physico-chemical composition and increases nutrient status and pH. Beaver wetlands act like root-zone filters and can reduce nitrogen and phosphorus.

Lessons Learned

Key lessons

Prioritise non-conflict landscapes when demonstrating beaver-led restoration; at Padrťské rybníky the former military area has no settlements or economic use, so benefits emerged without damage claims or social pushback. Nature’s works matched the aims of a planned human revitalisation and made it unnecessary, avoiding roughly CZK 30 million, which shows that when conditions fit, a nature-led option can be the most cost-effective path. Hydrologically, the beaver wetland holds back water, attenuates peaks and reconnects historical traces; it also traps fine sediments during pond drawdowns and shifts physico-chemistry, increasing nutrient status and pH. These changes support stone crayfish and create ideal breeding habitat for toads and frogs, reinforcing Natura 2000 conservation targets. Keep monitoring pragmatic and regular when a dedicated scheme is not proportionate, focusing on activity signs and the extent of waterlogged area. Align with the national beaver management framework and regional OOP rules; in CHKO Brdy an OOP is not issued, underlining the need for site-specific governance. Finally, invest in clear, factual communication; proactive PR around tangible water and biodiversity gains proved decisive for acceptance and replication potential.

Barriers

Comments
Most beaver wetlands in Czechia tend to be conflict sites, but this site is exceptional in being non-conflict.

Drivers

Driver type	Driver role	Comments
Other	Main driver	Natural beaver recolonisation since the 1970s and supportive national management framework.

Success factors

Success factor type	Success factor role	Comments
Attitude of relevant stakeholders	Main factor	Non-conflict location in a former military area with no settlements or economic use.
Communication activities	Main factor	Effective public communication by AOPK

Cost effectiveness

High, due to avoided capital expenditure of ~CZK 30 million.

Flexibility / Adaptability

Focus on non-conflict sites and proactive communication to showcase beaver benefits for water regimes and biodiversity.

Sources

Sources

Chráněná oblast v Brdech bude větší než vojenská, obcím vzniknou potíže

Beaver-engineered dam in the Czech Republic

Bobři vytvořili mokřad na Padrťských rybnících

Bobr na Padrtích

Padrťsko – Evropsky významná lokalita (CZ0214042)

Vyhlášení Chráněné krajinné oblasti Brdy (Nařízení vlády č. 292/2015 Sb.) – archived page

Opatření obecné povahy – bobr obecný (Castor fiber)

Prioritní akční rámec (PAF) pro soustavu Natura 2000 v České republice 2021–2027