Restoration of the Sumava peatbog, Czech Republic

Year of issue

2025

Summary

Soumarský Most (Šumava NP) is a raised bog once almost destroyed by industrial peat mining. In 2004, the park and local authorities restored the site with national funding, re-establishing wetland and peat-forming vegetation and improving the water regime; hydrology and vegetation were monitored from 2000–2011. Soumarský Most is the first former industrial restored bog in the Sumava region. Since then, outcomes are visible on the ground: a 1.5-km nature trail opened in 2012 to interpret the restoration, and in 2022 the boardwalk had to be rebuilt as groundwater has steadily risen for nearly two decades : evidence the rewetting is functioning. In June 2025 the wooden lookout tower was closed for safety and is being redesigned; the trail remains open. Biodiversity has responded: 371 moth and butterfly species were documented in 2011–2016, including bog specialists recolonising from nearby peatlands. Community involvement continues, e.g., volunteers built peat dams on drainage channels in 2019 to further raise water levels. Overall, Soumarský Most shows lasting hydrological recovery and conservation benefits following peatland restoration.

Photo Gallery



Location

48.9125, 13.82583

Project

NWRM

National ID

Czech_4

Sector

Hydromorphology

Installation Date

2004

Implementation status

Ongoing

Contact

REC

Overview

Location of the project

On the left bank of the Teplá Vltava near the hamlet Soumarský Most, ~0.5 km off Road I/39 (Volary → Lenora); the trail starts by the Soumarský Most campsite/rail halt.

Country

Czechia

NUTS2 Code

Jihozápad

Sponge measures implemented in the case study

Check dams

Wetland restoration and management

Mulching

Objectives

Rewet the mined bog using the Target Water Table concept; block and infill drainage ditches, re-establish natural water flows, and reintroduce peat-forming species (Sphagnum, Eriophorum, Carex rostrata). Implementation metrics recorded for this site: ~500 dams and ~9 km of ditches blocked over ~55 ha (2003–2004).

Involved partners

Authority type	Authority name	Authority role	Authority responsibility
Private property owners	Raselina Sobeslav	Implementation	Responsible
Regional / sub-national water authority	Sumava NP	Financing	Responsible
Local water authority	PLA Authority	Financing	Supporting

Site Information

Climate Zone

Cool temperate moist

Precipitation

760.00 mm

Temperature (°C)

6.20 °C

Runoff coefficient

0.10

Elevation range

780 m

Slope range

<2

Vegetation class

Bog pine (Pinus rotundata) forest and dwarf shrub vegetation dominated by Vaccinium uliginosum.

WFD Ecological status

Moderate

WFD Chemical status

Failing to achieve good

Water quality status

the principal pressure was industrial peat mining and drainage

Design and Implementation

Project scale

Micro

Project scale specifications

single site; restoration focused on a specific mined bog of tens of hectares

Project area

53 ha

Principles

Drainage removal / check-dam system: Historical drainage rills and ditches were blocked with a system of wooden/peat check dams and by ditch infilling to lift and level the water table. (This is documented for Soumarský Most in NP materials and the site-focused diploma thesis; public sources do not state a verified dam count for this site.)
Artificial shallow depressions (“pools”) were created locally to retain surface water and provide early wet microhabitats on the mined surface.
Mulching of bare peat with cut biomass from nearby peat-meadows (e.g., Malá niva / Stožecké louky area) to suppress evaporation, buffer temperature, and carry diaspores; Sphagnum pieces were also hand-placed in wet spots.
Assisted revegetation trials: reintroductions of Carex rostrata and Eriophorum angustifolium, plus broadcasting of Sphagnum, were tested at Soumarský Most; natural expansion of Eriophorum vaginatum was recorded in the first decade post-restoration.
Selective removal of self-seeded trees on parts of the mined field to keep the surface open and wet during early phases (reported in the site thesis’ restoration chapter).
Visitor infrastructure adapted to wetter ground: a 1.5 km educational trail with a 9.2 m wooden lookout tower.

Financing

Total cost

169229.00 €

Total cost information

3193€/ha for the initial resoration
Further developments (touristic paths, lookout tower, etc.) are not included.

Financing authorities

Type of funding	Comments	Financing share
Sub-national funds	Management programmes, Sumava NP and PLA Authority	100 %

Compensations

No

Policy and Governance

Policy description

A raised bog almost completely destroyed by industrial peat mining and drainage; the programme’s aim was to rewet and restart peat-forming processes. This aligns with WFD hydromorphological alteration from drainage & channelization.

Land ownership

The land belongs to the town of Volary; the NP administration manages public access and conservation via agreements/lease.

Policy targets

Improved Biodiversity

Part of a wider plan

No

Public consultation

Yes

Consultation activities

Activity stage	Activity type	Comments
Other	Tourist information point	with connection to the nearby Vltava river floodplain.

Has contractual arrangements

No

Impacts and Monitoring

Monitoring System

Monitoring requirements

Šumava NP has run long-term hydrology and vegetation monitoring here (documented 2000–2011 and continued within the park’s programme since 2005).

Monitoring parameters

Within the Šumava NP mire-monitoring framework, key variables include water table, hydrochemistry (pH, conductivity, DOC, SO_4, NO_3, NH_4, PO_4, Ca, Mg, Al, Fe), vegetation, and microclimate (air/soil temperature & moisture); these underpin evaluations of restoration success at restored bogs like Soumarský Most.

Maintenance

Maintenance requirements

Low-intensity, episodic works led by Šumava NP—e.g., 2024 central-canal blocking and peat infill plus ongoing boardwalk upkeep, to protect the recovering mire and guide visitors.

Impact Assessment Methodology

Performance impact assessment method

Catchment outlet

Performance impact estimation information

Continuous hydrology and vegetation monitoring between 2000 and 2011

Socio-economic Impacts

Direct benefits

Visitor infrastructure investment: the 2022 boardwalk project cost CZK 4.5 million (excl. VAT); the trail concentrates visitors away from recovering peat surfaces. (Tower closed in 2025 for safety; new one planned.). It supports eco-tourism while concentrating footfall; volunteer events and work with the municipality of Volary accompanied the restoration.

Biophysical impacts: Hydrology

Information on retained water

Groundwater has risen progressively for ~20 years following the 2001–2004 re-wetting (ditch blocking and mulching). Šumava NP states that “for almost 20 years since revitalisation, water has been gradually returning,” to the point the trail could no longer be crossed “dry-foot.” This sustained high water forced a full boardwalk rebuild in Aug–Oct 2022, officially justified by the damage from rising groundwater; access was temporarily closed. Persistent wetness also contributed to structural rot of the viewing tower, which the park closed in 2025 pending a replacement. While a tourism facility issue, it evidences continuously wet conditions on site.

Biophysical impacts: Biodiversity

Improved biodiversity

Yes

Information on improved biodiversity

Sphagnum mosses were reintroduced, especially into the shallow basins. The initial vegetation was dominated by wetland species growing mostly on the wet bases of the draining dithces.
Lepidoptera: 371 moth and butterfly species recorded in 2011–2016 at Soumarský Most; specialists (tyrphobionts/tyrphophiles) are recolonising from nearby pristine bogs in Vltavský Luh.
Fungi: 2017–2021 fruit-body surveys at Soumarský Most found few target peatland indicator taxa (e.g., Sarcoleotia turficola, Cortinarius tubarius), but the site is mycologically valuable—indicative of early-to-intermediate successional recovery.
Protected fauna context: seasonal access closures remain to protect black grouse (tetřívek) using the area.

Biophysical impacts: Others

Information on other biophysical impacts

Post-rewetting, the NP reports the bog “again retains water, cools the landscape and stores carbon,” reversing the prior heat-island effect and peat oxidation after mining. (Qualitative, management source.)

Lessons Learned

Key lessons

Restoring the water regime is the decisive driver: re-saturating the mined bog enabled peat-forming vegetation to re-establish and habitats to recover. As the original NWRM note states, successful regeneration hinged on water regime, and vegetation patterns in flooded areas depend on water-table height, remaining peat depth, and successional age.

At this site, full ditch blocking + infilling and surface mulching proved complementary: blocking raised/leveled the water table, while mulch reduced evaporation and protected diaspores, accelerating Sphagnum and sedge establishment.

Long-term effects matter. The water table has risen progressively over ~20 years, a visible indicator of hydrologic recovery (necessitating a full boardwalk rebuild in 2022 and a tower closure in 2025). Monitoring and adaptive visitor-management are therefore integral to sustaining outcomes.

Biodiversity responds when hydrology is fixed: post-restoration surveys recorded 371 Lepidoptera species, including bog specialists recolonising from nearby intact mires—evidence that specialist taxa can return if wet conditions persist.

Barriers

Barrier type	Barrier role	Comments
Other	Main barrier	All restoration measures were limited in time
Market failures	Secondary barrier	Logistics of mulch sourcing; initially only small-scale supply.
Expected maintenance needs	Main barrier	Infrastructure vulnerability in re-wetted terrain (rot, rebuilds).
Other	Secondary barrier	Legacy of industrial mining: bare, drought-prone peat surfaces.

Drivers

Driver type	Driver role	Comments
Organisation committed to it	Main driver	Authority of the Natural Park
Availability of subsidies	Secondary driver	—
Legal obligations	Secondary driver	Strategy programes

Success factors

Success factor type	Success factor role	Comments

Financing possibilities	Main factor	National funding and support from Šumava NP & local authorities
Conducted assessments (incl. economic)	Secondary factor	Long-term monitoring enabling adaptive management
Public participation	Main factor	Visitor infrastructure to protect recovering surfaces

Transferability

Highly transferable to post-mining bogs: block and infill drains, then mulch to kick-start peat vegetation. Calibrate a site-specific target water level, ensure biomass supply for mulch, and design/maintain visitor access for wetter ground. Continuous monitoring is essential to adapt works.

Sources

Sources

Ecological restoration in Czech Republic

Restoration of drained and mined mires in the Šumava National Park

Soumarské rašeliniště

Stavba poválkového chodníku dočasně uzavře Soumarské rašeliniště, které zadržuje stále více vody!

Soumarské rašeliniště je otevřené, má nový chodník

Na Šumavě zavřeli vyhlídku na Soumarském rašeliništi, trámy uhnilé

Uzavření rozhledny na Soumarském rašeliništi

Vegetation succession of a post-harvested peat bog and survival of moths and butterflies

Den pro rašeliniště Soumarský Most – LIFE for MIRES (event)

Report on the restoration of wetlands, springs and streams in a mountain landscape

Stezky na Šumavě jsou nově opravené