

Bohemian Forest

Transboundary cooperation

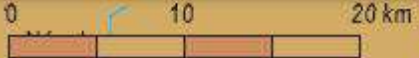
An example of adaptation measures to climate change

Photo: © Šumava NP



Furth im Wald

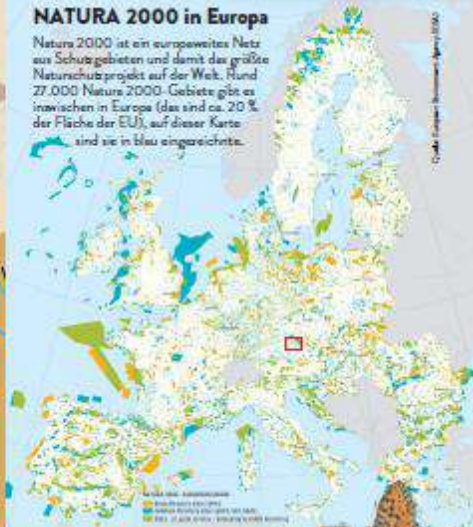
Bad Kötzting



Böhmerwald bezeichnet das 120 Kilometer lange Grenzgebirge zwischen Deutschland, Österreich und Tschechien - ein sehr altes Mittelgebirge, das sich über die drei Ländergrenzen erstreckt.

NATURA 2000 in Europa

Natura 2000 ist ein europaweites Netz aus Schutzgebieten und damit das größte Naturschutzprojekt auf der Welt. Rund 27.000 Natura 2000-Gebiete gibt es inzwischen in Europa (das sind ca. 20 % der Fläche der EU), auf dieser Karte sind sie in blau eingekreist.



NATURA 2000 im Böhmerwald

Im Böhmerwald liegen drei sehr große Natura 2000-Gebiete mit gemeinsam über 240.000 Hektar Fläche. Das Europaschutzgebiet „Böhmerwald und Mühlfläbler“

Sušice

Železná Ruda



Großer Arber

Großer Falkenstein

Zwiesel

Modrava

Vimperk

CZ

Prachatice

Regen



Lusen

Grafenau

D

Freyung

Dreibessel

Hochfisch

Waldkirchen

Ulrichsberg

A

- Einrichtungen English/tschechisch
- Staatsgrenzen English/tschechisch
- Nationalparkgrenze English/tschechisch
- Natura 2000 Fläche English/tschechisch
- Berge English/tschechisch

Schwarzer Regen

Orava

Orava

Valyňka

Teplá Vltava

Vodní nádrž Lipno

Vltava

GröÙe Mühl

© 2004 European Commission/Agri/2004




Forest fire near Černý Kříž burned on Saturday the 24th of August 2024 ca. 1800 m² of ground vegetation in „green forest“.

Even in Šumava NP



we put out the forest fires...

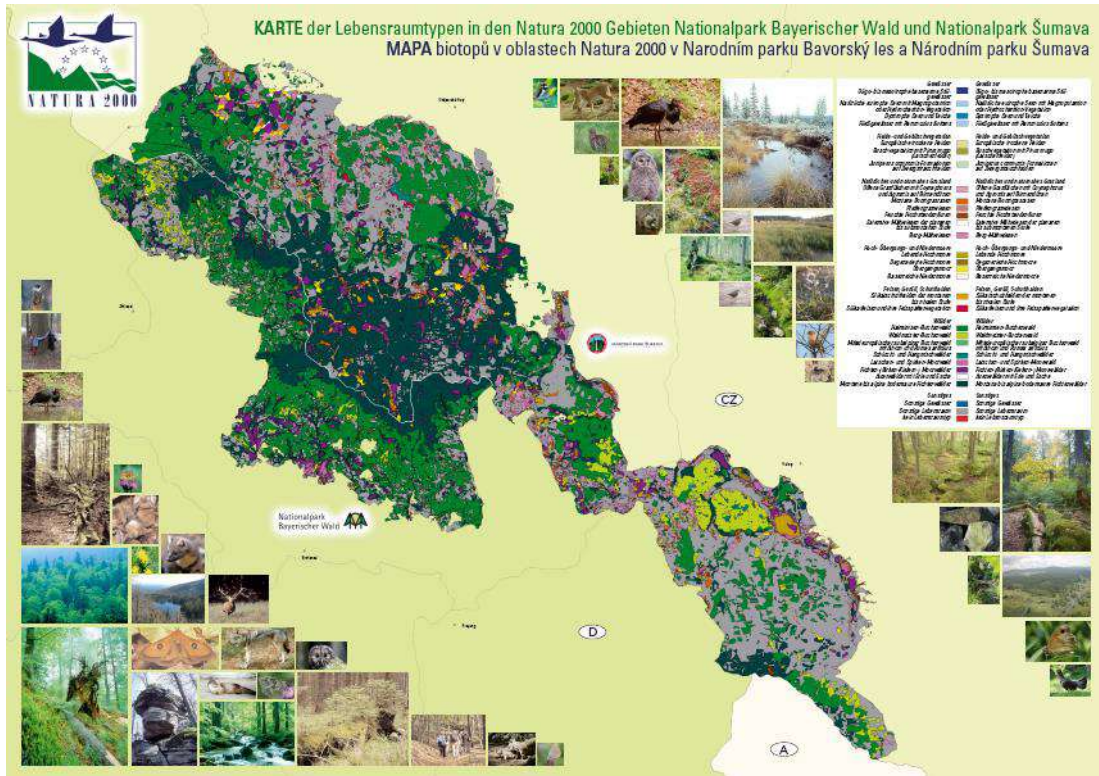
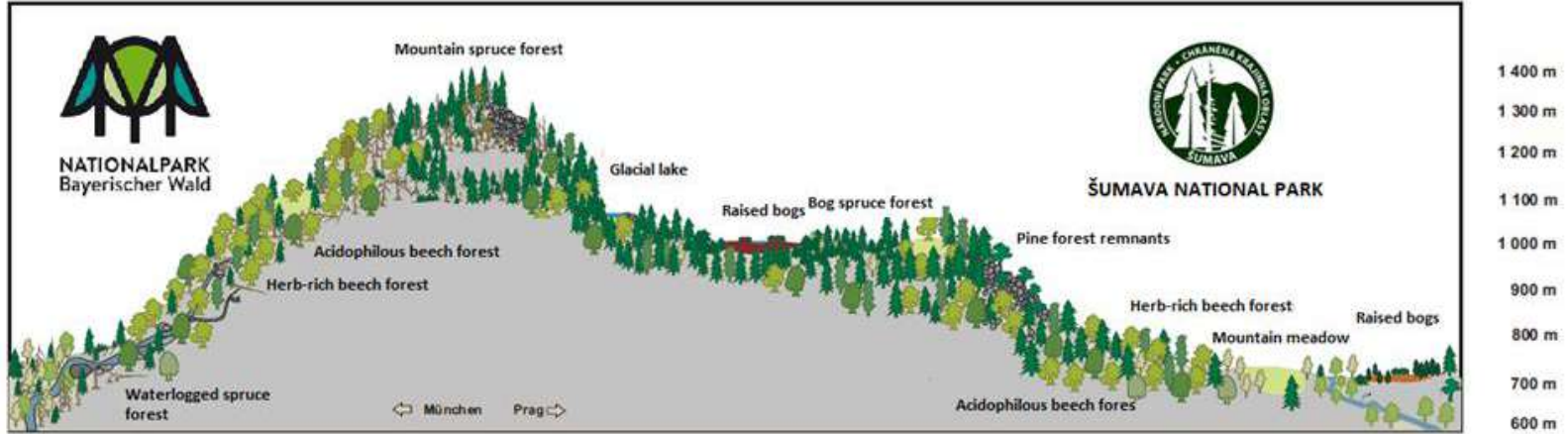
An aerial photograph of a forest landscape. The foreground and middle ground are dominated by a dense forest of tall, thin trees, many of which appear to be dead or dormant, with brownish and greyish foliage. A large, light-colored pile of dead trees or branches is visible in the center-right. A stream flows through the forest, curving around the pile. In the background, there are rolling hills and a small cluster of buildings. The sky is clear and blue.

**„Uschlý strom“ (in Czech) = „dead tree“ (in English)
≠ dry tree (English translation of „uschlý strom“).**

An aerial photograph of a mountainous region. The foreground and middle ground are dominated by a dense forest of coniferous trees, interspersed with large, cleared areas of brownish soil, suggesting logging or deforestation. A prominent road or path runs through the center of the forest. In the distance, a large, blue reservoir is visible, surrounded by green hills. The background shows a vast expanse of rolling mountains under a clear blue sky with some light clouds.

So called „Roof of Europe“ captures a lot of water, but it’s heavily drained by man at the same time.

spruce Mountain Ash Mountain pine Dwarf pine Pine Sycamore maple Fir Birch Alder Norway maple Beech Standing dead wood

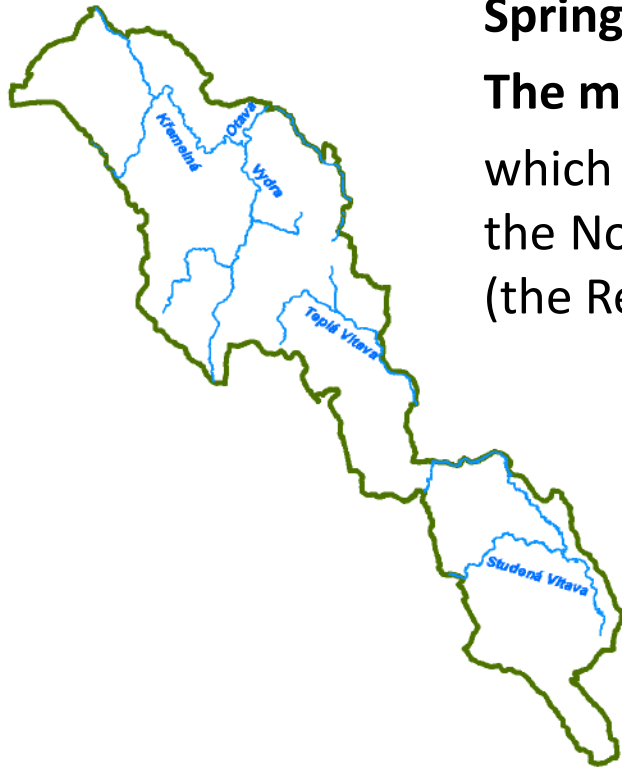


HYDROLOGY

Spring area - avg. run off 14,1 m³/s

The main European watershed

which separates the basins of the rivers that empty into the Nordic Sea (the Otava, the Vltava rv.) and the Black Sea (the Rezna rv., several smaller creaks).



Major drainage divides (yellow and red ridgelines¹) and drainage basins (green regions) in Europe (Wikipedia)

CLIMATE

Temperature: average - +6,0 °C (750 m a.s.l.) - +3,0 °C (1300 m a.s.l.)

Jezerní slať: - 41,6 °C (30.1. 1987)

Precipitation: max. 1600 mm (Brezník)

Snow: 60 – 150 cm

5 months snow cover (18th Nov–30thApr 2006)

total amount - this year 4,5 m (Kvilda)

Humidity: 80% (fog)

Wind: from west – south-west

(avr. 5-8m/sec; max. 130-153 m/sec)

Thunder-storm: 30-35 days / yr



Challenges of Šumava NP/Bavarian F. NP

- Political stability
- **Since 2022 Bavarian Forest National Park meets the criteria of the IUCN category II, Šumava National Park does not**
- Ownership structure in Šumava National Park
- **Šumava National Park financing – usually more than 50 % of the budget comes from logging**
- Common infrastructure and visitor management, language barrier, need for cooperation of rangers
- **Increasing the identification of the local people with the national parks**
- tackling conflict between large carnivores and farmers
- **CLIMATE CHANGE**



Climate change – temp + snow

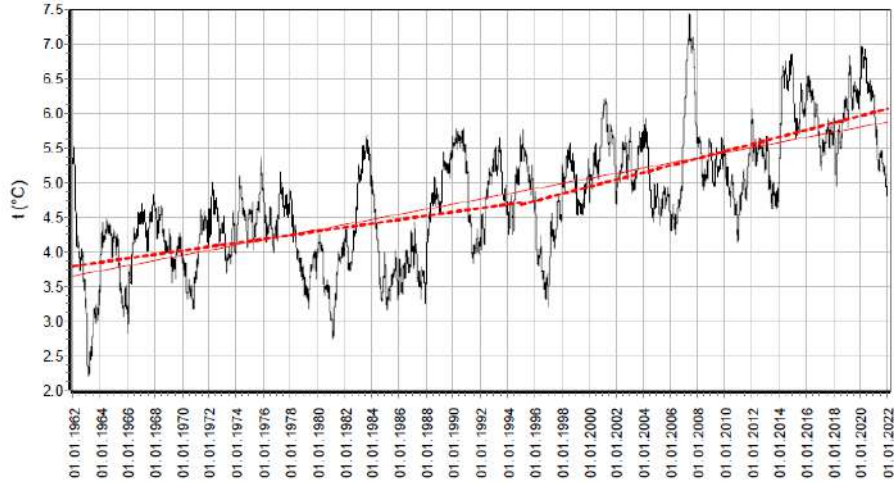


Figure 3. 365-day running average of air temperature at the Churáňov station.

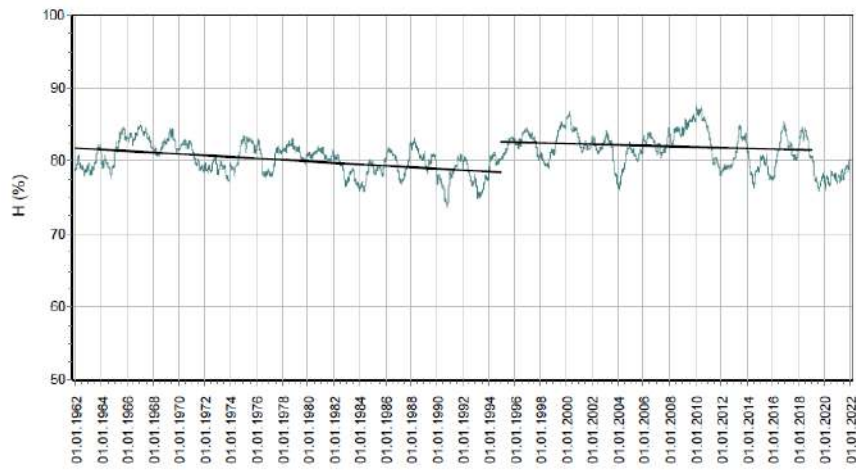


Figure 8. 365-day running average of relative air humidity at the Churáňov station.

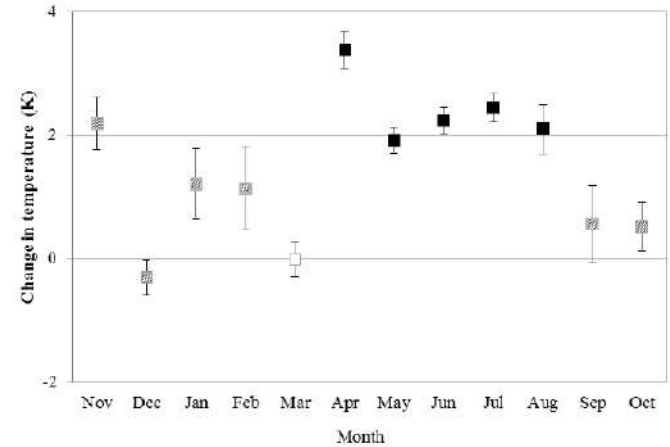


Fig. 5. Mean change and standard deviation in monthly mean air temperature at five stations (1978–2013). Filled squares indicate statistical significance at all stations of $p < 0.05$, and for April ($p < 0.001$). Hatched fills indicate one-directional changes at all stations, though not significant at all stations.

Beudert & all. (2023)

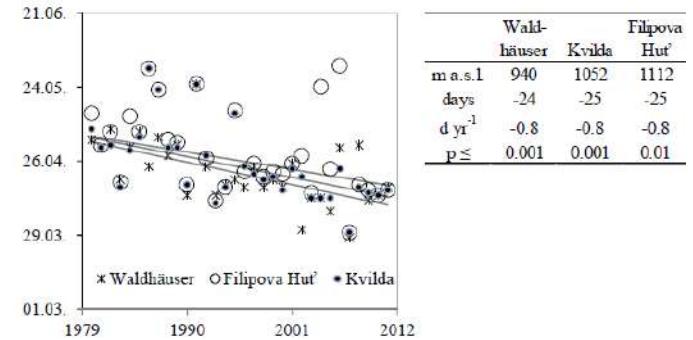


Fig. 8. Trend in the last day of the snow cover at Waldhäuser, Filipova Hut' and Kvida weather station.

Matějka & Modlinger (2023)

Bernsteinova & all. (2018)

Climate change – prec. and runn of

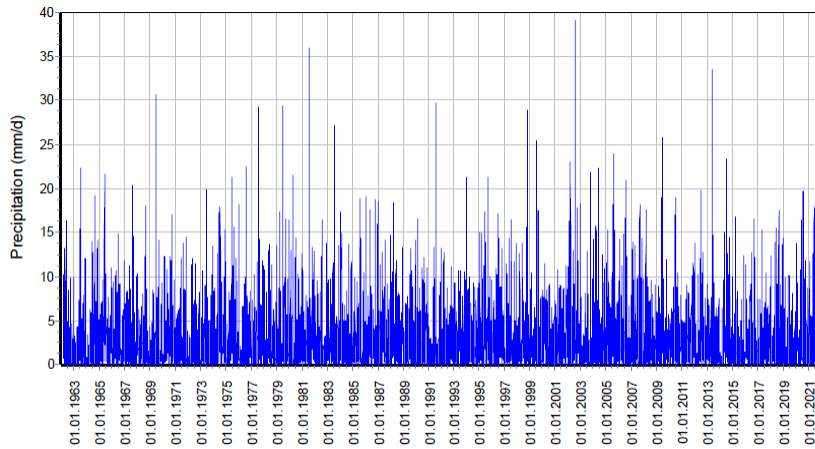
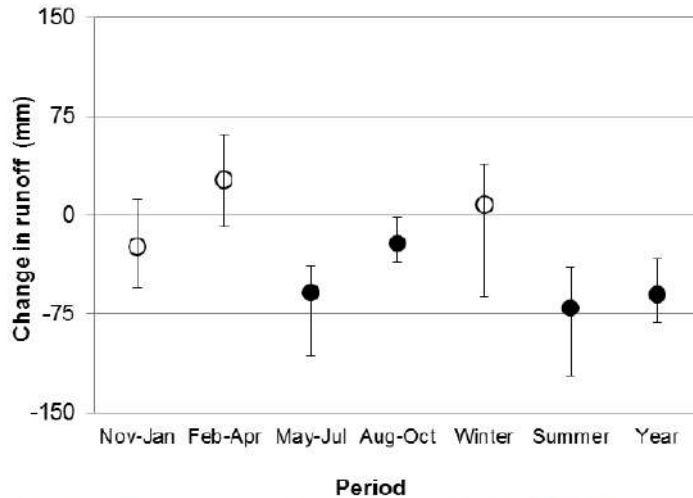


Figure 5. 5-day running sum of precipitations at the Churáňov station.

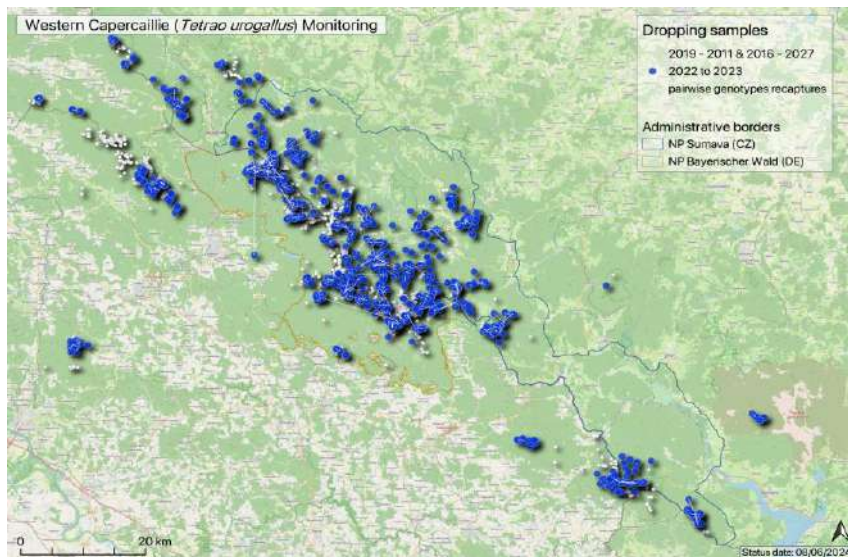
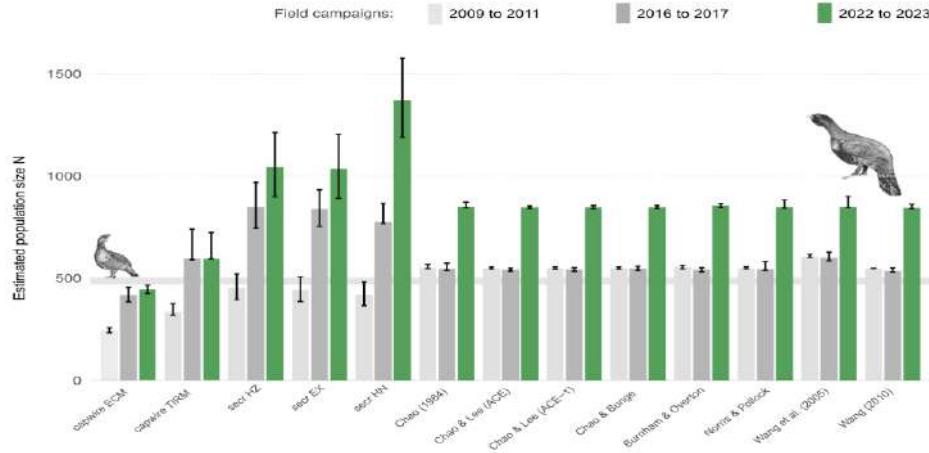
Matějka & Modlinger (2023)



Bernsteinova & all. (2018)

Fig. 3. Median (dots) and extreme (vertical lines) changes in runoff yield (left) of 9 catchments over seasons, hydrological half-years and years (1978–2013). Filled circles: $p < 0.05$ according to Regional Kendall test results.

Climate change – species



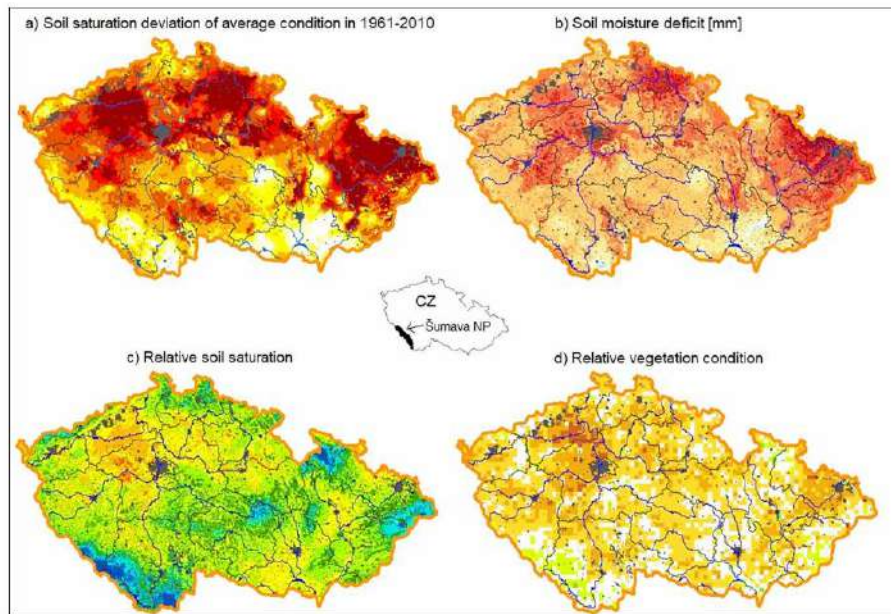
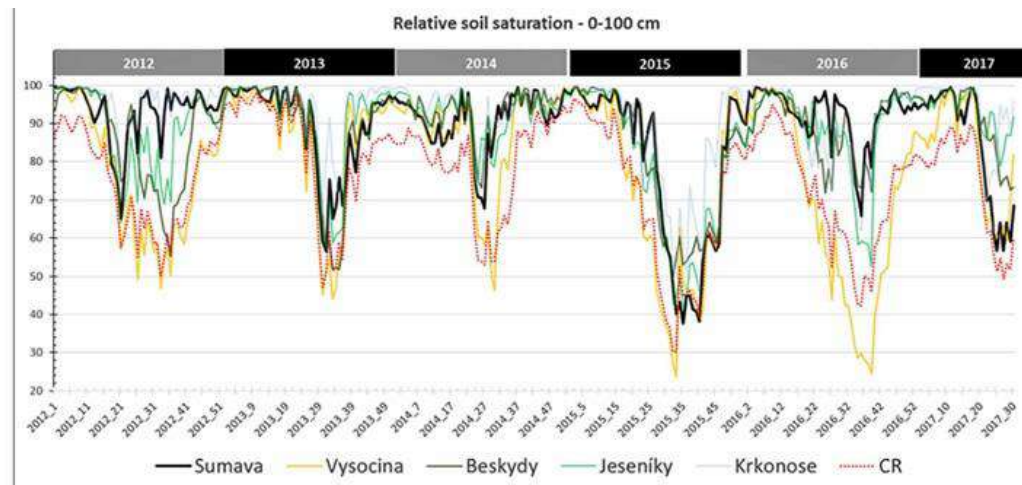


Fig. 1 Map showing the incidence of particular factors associated with drought in the Czech Republic in relation with the reference period 1961–2010 in July 2018 (<https://www.intersucho.cz>).



Bílá & Kindlmann (2019)

Restoration of mires and wetlands

Long-term programme since 1999

- > 1999 – 2012 (own budget)
- > 2013 – 2017 (EU funds)
- > 2018 – 2024 (LIFE - EU)



RNDr. Ivana Bufkova PhD.
head of the restoration project

LIFE for MIREs projekt

(2018 – 2024), total costs: 6 mil. EURO

MAIN TARGETS:

- > Restoration of mires, wetlands and water regime on an area of 2059 ha
- > Engaging the public and improving awareness of wetlands and their importance to the landscape

47 localities

life.npsumava.cz

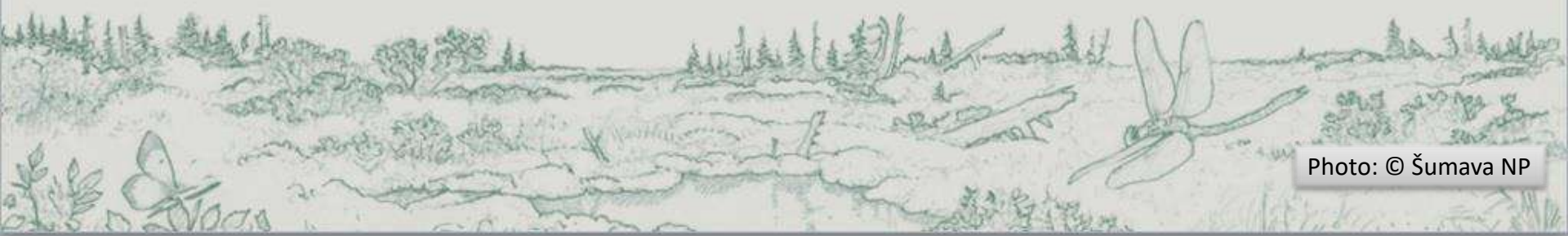
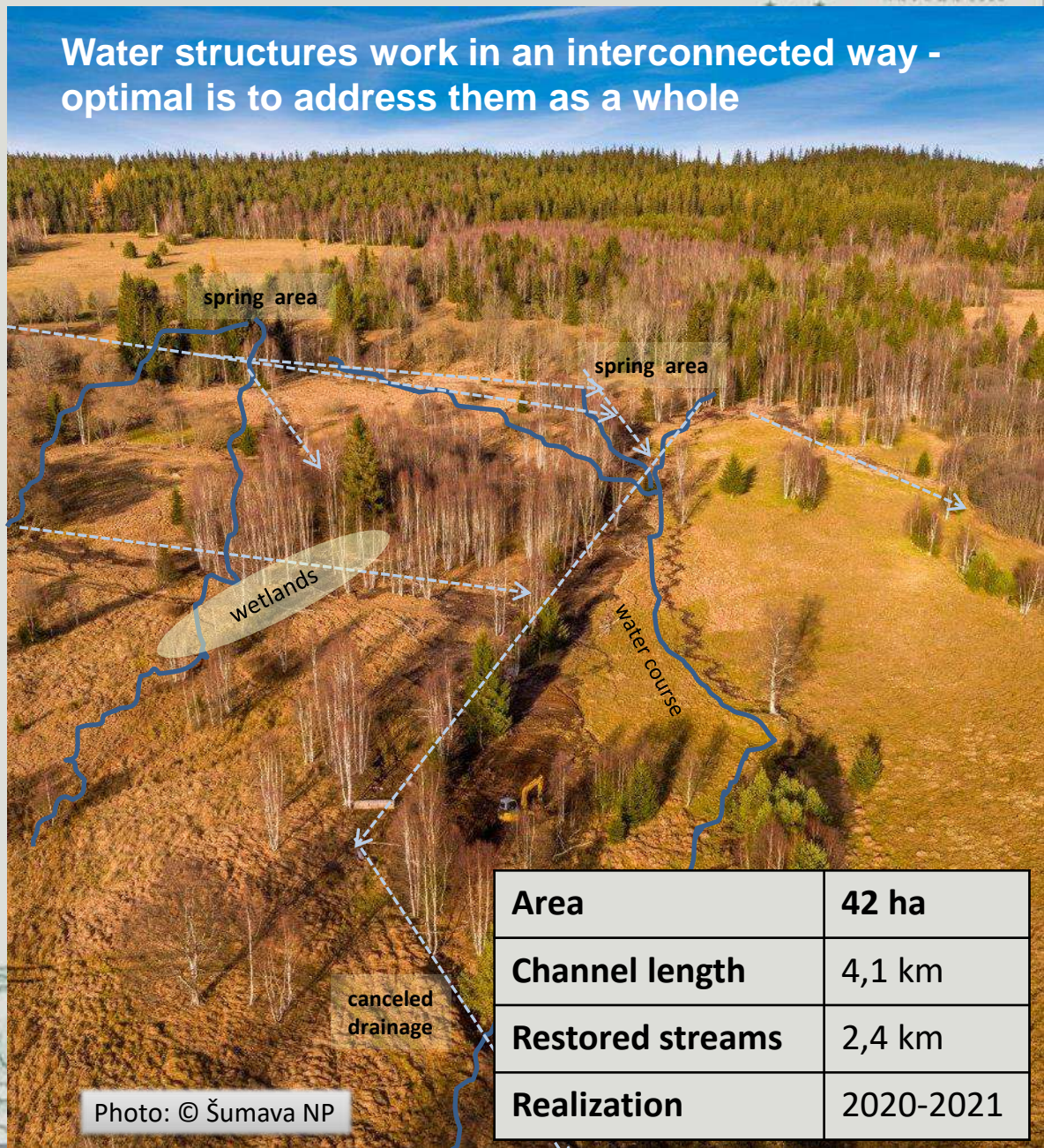


Photo: © Šumava NP

Restoration of spring areas – Locality Pod Skelnou



- > spring areas
- > small watercourses
(mostly 1st order)
- > wetlands/mires



Area	42 ha
Channel length	4,1 km
Restored streams	2,4 km
Realization	2020-2021

Photo: © Šumava NP

> We are closing the drainage channels in the spring areas



> We turn concentrated runoff into surface runoff - retain water



The cooling effect of wetlands

Before

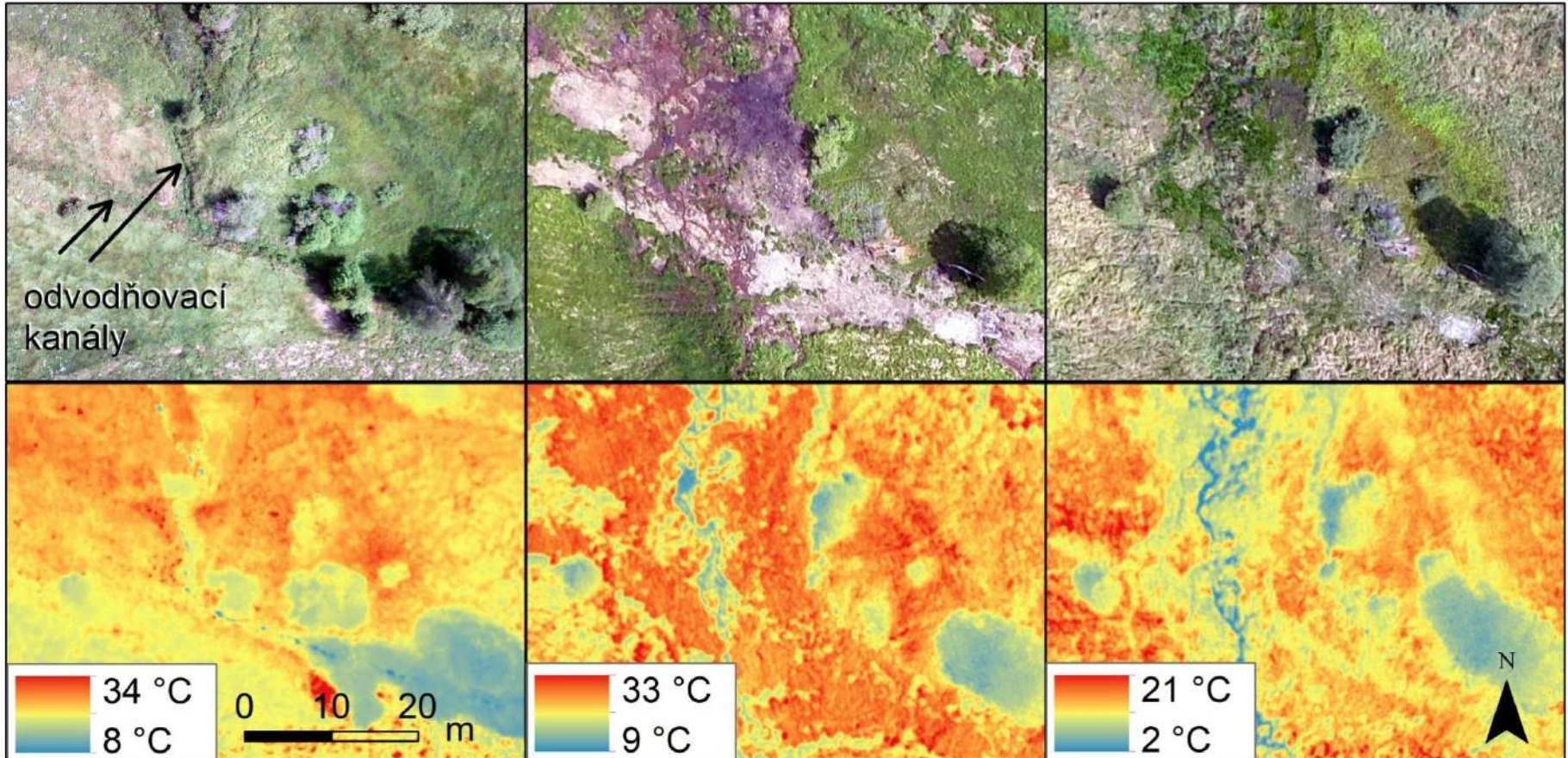
After

At the end of veg. season

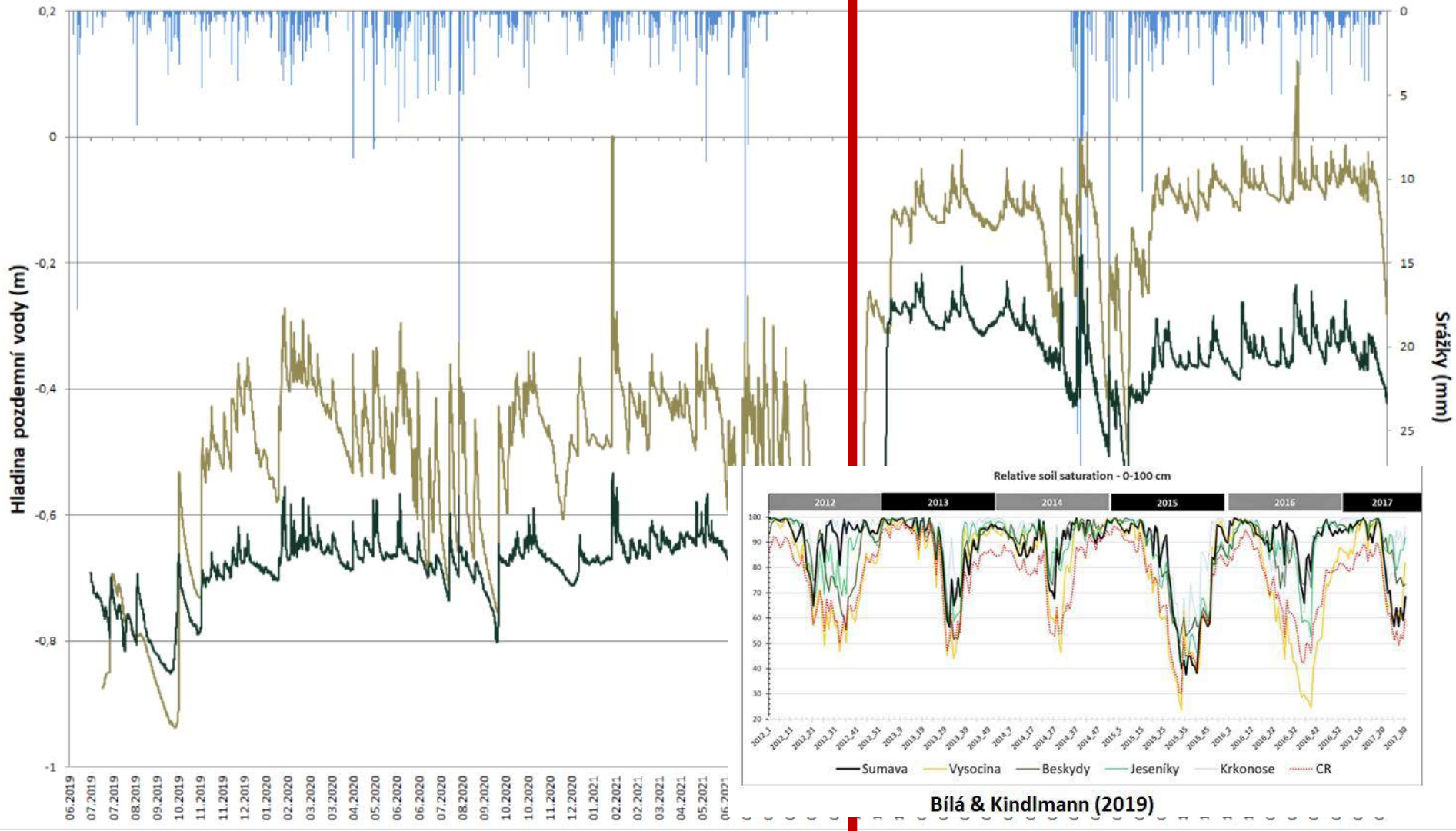
A) 13. 6. 2019

B) 1. 6. 2022

C) 22. 8. 2022



Groundwater level



The importance of natural stream floodplains lies in the spillways



Stream restoration contributes to flood wave mitigation



Restored stream Rybárny,
January 2022

Photo: Lukas Linhart



Photo: Iva Bufková



Thank you for
your attention!

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Photo: © Nürnberg Luftbild, Hajo Dietz

Forest roads for fire fighters



preservation of
landscape drainage