Changes of water regime in Asch region

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Project: Changes in the water regime in Czech-Bavarian border region and their effect on freshwater pearl mussels

Interreg project "Historical land use and its importance for the future protection of important species along the Bavarian-Czech border"

Europäische Union
Evropská unie
Europäischer Fonds für regionale Entwicklung
Evropský fond pro regionální rozvoj

Ziel ETZ | Cíl EÚS
Freistaat Bayern – Tschechische Republik
Česká republika – Svobodný stát Bavorsko
2014 – 2020 (INTERREG V)

Interreg project "Historical land use and its importance for the future protection of important species along the Bavarian-Czech border"

VÚV TGM

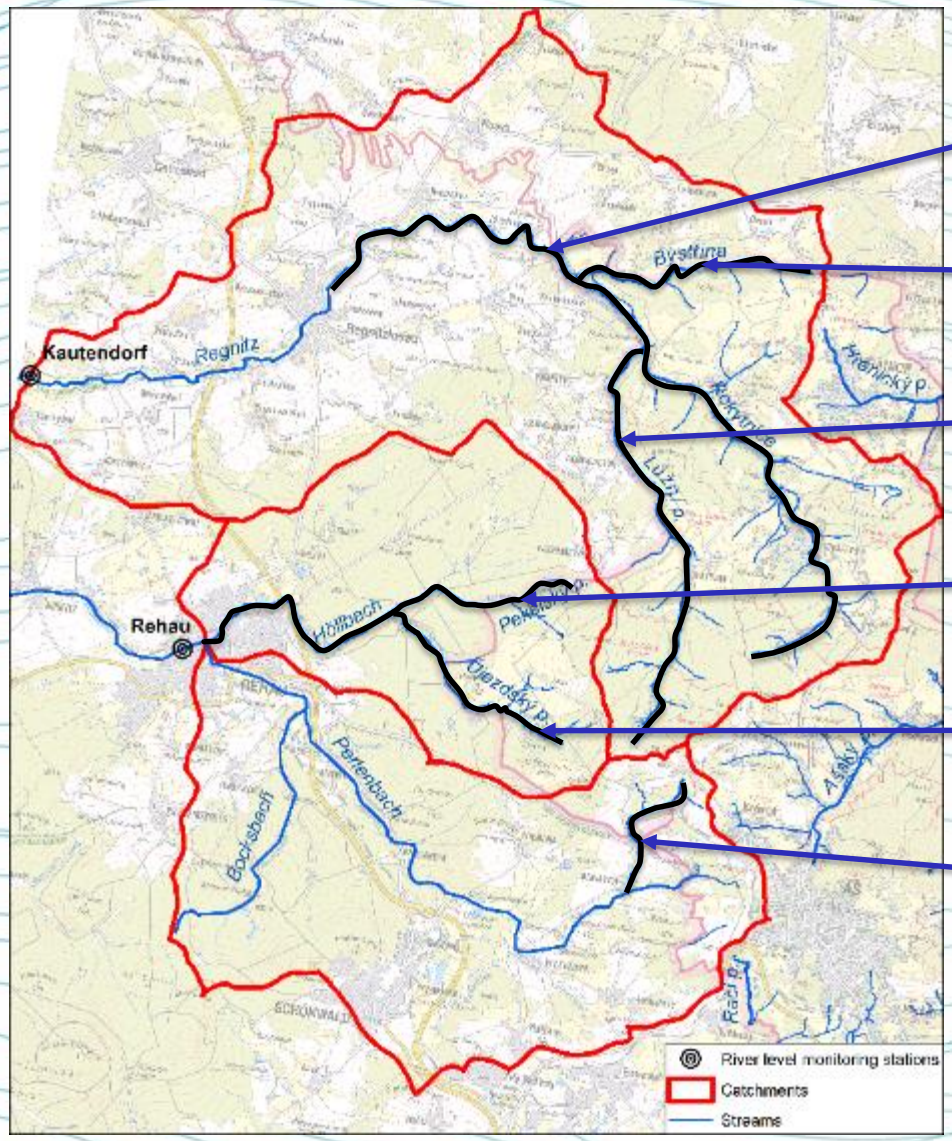
1) Hydrogeological research

2) Hydrological research

3) Research of spring areas and changes in water regime

4) Summary

Area



Regnitz (Rokytnice)

Wolfsbach (Bystřina)

Zinnsbach (Lužní potok)

Höllbach (Pekelský potok)

Mähringsbach (Újezdský potok)

Hraniční potok

Hydrogeological research

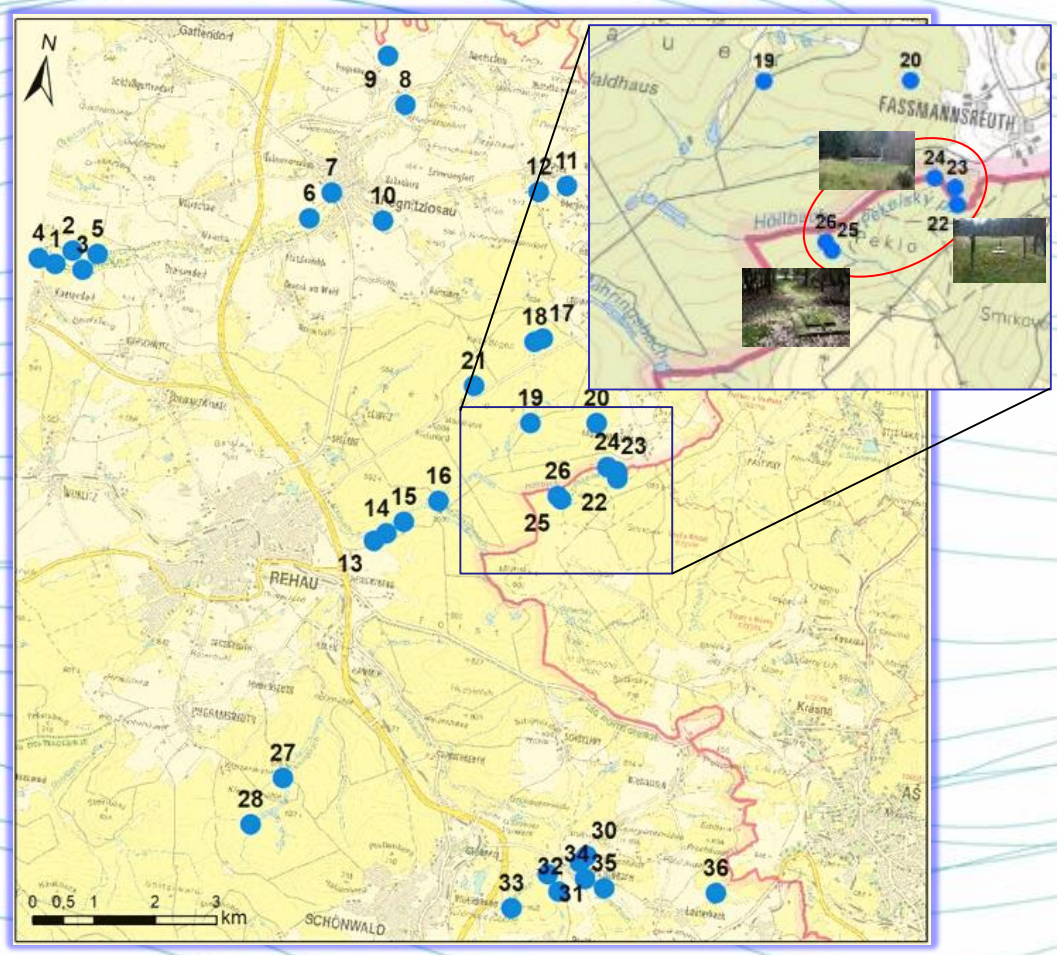
- Run in 1 year of 2021
- Focus on water extraction at studied border localities with many spring areas on both sides of borders

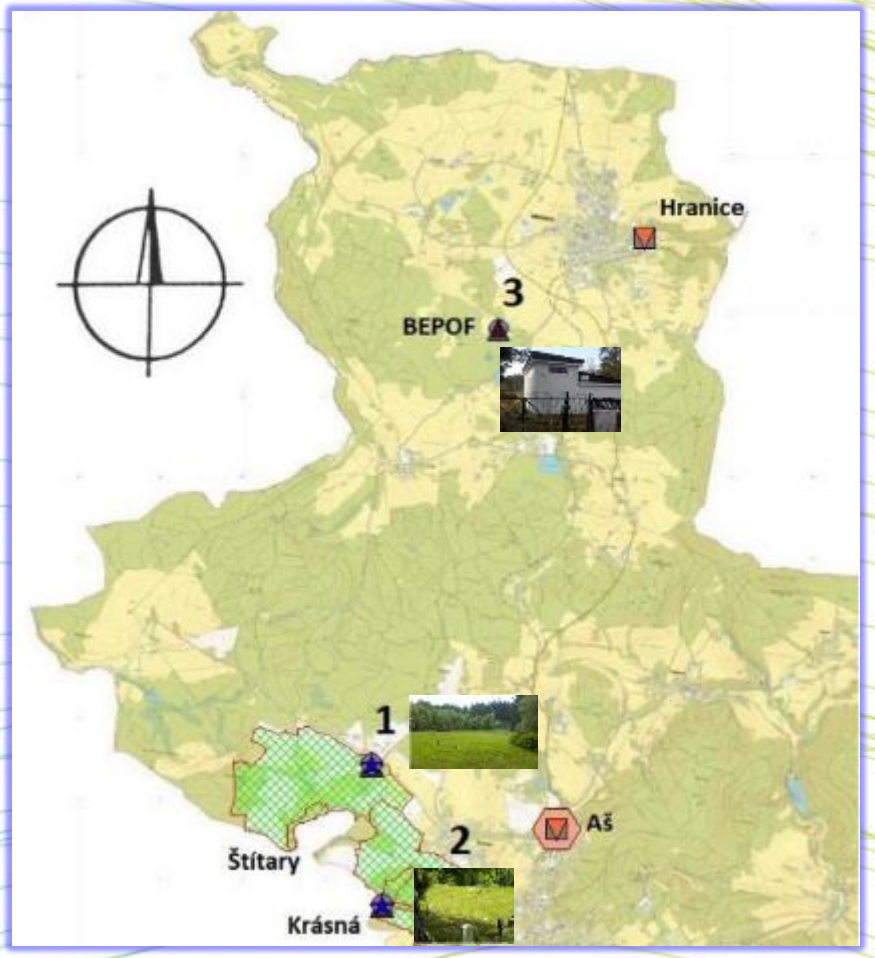




- Bavarian area – most problematic spring water extraction in Höllbach

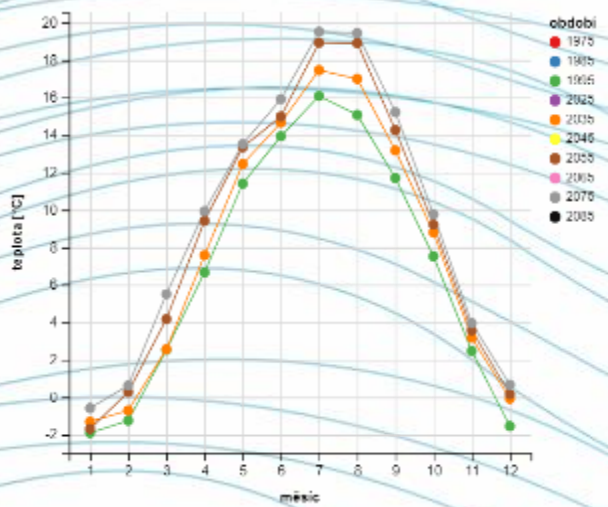
- Czech area – any problematic extractions of water from spring areas currently

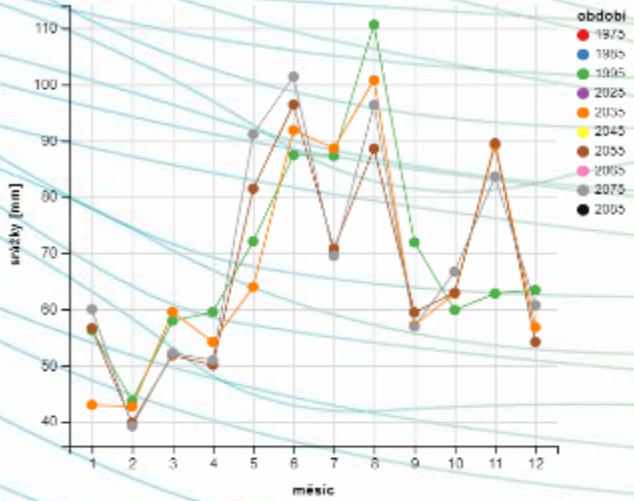


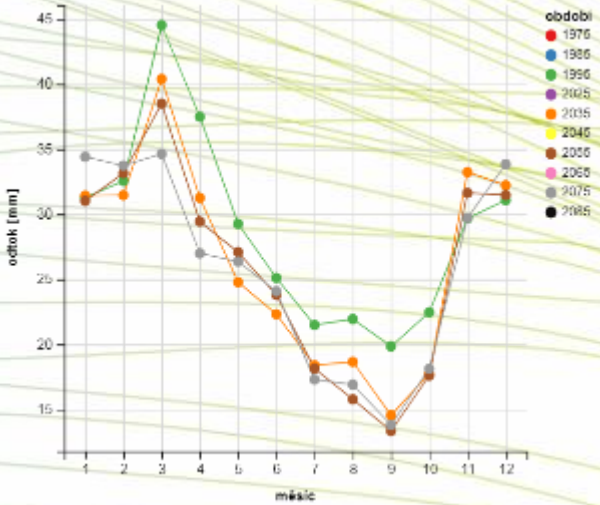


Hydrological research

Hydrology future scenarios







Increase of temperature (increase of evaporation) + precipitation more or less the same
= future decrease of runnof

Adaptation measures for water retention

Revitalization of straightened water streams

Research of spring areas and changes in water regime

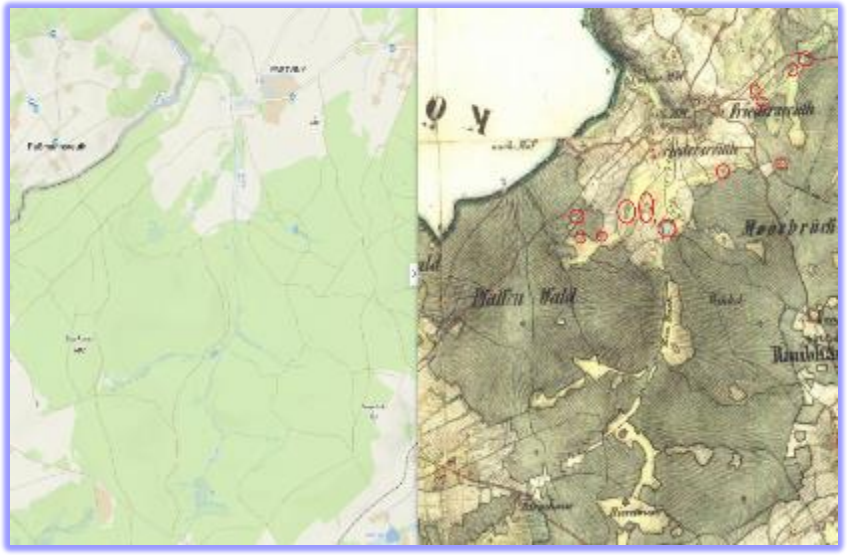


- spring areas are important source of detritus for freshwater pearl mussel
- 107 spring localities studied in Regnitz, Höllbach and Mähringsbach waterbasins
- many spring localities are secondary origin due to damaged drainages system

State of natural spring localities

- cca 1/3 of all mapped springs is overlapping with drainages made in 2nd half of 20th Century

Small water reservoirs were typical for the Asch region



- Recommendation of 20 small former water areas to build
- Estimated area: 72 000 m^2 capacity: 100 000 m^3 of water

Straightened ditches in forests or meadow areas and livestock management

- forest drainage ditches between many springs → no use, difficult access for forestry equipment
- restoration needed

- fencing or other livestock access prevention is important in pastures
- in intensive mowed meadows no fertilization around and above the spring

New challenges in front of us …

Seasonal drought causing dried up riverbed

Regnitz in summer 2021 and 2022

Summary

- restoration of Regnitz stream and rebuilding some of former ponds for higher retention capacity of water and biodiversity in waterbasin
- threat: water extraction from spring area of Höllbach
- restoration of drained areas and spring areas are crucial for water balance during whole year
- New challenges – dry seasons and beaver spreading in area

Thank you for your attention

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