

The 5<sup>th</sup> WASWAC World Conference

**ADAPTATION STRATEGIES  
FOR SOIL AND WATER CONSERVATION  
IN A CHANGING WORLD**

**Excursion**

**SOUTH MORAVIA (BOŠOVICE, ŠARDICE)**



**19<sup>th</sup>–23<sup>rd</sup> June 2023**

**Olomouc • Czech Republic**



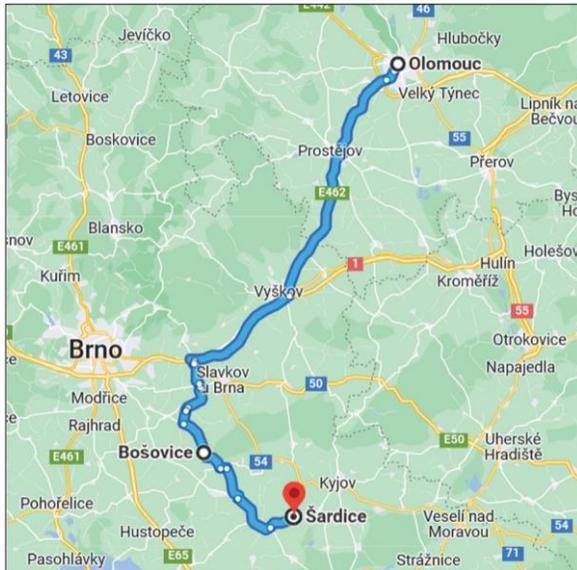
# EXCURSION

**SOUTH MORAVIA (BOŠOVICE, ŠARDICE)**



## SOUTH MORAVIA (BOŠOVICE, ŠARDICE)

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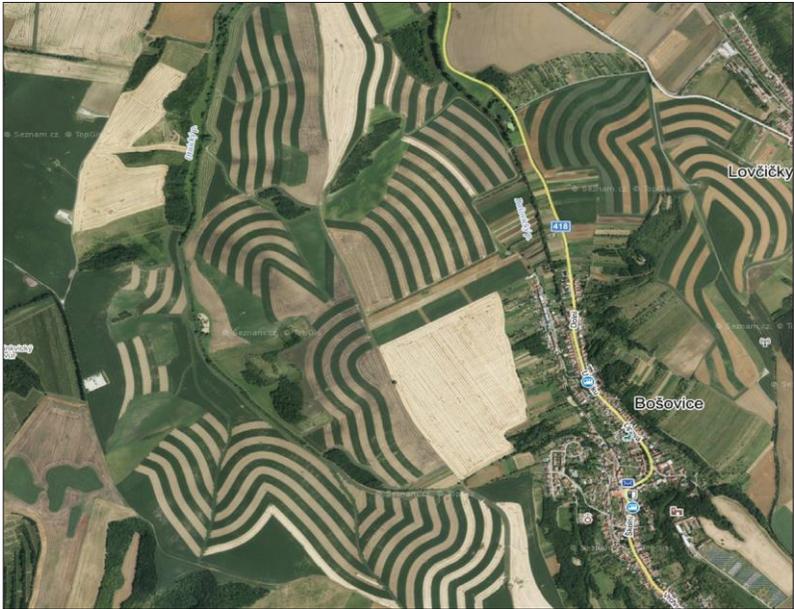


Route 1 – Bošovice, Šardice – map

### Bošovice

The programme of the excursion will start with a visit to sites with implemented strip cropping management in the Vyškov District.

Strip cropping along contours, which is the rotation of conservation and protected strips, is applied by the Agricultural Company Rostěnice in the South Moravian Region in the Vyškov District on an area of about 1000 ha, mainly in the cadastral areas of Bošovice, Lovčičky and Otnice. Strip cropping is a method of farming which involves cultivating a field partitioned into long, narrow strips which are alternated in a crop rotation system.



*Locations with implemented strip cropping along contours*



*Strip cropping*



*Strip cropping – plant protection*



*Strip cropping – winter wheat harvest*

## **Šardice**

*Locality Description:* Petr Marada

The excursion programme will then continue in the Šardice municipality in the Hodonín district, where we will visit sites with the system of soil and water conservation practices, designed and implemented in the process of Land Consolidation.

The territory of the Šardice cadastre is very strongly threatened by water erosion. Intensive conventional farming on large and sloping land has caused significant degradation of the complex soil properties of arable land. Water erosion in recent decades has resulted in large areas of severely eroded arable land.



*Arable land heavily degraded by water erosion*

The main elements of the system of conservation measures are flood protection reservoirs. Infiltration grass strips and biobelts are also part of the design of the measures. These measures are complemented by local bio-centres and bio-corridors in the territorial system of ecological stability.

### ***System of protective water reservoirs***

To protect the built-up area of the municipality of Šardice threatened by floods from three catchment areas:

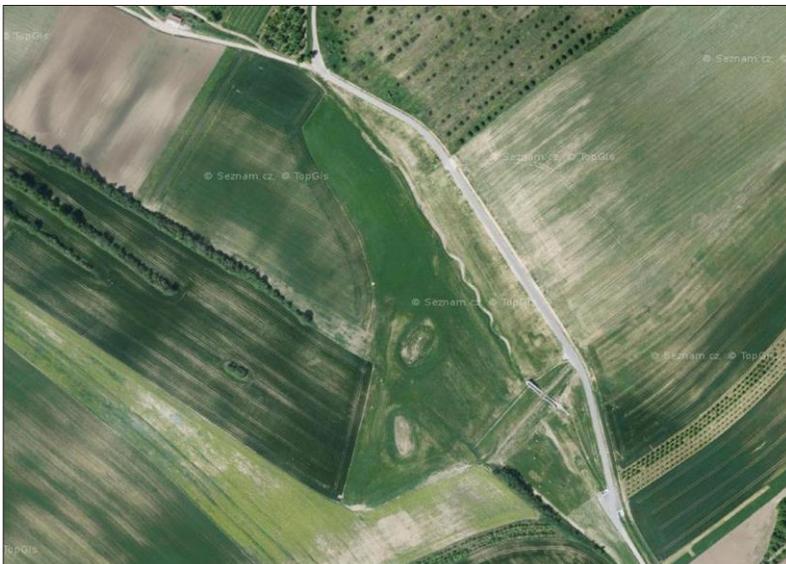
Šardický stream – 1, Loučkový stream – 3 and Červenice stream – 2, a system of protective flood protection reservoirs was designed in the process of land development (see situation and spatial location on the orthophoto map).



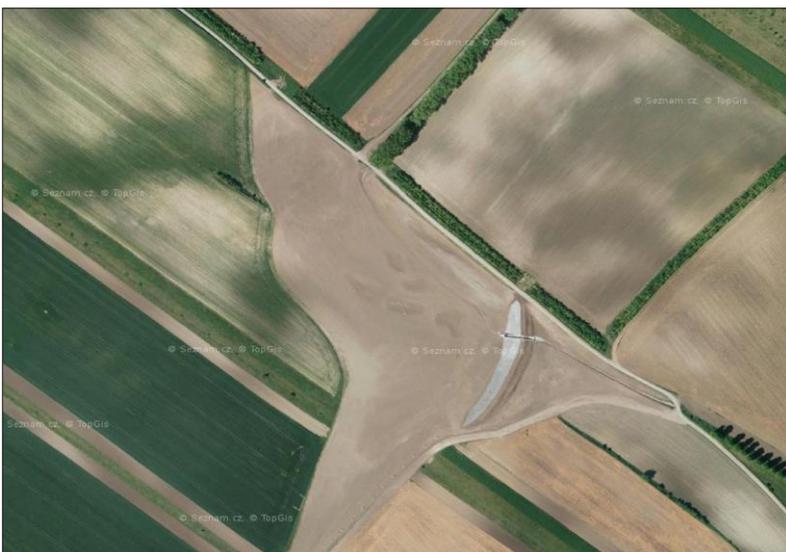
Spatial location of the protective water reservoirs



Situation before and after the design of the protective water reservoir on the Šardický stream – total volume of the water reservoir 182 000 m<sup>3</sup>



*Protective reservoir on the Červenice stream – total volume of the reservoir 67 400 m<sup>3</sup>*



*Protective water reservoir on the Loučkový stream – total volume of the water reservoir 94 000 m<sup>3</sup>*

## ***Territorial system of ecological stability – Local Biocorridors and Biocentres***

The implementation of the Territorial Ecological Stability System can provide a permeable, mosaic, water and wind resistant agricultural landscape with an appropriate species diversity of wildlife and wild plants. The main benefits for agricultural landscapes are a very significant increase and strengthening of biodiversity, improved possibilities for animal migration, a positive effect on water retention in the landscape, soil conservation functions and, last but not least, an increase in the aesthetic value of the landscape.



*Location of the local biocorridor*



*Location of the local biocentre before implementation*



*Location of the local biocentre after implementation*



*Location of the local biocentre 9 years after implementation*



*Sedimentation basin – part of the local biocentre site*

## ***Water pools and wetlands***

The biotechnical facilities consist of 5 pools with associated wetlands an expected water depth in the pools between 0.5–2.0 m and 3 micro pools with an expected water depth of up to 0.5 m. In the north-western part of the site there is a 5×1 m stone wall serving as a shelter for reptiles. For this group of animals, a reptile house of approximately 1 m high made of wooden logs, branches and topsoil was also designed, mainly for the breeding of the highly endangered hen harrier. In the central part of the site, 2 beetle boxes are proposed, consisting of a set of side-by-side tree trunks, which can become a home or refuge for different developmental stages of insects, but also small mammals, birds or reptiles.

Vegetation Management – includes planting of trees and seeding of permanent grasses. Willows are planted in the form of cuttings and rods in the places of the rugged shoreline of the largest pond between the other ponds there are other soft meadow tree species (sticky alder, alder crust, etc.), in the place of temporary but also in the north-western part of the site there is a hard meadow to oak (oaks, ash, lime, etc.). The permanent grassland is divided into areas for intensive and extensive management.



*Arable land for water pools before the implementation of measures*



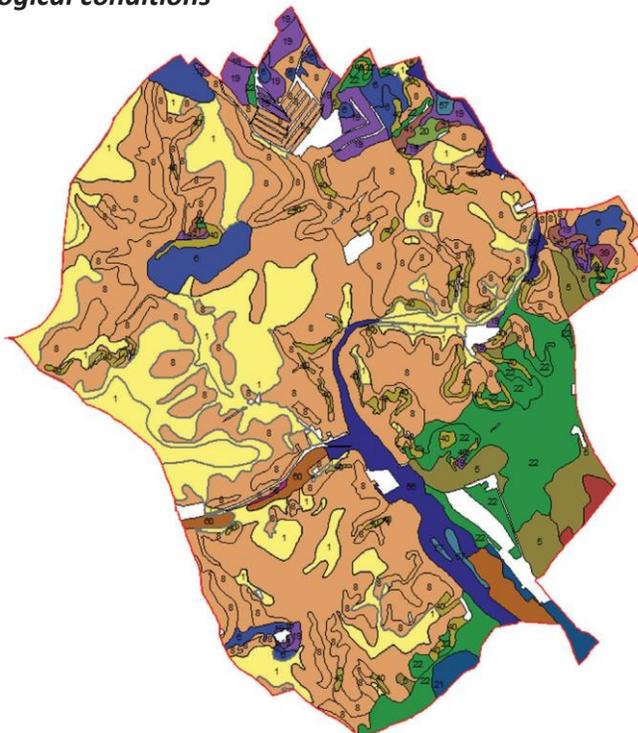
*Water pools immediately after implementation of the measure*



*Water pools 3 years after the implementation of the measure*



## ***Pedological conditions***



*Spatial localization of the three most represented soil types in the Šardice cadastre*

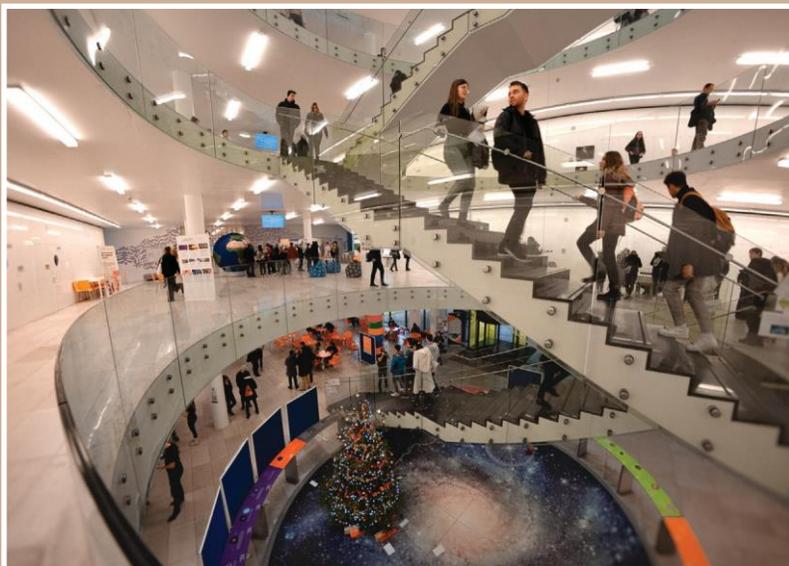
- Yellow: Modal Chernozem, carbonate Chernozem, on loess or Carpathian flysch, medium-heavy soils, without skeleton, very deep, mostly with a favourable water regime
- Brown: Modal and Pelican chernozems, eroded, on loess, loess and slope clays, medium and heavier, mostly without skeleton and at higher gradients
- Green colour: Soils of the arenic subtype on slightly heavier substrates such as loamy sand or sandy loam with a water regime slightly more favourable than the preceding.

Within the excursion in the Šardice cadastre, soil profiles of 2 pedological soils will be realized and described on Chernozem soil-type forms – Chernozem modal and Chernozem eroded – washed by intensive agricultural activities leading to severe degradation due to water erosion.

### ***Benefits of the implemented measures in Šardice***

- Increase in landscape retention capacity
- Improvement of water quality in watercourses
- Reduction of sediment transport
- Increased landscape diversity
- Promoting biodiversity

Notes:



Faculty of Science • Palacký University in Olomouc

