



The „Balck poplar” study trail is established to represent the natural values of Old-Drava and show the result of LIFE+ project. The project LIFE 13/NAT/HU388 Old-Drava was developed by the cooperation of Croatian and Hungarian organisations, the lead beneficiary was the Danube-Drava National Park Directorate. From Hungarian side other partners were Horgász Egyesületek Somogy megyei Szövetsége (Fishing Association of Somogy County), WWF Hungary Foundation, from Croatian side Javna ustanova za upravljanje zaštićenim prirodnim vrijednostima Virovitičko-podravske županije (Public institution for management of protected natural values in Virovitica-podravina County), Municipality of Pitomaca, VIDRA - Virovitica-Podravina County's Regional Development Agency,. The project was realised between 2014-2019, the budget was 834.000 €, 75% of this amount was covered by the EU, the remaining part was financed by the project partners and the Ministry of Agriculture and the Coca-Cola Foundation, as co-financers. The main activities of the project is listed below.

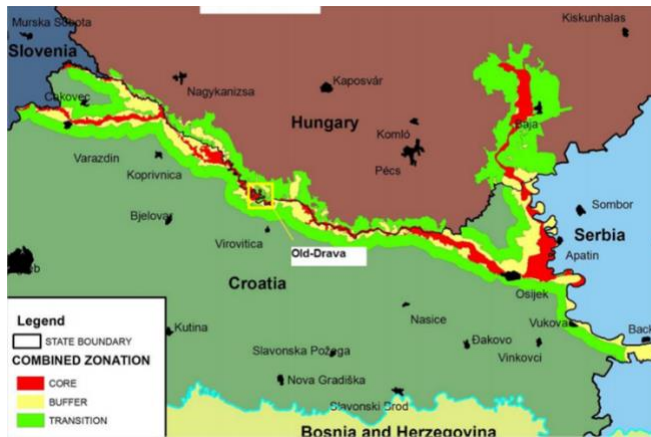
- constructing water retention artefact to prevent extreme low water situation
- increasing diversity of forest habitats by planting native tree species
- removing or renovation of angling piers
- biological monitoring
- knowledge transfer

Stations of study trail:



#### 1. Station No. 1 „Csónakkikötő/Boat port ”

The Old-Drava is a former bend of the river Drava, which has been separated and became an oxbow. Nowadays this oxbow is app. 18 km long and the Croatian-Hungarian state border cut is longitudinal. The main water source is the Rinya creek, which enter the oxbow on its norther part, close to the village of Péterhida. Furthermore the oxbow has a permanent connection with the main course of river Drava trough the Fekete-árok. In the year of 2014 a joint Croatian-Hungarian LIFE+ project launched to improve the water regime, develop the gallery forest and represent the natural values to the wide public. The project area is part of Danube-Drava National Park (HU), Mura-Drava Regional Park (HR), Natura 2000 site in both country and it has international protection as a part of Mura-Drava-Danube Transboundary Biosphere Reserve.



Mura-Drava-Danube Transboundary Biosphere Reserve

2. **Station No. 2 „Vízmerce/Water gauge”**

The water level of Old-Drava is depend on the discharge of Rinya creek, mostly, within a dry period it can fall to a very low level. The shallow, warm water can adsorb only a few amount of oxygen, which may cause death of fishes or other aquatic animals, the water related vegetation also could suffer because of lack of water. Within the LIFE project a water retention artefact has been constructed to prevent too low water level. The target water level is app 102,7 cm on Baltic sea level, it is app. 50 cm on this water gauge.

3. **Station No3 „Ligeterdők/Gallery forest”**

The bank of the oxbow is surrounded by several types of gallery forest, some of them listed as the Natura 2000 habitat. The type of the forest depends on the elevation, close to the water we can find black alder forest, but the dominant vegetation is the willow-poplar softwood gallery forest. The steep riverbank preserved a rather good quality softwood forest, even the extent is rather small. Next to the water we can see willow species (*Salix alba*, *S. fragilis*), on a bit lower elevation the white poplar (*Populus alba*) is common, but there are some individuals of pedunculated oak (*Quercus robur*), ash (*Fraxinus angustifolia* ssp *pannonica*) and elm (*Ulmus laevis*). This type of forest usually has dense and diverse shrub layer, typical species are european cranberrybush (*Viburnum opulus*), dogwood (*Cornus sanguinea*) and european hazelnut (*Corylus avellana*). In the herbaceous layer the yellow flower of lesser celandine (*Ficaria verna*) covers large areas springtime, but we can see great water-parsnip (*Sium latifolium*), dog's mercury (*Mercurialis perennis*), bishop's weed (*Aegopodium podagraria*) and rough horsetail (*Equisetum hyemale*). The gallery forest provide habitat for several bir species. Even the forest itself only a narrow ribbon, but the wetland provide ideal feeding place for lot of birds. The woodpeckers often carve their nesting holes into the old, large poplar trees, we can often observe lesser spotted woodpecker (*Dendrocopus/Dryobates minor*) and listen to the song of eurasian plackcap (*Sylvia atricapilla*)

<https://www.youtube.com/watch?v=wLVRgxNozdE>

4. **Station No. 4 „A nyílt vízfelületek élővilága/Open water surface”**

In the middle of the oxbow there is open water surface surrounded by reed, at the most shallow places marshes increase the habitat diversity. The not so deep water is ideal habitat for seaweed, there are several type of aquatic plant communities. Before May, when the water is cool, there is large open water surface, but summertime, parallel with the warming water the

vegetation occupies the oxbow. The most abundant species are the yellow water lily (*Nuphar lutea*), white water rose (*Nimphaea alba*) and water chestnut (*Trapa natans*), below the surface the soft hornwort (*Ceratophyllum submersum*) forms dense population. Among the plants there are several animal species live in the stagnant water. The rare lesser ramshorn snail (*Anisus vorticulus*) has a stable population. From the group of arthropods we can mention the diving bell spider (*Argyroneta aquatica*), and some typical dragonflies, for example the southern skimmer (*Orthetrum brunneum*) and the scarce chaser (*Libellula fulva*). The Old-Drava has been used as an angling place for ages. Even the fishermen don't catch these species, the European bitterling (*Rhodeus amarus*) and the loach (*Cobitis elongatoides*) are important species for nature conservation, because they indicate a good quality stagnant water habitat.



Szivárványos ökle (fotó Sallai Z.)

The local anglers often catch other, non-protected species, like the northern pike (*Esox lucius*), the common rudd (*Scardinius erythrophthalmus*) or the roach (*Rutilus rutilus*). Unfortunately the invasive fish species also colonised the oxbow, the pumpkinseed (*Lepomis gibbosus*) and the silver carp (*Carassius gibelio*) are not rare. Not only fishermen, but birds also hunt for fish, on the oxbow we can observe the night heron (*Nycticorax nycticorax*), the purple and grey heron (*Ardea purpurea*, *A. cinerea*) and common little bittern (*Ixobrychus minutus*). Over the oxbow we can see western marsh harrier (*Circus aeruginosus*), this species is nesting in the reed, just like the rare, strictly protected bird, the ferruginous duck (*Aythya ferruginea*). Several songbirds also use the reed as nesting place, we can hear the song of great reed warbler (*Acrocephalus arundinaceus*), Savi's warbler (*Locustella luscinioides*) or reed warbler (*Acrocephalus scirpaceus*).

#### 4. **Station No. 5 „Fekete-nyár/Black poplar”**

The black poplar (*Populus nigra*) is a characteristic species of softwood gallery forest, usually grows on lower elevation, close to the water when the soil is rather humid, like at the riverbanks or sandbars. At the bank of the Old-Drava there are some real giant black poplars, the perimeters of some trees exceed 10 meters. This species has very characteristic bark, the dormant buds form nodes, the bark itself crackly and dark, maybe this is the origin of the name „black” poplar. Contrary to the roundish leaf of white poplar, this species has a typical triangle or deltoid shape leaf. The black poplar and the non-native hybrid poplar easily hybridise, the identification of hybrid individuals usually rather difficult. The genetic analysis of the individuals from the bank of Old-Drava proved, that these are genetically clear black poplars. In the logo of project LIFE Old-Drava there is a stylized black poplar.

#### 5. **Station No. 6 „Az erdő megújítása/Forest restoration”**

Earlier there were huge hardwood gallery forest around the Old-Drava, most of them has been formed into arble land or tree plantations. The typical arboraceous speceas were the pedunculated oak (*Quercus robur*), white elm (*Ulmus laevis*), narrow-leafed ash (*Fraxinus angustifolia* subsp. *pannonica*). The project aimed to increase the diveristy of less natural tree plantations. Within the selected oak plantation 15 pieces quadrants (25m\*25m each) were designated, from where the non-native tree individuals were removed. App. 100 seedlings of native arboraceous species were planted inti these quadrants, we used seedlings of Tatarian maple (*Acer tatarica*), common aspen (*Populus tremula*), wild pear(*Pyrus piraster*) and common spindle (*Euonymus europaeus*). To protect the young trees against the too dense deer population we had to erect protective fence. This fence will be removed if the trees are tall enough.

#### 6. Station No. 7 „Fekete-árok/ Black canal”

The Felete-árok/Black canal is the terminal, narrow section of the Old-Drava, which connects the oxbow and the river Drava. Because of the riverbed erosion of Drava, caused by the former river regulation acticities, the oxbow is situated in higher elevation, so the Black-canal lead water from the oxbow to the river in the major part of the year. Only the floodvawes can chnage the direction of the current. This narrow riverbed is a suitable place to construct the water retention artefact to stabilize the water level of Old-Drava. This artefact practically a simple bottomweir made of stone. During high water situation the Drava can flow over the artefact, within a dry pariod it can retain water within the oxbow. To hepl the migration aof certain fish species a fispath has been constructed beside the bottonweir.



Vízvisszatartó küszöb

Within the sorroundings of the bottomweir we can also see the former high bank of river Drava. The majority of the riverbed is filled by sediment ad covered by softwood gallery forest, springtime tha carpet of snowdrop (*Galanthus nivalis*) and fumewort (*Corydalis cava*) make the forest really spectacular.

Some fish species, which prefer rapid flowing water, can enter the Black canal from river Drava, these are the Danube whitefin gudgeon (*Romanogobio vladykovi*) and thr chub (*Squalius cephalus*).

**We take your attention, that the bottomweir is situated within the territory of Republic of Croatia, the entering of state border is strictly prohibited!**