Life+ Nature and Biodiversity

Restoration of the Lower Morava floodplains (LIFE+ 10 NAT/AT/015)

Summary of planned river restoration measures

The **aim of the project** is to extensively restore near-natural river dynamics in the Lower Morava floodplains, as well as to foster land-use practices, which preserve biodiversity, and to specifically preserve endangered species and types of habitats.

Most of the ecological problems we are facing at the Morava River today are caused by the river regulation measures implemented in the 1930s to the 1980s: 36 meanders were cut off and 75% of the river banks stabilized. So we face 3 main threats:

- Lack of natural river sections with unpaved shore
- Lack of lateral connectivity (river–floodplain)
- Lack of river islands and intact side arms

Thus, the conservation **status of natural habitats and species** as well as the (morphological and chemical) **status of the river** are decreasing. Concerning the EU Habitats, Birds and Water Framework Directive both countries have to take actions to increase the status of the Morava River and of habitats and species of Community importance.

With the Life project Austria takes on responsibility and implements several actions to improve the status of 7 habitats of Habitat Directive appendix I, 11 species if Habitat Directive appendix II and 12 species of Bird Directive appendix I. Additionally the quality of the River according to the aims of the Water Framework Directive is improved – by fully maintaining flood protection and not changing the course of the national border.

The first part of the actions ("Mündung", river km 0,00-3,80) has been submitted in 2015 and is currently subject of an objection (in 2nd instance). In February 2016 the second part of the project will be submitted. At the following pages the second part is described in detail. Find an overview of all hydraulic river restoration measures in Figure 1.

Lussarm (r-km 6,00; see Figure 1)

Originally, the projected action provided an about 1,4 km long side arm. But in a first step, this action will be submitted in a very reduced dimension. The rest of the measure should be realized in the coming years.

- deepening the existing pond (a disconnected former side arm) at two small sites; no measures in the river itself
- amount of excavated material is about 1.000 m³ in total and will be transported out of the alluvium completely

Alter Zipf (r-km 8,35 - 9,82; see Figure 2)

- reconnecting a former side arm by digging a 205 m channel upstream and a 146 m channel downstream with a channel width of 18 m, at low water level
- lowering and adapting the riprap at the inflow (on a length of 118 m) and outflow (on a length of 54 m) of the side arm, so that the river bed at this two sites is stabilized on low water level
- re-activating the former course of "Zapfengraben" creek with a length of 315 m and a width of 2 m, so that it flows in the side arm again
- amount of excavated material in the side arm, that could be mobilized after the reconnection is about 1.000 m³ and will be transported out of the alluvium completely
- construction of a wooden bridge to maintain agriculture and fishing
- amount of excavated material is 9.770 m³ in total and 8.000 m³ will be transported out of the alluvium completely

Wolfsinsel (r-km 10,10 - 11,30; see Figure 2)

- re-activating a former (outer) side arm on a length of 990 m and a width of 4 m at low water level minus 30 cm
- lowering and adapting the riprap at the inflow (on a length of 88 m) and outflow (on a length of 67 m) of the outer side arm, so that the river bed at this two sites is stabilized on low water level minus 30 cm
- removing one lateral barrier at the outer side arm on channel width
- deepening the shorter, river-near (inner) side arm on a length of 270 m and a width of 5 m at low water level minus 50 cm
- lowering and adapting the riprap at the inflow (on a length of 64 m) and outflow (on a length of 29 m) of the inner side arm, so that the river bed at this two sites is stabilized on low water level minus 50 cm
- removing three lateral barriers at the outer side arm on channel width
- construction of a ford at the outer side arm to maintain agriculture and fishing
- amount of excavated material is 14.930 m³ in total and will be transported out of the alluvium completely

Maritz (r-km 23,91 und 24,35; see Figure 2)

- extension and restoration of the existing inflow channel for the Maritz (floodplain waters) system on a length of 895 m and a width of 2 m; at medium water level plus 20 cm, to guarantee a water donation of the system on 100 days a year
- lowering the riprap at the inflow (on a length of 45 m) on medium water level plus 20 cm
- amount of excavated material is 1300 m³ in total and will be transported out of the alluvium completely

General principals of all measures

All measures are planned in a way, that obligations derived from Water Framework Directive and Natura 2000 are fulfilled, while border-treaties are fully respected.

- **Flood protection** is maintained at any time. The two-dimensional modelling has shown that the planned measures have virtually no effect on the flood protection. In the areas of Alter Zipf and Wolfsinsel the water level changes in the Morava River are in a millimetre range, i.e. greater -0,01m and smaller 0.01m and thus in the scope of computational accuracy.
- The course of the **national border** (defined by the middle line of Morava River at medium water level) is not changed, because the water level in the main channel is not changed significantly for actions Alter Zipf and Wolfsinsel. As the inflow of the Maritz system is situated at medium water level plus 20 cm it does not change the water level.
- Concerning the **total water balance** it can be said that the water of each of the planned side arms returns into the March and thus the flow rate in the main river remains unchanged in total. The amount of water in the new side arms at low water level lies at about 10% of the Morava River discharge. Quantitative and qualitative relevant impact on groundwater can be excluded. Due to the additional annual theoretical evaporation of 0.0001% an effect of evaporation can be classified as negligible on the total water balance. The total water balance is therefore not significantly changed by the project or is (negligible) approaching natural conditions.
- This projected restoration measures will not cause deterioration of conditions for **navigation**.
- Concerning **particulate material, sediment and ice transport** it can be stated that the planned project measures are all within the flood discharge profile. The cross section of the flow at the discharge that is relevant for particulate material transport remains unchanged and therefore the project also has little effect on the material balance. The same applies to the sediment and ice transport.
- Currently carried out **conservation measures** will be able to run undisturbed. Additional conservation measures due to the project actions are currently not identified however there will be an adequate documentation of the measures to carry out local readjustment if necessary.
- Both, the planning process and the implementation of all actions are accompanied by **ecological planning**, that covers objectives of relevant EU Directives as well as morphological structures at the new side arms.

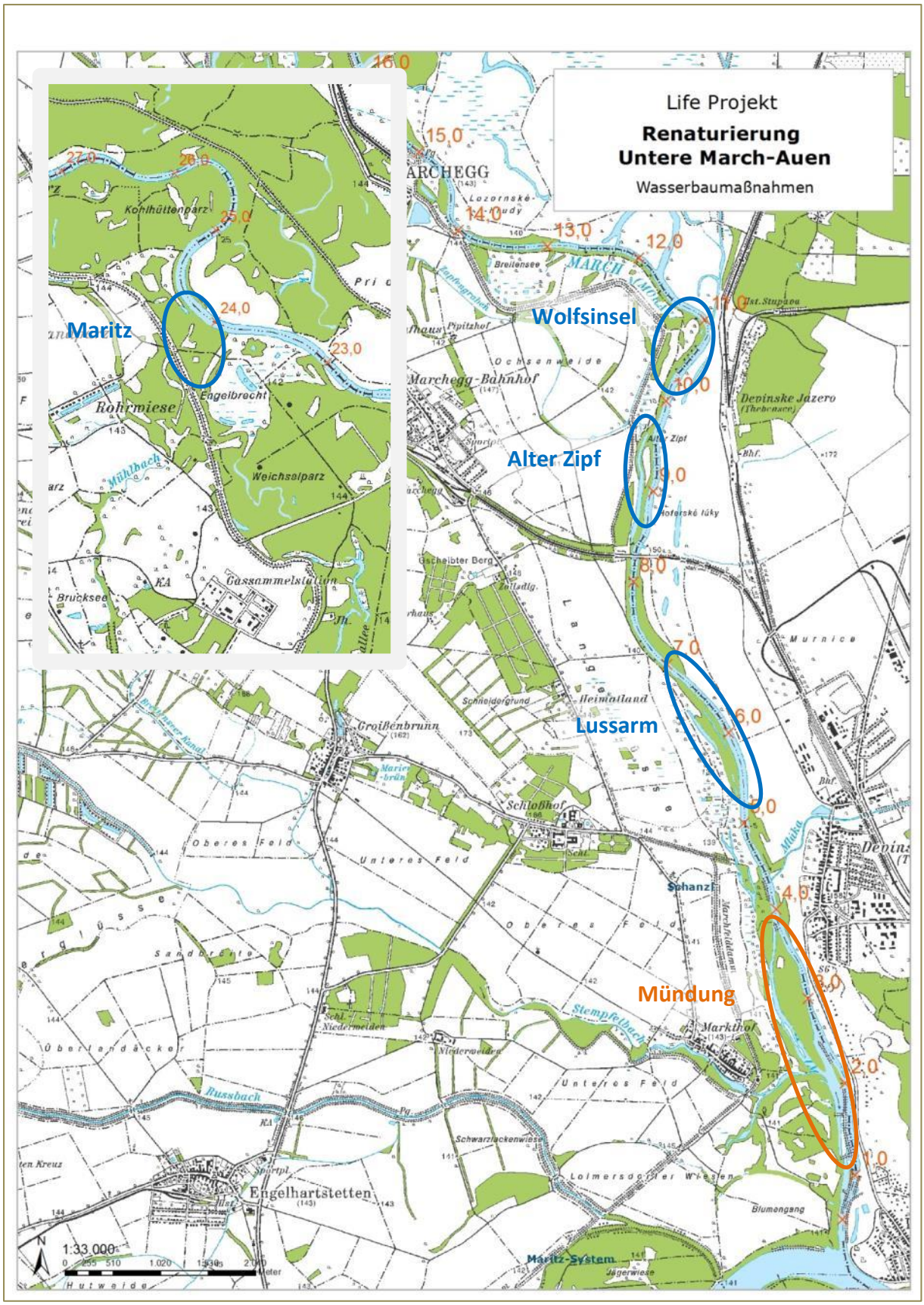

Figure 1: Overview of the hydraulic Life actions on the Morava River (brown: the first part of the measures 2017; blue: the projected second part of measures 2017/2018.

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Figure 2: Actions "Alter Zipf" (left) and Wolfsinsel (middle) and Maritz (right) in detail (blue: courses of the side arms).