



LIFE08 NAT/D000013



Nature conservation and flood protection hand in hand

Project LIFE+ Natur „Elbauen bei Vockerode“, 2010 to 2018

Floods and Floodplains

When rivers overflow their banks due to periodic changes in water level, the adjacent areas, the floodplains, are inundated. The floodplains absorb the river water and release it only slowly. This is due to the fact that the soils in the floodplain areas are typically characterised by high proportions of sand and clay. In this alternation of flooding and subsequent drying out, a wide variety of habitats and structures have developed, which are home to a large number of plants and animals, including many rare species. When rivers were made navigable by infrastructure development in the 19th century, they were deprived of the possibility of spreading naturally in flood situations. As a result, only about 20% of alluvial landscapes are still flooded today. They are thus among the most threatened habitats.

Flooding on the other hand can also be a threat to humans. Particularly in settlement areas close to rivers, rising water levels can become a serious threat to livelihoods. Experience gained from the floods of recent years has shown that technical means alone are insufficient to protect against flooding. Rivers that can periodically spread over their banks in unsettled areas spare humans and built-up areas in other sectors. The inundation of the floodplain areas contributes to the preservation of the sensitive floodplain ecosystem. Thus, open intact floodplains are the natural flood retention areas along the rivers.

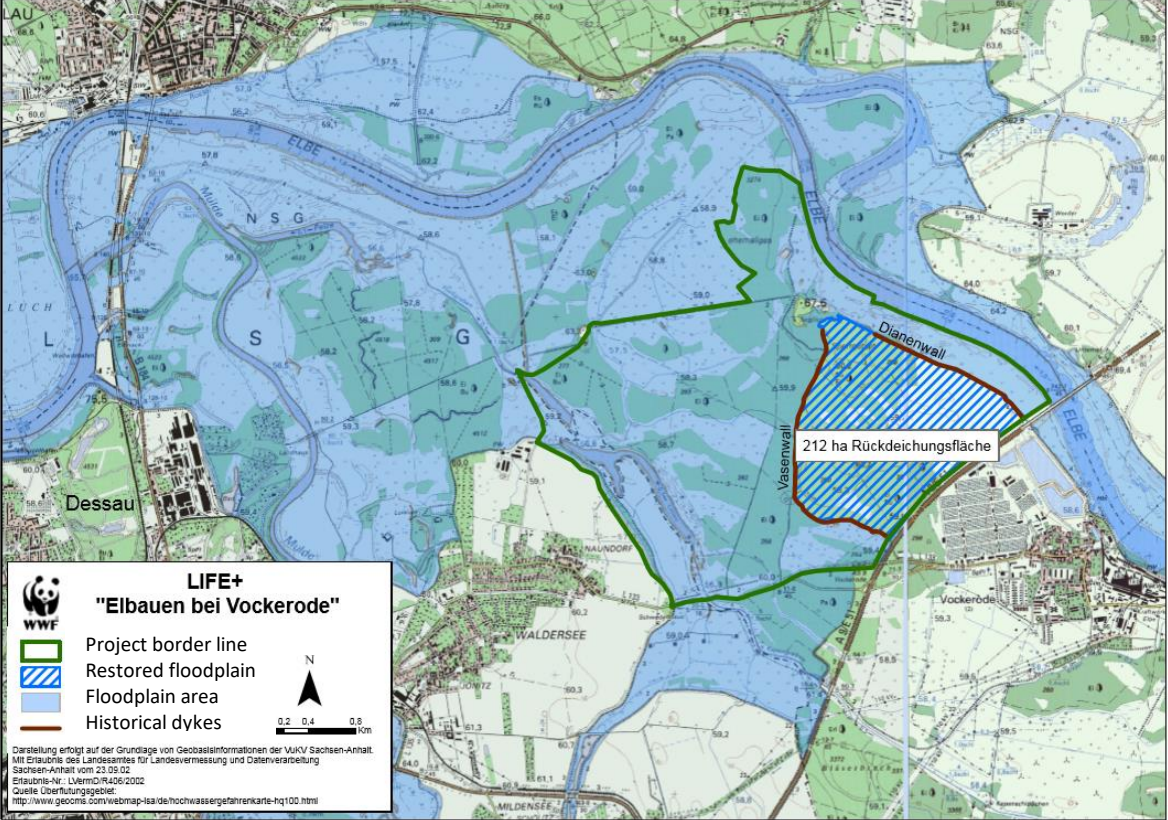
The floodplain of the river Elbe near Vockerode

The landscape of the river Elbe is characterised by typical river and floodplain structures. In the sector of the Middle Elbe, meadows dominate the wide floodplain landscape today. The remaining forests consist mainly of hardwood floodplain forest, with tree species such as English oak and common ash. In the region between Dessau and Wörlitz, forest and meadow areas are connected mosaic-like. Embedded are numerous floodplain waters, such as oxbow lakes, flood channels and depressions that only occasionally carry water.



The project area is located in the natural floodplain area of the river Elbe near the commune Vockerode. Flood protection dykes (Vasenwall and Dianenwall) run through the project area and since the 12th century have prevented flooding. The resulting land in this “polder” has been accessible for farming purposes.

Until the implementation of the LIFE+ project only about two thirds of the project area could be flooded. The federal motorway (BAB 9) built in the 1930s cuts through this polder.



Dyke relocation area in the floodplain of river Elbe and river Mulde

NATURA 2000 and LIFE



NATURA 2000 is a coherent network of protected areas in Europe, which aims to preserve wild plant and animal species and their natural habitats. To this end, the Habitats Directive and the Birds Directive specify in their annexes the species and habitats to be protected.

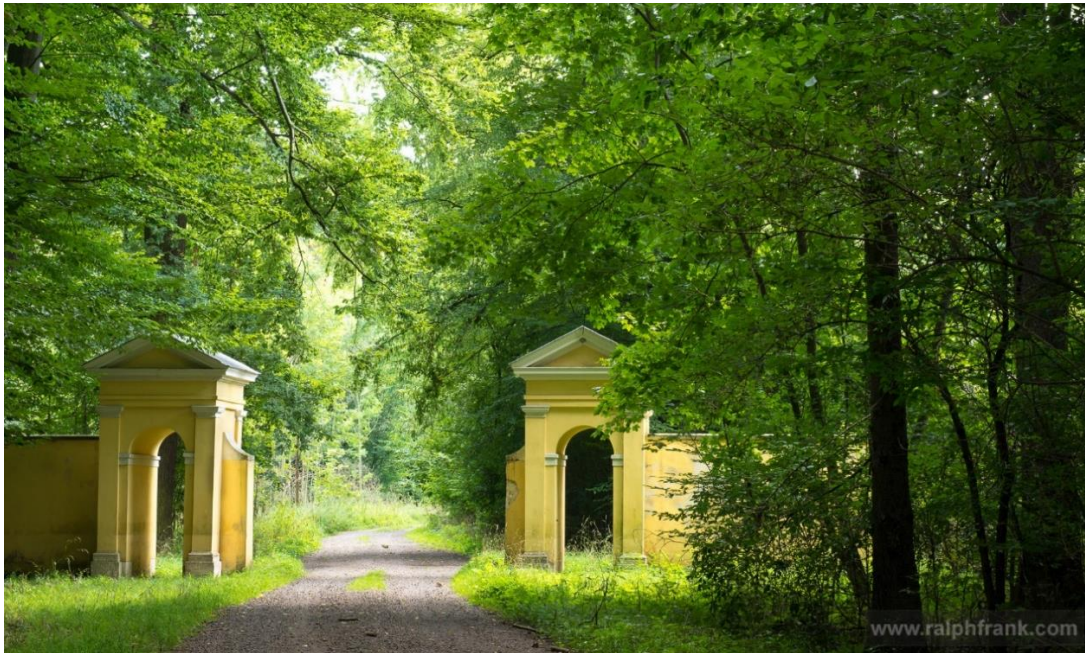


LIFE+ - Natur (L'Instrument Financier pour l'Environnement) is the EU's financial instrument for securing and maintaining habitat and species diversity in NATURA 2000 areas.





Old English oak tree in the project area



„Gate of Vockerode“ in the project area (credit: R. Frank)



Solitary English oak on floodplain meadow

Restoration of habitats und long-term protection in the NATURA-2000 area „Dessau-Wörlitzer-Elbauen“, LIFE08 NAT/D/00013

Short project title: LIFE+ „Elbauen bei Vockerode“

Project area: 810 ha

Duration: 2010 to 2018

Conservation areas:

- Middle Elbe Biosphere Reserve
- Special area of conservation „Dessau-Wörlitzer Elbauen“ (Elbe floodplain Dessau-Wörlitz) (DE 4140-304, FFH0067-LSA)
- Special protection area „Mittlere Elbe einschließlich Steckby-Lödderitzer Forst“ (Middle Elbe including Stecky-Lödderitz forest) (DE 4139-401)

Funding:

- 50 % EU
- 37 % WWF
- 11 % State of Saxony-Anhalt
- 2 % Biosphere Reserve Middle Elbe (BRME)

Project executing organisation: WWF Germany

Project partners:

- State agency for flood protection and water management (LHW)
- Administration of Biosphere Reserve Middle Elbe (BRME)
- Kulturstiftung DessauWörlitz (KsDW – foundation for cultural heritage)

Other parties included in the project:

- City of Oranienbaum-Wörlitz, Commune Vockerode
- Administrative district Wittenberg
- City of Dessau-Roßlau
- Agrargenossenschaft Wörlitz eG (Agricultural Cooperative Wörlitz)
- Landgesellschaft Sachsen-Anhalt mbH (Agency for Real Estate Management Saxony-Anhalt)
- Hochschule Anhalt (University Anhalt)
- Landesamt für Umwelt (State Office for Environment), Ministerium für Umwelt Landwirtschaft und Energie (Ministry of the Environment, Agriculture and Energy)





Federal minister of the environment, nature conservation and nuclear safety, Peter Altmaier, and all project partners on excursion in the Project area, 2013

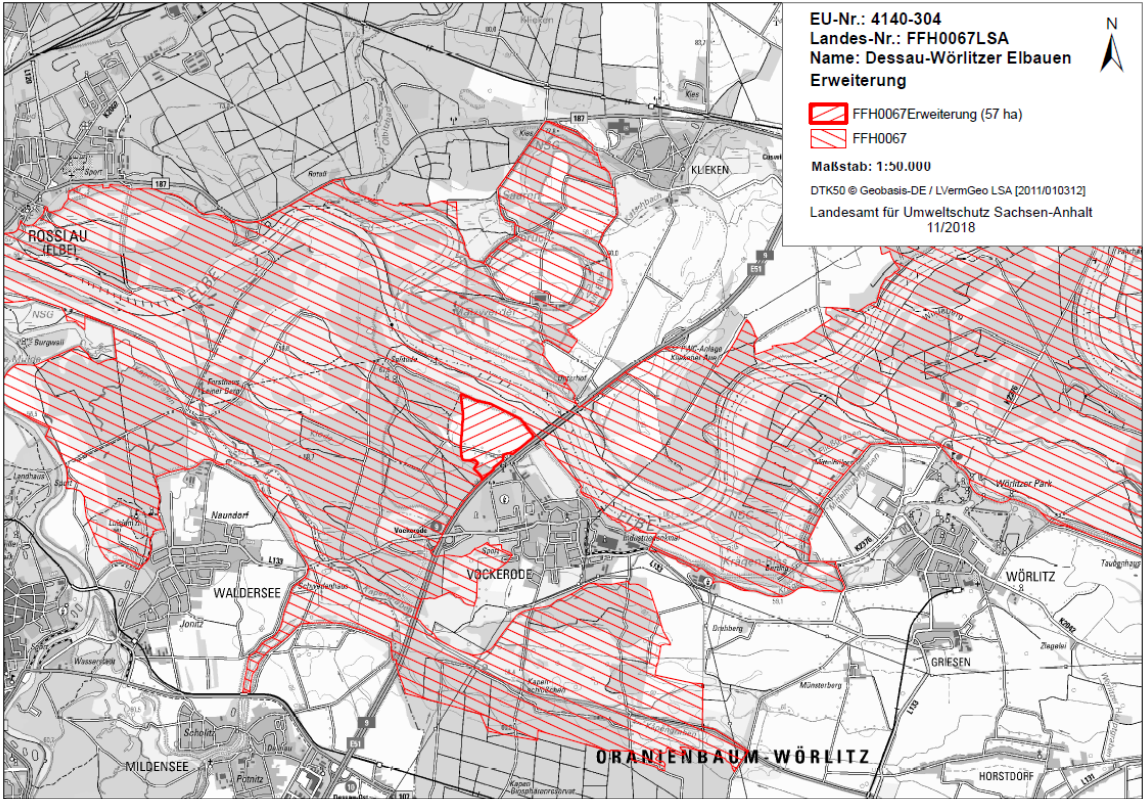
More space for floodplains

The LIFE+ project "Elbauen bei Vockerode" aimed at reclaiming former floodplains of the river Elbe. A spatial change in the flood protection system near Vockerode allowed to restore floodplain habitats which had been lost for centuries. The dyke was relocated to the BAB 9 motorway and the historic Vasenwall was opened. Thus, a 212-hectare floodplain area can be flooded again during high water. Barriers between river and floodplain were removed. Additionally, the following objectives were pursued in the LIFE+ project:

- Protection of a unique river landscape
- Restoration of habitats and long-term protection of the NATURA 2000 area „Dessau-Wörlitzer Elbauen“
- Expansion of the NATURA 2000 area
- Support of the natural, self-reinforcing dynamic development of the project area
- Support and enlargement of structural diversity in the floodplain and floodplain habitats
- Improving habitat conditions for typical animal and plant species
- Visitor information and guidance, transfer of knowledge



Overview of measures (structures and biotope creation/restoration)



Expansion of the NATURA 2000 area (FFH0067, SPA001)



Integration of protection of historic buildings and monuments

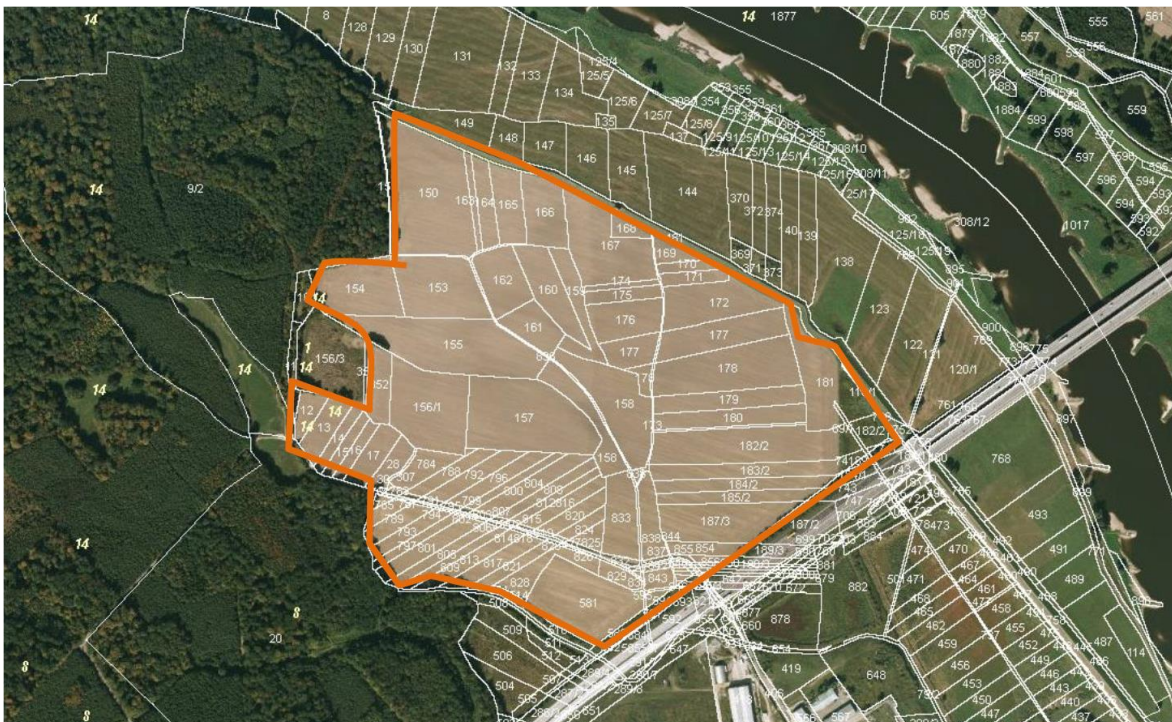
The LIFE+ NATUR project „Aufwertung und langfristige Sicherstellung im NATURA 2000- Gebiet Dessau-Wörlitzer Elbauen“ (Short title „Elbauen bei Vockerode“) is a best practice example for the integration of project goals of flood protection with the objectives of nature conservation and monument preservation.

The stability of the Vasenwall was already severely threatened during the historic flood in 2002. Its restoration would have required massive interventions in the natural and cultural landscape. The extreme flooding of the Elbe and Mulde rivers in May/June 2013 again overflowed the historic structure and flooded the previously from flooding protected area. It left two breaches, each of which was subsequently extended to a length of over 100 metres. The motorway embankment inevitably took over the function of a flood protection dyke and was adapted for this purpose.

The reclaimed areas were prepared for future flooding by target oriented measures. These include, for example, the conversion of agricultural land into grassland or forest restoration measures to promote flood-tolerant tree species.

Acquisition of land

For the successful project implementation, it was necessary to acquire the land in the dyke relocation area formerly used as agricultural land. All property was purchased from private ownership. The area's future in line with nature conservation is secured by a corresponding entry in the land register.



Land acquisition, orange area: 54 ha (72 plots from private ownership)

Conversion from agricultural land to species-rich floodplain meadows

Floodplain meadows are biodiversity hotspots while among the most threatened habitats in Germany today. They also enrich the landscape by their mosaic-like structure and increase the recreational value. In floodplains they also have other important functions: They buffer and filter groundwater and surface water. In addition, water is retained in the floodplains for longer before it flows into the groundwater or evaporates, so that it is longer available to the plants even during dry periods. Intact, floodable alluvial grassland protects settlements, dykes and infrastructure.

Therefore, the former agricultural land had to be converted into meadows. Seed-rich plant material from species-rich meadows (transfer of mowed material) and seeds initiated the development of the floodplain meadow. Depending on the measures carried out (timing, method, quality of the donor area, sowing mixture), the treated areas developed differently. While recently treated areas as well as self-vegetated areas are characterized by arable herbs, older vegetation areas already show a more or less closed sward of typical herbs and grasses of the alluvial grassland, such as maiden pink, cuckoo flower, multiflorous buttercup or the pepper saxifrage. In the long term, the plant communities will only differ in local site conditions as well as in care and use. Key prerequisites for the development of a high biodiversity are mowing twice a year and the renunciation of fertilizers.

Rehabilitation of hardwood floodplain forest

More than half of the project area is covered by forest. It is predominantly hardwood floodplain forest with species-rich tree and shrub layers. English oaks, some of which are up to 500 years old, dominate here. The many old oak trees are of particular benefit to the woodpecker species occurring in the area, such as the middle spotted woodpecker as the most common representative, and many beetle species tied to deadwood, such as the great capricorn beetle, stag beetle and hermit beetle. Including red kite and black kite, almost all breeding bird species of the hardwood floodplain forest habitat can be observed here.





Agricultural land before the restoration measures of the LIFE+ Project, September 2009



Same area after the restoration measures of the LIFE+ Project, August 2017

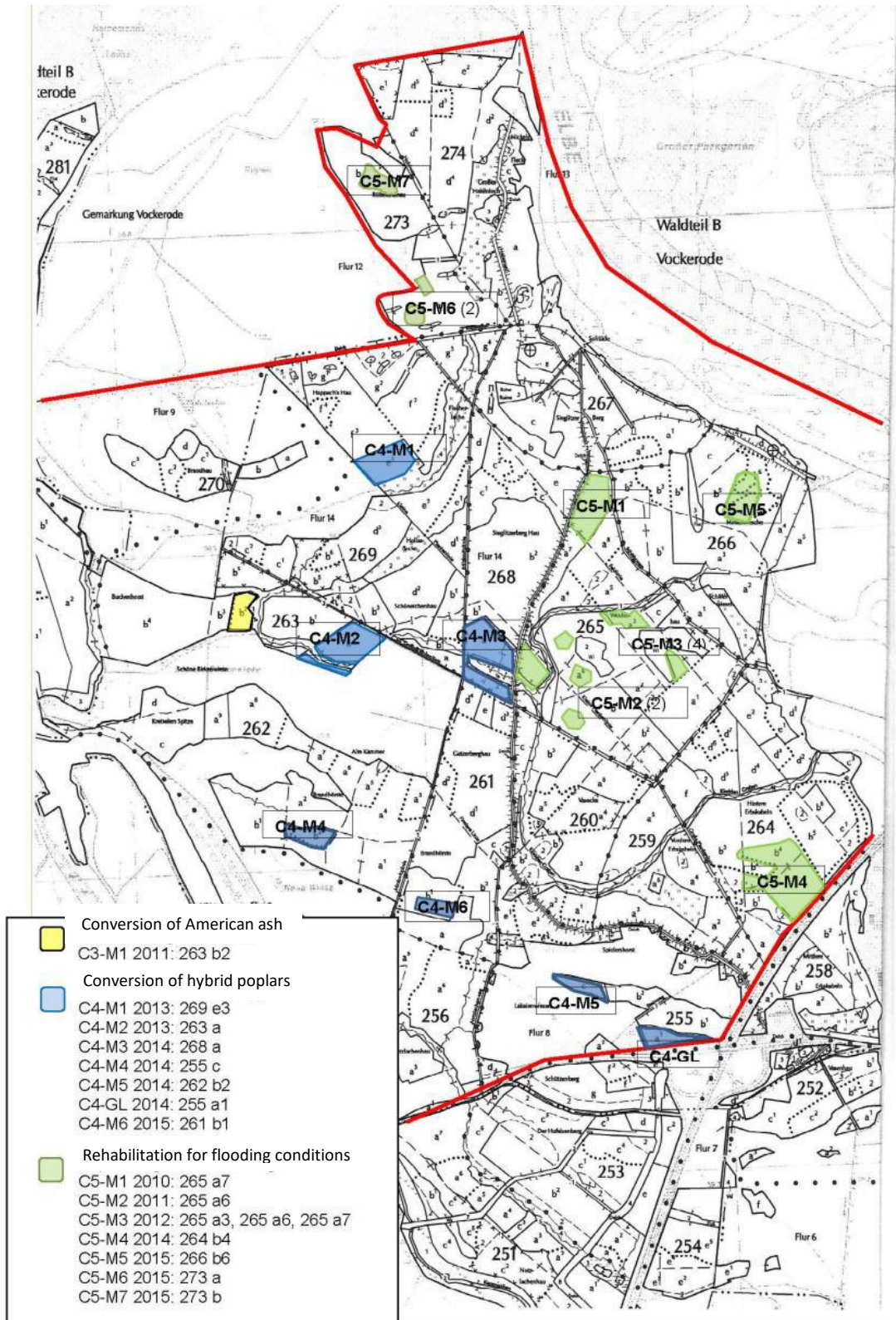


Red kite

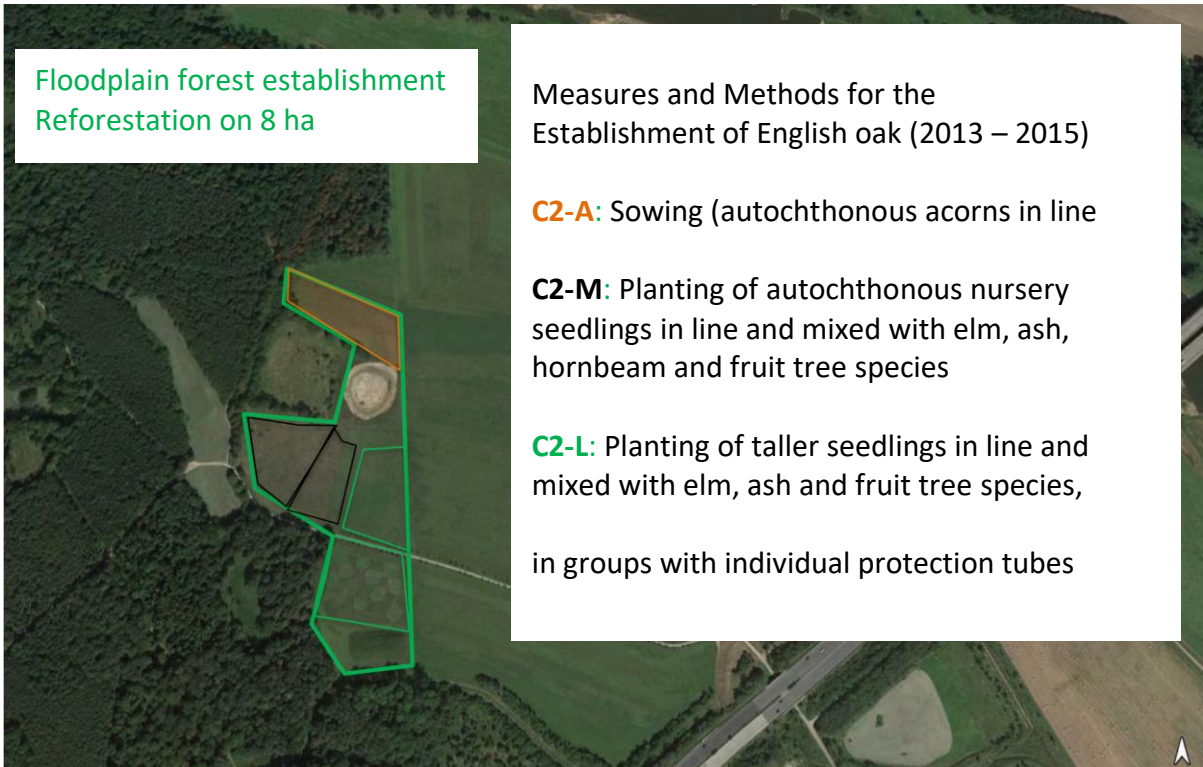


Stag beetle

The forests in the project area were adapted to future flooding and underpinned with young English oak, field and fluttering elms and wild fruit tree species. These tree species belong to the main tree species of the hardwood floodplain forest and cope well with flooding. Stocks of non-native tree species were exchanged with native plants. Additionally, the area of the highly threatened hardwood riparian forests could be enlarged by about 7 ha. In reforestation by sowing and planting, special emphasis was placed on the use of native plant material.



Map with location of all forest rehabilitation measures



Overview of reforestation



Planting in groups with protection tubes



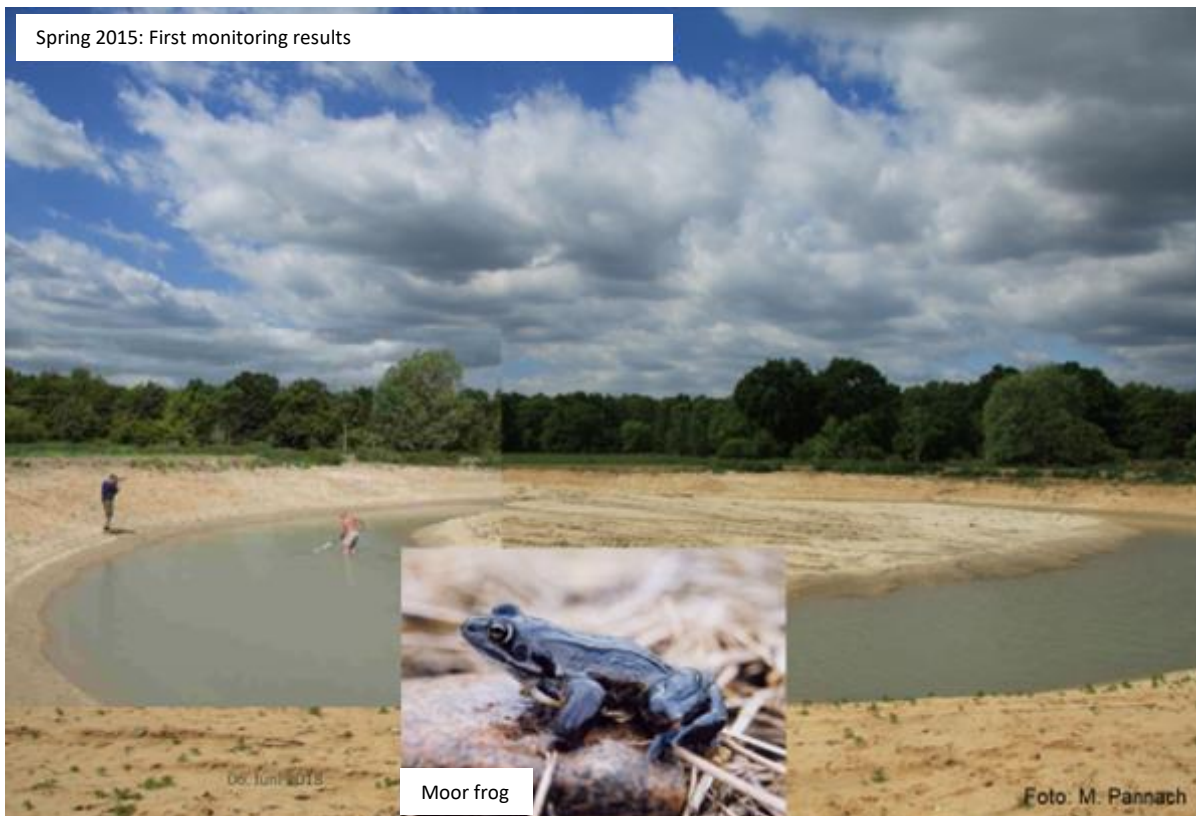
View on reforestation area (Picture taken 2017, two years after planting)

Construction and reactivation of floodplain waters

Floodplain waters, e.g. oxbow lakes, flood channels and ponds are relics of formerly natural river dynamics. In spring, moor frog, fire-bellied toad and crested newt cavort can be found in their shallow areas. The rich plant growth provides ideal conditions for many dragonflies to reproduce, for example the blue-green mosaic maiden, the autumn mosaic maiden or the great royal dragonfly.

The current artificial river infrastructure in the area of the Middle Elbe does not allow a natural formation and development of floodplain water bodies. Floodplain water bodies are silting up, overgrow with vegetation and are degrading. Embedded between future hardwood floodplain forest and floodplain meadows is now a created wetland biotope with an island that can be used as a breeding ground for cranes, especially in years with high waters in the spring period. Another new and permanently water-filled wetland biotope was created by the breach of the Vasenwall. The silted-up oxbow in front of the Sieglitzer Mountain was partly deepened and most of the year covered with water.

Spring 2015: First monitoring results



New wetland biotope half a year after creation (2015)

Vegetation is gradually developing



New wetland biotope two years after creation (2016)



Sludge removal and deepening of an Elbe oxbow, March 2017



Aerial photograph of the deepened Elbe oxbow, in spring 2017





Naturally developed wetland biotope by a breach of the dyke

Observations on the development of species and habitats (monitoring)

The LIFE+ project „Elbauen bei Vockerode“, created a strong base for the natural development of floodplain habitats typical for the ecosystem. This will benefit numerous species highly adapted to and extremely depending on the challenging and dynamic conditions between flooding and desiccation.

The short- and medium-term success of the project is depending on subsequent maintenance measures aimed at promoting the development of FFH-specific habitats and their typical animal species. The care and management of the developing alluvial grassland is secured in the lease agreement. The management principles of the FFH habitat types apply equally to hardwood riparian forests and meadows. Monitoring and success control measures will be continued in the following years.



Expert discussion at grassland monitoring



Monitoring of reforestation with students of the Anhalt University



Public outreach

The implementation of the nature conservation and flood protection measures was aligned with intensive public relations work. The local population but also the numerous visitors cycling through the project area, especially in the summer months (e.g. on the European Cycle Route R1, Elbe Cycle Route, Prince Franz Garden Kingdom Tour) were informed and awareness was raised. Focus was on the following: guided tours and hikes through the project area, regular information about the project status in the regional press, citizens' meetings in the municipality of Vockerode, project flyers and an project brochure. Expert conferences served to exchange experiences and promote the transfer of knowledge.

Floodplain trail (Auenpfad) with nature trail app

A four km long circular path was set up as a nature trail. An app informs at 14 stations about the LIFE+ project and about the aims of the European network of protected areas NATURA 2000. Three information boards were installed for this purpose. The app "Biosphärenreservat Elbe" can be downloaded via QR-Code on the boards and on the internet. A flyer increases curiosity for the app.

Short film

Key stages of the project were captured on film and processed into a short film. The video is available on the project website.





Excursion stop at the information boards about the Life Project



Nature trail – a popular cycling route



Group photo of the final conference, June 2018

Current situation between Dianenwall and Vasenwall

The landscape between Dianenwall and Vasenwall has changed significantly. The former monoculture has been transformed into typical floodplain habitat: young, native plants are the initials of a structurally rich hardwood floodplain forest. Grasses and herbs of a species-rich floodplain meadow will increasingly bloom across the open land area (45 ha). Embedded between future hardwood riparian forest and meadow is the newly created wetland biotope with an island. Another biotope, which is permanently filled with water, was naturally created by the breach of the Vasenwall. The rehabilitated oxbow in front of the Sieglitzer Mountain is partly deepened and most of the year covered with water. The forest part of the project area was adapted to future flooding. In addition, stands of non-native tree species were converted and are developing into hardwood floodplain forest. A wildlife rescue hill in the restored floodplain area provides a refuge for wild animals in flood situations.

Facts and figures

Expansion of the retention area: 210 ha

Land acquisition and land registered for nature conservation: 54 ha

Expansion of the special area of conservation „Dessau-Wörlitzer Elbauen“: 57 ha

Increase of area of floodplain meadows: 43 ha

Increase of share of lowland hay meadow (habitat type 6510): 21 ha

Increase of share of hardwood floodplain forest (habitat type 91F0): 19 ha

Rehabilitation of hardwood floodplain forests (habitat type 91F0): 40 ha

Expansion of the area of wetland habitats: 3,5 ha

Conservation of wetland habitats: 1 ha

Length of nature trail (Auenpfad): 4 km

Information boards: 3

Number of app users: 900/year

Minister of the Environment of Saxony-Anhalt, Prof. Dr. Claudia Dalbert (6. Juni 2018):

"The project is part of the state's 2020 flood protection concept and serves as a model for the 27 potential locations for measures in the flood protection programme "Mehr Raum für unsere Flüsse" (more space for our rivers). We will use the numerous positive experiences to redesign and secure floodplain areas and thus make Saxony-Anhalt a best practice model for nature-friendly flood protection".



Impressum

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