International Course on River and Wetland Restoration 2025

Report

The Ministry of the Environment of the Czech Republic (Ms. Libuše Vlasáková, National Focal Point for the Ramsar Convention on Wetlands) in cooperation with the Center for Theoretical Study of Charles University and the Academy of Sciences of the Czech Republic (Ms. Martina Eiseltová, Scientific and Technical Review Panel of the Ramsar Convention and Czech Ramsar Committee) and Povodí Labe (The Elbe River Basin Authority), state enterprise (Dr. Michal Vávra, Czech Ramsar Expert Group) organized an international training course on river and wetland restoration within the framework of the Carpathian Wetland Initiative. The course was held from 29 September to 3 October 2025 in Hradec Králové, Czech Republic.

This year's course, being the second one organized in cooperation with the Elbe River Basin Authority, focused on the restoration of streams, rivers, oxbow lakes and alluvial pools, as well as on the restoration and sustainable management of fishponds and alluvial meadows, located in East Bohemia. During the course, participants gained information on restoration goals, restoration project preparation and design, examples of restoration measures already implemented, and the subsequent monitoring and evaluation of such restoration projects. The importance of communicating the restoration project goals to the public as well as improving communication across various sectors - nature conservation, water managers, farmers, foresters, private landowners and other stakeholders – was repeatedly stressed.

On the first day, the course participants were welcomed at the Elbe River Basin Authority headquarters by the Director General, Mr. Marián Šebesta. Following the introductory presentations held in the lecture room at the Elbe River Basin Authority, the rest of the week was spent in the field - visiting restoration projects undertaken in the regions of Hradec Králové and Pardubice.

We visited the restoration site of the Orlice river arm called Jordán near Týniště nad Orlicí and the planned restoration of the Orlice River oxbow lake called Holštejn in Slezské Předměstí near Hradec Králové. In Týniště nad Orlicí, the processes leading to a natural development of the Orlice riverbed were restored, and subsequently eroded banks are emerging and new gravel deposits are being formed. The length of the Orlice River was extended by 400 meters. During the restoration project, a new oxbow lake and biotope pools were also created. The restoration project brought many benefits for biodiversity - both biotope and species diversity, together with improvements to the hydromorphological characteristics of the Orlice River and positively influenced the hydrological regime of the landscape. The restoration of the Holštejn oxbow is aimed at improving the condition of the degraded oxbow lake in a valuable part of the regulated floodplain of the Orlice River near Hradec Králové.

The staff of the Povodí Labe, botanist Michal Vávra (author of the investment plan and botanical survey) and Stanislav Winkler from the design department, who prepared the entire project, presented the ecological and technical aspects of the ecological restoration. During the excursions, the participants discussed various aspects of the restoration of river branches, with emphasis on the chosen technical implementations of the necessary interventions, the benefits of restoration measures for biodiversity, and the subsequent monitoring of macrophytes, macrozoobenthos, as well as the monitoring of sites with the use of a drone. The course participants also visited and had the opportunity to observe the naturally meandering Orlice River with its adjacent alluvial meadows and solitary oak trees preserved till today near the village of Blešno. The natural values of the Site of Community

Importance of the Orlice and the Elbe rivers are so significant that this area is proposed to be designated as a wetland of international importance under the Ramsar Convention.

The lecturers were not only the course organizers themselves. Regional experts were also invited, whose long-term activity in the field of wetland restoration is more than evident by the success of their restoration and conservation projects. The morning part of the excursion to the Josefovské louky meadows bird park near Jaroměř was professionally supervised by Břeněk Michálek from the Czech Society for Ornithology. This first Czech bird park has become an important ornithological site. The return of wetland birds to the restored floodplain meadows of the Metuje River was made possible thanks to the great support of hundreds of donors - from professional bodies as well as the general public. A very important element of the management here is the controlled flooding of the wetland and the grazing undertaken by large herbivores (the site is grazed by Exmoor ponies and aurochs). About 204 bird species have already been recorded at the site, the greatest success being the target species, such as waders, rails, crakes, and rare waterfowl.

Not only ecological restoration, but also the overall treatment of landscape elements is of fundamental importance for the preservation of important wetland habitats. At the Broumar fishpond in Opočno and Drnov fishpond in Dobruška, an expert portrayal and explanation was provided by Václav Kalenda, head of the Kolowrat Fisheries Administration. This provided an opportunity to compare individual forms of fisheries management, differences in pond care and possibilities for the restoration of biodiversity. Thanks to the extensive form of fishpond management, the Drnov pond is an important location for macrophyte algae, macrophytes, dragonflies, aquatic insects, amphibians and waterfowl.

At the end of this day's excursion, we visited the fish migration passage of the Divoká Orlice River near Orlické Záhoří and the Polish village of Lasówka. The channel central line of the Divoká Orlice riverbed forms here the state border, the principle action here being to replace the cascade weir with a fish ladder formed by a series of boulders, suitable for fish migration. The restoration of the Divoká Orlice migration route was also important for various fish species of European importance: the European bullhead (*Cottus gobio*) and the Eurasian minnow (*Phoxinus phoxinus*).

The Wednesday field trip was dedicated to restorations in urban conditions. We visited the restoration of the Chrudimka River and its branches in Chrudim. The lecturers of this excursion were investment technical consultant Hana Dušánková from the City of Chrudim and Jaroslav Lohniský from the company ŠINDLAR Group Ltd. The City of Chrudim is one of the pioneers in the Czech Republic in restoring water features in an urban environment. The restoration is focused on naturalizing the existing artificial canal, enhancing the aesthetic value of the area and restoring biodiversity. The restoration of the Chrudimka river branches is aimed at improving sedimentation, the self-cleaning ability of the stream and, among other attributes, restoring migration routes for fish and other aquatic organisms.

The Povodí Labe enterprise showed the participants the ongoing restoration of the Natural Monument Tůň u Hrobic. It was interesting to observe the 'humming' excavators at work, the amount of sediment being removed, and the attractive fallen logs in the river channel. The technical aspects of the restoration of the oxbow lake were presented by Martin Oliva from the Investment Implementation Department of the Elbe River Basin Authority. Michal Vávra introduced the history of the site, the goals of the project and informed about this year's discovery of the critically endangered plant 'creeping slitwort' (or common false pimpernel, *Lindernia procumbens*). This species of exposed river bottoms was found thanks to the ecological restoration of the site.

The last part of the excursion took us to the Bohdanečský rybník fishpond National Nature Reserve[1], where Vlastimil Peřina and Šárka Jiráská from the Nature Conservation Agency (AOPK ČR) provided the guide. The Bohdanečský rybník National Nature Reserve is an important ornithological, batrachological (amphibians) and botanical site. The investor of the extensive ecological restoration was AOPK ČR and the project still has a noticeable restoration effect after several years, especially for the diversity of the wetland birds and aquatic plants. The biggest challenge in implementing the project was the removal of a huge amount of sediment, the reconciliation of various conservation interests and its fisheries management. The fen meadows in the northeastern part of the site are currently grazed by an attractive herd of Scottish Highland cattle.

Martin Trávníček from the Pestré Polabí NGO introduced us to the restoration of the Tichý rybník fishpond near Lázně Bohdaneč Spa. The originally degraded wetland that became overgrown with reeds is being restored through grazing and vegetation adjustments that have led to an opening up of the site, and the new pools now provide a new refuge for frogs, aquatic insects and aquatic and wetland plants.

The restoration of the Labiště pod Opočínkem Natural Monument consisted of the removal of muddy sediments, the connection of a river branch to the Elbe, the creation of a new wetland and the restoration of biologically valuable littorals. The Povodí Labe has returned life to the site, and thanks to the restoration activities, fish migration is now taking place, amphibians are breeding at the site, and endangered species of aquatic and wetland plants have returned to the site after many decades.

At sunset of the last day of the course, the participants had the opportunity to watch the arrival of a large flock of common cranes (*Grus grus*) to their roosting site at Bohdanečský rybník fishpond. Two experienced birdwatchers, Aleš Zvára and Alois Holub, supplemented our observation with an informative commentary.

At all the restoration sites visited, the participants were introduced to the history of the projects, their respective pitfalls, to the specific details of their respective measures, and the subsequent benefits for habitat and species diversity, restoration of their hydrological regimes, and other natural processes.

The course in Hradec Králové was attended by participants from: Hungary (coordinator of the LIFE LOGOS4WATERS project); Slovakia (Carpathian Wetland Initiative, State Nature Conservancy of the Slovak Republic, Water Management Research Institute, Velká Fatra National Park Administration); Poland (Frankfurt Zoological Society, University of Warsaw); Ukraine (Frankfurt Zoological Society) and Serbia (UN Development Programme).

The course participants also presented their own restoration projects, thus creating a valuable exchange of knowledge and ideas in wetland restoration. These courses provide opportunities to enrich professionals from different fields of expertise with the knowledge and tools that are essential for the successful restoration and protection of watercourses, river arms, pools, ponds and other valuable wetlands. At the end, participants received a Certificate of Attendance on completing the course.

Our thanks go to all participants of the training, the organizers - Libuše Vlasáková from the Ministry of the Environment, Martina Eiseltová from the Center for Theoretical Study of Charles University and the Academy of Sciences of the Czech Republic (also for provided

[1] Link to Youtube with a video from Bohdanečský rybník fishpond (commentary is in Czech): https://www.youtube.com/watch?v=uPB8hsnGxJ8

links to relevant resources)[2], and Michal Vávra from Povodí Labe, state enterprise, for their cooperation and knowledgeable professional support.

We would also like to thank Břeněk Michálek from the Czech Society for Ornithology, Václav Kalenda from the Kolowrat Fisheries, Vlastimil Peřina and Šárka Jiráská from the Nature Conservation Agency of the Czech Republic, Aleš Zvára, Hana Dušánková from the City of Chrudim, Jaroslav Lohniský from the ŠINDLAR Group Ltd., Martin Trávníček from the Pestré Polabí NGO and Alois Holub for their professional and friendly guidance of the excursions.

The presentations given during the course and other supporting materials and documents are attached to this report and can be downloaded from the CWI website.

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[2] Few links where you can find the publications mentioned at the course and that are relevant to the topic presented:
Springer book on Restoration, edited by M. Eiseltová, is here: https://link.springer.com/book/10.1007/978-90-481-9265-6;
chapter on Evapotranspiration: https://www.intechopen.com/chapters/26110
and one more relevant publication from colleagues:
https://www.researchgate.net/publication/311340976_The_role_of_water_and_vegetation_in_the_distribution_of_solar_energy_and_local_climate_a_review

Photo 1: Training organizers and participants at Povodí Labe, state enterprise (photo: A. Prokopec)


Photo 2: Introductory presentations at Povodí Labe, state enterprise in Hradec Králové (photo: J. Kadlečík)

Photo 3: Discussion at the restored Orlice River arm Jordán (photo: J. Kadlečík)

Photo 4: Josefovské louky bird park – Exmoor ponies grazing in wetlands (photo: J. Kadlečík)

Photo 5: Aurochs cow at Josefovské louky bird park (photo: J. Kadlečík)

Photo 6: Excursion at restored Nature Monument Labiště pod Opočínkem (photo: M. Vávra)

Photo 7: Restored oxbow at Nature Monument Labiště pod Opočínkem (photo: J. Kadlečík)

Photo 8: Scottish Highland cattle at Bohdanečský rybník fishpond reserve (photo: J. Kadlečík)

Photo 9: Fish ladders at the Divoká Orlice River near Orlické Záhoří (photo: J. Kadlečík)

Photo 10: Water body restoration in urban conditions (City of Chrudim) (photo: J. Kadlečík)

Photo 11: Restoration works at Tůň u Hrobic Nature Monument (photo: J. Kadlečík)

Photo 12: Participants at Tůň u Hrobic Nature Monument (photo: M. Vávra)

Photo 13: Arrival of common cranes to roost in the Bohdanečský rybník reserve (photo J. Kadlečík)

Photo 14: Meander of the Orlice River in Orlice Nature Park (photo J. Kadlečík)