Training school about freshwater mussel breeding

Due to their frequently strong imperilment, more and more freshwater mussels become target species of conservation programs. These conservation programs often include breeding projects as a short term conservation method in order to prevent total extinction of target populations, preserve genetic diversity of species or restock extinct populations.

Implementation of breeding programs is complex and requires profound background knowledge and a „toolbox“ including various methods and skills from selection of target populations, breeding work steps like collection of larvae or rearing of host fish and juveniles up to releasing and monitoring juveniles and populations.

The training school about freshwater mussel breeding is directed towards all newcomers to mussel breeding and mussel conservation providing a thorough introduction on the topic with a strong focus on enabling practical experiences of all working steps.

The program is split in two courses taking place in June and September 2023 at the Kalborn mill in Luxemburg and the city of Passau in Germany. Detailed information is provided below.

Registration	**For part 1 in Luxemburg until Thursday May 15th 2023 at** f.thielen@naturemwelt.lu **For part 2 in Germany until Thursday May 15th 2023 at** marco.denic@landkreis-passau.de
Maximum number of participants	Fifteen (15) people
Trainee grants	Participants will get further information about possibilities on reimbursement of travel costs by the COST program after the deadline of Thursday May 15th 2023.

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Part 2: releasing and monitoring of mussels and their potential habitats

In the early 2000's first steps for a comprehensive conservation of freshwater pearl mussel populations in the southern Bavarian Forest were taken, comprising the establishment of a breeding program and the restoration of suitable habitats. Since 2015 conservation work started to include the selection of suitable release habitats comprising deficit analysis and optimization of microhabitats for release of juvenile mussels. In 2018, first juvenile mussels were tagged, released and their performance in the natural habitats has been monitored. In recent years, other mussel species, such as *Unio crassus*, *Unio pictorum* and *Anodonta* sp., occurring in the region of Lower Bavaria have been integrated in conservation efforts mainly focused on habitat conservation.

Date	**Monday 11th September – Friday 15th September 2023**
Venue	Region of Passau with different venues within a range of 30 km of the city of Passau 
Accommodations	The pitoresque city of Passau situated at the confluent of the three rivers Danube, Inn and Ilz offers a variety of different accommodations. See: https://tourismus.passau.de/uebernachten/uebernachten-passau-stadt/ A shuttle bus between Passau and the field venues will be arranged.

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How to get there	Passau is situated in the southeastern part of Germany close to the borders of Austria and the Czech Republic. https://goo.gl/maps/wmwphyVi1nEZ3U4W7 Closest airports are Munich (GER) and Linz (AUT) with regular train connections to Passau and travelling time of 1.5 -2.5 hours.
Topics and course of the training school	**Sunday 10th September 2023** 6 pm: get together with city tour through Passau and dinner **Monday 11th September 2023: Habitat assessment** Block 1 (2 hours): - General introduction and theoretical background to analysis of (release) habitats - Introduction to field mapping of (release) habitats Practical exercise (2 hours): - pre-selection of potentially suitable river stretches for juvenile release according to available monitoring data and map based landscape analysis Block 2 (4 hours): Practical exercise: - field mapping of microhabitats - habitat deficit analysis - Development of a concept for habitat improvement **Tuesday 12th September 2023: Monitoring methods** Block 1 - Introduction to monitoring of mussels (2 hours) - Introduction to population genetics of mussels and fish (2 hours) Block 2 - Practical exercise: Genetic sampling in the field (2 hours) - Marking and tagging mussels (2 hours)

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	Wednesday 13th September 2023: eDNA Block 1: - Introduction to eDNA Metabarcoding applications for conservation (2 hours) - Laboratory sampling design, DNA extraction, Library prep, and NGS (2 hours) Block 2: Practical field exercise - Fieldwork sampling design for eDNA capture with example field session (4 Hours) **Thursday 14th September 2023: eDNA and monitoring methods part 2** Block 1: eDNA - Bioinformatic procedures and pipelines (2 hours) - Taxonomic assignment and data curation (2 hours) Block 2: Monitoring methods, Practical exercise: - Application of various on site mapping methods in different habitats of Anodonta and Unio species (4 hours) **Friday 15th September 2023** Practical exercise: Releasing mussels (4 hours) Summary and closing of the training school (1 hour) Approximate end at 2 pm
Contact	Landschaftspflegeverband Passau e.V. Dr.-Ernst-Derra-Straße 4 94036 Passau Marco.denic@landkreis-passau.de Tel: +49 851 379 386 16

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