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Press release

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Research projects, Research results
Biology, Environment / ecology, Geosciences, Oceanology / climate, Zoology / agricultural and forest sciences
transregional, national

Green flood defence: EU project highlights importance of floodplains

Floods do not stop at borders. That is why, funded by the EU, an international research consortium including the Floodplain Institute Neuburg of the Catholic Univerity Eichstätt-Ingolstadt (KU) has investigated the potential of the renaturization of Danube floodplains in reducing the impact of extreme floods. Having examined five pilote regions, the researchers concluded that floodplains have a verifiable effect in capping flood peaks and shifting water runoff.

All in all, 22 international partners from Germany, Austria, Bulgaria, Croatia, the Czech Republic, Hungary, Serbia, Slovakia and Slovenia cooperated in this project. As riparian states of the Danube, these countries form the river's catchment area. The researchers recently presented their conclusions at an online conference.

"The project's main aim was the improvement of the transnational water resources management and the prevention of floods - in combination with the creation and preservation of biodiversity in floodplains", says Head of the Floodplain Institute, Prof. Dr. Bernd Cyffka. One reason for this is the fact that land use in recent decades has been characterized by a major transformation of wetlands ecosystems. Since 1970, 90 percent of the world's wetlands have disappeared and with them 84 percent of all vertebrate species. Along the Danube, 70 percent of the floodplain areas have been cut off from their river.

The international orientation of the project in particular was intended to lay the foundations for increasing awareness in the bordering states for integrative water management through the restoration of river floodplains - and about a possible combination of grey (i.e. constructed) and green infrastructure. "We have amassed a lot of knowledge here at the Floodplain Institute, with which we would like to make a difference along and down the river," says Cyffka. At the same time, the project provided a forum for exchange with experts in the affected regions.

The aim was to involve all the concerned parties, whose cooperation is instrumental in the planning and implementation of such projects. As with any renaturation project, the views of many individual interest groups have to be taken into account - such as neighboring communities, forest owners, fishery associations or agricultural businesses. The Floodplain Institute of the KU has conducted stakeholder analyses in order to estimate the so-called ecosystem services of floodplains. These are effects that floodplains can have on humans and nature – for example by serving as a habitat for plants and animals, as a recreational area, filter for pollutants or by preventing floods.

In five so-called pilot areas along the Danube and its tributaries (Hodonín-Holič/Czech Republic and Slovakia, Kostanjevica na Krki/Slovenia, Fokorúpuszta/Hungary, Begečka Jama/Serbia and Bistreț/Romania), the project's "Danube Floodplain Evaluation Tool" was tested and feasibility analyses were prepared, which also model water level forecasts.

The results show that increasing the floodplain area increases the water storage capacity while decreasing the water level during floods. Floodplain reconnection and reactivation can measurably affect flood peaks and can shift water runoff, which also has a mitigating effect during extreme floods. Restoration and cultivation measures should fit the

unique characteristics of the pilot areas and the floodplain in question. Restored floodplains provide a broader range of ecosystem services not only to the public, but also to agriculture. "The Danube Floodplain Evaluation Tool and its findings were integrated into the third management plan for the Danube river area and the second flood risk management plan," adds Professor Cyffka. As a next step, further cooperation with land owners and land users is required in the pilot regions to initiate renaturation projects in a close exchange.

The detailed results of "Danube Floodplain" were published on the project website:
www.interreg-danube.eu/approved-projects/danube-floodplain/outputs

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URL for press release: http://www.interreg-danube.eu/approved-projects/danube-floodplain/outputs

The floodplain forest between Ingolstadt and Neuburg. Here, the Aueninstitut of the KU has scientifically accompanied a long-term renaturation project.
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