

## **Proposal of measures for the restoration of water and water-dependent ecosystems in floodplain area of Nature Park Kopački rit**

Ivan VUČKOVIĆ<sup>1</sup>, Tomislav ŠALAMUN<sup>1</sup>, Mladen PLANTAK<sup>1</sup>, Koni ČARGONJA REICHER<sup>1</sup>, Marta SREBOČAN<sup>1</sup> & Ivan TOT<sup>3</sup>

<sup>1</sup>*Elektroprojekt Consulting Engineers, Civil and Architectural Engineering Department, Section of Ecology/ Alexandera von Humboldta 4., Zagreb, /Croatia/ Hrvatska (ivan.vuckovic@elektroprojekt.hr)*

<sup>2</sup>*Herzegovina University dr. Milenko Brkić Faculty of Social Sciences, Kraljice Mira 3A, 88266 Bijakovići, Međugorje, Bosnia and Herzegovina*

<sup>3</sup>*Hrvatske vode, Ulica grada Vukovara 220, 10 000 Zagreb*

### **Abstract**

Freshwater ecosystems are often degraded because of human activities resulting in damming, drying, overfishing and pollution from household or industrial wastewater. Damming water courses with dams causes significant changes in the flow of matter and energy through river ecosystems and has a particularly unfavorable effect on the migration of fish species. Changing this state is possible through the restoration of ecosystems, which implies stopping existing pressures and preventing future, restoring degraded habitats and ecosystem functions.

Watercourse restoration is the process of managing rivers to restore natural processes to restore biodiversity, benefiting both people and the environment. Restoring natural processes can reshape rivers by providing the diversity of habitats necessary for a river ecosystem. The vision of river restoration is to give rivers more "room" to adapt naturally and to support more natural habitat and functions. Today, there is a much better understanding of how various restoration techniques can produce positive changes in habitats and their biological communities and help flood management by restoring natural areas such as natural floodplains. Restoring the natural vegetation communities of river corridors contributes to broader forest restoration that improves resilience to climate change and provides other benefits.

The goal of the Study Revitalization of Water and Water-Dependent Ecosystems in the Flood Area of the Nature Park Kopački Rit, which is part of the EU project "Naturavita", is to provide clear answers based on the facts, i.e., the conducted hydrological and hydraulic analyses, as well as the conducted biological, physical-chemical, and chemical monitoring, give clear answer and instructions on which measures need to be implemented in order to permanently ensuring the stability of the ecosystems within the Nature Park. In water restoration, emphasis is placed on those parts of the floodplain where it is possible to implement certain measures that would increase the flow of water from the Danube River and thus increase the flow of certain water bodies (channels) where the basic ecological characteristics have been changed due to human activities. Restoration measures include measures related to the channel of the Danube and Drava River, revitalization measures in the inundation of the Danube and Drava River in the Nature Park, and revitalization measures outside the Park area.

This paper present a proposal for restoration measures that would be implemented in the Nature Park Kopački rit with the aim of maintaining a favorable hydrological regime, which is essential in preserving the biological diversity of the Nature Park.

**Keywords:** freshwater ecosystems, restoration of habitat conditions, restoration measures, Kopački rit

### **Oral presentation**