Riparian zone hydrological rehabilitation along the Gyöngyös stream (Hungary)

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Climate change induced drought periods are likely to cause decline in groundwater level, which can degrade riparian ecosystems (such as riparian forest). With a reasonable water supply, water scarcity can be stopped and these valuable ecosystems can be preserved.

The aim of the research was to evaluate the impact of water supply interventions regarding habitat reconstruction of Doroszló meadows near Kőszeg (west Hungary). Groundwater monitoring wells have been installed at 4 representative sites of the area. Groundwater wells were 3–5 m deep and screened at their bottoms (2–4 m). The water level of the wells was recorded manually, on a weekly basis, with an accuracy of 1 mm. In the neighborhood of the wells surface close soil moisture values were also measured. Data from April 2019 to October 2020 were collected. Local meteorological data measured in Kőszeg were also used for analysis.

Evaluating the data from each well in the pre-intervention period (the analysis of the relationship of the wells with the control well), we came to the conclusion that the Well-1 and Well-2 behave similarly. The impacts of the water supply on the groundwater level were analysed using a “double mass curve” and a “treatment-control space-time deviations” approach. Result showed that the intervention had a positive effect only on the Well-3 from the examined wells. The data evaluation denoted that unfortunately the control well was also affected by water supply interventions.

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