



Survey of radiation intensities at the rivers Lafnitz and Pinka using hemispherical images and analysis of the shading effect of the riparian vegetation.

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Climate change scenarios predict an increase of temperature about 2 to 2.5°C until 2040 for Austrian lowlands. Especially the pannonian area in eastern Austria, with hot and dry summers and high temperatures is affected by these forecasts. These changes in global climate will also lead to negative consequences for freshwater ecosystems by an increase in water temperature. If there is sufficient natural bank vegetation in riparian areas, the increasing resilience of those freshwater ecosystems will be supported, whereas negative impacts such as the rise of river water temperature will be balanced.

This study shows the degree of riparian vegetation as a shading element at the two investigated rivers Lafnitz and Pinka, located in eastern Austria. In field surveys hemispherical photographs were gathered on 95 points in the middle as well as the banks of both rivers. Subsequent surrounding riparian vegetation and terrain was surveyed by means of vegetation composition, height, density and vegetation overhang into the river as well as river size and bank inclination.

Hemispherical Photographs were processed by the software Hemiview 2.1 and provide resulting global site factors, which inform about radiation reduction caused by riparian vegetation. With the global site factors, vegetation and river morphology data of the 95 selected sites the shading potential of predominant riparian vegetation types was investigated. Results show the most impacting parameters on solar radiation passage through riparian vegetation.