

**A COMPARISON OF EVAPOTRANSPIRATION RATES FOR WILLOW AND REED IN A RIVERINE FEN**

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Water/land ecotone properties with wetlands have been key points in sustainable management of water. The aim of this study is to estimate the evapotranspiration rate of willow (*Salix* spp.) and reed (*Phragmites australis*) in a riverine fen. Using the Penman-Monteith equation, it is necessary to assess characteristic surface resistance ( $r_s$ ) and aerodynamic resistance ( $r_a$ ). The evapotranspiration rates of the above-mentioned two main vegetation types will then be compared.

The study site is located in a typical riverine fen area of the northeast German lowlands along the river Warnow. Current investigations of the University of Rostock are focused on the water regime of this fen, which depends on the river Warnow and its discharge regime. The discharge behaviour of the river is affected substantially by the water regime of its floodplains including riverine fens. One of the most important elements in this process is the evapotranspiration.

Two methods are used to estimate the evapotranspiration of the vegetation under investigation. There will be a comparison between a hydrological and a meteorological measurement program to estimate characteristic surface resistance and aerodynamic resistance. The hydrological measurements include the recording of diurnal fluctuations of groundwater level, soil moisture and soil moisture tension with a time slice of 15 minutes. All required meteorological parameters for using the Penman-Monteith equation are measured in the field with the same short time intervals, as well as rainfall, wind speed and wind direction. The leaf area index is also measured using the LAI-2000 Plant Canopy Analyzer. In order to characterise the interception storage the throughfall has been measured within the willow. All measurements are made during the vegetation periods of the years 2003 and 2004.

A key finding from the first data analysis shows a maximum diurnal fluctuation in the groundwater level of 9 cm beneath the willow and 6 cm beneath the reed vegetation. These results, linked with other measurement results are an indication of significant differences between the evapotranspiration rates of reed and willow stands.