RESPONSE OF RIPARIAN VEGETATION TO THE DECREASE OF FLOODING:
THE NAREW NATIONAL PARK, POLAND

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Summary

The section of the upper Narew River valley protected as the Narew National Park is known for a unique system of anastomosing riverbeds, which supports extensive areas of wetlands. The frequency and duration of floods, which were crucial for the development of floodplain fens, have changed in the last decade due to alteration of the hydrological regime both upstream and downstream the national park. In order to find the effects of these hydrological changes on vegetation, we compared present and past distribution of plant communities along transect across the valley, where groundwater level has been regularly measured for the last 33 years. Along the transect, vegetation relevés were made in the 1970s and repeated in 2003 in the same sites. Next to each relevé, soil and hydrological conditions were analysed.

Comparison of vegetation data showed that the area of tufted sedge communities Caricetum elatae, which used to be the dominating and the most representative vegetation type in the park, drastically decreased. At the same time, we observed the expansion of not peat-forming slender tufted sedge community Caricetum gracilis and invasion of the common reed Phragmites australis to sedge fens. In effect, natural values of the area have significantly diminished. The hydrological and soil analyses revealed a significant lowering of the groundwater level during growth season in the last decade, which was mainly due to shortened duration of floods. This resulted in desiccation of peat soils. The extent of these changes is reflected in the extent of changes in vegetation. Our results show that, even in the range of hydrological conditions which supports wetland communities, some changes can largely affect species composition and conservational values. This is of high importance in the planning of floodplain management and its use for flood control purposes.