

Conditions of stability and vegetation dynamics of Polesie peatlands

Peatlands are the most space-effective carbon stocks of all terrestrial ecosystems, essential parts of regional water cycling, regulators of local and regional climates and hotspots of threatened biodiversity. Polesie is the region with the largest peatland cover in temperate Europe. Although many Polesian mires have been drained, a considerable part seems hardly been transformed by humans and subject to natural development over thousands of years. These sites offer today a unique opportunity to analyse the mechanisms and processes that determine the stability and long-term dynamics of mire ecosystems.

In this project, we aim to check the importance of landscape settings and vegetation characteristics in controlling the stability and dynamics of Polesie mires vegetation during the recent 100 years. In the years 1928-1933, Stanisław Kulczyński and his colleagues carried out an extensive inventory of the Polesian peatlands. The resulting detailed study of vegetation and peat deposits laid the foundations of modern international peatland ecology. Large areas of Polesie peatlands that escaped direct drainage offer now a unique opportunity to analyse ecosystem development over the 20th century by comparison with the analysis of Kulczyński.

To assess the stability and dynamics of vegetation of the Polesie mires, vegetation survey will be carried out in c. 30 selected study sites of Kulczyński. Historic vegetation data will be compared with present ones. Habitat conditions possibly impacting the mires stability will be assessed in each study site. Vegetation will be characterised e.g. in terms of the value of stress indicator calculated for each study sites based on plant functional traits. Relation of factors possibly determining stability to observed vegetation dynamics over the recent 100 years will be assessed.