

# **Vegetation Dynamics of *Cnidion dubii* Alluvial Meadows in the Lower Oder Valley National Park (2019–2025)**

Josephine Protze, Bachelor Thesis

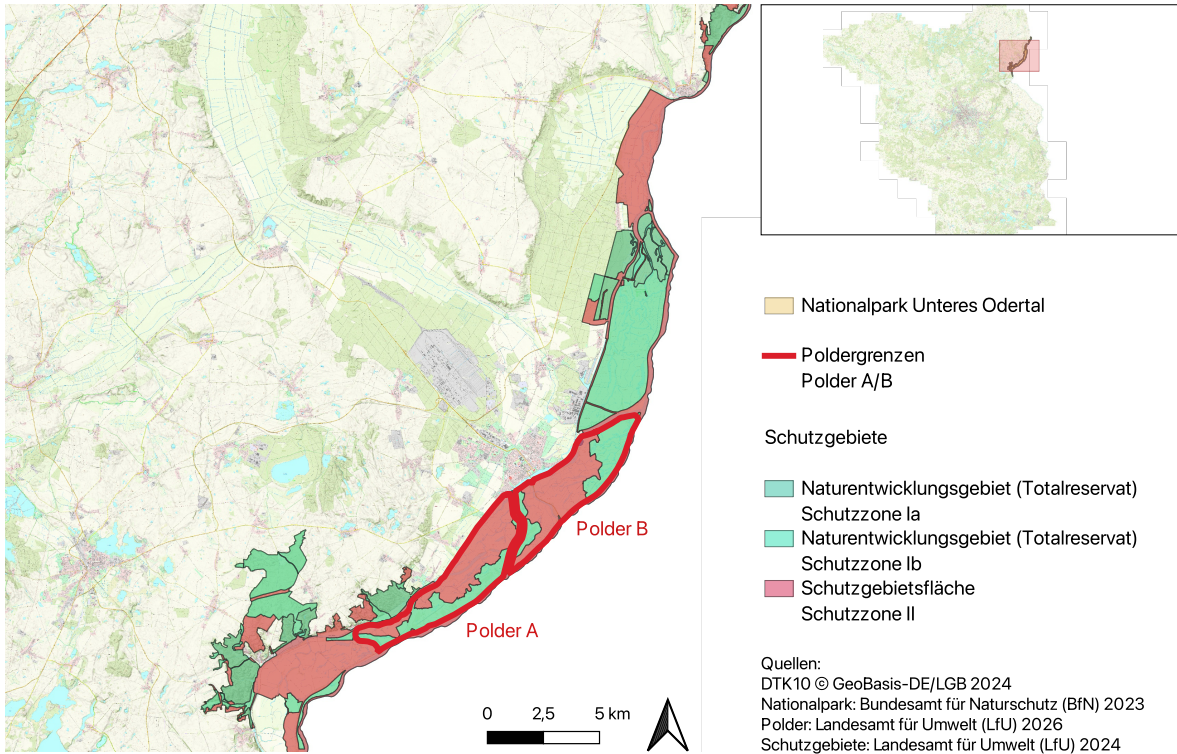
## **Abstract**

This thesis investigates the vegetation dynamics of *Cnidion dubii* alluvial meadows (Habitat type 6440 of the Habitats Directive) in the Lower Oder Valley National Park in Brandenburg based on long-term monitoring data collected between 2019 and 2025. The study aimed to analyze changes in species composition, species richness, and dominance structure, as well as to assess the influence of key environmental factors such as land use, hydrology, and climate. The analysis is based on annual vegetation surveys conducted on six permanent monitoring plots located within the Polder A/B using a standardized methodology. In addition, topographic parameters, land-use data, climatic data, and information on polder management were incorporated into the analysis. The evaluation was primarily descriptive and exploratory.

The results show considerable differences among the six plots regarding species richness, species composition, and conservation status. Overall, the habitat type was predominantly characterized by a moderate to poor conservation status. Vegetation changes were expressed less through fluctuations in total species richness than through shifts in species composition and dominance patterns. In particular, the decline of characteristic indicator species alongside the increasing dominance of competitive grasses points to qualitative degradation processes within the stands. Land-use regime, especially the timing and type of management, proved to be the most important driver of vegetation development. Early and appropriately timed mowing promoted the development of characteristic species assemblages with more balanced dominance structures, whereas delayed or absent management and exclusive grazing were associated with declining habitat quality. At the same time, hydrological conditions, particularly flood duration and microtopography, limited vegetation development. Climatic influences mainly acted indirectly through their effects on hydrology and land-use practicability.

The findings highlight that the conservation of species-rich and characteristic *Cnidion dubii* alluvial meadows in the Lower Oder Valley National Park requires site-specific and adaptively managed conservation strategies. In particular, conflicts between grassland-

nesting bird conservation and the ecological requirements of habitat type 6440 represent a major management challenge. Long-term, methodologically consistent monitoring is therefore essential for reliably assessing vegetation trends and adapting conservation measures accordingly.



**Figure 1:** Overview Lower Oder Valley National Park – Location of Polder A/B and protected areas. (Own map created in QGIS)



**Figure 2:** Plot 1 (Schleuse Schwedt) – Habitat Type 6440. (Own photography)