

Biodiversity at risk: The protection of cultural heritage sites in Ukrainian Polissia

This project addresses the critical issue of biodiversity loss in Ukraine by focusing on the conservation of overlooked refugia: cultural heritage sites. Specifically, it tackles **the lack of systematic, scientific research on the biodiversity value of cultural heritage sites in the Ukrainian Polissia region** and the subsequent absence of legal and managerial frameworks to protect them from threats such as neglect, repurposing, and destruction.

This research opens several critical future directions:

Expanding the Network: Applying this methodology to other regions in Ukraine (Ukrainian Polissia).

Developing Management Plans: Creating specific conservation strategies to protect these sites from threats like abandonment, landscaping, or encroachment.

Integration into Policy: Advocating for the formal recognition of these sites within national and European green infrastructure and ecological network strategies (e.g., as part of Ukraine's post-war reconstruction and EU alignment).

Linking Cultural and Natural Heritage: Further exploring the socio mechanisms that have allowed these cultural sites to become such effective natural reserves.

This project will establish a network of cultural heritage sites as vital sanctuaries for Ukraine's endangered biodiversity. Building on proven methodology from southern Ukraine, we will expand research to the forested Polissia region to validate these sites as universal refugia. The project will develop science-based conservation plans to combat threats like abandonment and landscaping, and integrate these habitats into national and European ecological networks.

THE AIM OF THE PROJECT

What is the aim of project? What is the innovative character of the project? What is the practical relevance of the project? What are the expected outcomes?

This study is designed to fill this salient knowledge gap. The primary aim of this research is to conduct a comprehensive phytosociological investigation of the cultural heritage sites of Ukrainian Polissia. Specific objectives are:

- (1) to inventory the vascular plant species diversity,
- (2) to develop site for future monitoring and to classify the vegetation communities using phytosociological methods (Eurasian Dry Grassland Group),
- (3) to systematically assess the conservation value of these sites by identifying and documenting rare, threatened, and protected species,
- (4) to compare the biodiversity and conservation value of Polissia cultural heritage sites with the established data from steppe zone cultural heritage sites in southern Ukraine.
- (5) creation of Emerald Network Objects and management plans for preservation of vegetation.

Innovative Character

This is the first study to systematically compare the conservation role of cultural monuments across two major biogeographical zones (steppe vs. Polissia) in Ukraine, offering a national-scale perspective.

Novel Geographic and Ecological Focus: While previous research established the value of cultural heritage sites in the steppe zone (southern Ukraine), this project pioneers the same in-depth study in the Polissia zone (a forested wetland/woodland region). This provides a crucial comparative perspective for understanding how these habitats function in different ecological contexts.

Open Data for Conservation Advocacy: A key innovation is the commitment to publishing the primary biodiversity data to the Global Biodiversity Information Facility (GBIF) in accordance with the FAIR Principles (Findable, Accessible, Interoperable, and Reusable). This ensures transparency, facilitates global research, and creates an immutable, citable record that strengthens legal arguments for protection.

Informing Conservation Strategies: The results will provide essential data for developing regional and national conservation strategies, identifying specific cultural heritage sites that are high-priority sites for protection.

Contributing to European Conservation Goals: By identifying habitats and species listed in

European resolutions (Bern Convention etc.), the project provides data that can feed into broader European biodiversity conservation.

In summary, **the practical relevance of this project** lies in its direct translation of scientific data into actionable tools for conservation:

It provides the evidence for legal protection, the blueprint for effective management, and the transparent data to advocate for these unique habitats, ensuring they are preserved for both their nature protection value.

Expected Outcomes

- ❖ **A Comprehensive Dataset:** A complete inventory of vascular plant species and a classified list of phytosociological communities found in the cultural heritage sites of Ukrainian Polissia.

- ❖ **A Conservation Assessment:** A documented list of rare, threatened, and protected species and valuable habitats present in these sites.

- ❖ **A Comparative Analysis:** A scientific comparison between the biodiversity and ecological role of cultural heritage sites in the Polissia zone versus the steppe zone, revealing patterns of habitat function across different landscapes.

- ❖ **An Open-Access Data Publication:** The formal publication of all primary biodiversity data on the GBIF platform, making it findable and accessible to scientists, policymakers, and the public worldwide. As soon as the vegetation data are ready, they will be integrated in the GrassPlot database (Dengler et al. 2018, Biurrun et al. 2019) and via these to the European Vegetation Archive (EVA, Chytrý et al. 2016) and the global plot database “sPlot” (Bruehlheide et al. 2019) to allow the best possible use.

- ❖ **Peer-Reviewed Publications and Recommendations for the conservation and management plan:** Scientific publications presenting the findings and a set of practical recommendations for the conservation and management plan of these unique cultural-natural habitats

- ❖ **Pathway to Emerald Network Designation:** The project is innovative in its direct aim to use the collected data to prepare nominations for these cultural heritage sites to become formal components of the Emerald Network, a key international conservation instrument.

The data generated will provide the scientific foundation needed to advocate for their formal protection, integrating them into regional conservation strategies. This directly supports both national biodiversity targets and the preservation of culturally significant landscapes.

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Project images

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