

Assessing Ecosystem Services to Support Conservation Decisions: ONE NATURE Integrated LIFE Project, Czech Republic

Why Benefits Matter:

Effective protection of Natura 2000 requires demonstrating the societal benefits it delivers — locally and globally. These benefits are still rarely assessed or used in practical conservation planning.

Ecosystem Services in Focus

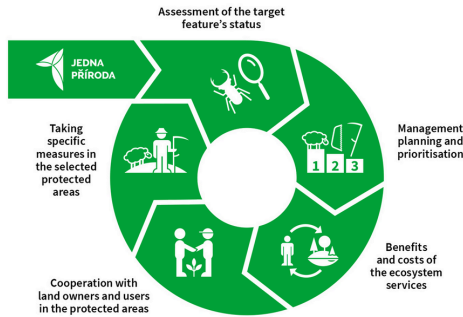
Natura 2000 sites support essential ecosystem services — climate regulation, water purification, flood mitigation, pollination, recreation — that benefit both people and nature.

Bridging the Knowledge Gap

While costs of conservation are clearly felt, benefits often remain invisible. This project helps quantify and communicate these benefits to inform fair and effective decision-making.

Tailored Methods for Greater Impact

By adapting EU-level approaches to Czech-specific conditions and data, we provide more accurate valuations and a transferable model for other Central and Eastern European countries.

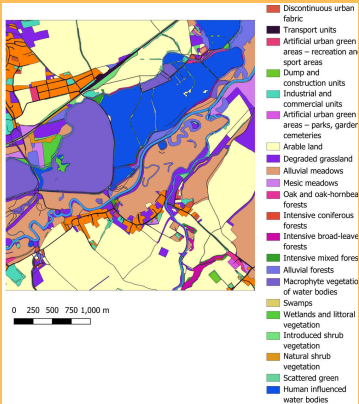


Review of the biophysical values of the benefits of the Natura 2000 network

- Long-term comparison of natural versus artificial forest development
A 2019 study found that a spontaneously developing forest dominated by *Salix caprea*, *Betula pendula*, and *Populus tremula* sequestered more carbon annually ($-256 \text{ g C m}^{-2} \text{ yr}^{-1}$) than an alder plantation ($-166 \text{ g C m}^{-2} \text{ yr}^{-1}$), despite higher GPP at the reclaimed site. Lower ecosystem respiration and the absence of high autumn emissions made natural succession a competitive and ecologically sound alternative to technical reclamation.
- Energy and CO₂ fluxes in the early stage development of post-mining areas
Direct eddy covariance measurements between 2020 and 2023 showed that both reclaimed (alder-planted) and unreclaimed (spontaneous) sites transitioned from net CO₂ sources to sinks within four years. Major differences in respiration (Reco) and latent heat (LE) were linked to soil structure and rainfall extremes. While alder plantations had little influence in the early years, their gross primary productivity (GPP) became dominant by 2023.

Consolidated Ecosystem Layer (KVES): A Foundational Spatial Tool for Ecosystem Service Assessment

The Consolidated Ecosystem Layer is a seamless, high-resolution land cover map of the entire Czech Republic, developed as a foundational dataset for ecosystem service (ES) mapping and assessment. The original version was created in 2012–2013 and updated in 2021 under the LIFE-IP: N2K Revisited project. KVES integrates the most detailed data available and classifies Czech landscapes into 39 ecosystem categories. Its mapping grain closely resembles the detail recognizable by a trained observer in the field. As such, KVES provides a consistent and robust spatial framework for ES evaluation across protected and managed landscapes.



Socio-Cultural Values of Nature's Contributions to People: Participatory Insights from Three Czech Protected Landscapes

We examined socio-cultural values of nature's contributions to people (NCP) in three Czech Protected Landscape Areas through twelve participatory workshops (2022–2024) with local and regional stakeholders. These workshops helped identify, prioritize, and map NCP, and assess trade-offs among them. Key findings highlight the importance of regulating and non-material NCP—especially water regulation, learning, inspiration, and biodiversity via habitat maintenance. Trade-offs between material and non-material NCP call for integrated management strategies. The study uncovered gaps between perceived and actual stakeholder collaboration and showed how long-term participatory processes enhance ecosystem governance by aligning diverse knowledge and interests.



Ecosystem and economic assessment of the socio-economic benefits of the Natura 2000 network

- Socio-economic valuation database
We are developing a national database of socio-economic values of ecosystems in Natura 2000 sites in the Czech Republic, using ecosystem services mapping and assessment methods.
- Methodology for nature protection authorities
We are creating practical guideline for authorities to monitor ecosystem services and integrate them into conservation planning and management.
- Online tool for ecosystem service valuation
We are designing a web-based tool to support ecosystem service valuation, including the assessment of alternative management and future scenarios under climate change risks.

National Platform for Ecosystem Services (NPES): Bridging Science, Policy, and Practice

Established in 2022, the National Platform for Ecosystem Services (NPES) serves as an institutional interface connecting researchers, policymakers, NGOs, and other key stakeholders involved in ecosystem services (ES) and biodiversity governance. NPES enhances the applicability of ES assessments in policy and decision-making by fostering interdisciplinary and cross-sectoral collaboration. Through regular meetings NPES provides a space for knowledge exchange, coordination, and shared understanding across sectors such as agriculture, water management, forestry, and spatial planning. It supports strategic, legislative, and methodological discussions while promoting the integration of ES in national and international frameworks. NPES also facilitates the implementation of the Czech National Biodiversity Strategy 2030. In 2026, NPES will be featured at the European ESP Conference in Prague as an example of a functioning science-policy-practice interface in ecosystem service governance.

