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Transposition and implementation of the Habitats and Birds Directives in Ukraine: economic aspects



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Key take-aways

- Severe underfunding persists for the management of Emerald Network sites across Ukraine, with most regions investing less than €2 per hectare annually, and some even less than €1 per hectare.
- Funding disparities across regions present a major challenge to ensuring consistent biodiversity protection nationwide, threatening Ukraine's ability to meet European conservation standards.
- There is a critical gap between current and optimal financing, especially for strategic investment areas such as land acquisition, habitat restoration, species management, and community engagement.
- Structural reforms are urgently needed to better align funding with conservation priorities, ensure equitable distribution across regions, and create long-term financial mechanisms.
- Baseline management costs for Ukraine's Emerald Network sites are estimated at €66 per hectare per year (slightly higher than some EU countries due to current network structure in Ukraine and historic underestimations in the EU).
- Expanding the protected area network offers major efficiency gains: scaling up Emerald Network coverage from 13% to 35% of Ukraine's territory could reduce average management costs by nearly 40%.
- The Emerald Network is estimated to generate substantial economic benefits, valued at around €1.9 billion (equivalent of €238 per hectare) annually, driven by timber, tourism, freshwater services, climate regulation, and other ecosystem services.
- Overall, the estimated economic benefits of the Emerald Network outweigh the projected costs of investing in the sites and managing them.

Current state of financing for environmental protection activities

An analysis of regional funding for nature conservation and sustainable resource use within Ukraine's Emerald Network sites between 2018 and 2024 reveals strong territorial disparities. The highest average annual funding per hectare was recorded in the Zaporizhzhia region (€32.93/ha/year), significantly outperforming other regions. In contrast, the majority of Ukrainian regions allocate less than 2 €/ha/year to these activities, and some regions - particularly in the south and north - invest less than 1 €/ha/year.



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This uneven distribution of financial support at the local level points to systemic challenges in ensuring consistent biodiversity protection across Ukraine. Given that the Emerald Network is an essential part of the pan-European ecological network, such fragmentation threatens Ukraine's ability to meet its conservation obligations under European standards. The findings highlight the urgent need for more strategic financial planning and harmonisation across all regions to ensure a baseline standard of conservation management.

These concerns are compounded by the significant gap between current and optimal levels of funding for the development and maintenance of protected areas. As shown in Figure 2, a survey of managers responsible for these protected areas shows that current funding does not meet needs in almost all cost categories.

The largest gaps were identified in one-off investment needs, such as land acquisition and compensation payments related to development restrictions. Respondents pointed out that Ukrainian legislation often does not provide for such expenditure, despite the recognised need for such investment. In these categories, the funding gap is effectively total - recorded as 100%, meaning that no funding is currently available.

A similar situation exists for specific recurrent costs, such as the implementation of measures to maintain the favourable conservation status of species and ecosystems, or the establishment of cooperative management schemes with landowners and users. In these areas, the lack of dedicated financial support reflects a wider neglect of long-term biodiversity management at government level. Even in categories where the funding gap is somewhat smaller - such as site monitoring (75.2% gap) or community engagement and compensation payments (81.1% gap) - the level of unmet need remains alarmingly high.

Across all funding groups - both one-off and recurring - the results indicate a severe underfunding of the core strategic areas essential for the long-term sustainability of the Emerald Network. Activities such as strategic ecosystem restoration, landowner engagement and effective conservation planning are among the least supported, despite being critical to building a resilient conservation framework.

The findings highlight that addressing the crisis requires more than simply increasing overall funding. Structural reforms are needed to better align funding allocations with actual conservation priorities.

This includes:

- Targeting resources towards strategic planning, restoration efforts and stakeholder engagement.
- Integrating the valuation of ecosystem services into budget planning.



- Ensuring an equitable distribution of funding across all regions.
- Establishing mechanisms for consistent, long-term funding to secure the ecological integrity and socio-economic benefits of the Emerald Network.

Projected Funding Needs for the Management of Emerald Network Sites in Ukraine

The financial needs for managing the Emerald Network sites in Ukraine were estimated using a predictive model based on the experience of 25 European countries. The analysis applied a weighted quantile regression forest approach, which accounts for non-linear relationships and better reflects the realities of countries with socio-economic conditions similar to Ukraine.

The modeling results show that the baseline cost of managing the Emerald Network sites in Ukraine is approximately €66 per hectare per year. After adjusting the model to narrow the prediction range, the estimated costs fall between €57 and €74 per hectare annually. These figures offer a reliable foundation for financial planning and highlight that Ukraine's expected costs are slightly higher compared to some EU member states. This difference is largely attributed to the current spatial structure of Ukraine's Emerald Network, which does not yet benefit from economies of scale, and to historical underestimations of costs in EU countries.

Further analysis explored the effect of expanding the Emerald Network's coverage. Results clearly demonstrate that as the protected area increases, unit management costs decrease significantly. For example, increasing the coverage from the current 13% to 20% of the national territory would reduce costs to €56 per hectare per year. A more ambitious expansion to 35% would lower them even further to approximately €40 per hectare annually. This trend supports the economic rationale for expanding protected areas: larger networks allow administrative and operational costs to be spread over a greater area, improving cost-efficiency.

The findings emphasize that strategic expansion of the Emerald Network is not only beneficial from a biodiversity conservation perspective but also from a budgetary standpoint. Scaling up the network could substantially lower the average cost per hectare while improving the effectiveness and resilience of conservation efforts. In addition, a broader network would bring Ukraine closer to the targets set by the EU Biodiversity Strategy for 2030, fostering better integration into European environmental frameworks.

Based on the results, it is recommended that Ukraine pursue a gradual and structured expansion of the Emerald Network, aiming to reach at least 30% national coverage in the medium term. Financial planning should incorporate the predicted cost decreases associated with larger network sizes. Furthermore, optimizing the spatial structure of protected areas could yield additional savings.



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Strengthening the network now would create long-term economic and ecological benefits, aligning Ukraine's conservation efforts with European standards while ensuring more sustainable and cost-effective management of its natural heritage.

Economic benefits arising from the Emerald Network Sites in Ukraine

The economic benefits of the Emerald Network in Ukraine are substantial, demonstrating its critical role in both biodiversity conservation and sustainable economic development. Using adapted European approaches, the annual economic value of the network has been estimated at around €1.9 billion, or about €238 per hectare.

The valuation covers a wide range of ecosystem services. Direct benefits include timber production, tourism and freshwater supply. In the Carpathian region alone, the value of harvested timber was estimated at €106 million per year and water supply services at over €1.27 billion per year. These figures underline the importance of mountain ecosystems not only for local communities, but also for national water security and economic stability.

Indirect benefits such as flood prevention and climate regulation were found to add significant value. Services such as carbon sequestration by old-growth forests in the Carpathians contribute to Ukraine's efforts to mitigate climate change and provide additional economic benefits. The overall contribution of regulating ecosystem services strengthens the resilience of agricultural production, urban water supplies and infrastructure.

Non-use values - reflecting public willingness to support conservation for its own sake - were also significant. After adjusting for local economic conditions, willingness-to-pay estimates suggest that the Ukrainian public values the existence of healthy ecosystems and biodiversity at an additional €320 million per year.

The analysis confirms that the expansion and proper management of the Emerald Network is not only an environmental necessity, but also a sound economic strategy. It supports rural development through ecotourism and sustainable resource use, reduces disaster risks and strengthens Ukraine's position in meeting European Union biodiversity standards.

Investing in the Emerald Network would thus yield multiple returns: protecting natural capital, promoting socio-economic growth, and helping to meet international commitments under the EU integration process and the post-2020 Global Biodiversity Framework. Strengthening financial mechanisms and integrating nature-based solutions into national and regional development plans should therefore become a strategic priority for Ukraine.