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Book of Abstracts

Editors:

Juraj Lieskovský, Zuzana Baránková, Viktória Miklósová, Hubert Hilbert, Zuzana Ponecová

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Integrating Monitoring Data and Scientific Models to Prioritize European Ground Squirrel Conservation and Protect Grassland Habitats

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This study provides practical guidance on optimizing landscapes to mitigate the impacts of climate and land-use change. We demonstrate the effectiveness of integrating local monitoring data with advanced scientific models to protect grasslands and their dependent species. Our approach assesses habitat network characteristics for the European Ground Squirrel (EGS), a keystone grassland specialist, within northern Serbia's agricultural landscapes. Using the spatially explicit model LARCH, we identified 15 habitat networks based on current conditions and monitoring data, while Circuitscape helped evaluate their connectivity. This combined approach enabled us to prioritize conservation measures essential for maintaining a stable EGS metapopulation. Our analysis revealed that while two networks require no intervention, most demand habitat improvements and enhanced connectivity to sustain metapopulations. Additionally, we identified priority areas for targeted adaptation measures, including grassland restoration and ecological corridors, to improve habitat quality and microclimate conditions. In contrast, networks with poor habitat conditions and low viability may no longer need conservation efforts, allowing resources to be redirected toward more promising areas. We emphasize the importance of leveraging existing species-specific research through long-term monitoring campaigns and innovative modeling approaches to enhance conservation outcomes further. By providing a data-driven framework for balancing biodiversity conservation with agricultural land use, this study provides actionable insights for policymakers, land managers, and researchers. These results support sustainable land-use strategies aligned with EU conservation priorities, such as Natura 2000 and the European Green Deal, reinforcing the need for science-based decision-making in protecting (semi)natural grasslands.

Poster presentation