10th Student Conference on Conservation Science, Balatonvilágos 2025

SCCS Europe - Connecting Eastern and Western Europe in conservation biology

Balatonvilágos (Lake Balaton), Hungary
02 – 06 September 2025

ABSTRACTS

Eds: B. Zsinka, G. Süle, A. Báldi, B. Palotás
HUN-REN Centre for Ecological Research
https://sccs.ecolres.hu/

Background of the conference

The Student Conference on Conservation Science series started in Cambridge and have expanded with Brisbane, Beijing, Bangalore and New York.

SCCS is the largest international conference in conservation science, where students and early career scientists are welcomed and have the chance to present their research, learn from each other and meet with experts of the field who can offer them guidance in their future careers.

In 2015, Hungary joined this inspiring event and organizes a conference, especially for young scientists from all around Europe to build a network among the presented parts of the continent.

Plenary speakers at the SCCS Europe 2025

Tom Breeze is a Senior Researcher at the University of Reading's School of Agriculture, Policy and Development. Originally trained as an ecologist, he has a PhD in Ecological Economics and has spent 16 years working on interdisciplinary problems around pollinators and other ecosystem services, including on the IPBES pollinator assessment and the EU Pollinator Monitoring Scheme. His current research focuses on better understanding and monitoring the links between biodiversity and the food system.

Laura Bosco is a researcher at the Helsinki Lab of Ornithology as part of the Finnish Museum of Natural History in Helsinki, Finland. She studied Biology in Switzerland where she graduated in 2018 with a thesis on the impacts of vineyard management and landscape structure on Woodlarks and their arthropod prey. Afterwards Laura worked at the Swiss Ornithological Institute as scientific collaborator in a project on increasing vineyard biodiversity. Her research focuses on understanding biodiversity responses to climate and land-use changes in relation to habitat loss and fragmentation at various spatial scales. She is particularly interested how landscape ecological aspects play into species responses to global change. Laura is currently the President of the Society for Conservation Biology Europe Region.

Tibor Erős is a scientific advisor and leader of the Fish and Conservation Ecology Research Group at the HUN-REN Balaton Limnological Research Institute, Hungary. He earned his PhD in ecology from Eötvös Loránd University, Budapest, and completed a postdoctoral fellowship at Karlstad University, Sweden. His research focuses on aquatic ecology, biodiversity conservation, and environmental management. He has led several applied research projects aimed at developing and improving monitoring systems, assessing the impacts of invasive species, and evaluating ecosystem health in alignment with the European Union Water Framework Directive. His recent works explore biodiversity and ecosystem service trade-offs, as well as land-use planning for conservation and restoration prioritization to support sustainable water management.

Tamara Mitrofanenko is working as an expert in the field of regional sustainable development as part of the team of the United Nations Environment Programme, Office in Vienna, Secretariat of the Carpathian Convention and at the University of Natural Resources and life Sciences, Vienna (BOKU), Institute of Landscape Development, Recreation and Conservation Planning (ILEN). Her work has been largely focused on Central and Eastern Europe, and the Caucasus countries. Her PhD Thesis was focused on "Integrating approaches from the Intergenerational field into protected area management and regional development governance". Since learning about the importance of transdisciplinary approaches for sustainable regional development, she has devoted her efforts to integration of transdisciplinary approaches into academic systems and policy processes as well as science-policy-practice interface in the context of sustainable regional development, as well as Education for Sustainable Development.

Agnieszka Wypych is an associate professor in climatology at Jagiellonian University in Krakow and works also in the Institute of Meteorology and Water Management - National Research Institute which serves as National Weather Service in Poland. Her main research fields cover climatology, hydroclimatology and GIS in environmental sciences while the current research interests are mostly weather extremes as well as climate change and variability and its impact on the environment and the society. She is currently a head of Human-Environmental Systems Research Centre at Jagiellonian University and also a chair of the Commission on Climatology International Geographical Union.

Magdalena Kubal-Czerwińska, is an Assistant Professor in the Department of Tourism and Health Resort Management, Institute of Geography and Spatial Management, Faculty of Geography and Geology at the Jagiellonian University in Krakow. Her background is solid in socio-economic geography and tourism, she holds both: MSc and PhD in Tourism Geography. She is an active and involved researcher with research interests revolving around such topics as entrepreneurial behaviour in hospitality on rural areas, gender in tourism, cultural tourism, sustainable development in tourism and hospitality, attitudes and behaviours towards the problem of reducing food waste. She was involved as a researcher in national and international projects, e.g., the Visegrad funds, Twinning (H2020), National Science Centre (Poland). She is an active member of the Human-Environmental Systems Research Centre (HES Research Centre) at the Faculty of Geography and Geology of the Jagiellonian University, a center of excellence in the field of research on human-environmental system.

Awards SCCS Europe 2025

Best Talk Awards

- Andra - Claudia Neagu: „*Wildlife at Risk: Understanding the Drivers and Distribution of Poaching in Romania*"
- Rosalind Mackey: „*Conservation Infrastructure as Public Engagement for Climate Change Mitigation*"
- Iniunam A. Iniunam: „*Conservation in the Crossfire: Divergent Community Attitudes and Trade Pressures on the Yellow-casqued Hornbill*"
- Coretor N. Kanyungulu: „*Advancing the knowledge of Kenya's Macrolichen Diversity*"
- Julian Skórski, Roksana Twardawa, Łucja Winiarska, Anna Kopczak & Katarzyna Sekta: „*What's rustling in the Carpathian meadows?*"

Best Poster Awards

- Abdubakir Kushbokov: „*A review on the characteristics of soil seed bank in global drylands*"
- Bernadett Zsinka: „*Population Viability Analysis of the Eastern Imperial Eagle (Aquila heliaca) in the Pannonian Region*"

The awards comprised of a free publication opportunity in Nature Conservation Journal from Pensoft and book prizes from Pensoft and the HUN-REN Centre for Ecological Research.

Conference sponsors

Conference Organisers

András Báldi - Head of the committee, Lendület Ecosystem Services Research Group, HUN-REN Centre for Ecological Research

Gabriella Süle - Lendület Ecosystem Services Research Group, HUN-REN Centre for Ecological Research

Bernadett Zsinka – Lendület Ecosystem Services Research Group, HUN-REN Centre for Ecological Research

Brigitta Palotás - Lendület Ecosystem Services Research Group, HUN-REN Centre for Ecological Research

Talks and posters

of the

10th SCCS Europe

Balatonvilágos, Hungary
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Talks

Wildlife at Risk: Understanding the Drivers and Distribution of Poaching in Romania

Andra - Claudia Neagu[1,2], Laurentiu Rozylowicz[2]

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2 Centre for Environmental Research, University of Bucharest, Bucharest, Romania

Poaching poses a growing challenge to wildlife conservation, driven by complex social and economic factors. The rising incidence of human-wildlife conflicts and the decreasing tolerance for wildlife are contributing to an increase in poaching cases in Romania. However, few national studies have addressed this issue. This study aims to contribute to reducing the impact of poaching in Romania by (1) identifying the affected species, the motivations behind poaching cases, and common methods; (2) analyzing the spatial distribution of incidents to locate hotspots; and (3) proposing feasible solutions to prevent poaching events. Due to the lack of a national database on poaching cases, we gathered data from mass media reports (2007-2024) and analyzed them using statistical methods. Our study reveals that ungulate and fish species are the most targeted by poachers, primarily for economic reasons linked to meat and product trade. Protected species like large carnivores are also targeted by poachers due to livestock protection and reduced tolerance. Spatial analysis highlights key poaching hotspots requiring urgent prevention actions. Our findings can serve as a foundation for the development of a national poaching mitigation strategy, offering valuable insights for the authorities.

The link between pastoralism and consumer education

Gabriel Berg

Leuphana University Lüneburg, Lüneburg, Germany

Pastoralism, particularly transhumance (seasonal movement of livestock), is recognised by the Carpathian Convention for the vital role it plays in maintaining biodiversity. This traditional practice while being part of the the region's cultural heritage supports diverse grassland habitats. However, pastoralism faces numerous challenges, including climate change, land abandonment, and socio-economic shifts, which could mean that this form of traditional ecological knowledge and the cultural landscapes it produces, is under threat. Within the ProBioTIC course a group of students developed a project focusing on the links between biodiversity and consumption, specifically exploring the link between pastoralism and consumer education. Through use of transdiciplinary methods and techniques, such as stakeholder analyses and scenario development and backcasting the following issues were identified. Traditional pastoralists as stakeholders have to compete with counterfeit traditional cheeses and consumer knowledge gaps. Stakeholder analysis highlights varying levels of power and interest among groups, including pastoralists, consumers, shop owners, and authorities. The research question therefore focused on educating consumers about traditional cheeses and their role in biodiversity conservation. Proposed interventions include creating educational artifacts such as short films, walking tours, and trivia cards, distributed through restaurants, hotels, hiking trails, and tourist information centers. The expected outcomes include increased consumer knowledge, support for farmers, preservation of traditional practices, and biodiversity conservation. Next steps tht will be discussed will be the evaluation of consumer survey results, consulting stakeholders, the role of transdisciplinarity in the project and policy recommendations.

Abandoned Sand Quarries: Degraded Lands or Refugia?

Márton Zoltán Szabó[1,2], András Kelemen[1,3], Orsolya Kiss[3], Balázs Deák[1], Szandra Pék[3], Kristóf Süveges[1], Orsolya Valkó[1]

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3 University of Szeged, Szeged, Hungary

In the Danube–Tisza Interfluve region, abandoned sand quarries with their temporary water and moist soils may offer refuges for wetland species in this drying landscape. Our research focused on orchid populations inhabiting these sites.

Our questions: (i) which orchid species and population sizes occur in quarries; (ii) how traits and ecological preferences differ between species found in and absent from quarries; (iii) how quarries differ from their surroundings; (iv) which quarry features influence orchid richness and abundance.

We surveyed 38 quarries, recorded orchid populations, measured soil parameters in quarries and surrounding areas, and documented quarry features (area, depth, groundwater depth, vegetation cover). We compared traits of species occurring vs. not occurring in quarries and analyzed how quarry features affect orchid presence.

Results show: (i) 71% of quarries hosted orchids (13 species), often in large numbers; (ii) no significant trait or ecological differences were found between present and absent species; (iii) quarry soils had more moisture and less nutrients; (iv) orchid abundance was positively influenced by quarry size and age, and negatively by groundwater depth.

Sand quarries can support large orchid populations and have notable conservation value.

Citizen science in the Carpathians

Carolin Breiholz

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Citizen science aids biodiversity protection in Europe by generating large-scale, policy-relevant data and engaging diverse groups in conservation efforts. Studies report that projects relying on hundreds to tens of thousands of volunteers yield measurable outcomes. Notably, citizen scientists in Germany reported increased identification with their citizen science project group and higher levels of collective and personal behaviour to protect streams after engaging with the programme (e.g. contacting local politicians with ideas for stream protection or using biodegradable detergents). To this end, citizen science can be seen as both a tool for biodiversity protection and a learning intervention, in and of itself. The ProBioTIC seminar group "Citizen science in the Carpathians" identified citizen science early as a potential learning strategy that could help in promoting biodiversity protection in this region, working with local stakeholders in a transdisciplinary manner. As a group, we worked with transdisiplinary research processes to perform a stakeholder and network analysis and a problem mapping on citizen science in the carpathians, and found the major challenges were that of engaging citizens and building networks for citizen science projects. The research question focused on improving citizen engagement and creating these networks to counteract biodiversity loss. From this question the intervention designed was to develop a consultation workshop on a website in collaboration with the Carpathian Convention. This website will map all citizen science projects in the region, facilitating knowledge exchange among scientists, citizens, and policymakers. The workshop ran on July 15th with stakeholders from across the citizen science research field and also scientists and policy makers directly involved in the researching biodiversity in the Carpathians. It consisted of three main phases: Warm-Up Activities: Storytelling,

visioning, backcasting, and brainstorming using the "Six Thinking Hats" method. Evaluation of what the website could look like: Voting on ideas. Future Scenario: Designing website content using tools like empathy mapping. Expected results to present include further analysis of our workshop's outcomes, designing a website draft, and creating a policy recommendation for science in the carpathians.

Advancing the knowledge of Kenya's Macrolichen Diversity

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Lichens play a critical role as bioindicators and contributors to ecosystem processes, yet they are underrepresented in biodiversity assessments and conservation strategies in Africa. Kenya, with its diverse environment from coastal forests to alpine zones, harbors a wide range of habitats. Modern data (published after Swinscow & Krog, 1988) on Kenyan lichens have been limited. A preliminary updated and annotated checklist of macrolichens is compiled, integrating the results of recent taxonomic revisions and other literature sources. The presence of 548 macrolichen species (of 99 genera) is confirmed. The checklist draws on distribution and habitat data, categorizing species by substrate preference, altitudinal range, frequency, and supposed conservation status. Species were assigned to five novel risk categories from extreme to negligible risk. High-elevation montane forests and rainforests, those on Mt. Kenya, the Aberdares, and the Kakamega forests, were found to be hotspots of macrolichen diversity, while semi-arid regions also supported uniquely adapted taxa. This study provides a reference for conservation planning, biodiversity monitoring, and future taxonomic and ecological research and serves as a baseline for further exploration of Kenya's underdocumented lichen flora.

A Russian Doll in conservation: Misalignments between Italian biodiversity checklists, Red Lists and European legislations

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Italy is estimated to be the most biodiverse country in Europe, yet conservation legislation often lags behind taxonomic advances. While international tools like the IUCN Red Lists guide global strategies, national Red Lists can better inform conservation at finer scales. However, the taxonomic coverage of Italian Red Lists and their alignment with national checklists and policies remains unclear. A comprehensive review of Italy's biodiversity across Animalia, Plantae, and Fungi was produced by cross-referencing national checklists with Italian, European, and global IUCN Red Lists, and major conservation policies and treaties. Of 75,725 native taxa (8,156 endemics), only 5,511 have been assessed nationally—1,478 of which are endemic. Italian Red Lists assess nearly three times more endemics than European (585) and global (555) Red Lists. Yet, only 966 taxa are covered by any conservation legislation, and just a quarter of these are threatened. Additionally, 714 taxa are in worse condition than European assessments, and 487 are more endangered compared to global assessments. This misalignment highlights the limits of European-level policies for biodiversity-rich Mediterranean countries like Italy and raises concerns about the ability to protect taxa not yet assessed nationally.

Conservation in the Crossfire: Divergent Community Attitudes and Trade Pressures on the Yellow-casqued Hornbill

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Conservation in tropical forests increasingly depends on reconciling local livelihoods with transboundary wildlife trade pressures. The Yellow-casqued Hornbill (*Ceratogymna elata*), a large-bodied frugivore of West Africa's Upper Guinea forests, exemplifies this conflict. We conducted a socio-ecological study across its Nigerian range, spanning three protected areas under different governance models, to assess how community knowledge, motivations, and market linkages shape hornbill exploitation. Based on 710 interviews, cluster and network analyses identified four community typologies with distinct conservation awareness and behaviours. Some communities showed high ecological knowledge yet engaged in trade, while others lacked awareness but symbolically supported protection. Trade networks linked subsistence and commercial hunting to external buyers, especially in Cross River National Park. These findings show hornbill hunting is organised and market-driven. Conservation must go beyond local education or enforcement to include socially tailored, spatially targeted, and economically informed interventions, alongside demand reduction beyond protected areas. *C. elata* serves as a sentinel for broader conservation challenges facing frugivores and forest ecosystems in tropical Africa.

Tracking Habitat Use and Movement Decisions of Black Storks (*Ciconia nigra*) in Dynamic Inland Water Ecosystems

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The Mediterranean region, a major climate change hotspot, is experiencing rising temperatures and frequent extreme weather events, including droughts and floods, which affect river systems and inland wetlands. These vital ecosystems have been substantially altered by human activities such as agricultural expansion, waterway modifications, fires, and eutrophication. The impact of these multiple stressors has often been overlooked. This study uses Black Storks (*Ciconia nigra*) as an indicator or umbrella species reliant on dynamic freshwater habitats that are deteriorating due to human activities and environmental changes. Utilizing movement data from 24 Black Storks tracked over five years in southern Portugal, along with fine-scale spatio-temporal environmental data, we identify (1) the key habitats used by Black Storks and assess how environmental factors like water availability and human disturbance influence habitat selection, and (2) determine the environmental factors affecting the movement patterns and migration timing of Black Storks. The results underscore the necessity for conservation initiatives to protect inland water ecosystems, crucial for Black Storks and other freshwater species, which can help enhance the resilience of these areas to varying weather conditions.

What's rustling in the Carpathian meadows?

Julian Skórski[1], Roksana Twardawa[1], Łucja Winiarska[2], Anna Kopczak[1], Katarzyna Sekta[1]

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The project explores understanding of sustainability and biodiversity of Carpathian natural environment, by aiming to raise awareness about the importance of Carpathian meadows, focusing on medicinal herbs. From field trips and seminars, to own research, the team identified key biodiversity threats and recognized current low public awareness of existing challenges. To address this, educational tools were developed: a primary school lesson plan about selected medicinal herbs, a bilingual brochure highlighting threats to Carpathian meadows and a family workshop. A prototype lesson was conducted at an international school, introducing students to five common medicinal herbs growing on Carpathian meadows, and sparking discussion on traditional plant use and habitat conservation. The brochure, distributed across frequently visited public places, highlighted environmental threats and promoted respectful behavior in natural areas. The summer workshop engaged local families, deepening knowledge and intergenerational dialogue about the importance of protection of the biodiversity in Carpathian mountains. The project demonstrated that combining academic knowledge with inclusive and interactive education, can leave a lasting social interest in protecting nature and its biodiversity.

Ecological Equivalence, Competitive Imbalance: Typha and Phragmites in the Littoral Zone of Lake Balaton

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In the littoral zone of Lake Balaton, there are around 12 km² of reedstands, where the relevant, but not that widespread plant is the cattail. The dominant (>75%) stands of cattails constitute almost 6% of the reedstands, making them the second most dominant helophytes. The aim of our study was to determine if the distribution of narrowleaf cattail (*Typha angustifolia*) is constrained by photophysiological limitations or it is outcompeted by reed (*Phragmites australis*). Measurements executed in 2024 showed that the photosynthetic performance of reed is 20% higher than the cattail's. This advantage provides reed with a higher biomass production potential. However, this difference alone does not explain why the distribution of cattail is fraction of its potential habitat. Based on seasonal analyses, both species showed similar phenological dynamics and photopysiological seasonality, suggesting that their production biology strategies are alike. Our results indicate that although the ecological functions and seasonal behaviour of two species are close, the latter has a stable advantage in the competition, which defines their spatial distribution in the coastal zone of Lake Balaton. But this relationship can transform at any time with the change of environmental conditions.

A Global Systematic Review of Roadkill of Avifauna: Towards a New Research Agenda

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While roads provide essential services to humans, they also contribute to the decline of bird populations due to road-related accidents. The impact of roadkill on birds has received increasing scientific attention, yet a comprehensive understanding of its effects across different bird families remains limited. This study conducted a systematic review to examine (i) the geographical distribution of research on bird roadkill, (ii) the bird families most affected, (iii) the factors influencing their vulnerability, and (iv) the proposed mitigation measures. A review of 20 studies published between 2005 and 2023, selected from 175 articles, revealed that most research was conducted in Europe and South America, followed by North America, the Middle East, Africa, and Australia. The Tytonidae family exhibited the highest roadkill incidence, followed by Strigidae, Accipitridae, and Corvidae, while families such as Furnariidae, Passeridae, and Icteridae recorded the lowest. Traffic volume and vehicle speed were identified as the primary causes of bird fatalities. Commonly recommended mitigation strategies included installing road signs to alert drivers, regulating traffic speed, and managing roadside vegetation, though implementation of these measures remains limited.

Native, diverse, sown wildflower patches enhance pollinators within a capital city of Eastern Europe

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Urbanisation, along with agricultural intensification, is one of the drivers of pollinator decline. Since pollinators are an essential part of the ecosystem, different interventions have been developed to support their populations in urban landscapes. One method is the sowing of diverse, native wildflower seed mixtures. We aimed to investigate how this treatment affects the pollinator communities within an East-Central European capital city. We studied 10 site pairs in Budapest, Hungary, in 2023 and 2024. Half of the pairs were sown with native wildflower seed mixtures as a pollinator-promoting intervention (treatment), while the other half of the sites were conventionally managed green spaces (control). We assessed how vegetation parameters, floral resources, pollinator abundance and species richness were affected by the treatment compared to the control sites. We also studied how these variables and treatment effects changed along ten sampling periods of two seasons after the beginning of the intervention. The treatment had a positive and mostly increasing impact on the vegetation parameters, floral resources, and pollinator communities. Our results can provide information that can help improve the effectiveness of urban pollinator-promoting interventions in Eastern Europe.

Conservation Infrastructure as Public Engagement for Climate Change Mitigation

Rosalind Mackey[1], Edgar C. Turner[1], Andrew J. Bladon[1], Patrick Cashman[2], Gwen E. Hitchcock[3], Josh Hellon[3], James Fitton[3], Caroline Longley[4], Andy Dunn[4]

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Nature reserves are typically designed for biodiversity, but they also provide mental and physical health benefits to humans. This can foster a more positive outlook towards biodiversity, often leading to concrete actions that benefit nature. This study investigates whether conservation installations can serve as public engagement tools, by attracting attention and serving as a visual memory aid for information presented near them. We studied butterfly banks, large chalk mounds, in four UK nature reserves. We placed information posters at varying distances from the banks and assessed people's recall of the information and opinions of the banks using surveys. Despite often perceiving them as unsightly, respondents were favourable towards the banks, thinking them effective against climate change and biodiversity loss. The information posters did not increase knowledge among reserve visitors, regardless of bank proximity. However, many respondents expressed that they had been made to think more about conservation and related topics, especially while taking the survey itself. Our results emphasise the importance of a more holistic approach to evaluation of the effectiveness of conservation interventions, considering outreach potential as well as direct biodiversity impacts.

The Potential of Non-Native Trees to Replace Climate-Vulnerable European Native Species

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Climate change is reshaping forest ecosystems, threatening biodiversity and ecosystem services. In European forests, climate change is projected to cause a major decline in climatic suitability for many native tree species. As native ranges shrink, non-native tree species (NNTs) are drawing attention for future forest management. While NNTs have supported biodiversity and timber production, their use remains controversial due to ecological and regulatory concerns. This study assesses range shifts of 15 NNTs and 13 native species in Europe using species distribution models. Coniferous NNTs could retreat from southern Europe but expand northward, while broadleaved NNTs may extend into central and northern Europe. Historically, native species had broader potential ranges (~2.39 million km²) than NNTs (~0.53 million km²), but this may reverse as natives lose 14–21%. Most natives face range losses, while many NNTs expand. NNTs may outperform natives in Southwest, Southeast, and Atlantic Europe. These findings stress the need for site-specific strategies balancing the ecological risks and benefits of NNTs under climate change.

Quantifying novel ecosystems

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Novel ecosystems comprise new combinations of species that emerge from indirect human actions and environmental impacts. The ongoing human influence on our environment leads to a web of complex effects, making it essential to explore the concept of novel ecosystems. This term has been widely debated in the literature in recent decades, from which little clarity has been gained regarding the consequences of novelty in Earth's ecosystems. What has been ubiquitously concluded, however, is that the presence of novel ecosystems threatens traditional conservation approaches, heightening the need for innovative techniques to conserve the world's biodiversity within these underexplored conditions.

Regardless of the conservation challenges surrounding ecological novelty, what is first required is a quantifiable method of identifying novelty in ecosystems, which can be extended to measure past, current and future novelty. My master's project focuses on evaluating and applying previous methods of quantifying ecological novelty using empirical data to assess their effectiveness and limitations for the ecology and conservation community. Building upon this, I have developed a new method to quantify novel ecosystems that is flexible to the researcher's interest and user-friendly.

Habitat specific whole lake survey of fish assemblages using eDNA metabarcoding and traditional methods

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Representative sampling is fundamental to reliably monitor community structure. Nevertheless, collecting representative samples remains a challenge. Traditional gears used to monitor freshwater fish communities generally have specific selectivity and applicability. Environmental DNA (eDNA) sampling may be a promising complement, but there is a lack of knowledge on its applicability. We compared the results of traditional surveys and eDNA metabarcoding to characterize fish community structure in four habitat types of Lake Balaton. The eDNA survey slightly outperformed traditional methods. eDNA metabarcoding proved to be effective in detecting rare species, or species that are generally underrepresented in traditional surveys. It captured a greater number of species per sample and yielded a more even distribution across habitats. Habitat-area-weighted analyses showed strong correlations in species rank abundance between eDNA and traditional methods, albeit differences emerged in the relative dominance of certain species. Our findings support the integration of eDNA metabarcoding into long-term monitoring programs. The method can provide comprehensive, habitat-independent assessments of fish community structure and therefore enhance conservation and management in lake ecosystems.

Posters

Ecological restoration through cultural change: rethinking the foundations of conservation

Csenge Sinkovics, Zita Horváthné Korom

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Some scientists argue that the root of the polycrisis we live in (including ecological crisis) lies in the culture and values that define today's modern, consumer-driven society. It is difficult to talk about conservation and "sustainability" while simultaneously trying to satisfy society's ever-increasing, often superfluous demands. As a result of these growing pressures, more and more natural habitats are disappearing, whereas the preferable path would be to return as much land as possible to natural processes. This poster has three aims. First, it seeks to draw attention to that achieving real results in nature conservation requires us to fundamentally question how our society and economy function. We must behave differently—consume drastically less, build local communities, and find joy in activities that are less harmful to nature. Second, it highlights the value of natural materials, which have a wide range of applications but have been almost entirely replaced—primarily by plastics that are known to be extremely harmful to nature and health. Third, it promotes the practice of folk crafts (even in environmental education), which: 1) teaches us how to work with natural materials, 2) fosters appreciation for the objects we create, and 3) helps to strengthen local communities.

A review on the characteristics of soil seed bank in global drylands

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Drylands (D) are threatened by desertification, land degradation, and unsustainable practices. Soil seed banks (SSBs) are crucial for vegetation recovery and ecosystem resilience, yet their dynamics in D remain poorly understood. This review synthesises 58 studies on the effects of grazing, topography, and woody plants on SSB characteristics and restoration (R) potential. Grazing regime significantly affects SSBs: heavy grazing reduces seed density and diversity, while moderate grazing can enhance them depending on climate, shrub cover, and site conditions. Topography acts as a hotspot for seed accumulation due to wind dispersal and sand movement. Woody plants create microsites and increase SSB density and diversity beneath their canopies, except for bush clearing or fire effects.

The R potential of SSBs varies among ecosystems. Passive R utilising natural SBs is promising in sandy grasslands. To enhance R, land managers should prioritise grazing management, shrub conservation, and microsite enhancement. Future research should address gaps in underrepresented regions, deeper soil layers, and long-term SSB dynamics to improve DR. Our review highlights the role of SSBs in maintaining D biodiversity and ecosystems and offers actionable insights for sustainable land management and R.

Vertebrate population data availability in Hungary

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Using all available evidence is crucial for effective species and ecosystem conservation. To avoid biases, it is important to consider data from multiple evidence sources, including scientific and grey literature.

As part of the translatE project, we aimed to compile a comprehensive dataset of vertebrate population trends in Hungary, published in English and Hungarian languages from 1990 to 2023. We conducted systematic searches in Web of Science and Scopus for English documents and in Google Scholar for Hungarian documents. We included both scientific and grey literature. We excluded populations with only one year of data and populations for which data is in existing databases, such as the Hungarian Common Bird Monitoring Scheme (MMM; BirdLife Hungary) and the National Biodiversity Monitoring Programme (NBmR; Ministry of Agriculture).

We found data from 1924 vertebrate populations. Less, than 4% of the populations were monitored for at least 10 years, while more than and 93% was monitored for only 2-3 years.

Co-designed ecological intensification enhances butterfly diversity in intensive agricultural landscapes

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Declining biodiversity has become an increasingly pressing issue in recent years, leading to the phenomenon known as the "pollination crisis," whereby the pollination success of crops is also diminishing.

In the Restpoll project, we examined the effects of nature-friendly cultivation of crops in agricultural areas on diurnal butterflies and wild bees in agricultural landscapes through transects four times during 2024. We specifically aimed to assess how varying agricultural management practices influence the abundance of these insect groups.

We recorded a total of 2,232 individuals representing 32 (mostly common) butterfly species. Both the abundance and species richness of butterflies were significantly higher along field margins compared to transects located within arable fields (cereal and alfalfa).

Overall, structurally and botanically diverse field margins attract more butterflies, likely due to the continuous availability of floral resources and nesting or shelter sites, which positively influence their occurrence in agricultural landscapes.

We hypothesize that not only the large-scale monoculture fields but also the management practices of their field margins may have an impact on pollinators living within these areas.

Spatial analysis of threats and pressures in four Hungarian National Parks' Natura 2000 sites

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Biodiversity conservation faces many challenges in the 21st century. In my research, I analysed the threats and pressures registered in the management plans of 177 Natura 2000 sites in four Hungarian national parks. Two of these are situated on the plains while two in mountain areas. The goal was to identify the most common threats as well as spatial patterns (similarities and differences between the different landscapes). For the analysis, I created maps based on the number of different threats and pressures mentioned in each Natura site. I also studied the number of habitat types impacted by these factors.

My results are very similar to the European trends, according to the EU's reporting under the 17th article. The main threats are connected to agriculture, forestry, the modification of water regimes, climate change and invasive species. Based on the results it can also be stated that the presence of the threats and pressures are often not independent of each other. Further study of the data can reveal more of spatial patterns and co-occurrences of the factors threatening our habitats.

Population Viability Analysis of the Eastern Imperial Eagle (*Aquila heliaca*) in the Pannonian Region

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The eastern imperial eagle (*Aquila heliaca*) is a globally vulnerable raptor. We conducted a population viability analysis for its Pannonian population to assess the differences in demographic rates between its Eastern and Western subpopulations and to give predictions for future population growth.

We built a baseline model in VORTEX using annual survival and dispersal rates estimated from the genetic tagging of breeding birds and GPS tracking of floaters, along with fecundity data from annual monitoring. After validation on past demographic data, we projected population trajectories under different mortality scenarios.

Our results confirmed that the Pannonian population is self-sustaining and could have recovered from the severe bottleneck of the last century without any significant immigration from other populations. Modelling results also indicated that mortality rates in the Western subpopulation and in East Slovakia may be higher than in East Hungary. Future projections show a viable population in East Hungary, which is expected to reach carrying capacity by 2035, unless poisoning rates were to increase significantly. These results imply that the conservation measures implemented by Helicon LIFE (2012–2016) and PannonEagle LIFE (2017–2023) projects were highly successful and that reducing persecution activity should remain a conservation priority.

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