

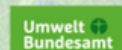
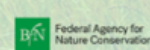
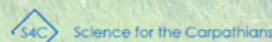


Science for the Carpathians

Key Messages and Recommendations from Science for the Carpathians for the Carpathian Convention Implementation Committee

based on Forum Carpacitum 2025
**“Taking stock and building partnership for
sustainable development of the mountain and
rural areas”**
Bratislava, Slovakia, 9th-11th September 2025

Editors: Tamara Mitrofanenko, Rudolf Škovira, Dariia Kholiavchuk, Jakub Csabay, William Keeton, Joanna Zawiejska, Elena Matei and Mariana Melnykovych



Key Messages and Recommendations from Science for the Carpathians for the 16th Carpathian Convention Implementation Committee

**based on Forum Carpacitum 2025 “Taking stock and building
partnership for sustainable development of the mountain and
rural areas”**

Bratislava, Slovakia, 9th-11th September 2025

and other relevant events

**(European Association for Landscape Ecology (IALE Europe) 2025, Student
Conference on Conservation Science (SCCS Europe) 2025, Multifunctional farming
Conference 2025)**

Editors: Tamara Mitrofanenko, Rudolf Škovira, Dariia Kholiavchuk, Jakub Csabay, William Keeton, Joanna Zawiejska, Elena Matei and Mariana Melnykovich

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Table of Contents

Description of additional events contributing recommendations:	4
FORUM CARPATICUM 2025	4
The IALE 2025 European Landscape Ecology Congress	4
Multifunctional Farming Conference 2025, Rzeszów	5
Student Conference on Conservation Science (SCCS Europe) 2025	5
DECISION COP7/1 Implementation of the Carpathian Convention	6
Key Messages from Forum Carpaticum 2025	6
Recommendations from Forum Carpaticum 2025	7
DECISION COP7/2 Cooperation with regional and local authorities and relevant stakeholders	12
DECISION COP7/3 Cooperation with the European Union	14
Key Messages from Forum Carpaticum 2025	14
Recommendations from Forum Carpaticum 2025	14
DECISION COP7/4 Cooperation with United Nations Environment Programme	14
Key messages and Recommendations from Forum Carpaticum 2025	15
DECISION COP7/5 Cooperation with other conventions and international bodies	16
Key Messages from Forum Carpaticum 2025	16
Recommendations from Forum Carpaticum 2025	16
DECISION COP7/6 Implementation of the Kunming-Montreal Global Biodiversity Framework	17
Key Messages from Forum Carpaticum 2025	17
Recommendations from Forum Carpaticum 2025	18
DECISION COP7/8 Strengthening science-policy-practice interface and cooperation with scientific networks	19
Key Messages from Forum Carpaticum 2025	19
Recommendations from Forum Carpaticum 2025	19
Inputs form the Student Conference on Conservation Science (SCCS Europe) 2025	23
DECISION COP7/9 Conservation and sustainable use of biological and landscape diversity	24
Key Messages from Forum Carpaticum 2025	24
Recommendations from Forum Carpaticum 2025	24
Insights from IALE Europe 2025	26
DECISION COP7/10 Spatial planning	27
Key messages	27
Recommendations from Forum Carpaticum 2025	27
Insights from IALE Europe 2025	27
DECISION COP7/11 Sustainable and integrated water/river basin management	28
Key Messages from Forum Carpaticum 2025	28
Recommendations from Forum Carpaticum 2025	28
Insights from IALE Europe 2025	30
Inputs form Student Conference on Conservation Science (SCCS Europe) 2025	30
DECISION COP7/12 Sustainable Agriculture and Rural Development	32
Key Messages from Forum Carpaticum 2025	32
Recommendations from Forum Carpaticum 2025	33
Insights from IALE Europe 2025	35
Key Messages from Multifunctional Farming Conference 2025, Rzeszów	35

DECISION COP7/13 Sustainable Forest Management.....	37
Key Messages from Forum Carpaticum 2025.....	37
Recommendations from Forum Carpaticum 2025.....	38
DECISION COP7/14 Sustainable transport and infrastructure, industry and energy.....	40
Key Messages from Forum Carpaticum 2025.....	40
Recommendations from Forum Carpaticum 2025.....	40
DECISION COP7/15 Sustainable tourism.....	42
Key Messages from Forum Carpaticum 2025.....	42
Recommendations from Forum Carpaticum 2025.....	42
DECISION COP7/16 Cultural Heritage and traditional knowledge.....	44
DECISION COP7/17 Environmental assessment/information system, monitoring and early warning.....	45
Key Messages from Forum Carpaticum 2025.....	46
Recommendations from Forum Carpaticum 2025.....	46
DECISION COP7/18. Climate change.....	49
Key Messages from Forum Carpaticum 2025.....	49
Recommendations from Forum Carpaticum 2025.....	49
Insights from IALE Europe 2025.....	50
DECISION COP7/19 Awareness raising, education and public participation.....	51
Key Messages from Forum Carpaticum 2025.....	51
Recommendations from Forum Carpaticum 2025.....	51

Description of additional events contributing recommendations:

FORUM CARPATICUM 2025

The Scientific Conference of the Science for the Carpathians (S4C)¹ network, 8th Forum Carpaticum 2025², entitled “Taking stock and building partnership for sustainable development of the mountain and rural areas” took place on 9th-11th September 2025, hosted by the Faculty of Social and Economic Sciences, Comenius University in Bratislava, Slovakia.

In addition to the dominant themes in the regional scientific and policy debates showcased in the S4C Research Agenda 2022-2030, Forum Carpaticum 2025 highlighted two sub-themes to support the region’s diverse vulnerable communities and places as well as the scientific communication across the disciplines: 1) “Building capabilities and facilitating the participation of vulnerable groups in rural and mountain regions through SSE in multi-level sustainable development policy” and 2) “Bridging natural and social sciences for sustainable development and impact-driven research through transdisciplinary approaches”.

The Forum was affiliated with the following projects: the Horizon Europe “SERIGO” project, which addresses rural vulnerabilities across Europe through community-based action research of social innovations, “Empowering Roma Communities in the EU Green Deal”, supported by the European Climate Foundation and European Climate Initiative (EUKI) and the project “Linking biodiversity, pastoralism, and cultural heritage through education for sustainable development (ESD) in the Carpathian Region”, funded by the German Federal Environment Ministry’s Advisory Assistance Programme (AAP).

The IALE 2025 European Landscape Ecology Congress

The IALE 2025 European Landscape Ecology Congress³, titled “Landscape Perspectives in a Rapidly Changing World,” was held in Slovakia from September 2-5, 2025. The event was organized by the Institute of Landscape Ecology SAS, the Faculty of Natural Sciences of Comenius University, IALE-Europe, and IALE-CZ

The Congress addressed the rapid transformations occurring in all areas of human activity, which have introduced new challenges for landscape ecology - including the integration of emerging technologies and the expanding role of artificial intelligence in addressing landscape-ecological issues. At the same time, it emphasized the opportunities these developments offer for applying landscape-ecological knowledge in a dynamically changing world, underlining their potential influence on the future development and sustainability of landscape – ecological research.

Inputs from IALE are provided in relevant sections throughout the Recommendations Document

¹ <https://carpathianscience.uj.edu.pl/>

² <https://fses.uniba.sk/zahranicne-vztahy/forum-carpaticum-2025/>

³S4C SSC Contact: Lubos Halada (lubos.halada@savba.sk), Zuzana Baránková (zuzana.barankova@savba.sk) <https://iale2025.sav.sk/>

Multifunctional Farming Conference 2025, Rzeszów

The Multifunctional Farming Conference 2025⁴ took place on September 16-18, organized by the University of Rzeszów. It sought to highlight the vital role of smallholder, multifunctional agriculture in sustaining biodiverse cultural landscapes and resilient rural communities. By fostering the exchange of knowledge and experiences among researchers, practitioners, and landscape stewards, it aimed to bridge the persistent gap between scientific insights and on-the-ground farming practices. The conference promoted a holistic understanding of agriculture as a socio-cultural, ecological, and economic foundation essential for sustainable land use and food sovereignty.

The conference produced a Manifesto entitled “Traditional farming for better future: The Rzeszów Manifesto⁵”, which has been made publicly available as a petition by the organisers. The conference organizers integrated main recommendations into the current Recommendations Document in the relevant sections.

Student Conference on Conservation Science (SCCS Europe) 2025

The Student Conference on Conservation Science (SCCS) series started in Cambridge and has 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. Since then, the HUN-REN Centre for Ecological Research organizes the SCCS Europe Conference⁶ annually, especially for young scientists from all around Europe to build a network among the presented parts of the continent.

Since 2023 Carpathian Convention Secretariat has taken an active part in the Conference to introduce the Carpathian Convention, its activities and priorities and facilitate greater involvement of the young scientists in the Convention. In 2025 a day devoted to the Carpathian Region was integrated into the SCCS 2025 programme, focused on the Carpathian Research Carpathian Convention and Carpathian Biodiversity Framework.

In addition to the contributions from young scientists, which will be presented separately, recommendations from keynote speakers relevant to the Carpathian Convention have been integrated into this document.

⁴ Multifunctional Farming: Landscape, People, Food, and Ecology; S4C SSC contact: Agata Ćwik (acwik@ur.edu.pl) <https://www.ur.edu.pl/en/university/conferences/multifunctional-farming-conference>

⁵https://www.ipetitions.com/petition/Rzeszow-Farming-Manifesto?utm_source=email&utm_campaign=email_petition_created&utm_medium=mailgun

⁶ <https://sccs.ecolres.hu/>; S4C SSC Contact: Tamara Mitrofanenko ((tamara.mitrofanenko@un.org))

DECISION COP7/1 Implementation of the Carpathian Convention

Key Messages from Forum Carpaticum 2025

Session: Transboundary Strategies for Strengthening Carpathian Integrated Landscape Management Governance (RPS)⁷

- Safeguarding the Carpathians' ecological integrity requires not only **scientific innovation** (mapping, monitoring, digital models, risk assessment) but also **policy integration** (binding corridors in planning, cross-border governance, financial mechanisms) and **societal engagement** (heritage narratives, participatory monitoring, conflict management) as well as **education** - a crucial part of encouraging youth engagement, raising awareness of natural and cultural heritage and facilitating civil participation in monitoring
- **The Carpathian Convention has the unique role** of convening member states to harmonize approaches, pilot transboundary solutions, and ensure that ecological connectivity, forest protection, sustainable tourism, and hazard resilience are addressed as interdependent pillars of a sustainable mountain future.

Session: Collaborative Environmental Justice Initiatives in Central and Eastern Europe across Urban and Rural Divides (RPS)⁸

- There is a need for a multi-actor and multi-level approach for tackling vulnerability with active participation of the vulnerable groups. It is vital that Roma communities are recognised as frontline communities

Session: Empowering communities to act for change (RPS)⁹

- Carpathian communities do not want to be passive recipients of designed policies, but active contributors to their development.
- Empowering communities to act for change requires establishing inclusive governance mechanisms, supporting local leadership, and ensuring that community knowledge is systematically integrated into decision-making.
- Communities need support to run decentralized, community-led renewable energy projects.
- Cross-border science–policy–practice platforms are essential for knowledge transfer.
- Informal institutions (schools, moderators, citizen groups) play a central role.
- Innovation should be structurally embedded in regional development strategies

⁷ **Session Leader:** Isidoro De Bortoli, Eurac Research (isidoro.debortoli@eurac.edu)

⁸ **Session Leaders:** Jakub Csabay, Comenius University Bratislava (jakub.csabay@fses.uniba.sk) and Judit Bari, Hiszako Indie Produkciós Nonprofit Kft (Hiszako Indie)

⁹**Session Leader:** Mariana Melnykovich, Bern University of Applied Sciences BFH (mariana.melnykovich@bfh.ch)

Session: Session on Ukraine¹⁰

- **Environmental protection must be embedded in green reconstruction**, not postponed until after the war.
 - Virgin forests and irreplaceable ecosystems must not be sacrificed for wartime economy.
 - Green recovery must include biodiversity, climate, and ecosystem and social cohesion priorities, not only infrastructure.
- The Carpathians require **urgent protection from poorly regulated industrial projects** (wind, tourism, etc.). Science must inform decisions before—not after—projects are approved.
- **Municipal capacity is currently the bottleneck** of green recovery. Local capacity building is the foundation of green recovery; municipalities cannot act without expert and financial support.
- Twinning, peer-learning, and municipality–university partnerships are proven, effective, low-cost accelerators.
- Local communities, schools, and universities must be recognized as strategic partners, not beneficiaries only.
- International **support must be distributed equitably** beyond already visible regions.
- A **legal mechanism is needed** under the Carpathian Convention to ensure compliance
- Practical, recovery-oriented education strengthens resilience and drives post-crisis reconstruction.

Recommendations from Forum Carpathicum 2025

Session: Transboundary Strategies for Strengthening Carpathian Integrated Landscape Management Governance (RPS)

- To achieve a connected Carpathian landscape, all Carpathian Convention Working Groups (WGs) must contribute:
 - The **Biodiversity WG** should secure corridor integration in national planning and cross-border agreements.
 - **WG SARD** can promote agri-environmental measures that reward biodiversity-friendly land use.
 - The **Forestry WG** should embed connectivity criteria in forest management and certification.
 - The **Transport WG** must require ecological assessments and corridor-friendly designs for new infrastructure.
 - The **Tourism WG** can strengthen eco-tourism which helps and supports intact ecosystems
 - The **Climate Change WG** should treat connectivity as a resilience measure.
- Joint pilot projects across WGs will demonstrate solutions and build political momentum.
- Overall, the Convention should formally support the vision of a **transboundary protected area**, aligned with the EU Biodiversity Strategy 2030 goals.

¹⁰ **Session Leaders:** Tamara Mitrofanenko, UNEP Vienna Programme (tamara.mitrofanenko@un.org), Mariana Melnykovich, Bern University of Applied Sciences BFH

Session: Safeguarding Carpathian Pastoralism¹¹

- **Mainstreaming into Climate and Biodiversity:** Integrate *local sensory indicators* into climate and biodiversity monitoring.
- **Payment for ecosystem services:** Promote contract-based conservation approaches that valorize traditional land-use practices as providers of essential ecosystem services and biodiversity benefits.
- **Develop and provide Guidelines** for protected areas and herder communities to balance grazing and conservation
- **Co-existence with Wildlife:**
 - recognise cumulative impacts of wildlife management on pastoralism and advance adaptive management practices for both pastoralism and wildlife.
 - Solutions for pastoralism and wildlife interactions should respect the diversity of local realities across Europe, incorporating experience, local knowledge and social innovation.

Session: Session on Ukraine¹²

Specific Recommendations for the Carpathian Convention re Ukraine:

- Create a **Compliance mechanism**. Recommended steps towards this end include:
 - launching a consultation platform between CC parties and S4C on a potential Working Group to be created
 - best practices from other regions to be reviewed and presented to the CCIC
- Integrate a **Carpathian Convention** into the laws related to Green Recovery in Ukraine.
 - Recommended way forward: message to the Ministry of Economy, Environment and Agriculture of Ukraine to be sent by CC Secretariat outlining key recommendations for Ukraine from the Forum Carpaticum.
- Integrate **renewable energy and energy communities** into Carpathian Convention programme of work
- Promote cross-border and inter-municipal cooperation on forestry, biodiversity, tourism, education and sustainable energy.
- Support municipal capacity building through structured training modules:
 - EU standards and compliance
 - Funding access and proposal writing
 - Green industrial policy and investment attraction
 - Environmental law enforcement and governance
 - Participatory governance and network building
 - Communicate to municipalities availability to access online trainings prepared within RURACTIVE project on “Empowering rural communities to act for change”¹³

¹¹ **Session Leaders:** Tamara Mitrofanenko, UNEP Vienna Programme Office (tamara.mitrofanenko@un.org) and Ioanna Baskerville, Romanian Academy - Iasi Branch

¹² **Session Leaders:** Tamara Mitrofanenko, UNEP Vienna Programme Office (tamara.mitrofanenko@un.org), Mariana Melnykovich, Bern University of Applied Sciences BFH

¹³ The trainings (MOOC) are focusing on 6 rural development drivers: Sustainable agri-food systems and ecosystem management; Nature-based and cultural tourism; Culture and cultural innovation; Sustainable multimodal mobility; Energy transition and climate neutrality; Local services, health and wellbeing considering cross-cutting priorities of social justice & inclusion, climate change mitigation & adaptation, and biodiversity protection - <https://www.ruractive.eu/project/approach> (MOOC will be online in Sept 2026).

- Promote UNEP–UNIDO–academic cooperation to build long-term scientific and policy processes
- Facilitate donor visibility and matchmaking between municipalities and funding instruments
- Consider prospects for establishing a **Rapid Environmental Expertise Facility** to support rapid expert interventions on urgent environmental risks (e.g., wind farms, deforestation).
- Encourage trans-border cooperation between Ukrainian and other municipalities due to possible policy learning and sharing best practices from the leading municipalities in the EU vis-à-vis energy transition (e.g., Copenhagen or Amsterdam). This could be done in the format such as Committee of the Regions or Covenant of Mayors.
- Refer CICC to the recent study on green recovery of Ukraine by Melnykovich et al. 2025:

Melnykovich M., Nijnik, M., Soshenskyi, O., Zibtsev, S., et al. (2025). *Pathways for Ukraine's post-war nature recovery: Focus on forest socio-ecological systems*. AMBIO: A Journal of the Human Environment. <https://doi.org/10.1007/s13280-025-02263-0>

The study highlights that post-war nature **recovery in Ukraine requires integrated socio-ecological approaches, strengthened multi-actor governance, and empowered local communities**. The study demonstrates that overlapping pressures—ecological degradation, institutional fragmentation, energy insecurity, and social vulnerability—cannot be addressed through sectoral policies alone. It emphasizes the need for participatory decision making and bottom-up initiatives as drivers of resilience. Ukraine's recovery must move beyond infrastructure reconstruction toward a transformative model that integrates biodiversity conservation, sustainable rural development, and local innovation, anchored in stronger compliance mechanisms and enhanced science–policy–practice cooperation, including across the Carpathian region.

General Recommendations for Carpathian Convention Parties re Ukraine

- Support green recovery in Ukraine with explicit environmental safeguards based on EU-aligned, biodiversity-integrated standards. Consider pathways for recovery in Ukraine outlined in Melnykovich et. al. 2025¹⁴
 - Ensure biodiversity conservation and sustainability are core criteria in recovery programs.
- Support collaborations between and long-term capacity building of municipalities, universities, civil society, and local businesses through training, twinning, and university–municipality partnerships. Establish a cross-border platform to transfer education-based recovery models (e.g., BFH model of CAS Rebuild Ukraine¹⁵) across the Carpathians.
- Launch and support capacity building programs to strengthen knowledge and expertise for green recovery and capability for funding acquisition
- Promote twinning between Ukrainian Carpathian municipalities and those in other Carpathian countries and foster collaboration on priority needs beyond culture and tourism.

¹⁴Melnykovich, M., Nijnik, M., Soshenskyi, O. *et al.* Pathways for Ukraine's post-war nature recovery: Focus on forest socio-ecological systems. *Ambio* (2025). Available at <https://doi.org/10.1007/s13280-025-02263-0>

¹⁵ <https://www.bfh.ch/en/continuing-education/cas/wiederaufbau-ukraine>

- Invest in feasibility studies and pre-project documentation for municipalities to support municipality-driven green recovery projects (message to donors)
- Advocate for strict EIA and wind-potential assessments before construction projects
- Strengthen coordination among UNEP, UNIDO, SCC, European institutions, and Ukrainian authorities.
- Expand donor visibility and access for rural Carpathian municipalities and schools.
- Strengthen anti-corruption oversight in environmental and infrastructure projects.
- Disseminate Corine Land Cover data for Ukrainian Carpathians to support planning.

Session: Empowering communities to act for change

Specific Recommendations for the Carpathian Convention

- The Carpathian Convention should strengthen participatory processes, promote community-led innovation, and invest in long-term capacity building to enable local actors to co-shape sustainable development pathways across the region.
 - This can be achieved by organising targeted peer-to-peer exchanges among Carpathian municipalities and by establishing twinning programmes that enable local actors to share practical experience, develop joint initiatives, and transfer successful community-led innovations across the region.
- In addition, the Convention could facilitate a *transboundary learning platform* that documents best practices, connects emerging community initiatives, and facilitates / provides tailored technical support for local governments and civic groups.
- Integrate **recovery-oriented education** (energy transition, applied learning, community innovation) into Convention implementation tools.
- Recognize informal actors (community groups, local moderators, schools) as key implementation partners.
- Support municipalities with capacity building for participatory governance and collaborative decision-making.

General Recommendations for Carpathian Convention Parties

- Support the strengthening of inclusive governance mechanisms to ensure that Carpathian communities actively participate in shaping policies and decisions that affect their development.
- Advocate for systematically integrating community knowledge into planning and decision-making processes at local, regional, and transboundary levels e.g. by including community representatives in Programmes of Work.
- Promote community-led innovation by highlighting/ disseminating successful grassroots initiatives and supporting their scaling-up across the region.
- Facilitate connections between donors and local actors to enable projects on long-term capacity building for equipping communities with the skills and resources they need.
- Facilitate targeted peer-to-peer exchanges among Carpathian municipalities to foster mutual learning and practical knowledge sharing.
- Facilitate establishing twinning programmes that connect municipalities across the region to develop joint initiatives and transfer effective community-led solutions.
- Create a transboundary learning platform to document best practices, link emerging community initiatives, and provide technical support for local governments and civic groups.

- Facilitate focused attention by the COP and CICC on energy projects and energy communities as a critical emerging topic, and ensure their integration into the Programme of Work.

Session: Collaborative Environmental Justice Initiatives in Central and Eastern Europe across Urban and Rural Divides (RPS)¹⁶

- Consider the political context, whether on a local, national or supranational level, to understand and tackle environmental injustice in the Central and Eastern Europe region, as well as a need for a more complex and context-specific approach in order to change the root causes of vulnerability.
- Bring together proactively in regular meeting formats all relevant actors in the EU just transition, including community representatives, municipalities, NGOs, research institutions, businesses and state agencies
- Proactively consult communities in a context-appropriate way on what their needs are when designing and implementing policies and interventions
- Facilitate awareness raising and recognition of Roma communities as frontline communities
- Adopt a complex and context-specific multi-actor and multi-level approach for tackling vulnerability, ensuring the active participation of vulnerable groups in implementation, particularly in achieving environmental justice outcomes

¹⁶ **Session Leaders:** Jakub Csabay, Comenius University Bratislava (jakub.csabay@fse.uniba.sk) and Judit Bari, Hiszako Indie

DECISION COP7/2 Cooperation with regional and local authorities and all relevant stakeholders

Activity: Support implementation of relevant projects, including the Central Mountains, which encourage cooperation and involvement of regional stakeholders and promote awareness raising

Key Messages from Forum Carpaticum 2025

Session: Accessibility, Development Paths and Windows of Opportunities in Core-Periphery Systems: Challenges of Local and Regional Development in the Carpathians

- Development of local tourism infrastructure leads to an increased number of mountain accidents.
- Tourism development creates a need to build greater rescue and medical support capacity in small communities, which have to be done by a cooperation of local authorities, investors and local rescue services.
- Sustainable tourism development should be linked also to safety pre-plans taking into consideration mountain accidents and rescue missions of the local rescue teams, as the part of both economical and environmental-friendly development.

Session: Collaborative Environmental Justice Initiatives in Central and Eastern Europe across Urban and Rural Divides (RPS)¹⁷

- Underresourced local and regional authorities are in need of technical and material assistance in the areas of environmental and social justice
- Participatory initiatives involving vulnerable groups (e.g. Roma communities or IDPs in Ukraine) should be actively promoted by the local and regional authorities

Session: Empowering communities to act for change (RPS)¹⁸

- Carpathian communities seek to play an active role in shaping their future rather than simply receiving externally designed policies.
- To enable meaningful local engagement, governance arrangements need to become more inclusive, local leadership should be supported, and community knowledge must be embedded in all stages of decision-making (Špaček et. al. 2022¹⁹).

¹⁷ **Session Leaders:** Jakub Csabay, Comenius University Bratislava (jakub.csabay@fss.uniba.sk) and Judit Bari, Hiszako Indie

¹⁸ **Session Leader:** Mariana Melnykovich, Bern University of Applied Sciences BFH (mariana.melnikovich@bfh.ch)

¹⁹ Špaček, M., Melnykovich, M., Kozová, M., Paudišová, E., & Kľuvánková, T. (2022).

The role of knowledge in supporting the revitalisation of traditional landscape governance through social innovation in Slovakia. *Environmental Policy and Governance*, 32(6), 572–584.
<https://doi.org/10.1002/eet.2026>

Recommendations from Forum Carpaticum 2025

Session: Accessibility, Development Paths and Windows of Opportunities in Core-Periphery Systems: Challenges of Local and Regional Development in the Carpathians

- Obligate local authorities and stakeholders (e.g. ski resorts' owners) within general law regulations to evaluate together with rescue services, if local medical and mountain rescue solutions fit the rising tourism movement and its special needs.
- Establish a technical assistance programme for under-resourced local and regional authorities to support tailored interventions addressing environmental vulnerability, which must be integrated with existing strategic planning documents

Session: Empowering communities to act for change

Specific Recommendations for the Carpathian Convention

- The Carpathian Convention should seek to strengthen participatory approaches, encourage community-driven solutions, and reinforce long-term capacity building so that local actors can jointly steer sustainable development across the region.
- Practical steps include: facilitating targeted peer-to-peer exchanges among regional / local authorities within the region and between the countries, as well as creating twinning arrangements that allow communities to share experience, collaborate on common challenges, and replicate successful local initiatives.
- Furthermore, the Convention can establish a transboundary learning and peer-to-peer platform to collect and disseminate good practices, link emerging regional or local efforts, and provide tailored technical support to local governments and civil society groups to ensure “just and sustainable” objectives of their initiatives.

DECISION COP7/3 Cooperation with the European Union

Key Messages from Forum Carpathicum 2025

- Energy communities can access numerous EU instruments (LIFE, Interreg, Social Climate Fund, Modernisation Fund).
- Local actors lack capacity to navigate EU procedures.
- Cross-border renewable energy cooperation is an opportunity for Ukrainian recovery.

Recommendations from Forum Carpathicum 2025

Session: Collaborative Environmental Justice Initiatives in Central and Eastern Europe across Urban and Rural Divides (RPS)²⁰

Specific Recommendations for the Carpathian Convention

- Carpathian Convention should actively seek and promote synergies with the EU Green Deal in the areas of social and environmental justice in the cross-sectoral areas related to vulnerability and poverty, particularly in the case of marginalised Roma communities
- Advocate for a tailored funding mechanism to tackle social and environmental justice issues of vulnerable groups, stretching EU CERV and EU LIFE funding areas

Session: Accessibility, Development Paths and Windows of Opportunities in Core-Periphery Systems: Challenges of Local and Regional Development in the Carpathians²¹

- Synergy with existing European strategies (like the EU Demographic Toolbox; or the Long-Term Vision for Rural Areas) or initiatives (like the Smart Village Network) should be encouraged

Session: Session on Ukraine²²

- Support Green Recovery of Ukraine
- Advocate for Environmental Impact Assessment in Ukrainian Carpathians prior any construction or energy projects
- Facilitate donor support for green recovery projects and feasibility studies to support UA communities' green recovery projects

Session: Empowering communities to act for change

- Energy communities can access numerous EU instruments (LIFE, Interreg, Social Climate Fund, Modernisation Fund), yet local actors lack capacity to navigate EU procedures.
- Cross-border renewable energy cooperation is important.

²⁰ **Session Leaders:** Jakub Csabay, Comenius University Bratislava (jakub.csabay@fses.uniba.sk) and Judit Bari, Hiszako Indie

²¹ **Session Leader:** Krzysztof Wiedermann, University of National Education Commission (krzysztof.wiedermann@uken.krakow.pl)

²² **Session Leaders:** Tamara Mitrofanenko, UNEP Vienna Programme Office (tamara.mitrofanenko@un.org), Mariana Melnykovych, Bern University of Applied Sciences BFH

DECISION COP7/4 Cooperation with United Nations Environment Programme

Key messages and Recommendations from Forum Carpathicum 2025

Session: Plastics in the Mountains - session and panel discussion

- Establish a **Carpathian-wide research and monitoring programme** on plastic pollution in mountain ecosystems.
- Identify **transport pathways, environmental fate, and ecological impacts** of plastics across elevation gradients.
- Generate scientific evidence to guide **regional management and prevention strategies**.
- Support Parties in implementing **UNEA Resolution 5/14 on ending plastic pollution** through coordinated monitoring and knowledge sharing.

Session: Session on Ukraine²³

- Promote mandatory **EIA/SEA** for all reconstruction, energy, infrastructure, and tourism projects in the Ukrainian Carpathians.
- Prepare **Carpathian Green Recovery EIA/SEA Guidance** for authorities and project developers.
- Invite UNEP to provide **technical validation** to ensure that reconstruction projects comply with Carpathian Convention protocols
- Encourage Parties and donors to finance **nature-based, climate-resilient, and low-impact green recovery projects** in Ukraine.
- **Report to the Carpathian Convention COP8** on progress and recommendations, to be led /coordinated by the Secretariat and in cooperation with UNEP

²³ **Session Leaders:** Tamara Mitrofanenko, UNEP Vienna Programme Office (tamara.mitrofanenko@un.org), Mariana Melnykovich, Bern University of Applied Sciences BFH

DECISION COP7/5 Cooperation with other conventions and international bodies

Activity: *Activities related to cooperation with other conventions and international bodies, including exchanging on regional mountain governance and interregional cooperation*

Activity: *Contribution to the UN Decade on Ecosystems Restoration 2021 – 2030*

Key Messages from Forum Carpaticum 2025

Session: Collaborative Environmental Justice Initiatives in Central and Eastern Europe across Urban and Rural Divides (RPS)²⁴

- There is need to seek synergies between Carpathian Convention, Aarhus Convention and EU Green Deal in the areas of inclusion and participation of vulnerable groups in the environmental matters

Recommendations from Forum Carpaticum 2025

Session: Collaborative Environmental Justice Initiatives in Central and Eastern Europe across Urban and Rural Divides (RPS)²⁵

- Establish an Aarhus platform for Roma communities in Central and Eastern Europe as one of the vehicles for this purpose.

²⁴ **Session Leaders:** Jakub Csabay, Comenius University Bratislava, RESDI (jakub.csabay@fses.uniba.sk), Judit Bari and Viktor Teru, Roma Environmental Sustainability & Development Initiative (RESDI)

²⁵ **Session Leaders:** Jakub Csabay, Comenius University Bratislava (jakub.csabay@fses.uniba.sk), Judit Bari, Hiszako Indie, and, Viktor Teru, RESDI

DECISION COP7/6 Implementation of the Kunming-Montreal Global Biodiversity Framework

Activities: Implementing the Carpathian Biodiversity Framework and the accompanying Carpathian Vision 2050; Promote mountain biodiversity within the CBD and KMGBF processes by fostering synergies among biodiversity-related conventions and mountain regions

Key Messages from Forum Carpaticum 2025

Session: Transboundary Strategies for Strengthening Carpathian Integrated Landscape Management Governance (RPS)

Ecological Connectivity (Alpine Harmonization):

- Legal and policy frameworks must recognize ecological corridors as binding elements in spatial planning, including TEN-T infrastructure.
- Cross-border harmonisation of definitions, methodologies, and planning standards is essential to avoid fragmentation and ensure functional corridors.

Session: Importance of Nature-based Solutions (NbS) in Sustainable Development of Mountain Areas: A Transdisciplinary Approach (RPS)²⁶

- Nature-based Solutions (NbS) support mountain communities, promote biodiversity and wildlife recovery, and are part of an Ecosystem-based Adaptation (EbA) approach.
 - EbA covers a broad set of processes from ecosystem management to the recovery and improvement of their services and are recognised as multi-purpose solutions that are often more efficient than traditional technical measures. These measures also contribute to stabilizing landslide-prone areas, improve livelihoods and biodiversity conservation
- The EU Adaptation Strategy puts an emphasis on ecosystem-based approaches, and particularly on NbS.
- These are typically stakeholder-driven and adapted to regional conditions. Local stakeholder groups are key to conserving mountain forests.

Session: Empowering communities to act for change (RPS)²⁷

- Rewilding projects are important for Carpathians, yet they are hindered by legal uncertainty, rigid sectoral policies, and conflicting land uses.
 - Informal institutions enable flexible, adaptive rewilding governance.
 - New policy frameworks should expand rewilding beyond protected areas.
 - Funding and incentives can accelerate rewilding adoption.
 - Opportunities: climate-smart rewilding with citizen science.

²⁶ **Session Leader:** Ignacio J. Diaz-Maroto, University of Santiago de Compostela (ignacio.diazmaroto@usc.es)

²⁷ **Session Leader:** Mariana Melnykovich, Bern University of Applied Sciences BFH (mariana.melnikovich@bfh.ch)

Recommendations from Forum Carpaticum 2025

Session: Transboundary Strategies for Strengthening Carpathian Integrated Landscape Management Governance (RPS)

- Overall, the Convention should support the vision of a **transboundary protected area**, aligned with EU Biodiversity Strategy 2030 goals.

Session: Empowering communities to act for change (RPS)²⁸

- Promote rewilding projects:
 - Clarify legal frameworks for **species reintroduction**, passive restoration, and rewilding at landscape scale.
 - Integrate rewilding into **biodiversity, climate, forestry and agricultural policies** to eliminate contradictions.
 - Provide **financial incentives** for landowners and communities to join rewilding projects.
 - Promote **citizen science** for monitoring biodiversity recovery.

²⁸ **Session Leader:** Mariana Melnykovich, Bern University of Applied Sciences BFH (mariana.melnikovych@bfh.ch)

DECISION COP7/8 Strengthening science-policy-practice interface and cooperation with scientific networks

Key Messages from Forum Carpaticum 2025

Session: Session on Ukraine²⁹

- Support green recovery of Ukraine capitalising on S4C and CC network.

Session: Collaborative Environmental Justice Initiatives in Central and Eastern Europe across Urban and Rural Divides (RPS)³⁰

- There is an acute need to build capacities of the social organisations and local actors in environmental and energy topics
- It is vital to connect social and natural sciences in cross-disciplinary topics, such as energy poverty

Session: Empowering communities to act for change

- Practical, experience-based education drives decentralized innovation in communities.
- Multi-actor processes require strong facilitation and long-term engagement especially by universities. LAGs and universities can serve as connectors between science and communities.
- Continuous communication and embedded moderators strengthen local innovation ecosystems.

Recommendations from Forum Carpaticum 2025

Session: Transboundary Strategies for Strengthening Carpathian Integrated Landscape Management Governance (RPS)

- The Convention should promote research on old-growth forests' roles in climate resilience and cultural heritage to strengthen ecological connectivity and guide evidence-based conservation priorities.

Session: Session on Ukraine³¹

- **Strengthen the science–policy–practice interface for Ukraine’s green recovery** by mobilizing Carpathian scientific networks, research institutions, and expert platforms to provide evidence-based guidance for reconstruction and sustainable development in the Ukrainian Carpathians.

²⁹ **Session Leaders:** Tamara Mitrofanenko, UNEP Vienna Programme Office (tamara.mitrofanenko@un.org), Mariana Melnykovich, Bern University of Applied Sciences BFH

³⁰ **Session Leaders:** Jakub Csabay, Comenius University Bratislava (jakub.csabay@fses.uniba.sk), Judit Bari, Hiszako Indie, and Viktor Teru, RESDI

³¹ **Session Leaders:** Tamara Mitrofanenko, UNEP Vienna Programme Office (tamara.mitrofanenko@un.org), Mariana Melnykovich, Bern University of Applied Sciences BFH

- **Facilitate targeted capacity building at national, regional, and local levels in Ukraine**, enabling authorities and communities to apply scientific data, modern environmental standards, and sustainability principles across all recovery measures.
- **Promote structured cooperation between Ukrainian municipalities, universities, and civil society organizations**, and enhance linkages with Carpathian scientific networks to co-develop innovative, nature-positive recovery solutions.
- **Highlight the importance of applying robust environmental standards, biodiversity conservation principles, and sustainability criteria** in all reconstruction projects, ensuring their alignment with Carpathian Convention objectives and scientific recommendations.
- **Integrate research on renewable energy, energy communities, and low-impact energy planning** into the Carpathian Convention Programme of Work (PoW), and promote collaboration with scientific networks to support science-based energy transition pathways in the Ukrainian Carpathians.
- **Facilitate science-backed twinning, joint research activities, and peer-to-peer cooperation** between Ukrainian communities and communities in other Carpathian countries, promoting shared learning and inclusive green recovery.
- **Ensure open access and dissemination of CORINE Land Cover and other relevant environmental datasets** for the Ukrainian Carpathians to support evidence-based planning, monitoring, and local decision-making.
- **Advocate for the application of science-based Environmental Impact Assessments and assessments of wind-energy potential areas** prior to any reconstruction or infrastructure development, drawing on the expertise of Carpathian research institutions.
- **Encourage investment in feasibility studies and preparatory assessments** co-developed with scientific institutions, enabling Ukrainian communities to design and implement high-quality green recovery projects grounded in scientific evidence.

Session: Empowering communities to act for change (RPS)³²

- Collaborate with the Mountain Research Initiative (MRI) and the Caucasus Mountain Network to share methods, cross-regional learning, and integrated science–policy–practice approaches.
- Strengthen **university–municipality–community partnerships** for applied learning and innovation.
- Support **Living Labs and Multi-actor innovation ecosystems** as formal tools to operationalise science–policy–practice interface within the Convention.
- Build a cross-Carpathian platform for **science–policy–practice exchange** on education, rewilding, and energy transition.
- Train local moderators to facilitate community innovation and participatory planning.

³² **Session Leader:** Mariana Melnykovych, Bern University of Applied Sciences BFH (mariana.melnykovych@bfh.ch)

Session: Collaborative Environmental Justice Initiatives in Central and Eastern Europe across Urban and Rural Divides (RPS)³³

- Support capacity-building of the social organisations and local actors in environmental and energy topics
- Consider addressing energy poverty as a cross-sectoral topic, linking natural and socio-economic knowledge
- Promote participatory action research methodologies

Session: Plastics in the Mountains - session and panel discussion³⁴

- **Support plastics research.** Since plastics is ubiquitous in different forms in mountain environments at all elevations, there is an urgent need for research into plastics delivery routes, fate and potential impacts to the develop accurate short- and long-term management strategies

Session: Historical Ecology and Geography: New Perspectives for Conservation and Management (RPS)³⁵

- Foster collaborations between researchers and public institutions to integrate historical landscape knowledge into conservation planning and rural development strategies (Grabska-Szwagrzyk et al. 2024)³⁶.

Session: Carpathian Waters³⁷

- **Foster research, knowledge exchange, and joint projects on river and wetland protection and restoration in the Carpathians to help** co-develop strategies to mitigate impacts and restore river connectivity and ecosystem services.
- **Support the creation of a Carpathian Hydromorphology and Waters Advisory Group** bringing together researchers and practitioners from all Carpathian countries, as well as experts working in the region, to foster structured communication and collaboration. Its role would include providing expert guidance, sharing best practices, and supporting the alignment of national legislation with common objectives.

³³ **Session Leaders:** Jakub Csabay, Comenius University Bratislava (jakub.csabay@fses.uniba.sk) and Judit Bari, Hiszako Indie

³⁴ **Session Leader:** Joanna Zawiejska, University of National Education Commission Krakow (joanna.zawiejska@uken.krakow.pl)

³⁵ **Session Leaders:** Ewa Grabska, Jagiellonian University (ewa2.grabska@uj.edu.pl) Dominik Kaim, Jagiellonian University

³⁶ Grabska-Szwagrzyk, E., Jakiel, M., Keeton, W., Kozak, J., Kuemmerle, T., Onoszko, K., Ostafin, K., Shahbandeh, M., Szubert, P., Szwagierczak, A. and Szwagrzyk, J., Ziolkowska, E., Kaim, D. (2024). Historical maps improve the identification of forests with potentially high conservation value. *Conservation Letters*, 17(5), e13043.

³⁷ **Session Leaders:** Joanna Zawiejska, University of National Education Commission Krakow (joanna.zawiejska@uken.krakow.pl), Gabriela-Adina Moroşanu-Mitoşeriu, Institute of Geography of the Romanian Academy

Strengthening of scientific collaboration on river and wetland protection and restoration: Joint research efforts should particularly target river stretches affected by reservoirs, water abstraction, embankments, and sediment exploitation, where hydrological and geomorphological processes are already significantly altered. By fostering knowledge exchange and joint projects, Carpathian countries can co-develop strategies to mitigate impacts and restore river connectivity and ecosystem services.

*Recommendations below are supported by the following publications: Martino et al. 2024³⁹, Nijnik et. al. 2020⁴⁰; Nijnik et. al. 2018⁴¹

- Ensure that a combination of participatory, quantitative, and digital techniques is adapted and put in use for the improving of current understanding of interactions between manifold socio-economic and nature protection values and activities in mountain forests of the Carpathians and other mountain regions.
- While developing and implementing innovative methods and tools exploring forest/forestry sustainability, to co-create with relevant stakeholders (including local communities) the knowledge reflecting on the social, socio-ecological and human dimensions of the state of the art and anticipated changes.
- Improve the knowledge of stakeholders' values and perspectives regarding woodlands expansion, the provision of ecosystem services, and practical issues and benefits of multi-functional forestry in the Carpathian Mountains and other mountain regions.
- Improve the integration of multiple domains and addressing regional imbalances/specificities and complexities. It means focusing on improving the geographic distribution of climate change research in the Carpathian region to ensure that all areas receive adequate attention and resources to implement climate change adaptation measures.
- Further explore the cultural reasons that motivate the recreational patterns currently being observed, and strive to incorporate manifold social and human dimensions into smart forestry concepts and their operationalisation, paying attention to the need of advancing the measurement and valuation of outputs and impacts, including those associated with innovative forest governance.
- Add human dimensions to the analysis of cultural values (e.g. cultural benefits such as amenities, relational values, sense of belonging) and to consider how people value forests when deciding on silvicultural practice.

³⁸ **Session Leaders:** Simone Martino, The James Hutton Institute (Simone.Martino@hutton.ac.uk), Maria Nijnik, The James Hutton Institute, Mariana Melnykovich, Bern University of Applied Sciences, Sam Poskitt, The James Hutton Institute, Katy Joyce, The James Hutton Institute

³⁹ Martino, S., Martinat, S., Joyce, K., Poskitt S, Nijnik, M., (2024). A Classification and Interpretation of Methodological Approaches to Pursue Natural Capital Valuation in Forest Research. *Forests*, 15(10), 1716. <https://www.mdpi.com/1999-4907/15/10/1716>.

⁴⁰ Nijnik, M., Kluvankova, T., Nijnik, A., Kopy, S., Melnykovich, M., Sarkki, S., Barlagne, C., Brnkalakova, S., Kopy, L., Fyzik, I., Miller, D. (2020). Is there a scope for social innovation in Ukrainian forestry? *Sustainability*, 12, 9674. <https://doi.org/10.3390/su12229674>.

⁴¹ Nijnik, M., Nijnik, A., Sarkki, S., Muñoz-Rojas, J., Miller, D., Kopy, S. (2018). Is forest related decision-making in European treeline areas socially innovative? A Q-methodology inquiry into the perspectives of international experts. *For. Policy Econ.*, 92, 210-219. <https://doi.org/10.1016/j.forpol.2018.01.001>.

- Use an additional input, based on the knowledge and skills of local people living and working in the area, regarding the potential risks (like from the felling of trees etc.) that are not captured by mainstream information.
- Emphasise the needs of deadwood for local livelihoods, including the deadwood salvage policy and cultural motivations.
- Address a plurality of values instead of relying on a purely economic dimension - to take a more holistic consideration of the synergies and trade-offs among a wide range of benefits generated by mountain forests, possibly under different scenarios.
- Keep in mind that contemporary opportunities are important in terms of the economy, environment, and livelihoods, whilst forestry performance is essential for creation of a competitive advantage given the long-term strategic objectives.

Inputs form the Student Conference on Conservation Science (SCCS Europe) 2025

- As the global scientific community is explicitly acknowledging the role of local stakeholders and TEK as vital to protect biodiversity, the Carpathian Convention should continue to recommend the support and ongoing development of ties between scientists and local stakeholders.
- This can be supported through developing Transdisciplinary research whereby the local stakeholders are involved in the framing of the issue as well as shaping the research and its execution co-learning with researchers on how best to protect their biodiversity.
- Project ProBioTIC (Promoting Biodiversity through Transdisciplinary Learning Interventions in the Carpathians)⁴² is an example of best practice in this respect;
- Provide support to projects, such as ProBioTIC, and initiatives, such as the Student Conference on Conservation Science (SCCS Europe), to shape the development of scientific literacy and engage stewardship and ownership for biodiversity in the Carpathians.

⁴²

Contact: Senan Gardiner, Leuphaba University:
<https://www.copernicus-alliance.org/probiotic-promoting-biodiversity-through-transdisciplinary-learning-in-the-carpathians>

DECISION COP7/9 Conservation and sustainable use of biological and landscape diversity

Article 4 of the Carpathian Convention

Key Messages from Forum Carpaticum 2025

Session: Transboundary Strategies for Strengthening Carpathian Integrated Landscape Management Governance (RPS)⁴³

- **Ecological Connectivity (Alpine Harmonization):**
 - Legal and policy frameworks must recognize ecological corridors as binding elements in spatial planning, including TEN-T infrastructure.
 - Cross-border harmonization of definitions, methodologies, and planning standards is essential to avoid fragmentation and ensure functional corridors.
- **Forests and Biodiversity (Old-Growth Forests, Large Carnivores):**
 - Old-growth and high-value forests provide irreplaceable climate resilience and cultural value and should be mapped and strictly protected using harmonized tools and methodologies.
 - Large carnivores as umbrella species require connected habitats and coordinated management across Carpathian, Balkan, and Dinaric ecoregions, linking biodiversity goals with multifunctional forest management.

Session: Empowering communities to act for change (RPS)⁴⁴

- Rewilding projects offers a holistic landscape-scale approach to biodiversity recovery.
- Informal governance, stakeholder engagement and funding are essential to rewilding success.
- Formal institutions often hinder community-driven restoration efforts.

Recommendations from Forum Carpaticum 2025

Session: Transboundary Strategies for Strengthening Carpathian Integrated Landscape Management Governance (RPS)

- Overall, the Convention should support the vision of a **transboundary protected area**, aligned with EU Biodiversity Strategy 2030 goals.
- The Convention should prioritize old-growth forests as key assets for biodiversity and climate by promoting transboundary protection, coordinated mapping, and strict conservation measures, in line with the EU Biodiversity Strategy 2030.
- The Convention should advocate for a rebalancing of the influence of business on nature conservation, ensuring transparent decision-making, stronger civil society participation, and the promotion of nature-positive business models.
- The Convention should promote research on old-growth forests' roles in climate resilience and cultural heritage to strengthen ecological connectivity and guide evidence-based conservation priorities.

⁴³ **Session Leader:** Isidoro De Bortoli, Eurac Research (isidoro.debortoli@eurac.edu)

⁴⁴ **Session Leader:** Mariana Melnykovich, Bern University of Applied Sciences BFH (mariana.melnikovich@bfh.ch)

- The **Biodiversity WG** should secure corridor integration in national planning and cross-border agreements.
- The **Biodiversity WG** should lead on transboundary mapping and integration into protected networks.

Session: Safeguarding Carpathian Pastoralism⁴⁵

- **Mainstreaming into Climate and Biodiversity:** Integrate *local sensory indicators* into climate and biodiversity monitoring.
- **Payment for ecosystem services:** Promote contract-based conservation approaches that valorize traditional land-use practices as providers of essential ecosystem services and biodiversity benefits.
- **Develop and provide Guidelines** for protected areas and herder communities to balance grazing and conservation
- **Co-existence with Wildlife:**
 - recognise cumulative impacts of wildlife management on pastoralism and advance adaptive management practices for both pastoralism and wildlife.
 - Solutions for pastoralism and wildlife interactions should respect the diversity of local realities across Europe, incorporating experience, local knowledge and social innovation.

Session: Historical Ecology and Geography: New Perspectives for Conservation and Management (RPS)⁴⁶

- Consider historical Land Use/Land Cover changes for land management purposes to understand the spread of invasive species
- Carry out Integrated, international monitoring and management of invasive plants to protect the Carpathian region
- **Apply dynamic conservation approaches** using Holocene ecosystem states as flexible reference conditions, acknowledging natural climate-driven variability. Prioritize maintaining ecosystem processes and connectivity over static compositional targets, particularly in high-altitude zones experiencing rapid contemporary change (Kholiavchuk et. al. 2024⁴⁷)

Session: Empowering communities to act for change (RPS)⁴⁸

- **Promote community-based rewilding across multifunctional landscapes (not only protected areas).**
- **Address mismatches between biodiversity, agriculture, and forestry policies.**
- Support **participatory biodiversity planning** that involves landowners, communities, and local institutions.

⁴⁵ **Session Leaders:** Tamara Mitrofanenko (tamara.mitrofanenko@un.org), UNEP Vienna Programme Office and Ioanna Baskerville, Romanian Academy - Iasi Branch

⁴⁶ **Session Leaders:** Ewa Grabska, Jagiellonian University (ewa2.grabska@uj.edu.pl) Dominik Kaim, Jagiellonian University

⁴⁷ Kholiavchuk, D., Gurgiser, W., & Mayr, S. (2024). Carpathian Forests: Past and Recent Developments.

⁴⁸ **Session Leader:** Mariana Melnykovich, Bern University of Applied Sciences BFH (mariana.melnikovich@bfh.ch)

Insights from IALE Europe 2025

- Prioritize and restore habitats at the landscape scale to enhance biodiversity, ecological connectivity, and ecosystem resilience.
 - Promote habitat connectivity and landscape permeability for multiple species; integrate traditional and modern landscape management practices; prioritize conservation and restoration in fragmented or sensitive areas; use spatially explicit and modelling approaches for evidence-based biodiversity planning.
 - Actively monitor and manage abandoned agricultural lands to balance ecological potential with socio-cultural values; prevent invasive species.
-

DECISION COP7/10 Spatial planning

Article 5 of the Carpathian Convention

Key messages:

Session: Empowering communities to act for change (RPS)⁴⁹

- Construction projects in the Carpathians must account for displacement, cultural impacts, environmental impact assessment, and local needs.
- Local communities often prioritize place-based solutions over top-down masterplans.
- Planning must be socially sustainable and culturally sensitive.

Recommendations from Forum Carpaticum 2025

Session: Session on Ukraine⁵⁰

- Integrate wind potential mapping and site suitability analysis, including environmental impact assessment, into regional spatial planning frameworks under the Carpathian Convention's protocols on biodiversity conservation and sustainable use of natural resources, ensuring transboundary consultation where cross-border impacts may occur.

Session: Empowering communities to act for change (RPS)⁵¹

- Integrate social perception studies and community consultation into spatial planning for water and energy infrastructure projects.
- Require participatory spatial planning frameworks for all large infrastructure projects in the Carpathians.
- Ensure alignment between local priorities and regional/national development visions.

Insights from IALE Europe 2025

- Integrate green infrastructure and nature-based solutions into spatial planning; minimize land take and ecosystem fragmentation; involve stakeholders; use landscape scenarios to anticipate and mitigate urbanization and climate change.
- For data-driven monitoring and decision-making use new technologies such as LiDAR and UAV-based remote sensing to map vegetation structure, landscape features, and ecosystem changes, supporting environmental monitoring and management of agricultural, urban, and riparian landscapes.

⁴⁹ **Session Leader:** Mariana Melnykovich, Bern University of Applied Sciences BFH, (mariana.melnikovich@bfh.ch)

⁵⁰ **Session Leaders:** Tamara Mitrofanenko, UNEP Vienna Programme Office (tamara.mitrofanenko@un.org), Mariana Melnykovich, Bern University of Applied Sciences BFH

⁵¹ **Session Leader:** Mariana Melnykovich, Bern University of Applied Sciences BFH (mariana.melnikovich@bfh.ch)

DECISION COP7/11 Sustainable and integrated water/river basin management

Article 6 of the Carpathian Convention

Key Messages from Forum Carpaticum 2025

Session: Empowering communities to act for change (RPS)⁵²

- Water infrastructure projects have deep social implications for rural communities (displacement, identity, livelihoods).
- Environmental and social sustainability must be central to water infrastructure governance.

Session: Carpathian Waters⁵³

- Restoration of watercourses and floodplains, their connectivity and their ecological functions is key for maintaining river integrity and management of flood hazard.
- Integrated basin management and holistic approach is needed, ensuring environmental sustainability and balancing social demands.
- Development of Carpathian Convention Protocol on Water, integrating relevant provisions of EU and member state legislations, would greatly support and enhance water management specific to vulnerable mountain environments and communities.

Session: Plastics in the Mountains - session and panel discussion⁵⁴

- Research into plastic impacts and development of plastic waste management strategies in mountain environments is urgent and critical for ecosystem and human health in the entire river basins.

Recommendations from Forum Carpaticum 2025

Session: Empowering communities to act for change (RPS)⁵⁵

- Mandate community **perception assessments** before reservoir or hydropower development. Ensure water infrastructure planning prioritizes fairness, social acceptance and cultural sensitivity.
- Strengthen research on social impacts of reservoirs and integrate results into basin plans.

⁵² **Session Leader:** Mariana Melnykovich, Bern University of Applied Sciences BFH

⁵³ **Session Leaders:** Joanna Zawiejska, University of National Education Commission Krakow (joanna.zawiejska@uken.krakow.pl), Gabriela-Adina Moroşanu-Mitoşeriu, Institute of Geography of the Romanian Academy

⁵⁴ **Session Leader:** Joanna Zawiejska, University of National Education Commission Krakow (joanna.zawiejska@uken.krakow.pl)

⁵⁵ **Session Leader:** Mariana Melnykovich, Bern University of Applied Sciences BFH, (mariana.melnikovich@bfh.ch)

Session: Plastics in the Mountains - session and panel discussion⁵⁶

- **Prioritise measures for reduction of plastic delivery.** Local waste management strategies (for both municipal and tourism related waste) need to be updated and enforced to limit further delivery of plastics to mountain environments, particularly rivers. Fragmentation of macroplastics during fluvial transport may lead to 'production' of microplastics and affect ecosystem and human health along river length.
- **Develop adequate removal strategies.** Macroplastics trapping and accumulation with wood debris in ecologically highly valuable river reaches requires science-informed management and removal measures to prevent further deterioration of biodiversity.

Session: Carpathian Waters⁵⁷

- **Integrate effects of climate change and complex human impacts into management.** Effects of climate change, and of past and ongoing human impacts on rivers (channelization, incision, hydropower mining, sediment extraction, land use change) need to be incorporated in water management strategies.
- **Restore natural river dynamics.** River restoration, aimed at restoring hydrogeomorphological processes, allowing and increasing floodplain water storage, is essential for river health and reduction of flood hazard.
- **Protect native riparian vegetation.** To maintain biodiversity, river management strategies in the Carpathians should prioritize restoring natural hydrological conditions, reducing channelization, and allowing for seasonal flooding, which supports ecosystem resilience.
- **Monitor and Control Invasive Species.** Implementing systematic remote sensing-based monitoring programs using UAV multispectral imaging can help track the spread of invasive species and guide targeted management actions, ensuring the long-term sustainability of riparian ecosystems under changing climate conditions.
- **Delineate flash flood hazard zones in small catchments and adaptation strategies.** Develop flash flood hazard identification tools for small catchments to inform warning systems. Inform adaptation strategies aimed at risk reduction, including housing design for affected areas.
- **Support establishment of a homogeneous and shared hydrological database for the Carpathian river basins.** Such data base should integrate existing open-source hydrological data and coordinate national datasets in order to provide a transboundary perspective on water resources shared by the Carpathian countries. Harmonized data would enable more effective monitoring of changes in flow and sediment fluxes, as well as ecological conditions, and would directly support collaborative research and management actions across borders.
- **Foster research, knowledge exchange and joint projects on river and wetland protection and restoration** in the Carpathians to help co-develop can co-develop strategies to mitigate impacts and restore river connectivity and ecosystem services.
- **Support development of Carpathian Convention Protocol on Water** in agreement with EU and national legislation to enhance science-informed sustainable management of mountain river basins. Integration of existing legislation with

⁵⁶ **Session Leader:** Joanna Zawiejska, University of National Education Commission Krakow (joanna.zawiejska@uken.krakow.pl),

⁵⁷ **Session Leaders:** Joanna Zawiejska, University of National Education Commission Krakow (joanna.zawiejska@uken.krakow.pl) Gabriela-Adina Moroşanu-Mitoşeriu, Institute of Geography of the Romanian Academy

provisions specific to mountain environments will constitute an efficient and targeted tool for conservation and management of Carpathian waters, flood hazard management and protection of mountain communities.

- **Support creation of a Carpathian Hydromorphology and Waters Advisory Group** bringing together researchers and practitioners from all Carpathian countries, as well as experts working in the region, to foster structured communication and collaboration. Its role would include providing expert guidance, sharing best practices, and supporting the alignment of national legislation with common objectives.
- **Foster increased visibility and accessibility of information (also in local languages) on** past and ongoing research and projects on Carpathian waters and natural hazards (e.g. project websites, deliverables, final reports, guidelines, toolboxes, good practice manuals), available to researchers.

Session: Collaborative Environmental Justice Initiatives in Central and Eastern Europe across Urban and Rural Divides (RPS)⁵⁸

- Pay special attention needs to health impacts and to the access of clean and warm water to all communities, including vulnerable groups

Insights from IALE Europe 2025

- Restore sponge landscapes; promote soil and vegetation water retention;
- Support adaptive governance across transboundary river basins;
- Combine agricultural and natural land-use measures to mitigate droughts, floods, and water scarcity.

Inputs from Student Conference on Conservation Science (SCCS Europe) 2025

- Adopt the three-tier (historical–hybrid–novel) ecosystem framework in river basin planning⁵⁹
- Integrate systematic, multi-objective spatial planning into freshwater governance
 - Embed spatial optimization into river basin management plans to balance biodiversity conservation, ecosystem services, and socioeconomic demands.
- Strengthen protection, restoration, and connectivity of freshwater habitats

⁵⁸ **Session Leaders:** Jakub Csabay, Comenius University Bratislava (jakub.csabay@fses.uniba.sk), Judit Bari, Hiszako Indie, and, Viktor Teru, RESDI

⁵⁹ Erős, T., Hermoso, V., & Langhans, S. D. (2023). *Leading the path toward sustainable freshwater management: Reconciling challenges and opportunities in historical, hybrid, and novel ecosystem types*. WIREs Water, e1645. <https://doi.org/10.1002/wat2.1645>; Erős, T., O'Hanley, J. R., & Czeglédi, I. (2018). A unified model for optimizing riverscape conservation. *Journal of Applied Ecology*, 55(4), 1871–1883. <https://doi.org/10.1111/1365-2664.13142>

- Historical ecosystems should receive strict protection as biodiversity focal areas, while hybrid ecosystems should be prioritized for targeted restoration and connectivity improvements.
 - novel ecosystems require biodiversity-friendly management (e.g., nature-based solutions) to enhance multifunctionality without compromising their primary human-use functions
- Reform governance to accelerate implementation of environmental flows and control invasive species
 - Successful freshwater management requires updated governance frameworks that enable environmental flow regulation, cross-jurisdictional coordination, and integration of social and economic considerations.
 - Policies should also strengthen invasive species prevention, propagule-pressure control, and ecosystem-relevant eradication efforts

DECISION COP7/12 Sustainable Agriculture and Rural Development

Article 7 of the Carpathian Convention

Key Messages from Forum Carpathicum 2025

Session: Empowering communities to act for change (RPS)⁶⁰

- Innovation ecosystems set up in communities together with universities can help them learn, plan and act collectively. Community empowerment requires time, preparation and skilled facilitation.
- LAGs can support innovation and energy transition if properly empowered.

Session: Accessibility, Development Paths and Windows of Opportunities in Core-Periphery Systems: Challenges of Local and Regional Development in the Carpathians⁶¹

- Peripheral Carpathian communities face interconnected socio-economic challenges stemming from geographic marginalization across multiple national borders.
- Socio-Economic revitalization requires integrated approaches that balance local entrepreneurship development, particularly in green and creative economy sectors leveraging mountain-specific resources, with youth retention strategies and improved connectivity.
- The transboundary nature of the Carpathian region necessitates cross-border cooperation to address demographic decline and economic stagnation while maintaining alignment with the Convention's environmental sustainability commitments
- Development of local tourism infrastructure leads to an increased number of mountain accidents.
- Tourism development creates a need to build greater rescue and medical support capacity in small communities, which have to be done by a cooperation of local authorities, investors and local rescue services.
- Sustainable tourism development should be linked also to safety pre-plans taking into consideration mountain accidents and rescue missions of the local rescue teams, as the part of both economical and environmental-friendly development.
- Cultural heritage and local products can drive tourism development. Sustainable mountain tourism and ecotourism are important determinants of the area's development
- Aging constitutes a demographic challenge in the Carpathians.

Session: Building Capabilities and Facilitating the Participation of Vulnerable Groups in Rural and Mountain Regions through SSE in Multi-Level Sustainable Development Policy (RPS)⁶²

- Rural regions across Europe face structural challenges, such as ageing populations, service withdrawal, limited infrastructure, and socio-economic exclusion.

⁶⁰ **Session Leader:** Mariana Melnykovich, Bern University of Applied Sciences BFH (mariana.melnikovich@bfh.ch)

⁶¹ **Session Leader:** Krzysztof Wiedermann, University of National Education Commission (krzysztof.wiedermann@uken.krakow.pl (krzysztof.wiedermann@uken.krakow.pl)

⁶² **Session Leader:** Agnes Nemeth, University of Eastern Finland (agnes.nemeth@uef.fi) Matti Fritsch, University of Eastern Finland

Recommendations from Forum Carpathicum 2025

Session: Empowering communities to act for change (RPS)⁶³

- Integrate multi-actor innovation escalation into rural development strategies.
- Support LAGs as facilitators of community-led climate, energy, biodiversity and innovation projects.
- Fund training for local moderators / “*local active task force*” to guide long-term community transformation.

Session: Transboundary Strategies for Strengthening Carpathian Integrated Landscape Management Governance (RPS)

- **WG SARD** should promote agri-environmental measures that reward biodiversity-friendly land use.

Session: Safeguarding Carpathian Pastoralism:

- Link national/EU subsidies to sustainable land use, not only land ownership
- **Cultural and land rights:** protect Transhumance routes and ensure herders and shepherds' access
- **Food & tradition:** align sanitary regulations with traditional gastronomy modes, brand them accordingly
- **Traditional Ecological Knowledge:** promote different forms of knowledge and its role in biodiversity conservation and sustainable land custodianship
 - support intergenerational sensory transmission of knowledge, e.g. via programmes that allow younger generations to participate in pastoral practices through being-with and sensory learning (e.g. shepherding summer schools, residencies, interactive apprenticeships)
- **Education:** Implement educational measures relevant for safeguarding Carpathian pastoralism
- **Adaptation to climate change:** integrate / consider potential adaptation and changes to traditional transhumance routines in light of climate change via sophisticated governance changes and educational activities.
- **Social recognition and awareness:**
 - improve the public image and status of shepherds
 - Recognize *intangible sensory heritage* of pastoralism;
 - Support multimodal documentation (photography, film, sound archives, smell mapping) as legitimate instruments of monitoring pastoral landscapes.
 - Facilitate creating a system to **recognize informal knowledge** in cases where there is a lack of formal education
- **Participatory governance:** Be aware of power hierarchies and equitable representation of stakeholder voices in international processes focused on pastoralism

⁶³ **Session Leader:** Mariana Melnykovich, Bern University of Applied Sciences BFH (mariana.melnikovich@bfh.ch)

- Allocate resources to build social capital and trust for bridging diverse perspectives and reducing conflicts.
- Integrate stakeholder input to advance coordinated policies and practices that address pastoralist challenges effectively.
- Include local voices in the process of designing solutions (e.g. for co-existence with wildlife) not only to ensure that solutions are tailored to the unique local conditions, but also to create a sense of shared ownership, which is especially valuable in addressing complex challenges such as human-wildlife conflicts, where multiple interests and perspectives must be reconciled.
- **Payment for ecosystem services:** Promote contract-based conservation approaches that valorize traditional land-use practices as providers of essential ecosystem services and biodiversity benefits.
- **Develop and provide Guidelines** for protected areas and herder communities to balance grazing and conservation
- **Co-existence with Wildlife:**
 - Support the development of effective and lasting solutions to human-wildlife conflict to ensure that pastoralists and wildlife can thrive side-by-side in shared landscapes;
 - Recognise cumulative impacts of wildlife management on pastoralism and advance adaptive management practices for both pastoralism and wildlife.
 - Respect the diversity of local realities across Europe
 - Emphasise co-creation of knowledge: collaborative processes where stakeholders, practitioners and researchers work together to generate, share and apply knowledge.
 - Promote collaboration, mutual learning and the blending of diverse perspectives, experiences and types of expertise.

Session: Historical Ecology and Geography: New Perspectives for Conservation and Management (RPS)⁶⁴

- Focus on region-specific strategies, recognising the distinct climate sensitivities of Western, Eastern, Southern, and Southwestern Carpathians
- Create flexible forest/agriculture/tourism management strategies that accommodate the varying timelines and conditions of environmental change across different Carpathian sub-regions
- Support the recognition and protection of traditional cultural landscapes shaped by seasonal mountain economy as areas of high natural and cultural value
- Promote the inclusion of land-use features related not only to grazing but also to historical cultivation (e.g., agricultural terraces, stone mounds, stone walls) into conservation programs

Session: Accessibility, Development Paths and Windows of Opportunities in Core-Periphery Systems: Challenges of Local and Regional Development in the Carpathians⁶⁵

⁶⁴ **Session Leaders:** Ewa Grabska, Jagiellonian University, (ewa2.grabska@uj.edu.pl), Dominik Kaim, Jagiellonian University

⁶⁵ **Session Leader:** Krzysztof Wiedermann, University of National Education Commission, (krzysztof.wiedermann@uken.krakow.pl)

- **SAFETY is one of the elements of the SUSTAINABLE tourism:** Support pre-planning of rescue solutions together with rescue services when planning development in outdoor activities
- **Consider The Wallachian Culture Trail** as a model of cross-border heritage management and a tool for sustainable development in the Carpathian Region. Three aspects particularly relevant to the creation of Wallachian Culture Trails include; 1) model of heritage protection, 2) Impact on economic development and entrepreneurship, 3) Platform for cross-border cooperation.
- Taylor region specific policy recommendations to the main characteristics of each region;
- Encourage Synergy with existing European strategies (like the EU Demographic Toolbox; or the Long-Term Vision for Rural Areas) or initiatives (like the Smart Village Network) should be encouraged

Session: Building Capabilities and Facilitating the Participation of Vulnerable Groups in Rural and Mountain Regions through SSE in Multi-Level Sustainable Development Policy (RPS)⁶⁶

- Social innovations and the Social and Solidarity Economy (SSE) offer inclusive, community-driven solutions that promote resilience, well-being, and democratic participation.

Insights from IALE Europe 2025

- Preserve and restore traditional orchards, meadows, and agricultural landscapes with scattered trees; maintain traditional management practices;
- Support local cultivars;
- Integrate solitary trees and hedgerows into agri-environmental policies and rural development.

Key Messages from Multifunctional Farming Conference 2025, Rzeszów

- Traditional agriculture - whether smallholder, mixed or pastoralism - nested in the landscape and tradition, should be protected and revitalised as an indispensable contribution to food security and ecological resilience of the greater Carpathian region.
- In areas, where the revitalisation of mixed family farms is unlikely (e.g., due to poor soil quality), the introduction of extensive grazing should be considered as an irreplaceable tool for the active protection of landscape diversity, and at the same time a source of sought-after healthy food and valuable “wild tree” timber (such as of the Jay-dispersed oaks).
- Building of public awareness, recognition, and appreciation of the role of traditional agriculture as a unique provider of a wide range of biocultural benefits are required.

⁶⁶ **Session Leader:** Agnes Nemeth, University of Eastern Finland (agnes.nemeth@uef.fi), Matti Fritsch, University of Eastern Finland

This awareness should be reflected in an appropriate legal and economic framework that provides traditional agriculture with the necessary autonomy and freedom from bureaucratic constraints.

DECISION COP7/13 Sustainable Forest Management

Article 7 of the Carpathian Convention

Key Messages from Forum Carpaticum 2025

Session: Transboundary Strategies for Strengthening Carpathian Integrated Landscape Management Governance (RPS)

Forests and Biodiversity (Old-Growth Forests, Large Carnivores):

- Old-growth and high-value forests provide irreplaceable climate resilience and cultural value and should be mapped and strictly protected using harmonized tools and methodologies.⁶⁷
- Large carnivores as umbrella species require connected habitats and coordinated management across Carpathian, Balkan, and Dinaric ecoregions, linking biodiversity goals with multifunctional forest management.

Session: Empowering communities to act for change (RPS)⁶⁸

- Forests are an important source of energy resilience in many remote communities in the Carpathians, yet timber is often illegally harvested for this purpose. Therefore, actions are needed to support sustainable forest management and to raise awareness through participatory forest management models.
- In many remote / marginalised mountain communities in the Carpathians, schools rely on forest biomass as their main energy source. Projects that improve energy efficiency in school buildings can significantly reduce pressure on forest resources and decrease dependence on forest biomass.

⁶⁷ Markuljaková K, Mikoláš M, Svitok M, Meigs GW, Keeton WS, Kozák D, Pavlin J, Gloor R, Kalaš M, Ferenčík M, Ralhan D, Frankovič M, Hofmeister J, Dúhová D, Mejstřík M, Dušátko M, Veber A, Knír T, Svoboda M. 2025. Rewilding beech-dominated temperate forest ecosystems: effects on carbon stocks and biodiversity indicators. *Biogeosciences and Forestry* 18: 1-9. <https://doi.org/10.3832/for4600-017>

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⁶⁸ **Session Leader:** Mariana Melnykovych, Bern University of Applied Sciences BFH (mariana.melnikovych@bfh.ch)

Recommendations from Forum Carpaticum 2025

Session: Empowering communities to act for change (RPS)⁶⁹

1. Include forestry enterprises and environmental institutions as key stakeholders in local energy planning.
2. Promote small- scale renewable energy projects to **reduce biomass pressure** on forests.

Session: Transboundary Strategies for Strengthening Carpathian Integrated Landscape Management Governance (RPS)

- The **Forestry WG** should embed connectivity criteria in forest management and certification.
- The **Forestry WG** must ensure strict protection and buffer zones for old-growth stands.

Session: Historical Ecology and Geography: New Perspectives for Conservation and Management (RPS)⁷⁰

3. Promote development of silvicultural practices for the restoration of old-growth structure and function as a complement to protected areas strategies⁷¹
4. Use inventories on old-growth forests to guide both protected area planning and active restoration, map High Conservation Value Forests based on ecological functionality in primary and secondary forests (e.g. climate regulation, hydrologic regulation, etc.), and promote silvicultural practices that restore old-growth structures and functions as a complement to protected area strategies.⁷²
5. Focus on region-specific strategies, recognising the distinct climate sensitivities of Western, Eastern, Southern, and Southwestern Carpathians.⁷³
6. Create flexible forest/agriculture/tourism management strategies that accommodate the varying timelines and conditions of environmental change across different Carpathian sub-regions.⁷⁴
7. Integrate paleoenvironmental insights into climate-adaptive forest management through: climate-informed treeline monitoring; climate-adapted native species reforestation (emphasizing climate-sensitive indicators like beech); elevational migration corridors; and soil conservation in historically degraded foothill ecosystems vulnerable to compound pressures.⁴⁶

⁶⁹ **Session Leader:** Mariana Melnykovich, Bern University of Applied Sciences BFH (mariana.melnikovich@bfh.ch)

⁷⁰ **Session Leaders:** Ewa Grabska, Dominik Kaim, Jagiellonian University

⁷¹ Aszalós, R., D. Thom, T. Aakala, P. Angelstam, G. Brümelis, L. Gálhidy, G. Gratzner, T. Hlásny, K. Katzensteiner, B. Kovács, T. Knoke, L. Larrieu, R. Motta, J. Müller, Péter Ódor, D. Roženberger, Y. Paillet, D. Pitar, T. Standovár, M. Svoboda, J. Szwagrzyk, P. Toscani, W.S. Keeton. 2022. Natural disturbance regimes as a guide for sustainable forest management in Europe. *Ecological Applications* 32: e2596

⁷² Grabska-Szwagrzyk, E., M. Jakiel, W.S. Keeton, J. Kozak, T. Kuemmerle, K. Onoszko, K. Ostafin, M. Shahbandeh, P. Szubert, A. Szwagierczak, J. Szwagrzyk, E. Ziolkowska, and D. Kaim. 2024. Historical maps can substantially improve the identification of high-conservation-value forests. *Conservation Letters*. 17:e13043. <https://doi.org/10.1111/conl.13043>; Sabatini F.M., W.S. Keeton, M. Lindner, M. Svoboda, P.J. Verkerk, J. Bauhus, H. Bruelheide, S. Burrascano, N. Debaive, I. Duarte, M. Garbarino, N. Grigoriadis, F. Lombardi, M. Mikoláš, P. Meyer, R. Motta, G. Mozgeris, L. Nunes, P. Ódor, M. Panayotov, A. Ruete, B. Simovski, J. Stillhard, J. Svensson, J. Szwagrzyk, O.P. Tikkanen, K. Vandekerckhove, R. Volosyanchuk, T. Vrska, T. Zlatanov, T. Kuemmerle. 2020. Protection gaps and restoration opportunities for primary forests in Europe. *Diversity and Distributions* 00: 1-17 DOI: [10.1111/ddi.13158](https://doi.org/10.1111/ddi.13158)

⁷³ Kholiavchuk, D., Gurgiser, W., & Mayr, S. (2024). Carpathian Forests: Past and Recent Developments.

⁷⁴ Kholiavchuk, D., Gurgiser, W., & Mayr, S. (2024). Carpathian Forests: Past and Recent Developments.

Session: Innovative Methods and Tools for Integrating Economic, Social and Environmental Aspects to Bridge Science-Policy Interface for Better Decisions in Forestry⁷⁵

- Promote a virtual environment for forest managers to practice tree selection, forest management, and the integration of biodiversity conservation into forestry silvicultural interventions.
- Add the human dimension to the analysis of cultural values of forests (for instance cultural benefits such as amenities, relational values, sense of belonging, etc.) and to consider how people value forests when deciding the most appropriate silvicultural practice.

⁷⁵ **Session Leaders:** Simone Martino, The James Hutton Institute (Simone.Martino@hutton.ac.uk), Maria Nijnik, The James Hutton Institute, Mariana Melnykovich, Bern University of Applied Sciences BFH, Sam Poskitt, The James Hutton Institute, Katy Joyce, The James Hutton Institute

DECISION COP7/14 Sustainable transport and infrastructure, industry and energy

Article 8 of the Carpathian Convention, Article 10 of the Carpathian Convention

Key Messages from Forum Carpaticum 2025

Session: Empowering communities to act for change (RPS)⁷⁶

- Decentralized renewable energy is key to municipal resilience.
- Citizen energy initiatives need stable legal bases, fair financing, and trust.
- Schools are strategic entry points for community-wide small-scale energy transition. Diverse funding mechanisms exist but must be made accessible.

Session: Session on Ukraine⁷⁷

- Environmental protection must be embedded in green reconstruction, not postponed until after the war.
- The Carpathians require urgent protection from poorly regulated wind, tourism, and industrial projects. Science must inform decisions before—not after—projects are approved.
- Municipal capacity is currently the bottleneck of green recovery. Local capacity building is the foundation of green recovery; municipalities cannot act without expert and financial support.

Recommendations from Forum Carpaticum 2025

Session: Empowering communities to act for change (RPS)⁷⁸

- Develop Convention-level support for **community energy projects**, including school-based transitions. Disseminate information on financing tools (grants, loans, guarantees) and **risk-sharing** for first-mover projects; legal procedures for small-scale renewable energy installations.
- Promote **cross-border energy cooperation** between municipalities.

Session: Session on Ukraine⁷⁹

⁷⁶ **Session Leader:** Mariana Melnykovich, Bern University of Applied Sciences BFH (mariana.melnykovich@bfh.ch)

⁷⁷ **Session Leaders:** Tamara Mitrofanenko, UNEP Vienna Programme Office (tamara.mitrofanenko@un.org), Mariana Melnykovich, Bern University of Applied Sciences BFH

⁷⁸ **Session Leader:** Mariana Melnykovich, Bern University of Applied Sciences BFH (mariana.melnykovich@bfh.ch)

⁷⁹ **Session Leaders:** Tamara Mitrofanenko UNEP Vienna Programme Office (tamara.mitrofanenko@un.org), Mariana Melnykovich, Bern University of Applied Sciences BFH

- Integrate **renewable energy and energy communities** into Carpathian Convention programme of work
- Promote cross-border and inter-municipal cooperation sustainable energy.
- Invest in feasibility studies and pre-project documentation for municipalities to support municipality-driven green recovery projects (message to donors)
- Advocate for strict EIA and wind-potential assessments before construction projects

Session: Transboundary Strategies for Strengthening Carpathian Integrated Landscape Management Governance (RPS)

- The **Transport WG** must require ecological assessments and corridor-friendly designs for new infrastructure.

Session: Plastics in the Mountains - session and panel discussion⁸⁰

- **Prioritise measures for reduction of plastic delivery.** Local waste management strategies (for both municipal and tourism related waste) need to be updated and enforced to limit further delivery of plastics to mountain environments, particularly rivers. Fragmentation of macroplastics during fluvial transport may lead to 'production' of microplastics and affect ecosystem and human health along river length.
- **Develop adequate removal strategies.** Macroplastics trapping and accumulation with wood debris in ecologically highly valuable river reaches requires science-informed management and removal measures to prevent further deterioration of biodiversity.

Session: Collaborative Environmental Justice Initiatives in Central and Eastern Europe across Urban and Rural Divides (RPS)⁸¹

- Promote and actively support local citizen energy initiatives, particularly in localities with a high prevalence of vulnerable - these should take into account not only environmental but also socio-economic impact and the overall improvement in quality of life
- Pay special attention needs to informal settlements and energy poverty that falls out of usual metrics and indicators

⁸⁰ **Session Leader:** Joanna Zawiejska, University of National Education Commission Krakow (joanna.zawiejska@uken.krakow.pl)

⁸¹ **Session Leaders:** Jakub Csabay, Comenius University Bratislava (jakub.csabay@fses.uniba.sk) and Judit Bari, Hiszako Indie

DECISION COP7/15 Sustainable tourism

Article 9 of the Carpathian Convention

Key Messages from Forum Carpaticum 2025

Session: Empowering communities to act for change (RPS)⁸²

- Rewilding and cultural landscapes can become sustainable tourism assets.

Session: Transboundary Strategies for Strengthening Carpathian Integrated Landscape Management Governance (RPS)

- **Tourism and Regional Development (HUMANITA, Slovakia Tourism):** Tourism must be embedded in regional development plans and governance frameworks, using participatory monitoring and communication strategies to reduce ecological impacts and enhance local benefits. Visitor awareness, shared heritage narratives, and responsible financing of EU funds are critical for sustainability.

Session: Accessibility, Development Paths and Windows of Opportunities in Core-Periphery Systems: Challenges of Local and Regional Development in the Carpathians⁸³

- Peripheral Carpathian communities face interconnected socio-economic challenges stemming from geographic marginalization across multiple national borders.
- Economic revitalization requires integrated approaches that balance local entrepreneurship development, particularly in green and creative economy sectors leveraging mountain-specific resources, with youth retention strategies and improved connectivity.
- The transboundary nature of the Carpathian region necessitates cross-border cooperation to address demographic decline and economic stagnation while maintaining alignment with the Convention's environmental sustainability commitments

Recommendations from Forum Carpaticum 2025

Session: Empowering communities to act for change (RPS)⁸⁴

- Integrate rewilding landscapes and pastoral heritage into **low-impact tourism strategies**.

Session: Transboundary Strategies for Strengthening Carpathian Integrated Landscape Management Governance (RPS)

⁸² **Session Leader:** Mariana Melnykovich, Bern University of Applied Sciences BFH (mariana.melnykovich@bfh.ch)

⁸³ **Session Leader:** Krzysztof Wiedermann, University of National Education Commission (krzysztof.wiedermann@uken.krakow.pl)

⁸⁴ **Session Leader:** Mariana Melnykovich, Bern University of Applied Sciences BFH (mariana.melnykovich@bfh.ch)

- The **Tourism WG** should strengthen eco-tourism development which supports intact ecosystems, utilizing frameworks such as the Carpathian Peace Parks⁸⁵ network as a model for transboundary nature-based tourism. Potential approaches may include developing cross-border eco-tourism routes and interpretive programs; establishing joint certification standards for sustainable tourism operators in protected area networks; creating collaborative marketing platforms that highlight transboundary conservation values; and building local community capacity to deliver authentic, low-impact tourism experiences.

Session: Accessibility, Development Paths and Windows of Opportunities in Core-Periphery Systems: Challenges of Local and Regional Development in the Carpathians⁸⁶

- Sustainable tourism development in mountain regions **must integrate safety infrastructure planning** alongside environmental protection. Local authorities, tourism investors, and rescue services should collaboratively establish emergency response capacities and safety protocols as essential components of tourism planning, ensuring that increased visitor flows are matched by adequate rescue, medical, and risk management systems within the Convention's framework for sustainable mountain tourism.
- **Establish Carpathian cultural heritage trail networks**, using the Wallachian Culture Trail as a replicable model, to integrate intangible heritage preservation with sustainable tourism and local product development. These initiatives should function as heritage protection mechanisms ensuring authenticity and community stewardship; economic development tools supporting traditional crafts and food production enterprises; and cross-border cooperation platforms linking cultural institutions and tourism stakeholders across national boundaries, pursuant to the Convention's protocols on sustainable tourism and rural development.

Session: Innovative Methods and Tools for Integrating Economic, Social and Environmental Aspects to Bridge Science-Policy Interface for Better Decisions in Forestry⁸⁷

- Explore the use of digital tools to show hotspots of recreational uses
- Investigate the cultural reasons that motivate the emergence of recreational patterns, including the role of social functions into smart forestry concepts.

⁸⁵ <https://www.carpathianpeaceparks.org/>

⁸⁶ **Session Leader:** Krzysztof Wiedermann, University of National Education Commission (krzysztof.wiedermann@uken.krakow.pl)

⁸⁷ **Session Leaders:** Simone Martino, The James Hutton Institute (Simone.Martino@hutton.ac.uk), Maria Nijnik, The James Hutton Institute, Mariana Melnykovich, Bern University of Applied Sciences BFH, Sam Poskitt, The James Hutton Institute, Katy Joyce, The James Hutton Institute

DECISION COP7/16 Cultural Heritage and traditional knowledge

Article 11 of the Carpathian Convention

Recommendations from Forum Carpaticum 2025

Session: Innovative Methods and Tools for Integrating Economic, Social and Environmental Aspects to Bridge Science-Policy Interface for Better Decisions in Forestry⁸⁸

- Investigate the cultural reasons that motivate the emergence of recreational patterns, including the role of social functions into smart forestry concepts.

Session: Empowering communities to act for change (RPS)⁸⁹

- Promote **school-based, intergenerational learning** on energy, ecology and cultural heritage.
- Protect cultural landscapes affected by infrastructure projects without EIA procedures.

Session: Accessibility, Development Paths and Windows of Opportunities in Core-Periphery Systems: Challenges of Local and Regional Development in the Carpathians⁹⁰

- **Establish Carpathian cultural heritage trail networks**, using the Wallachian Culture Trail as a replicable model, to integrate intangible heritage preservation with sustainable tourism and local product development. These initiatives should function as heritage protection mechanisms ensuring authenticity and community stewardship; economic development tools supporting traditional crafts and food production enterprises; and cross-border cooperation platforms linking cultural institutions and tourism stakeholders across national boundaries, pursuant to the Convention's protocols on sustainable tourism and rural development.

Session: Safeguarding Carpathian Pastoralism:

- **Cultural rights:** protect traditional Transhumance routes and ensure herders and shepherds' access
- **Traditional Ecological Knowledge:** promote different forms of knowledge and its role in biodiversity conservation and sustainable land custodianship
 - support intergenerational sensory transmission of knowledge, e.g. via programmes that allow younger generations to participate in pastoral practices through being-with and sensory learning (e.g. shepherding summer schools, residencies, interactive apprenticeships)

⁸⁸ **Session Leaders:** Simone Martino, The James Hutton Institute (Simone.Martino@hutton.ac.uk), Maria Nijnik, The James Hutton Institute, Mariana Melnykovich, Bern University of Applied Sciences, Sam Poskitt, The James Hutton Institute, Katy Joyce, The James Hutton Institute

⁸⁹ **Session Leader:** Mariana Melnykovich, Bern University of Applied Sciences BFH

⁹⁰ **Session Leader:** Krzysztof Wiedermann, University of National Education Commission (krzysztof.wiedermann@uken.krakow.pl)

- **Education:** Implement educational measures relevant for safeguarding Carpathian cultural heritage
 - **Social recognition and awareness:**
 - Recognize *intangible sensory heritage* of pastoralism;
 - Support multimodal documentation (photography, film, sound archives, smell mapping) as legitimate instruments of monitoring pastoral landscapes.
 - Facilitate creating a system to **recognize informal and traditional knowledge** in cases where there is a lack of formal education
-

DECISION COP7/17 Environmental assessment/information system, monitoring and early warning

Article 12 of the Carpathian Convention

Key Messages from Forum Carpathicum 2025

Session: Empowering communities to act for change (RPS)⁹¹

- Community energy transition improves climate resilience (mitigating illegal logging).
- Climate-smart rewilding provides mitigation and adaptation co-benefits.

Session: Transboundary Strategies for Strengthening Carpathian Integrated Landscape Management Governance (RPS)⁹²

- **Geohazards and Climate Change (Georgia Landslides):** Landslides represent costly risks in mountain areas. GIS-based susceptibility mapping, early-warning systems, and the integration of hazard data into spatial planning are crucial for climate adaptation and safe regional development.

Session: Innovative Methods and Tools for Integrating Economic, Social and Environmental Aspects to Bridge Science-Policy Interface for Better Decisions in Forestry⁹³

- Develop new tools for disaster risk assessment/ alert /mitigation/ prevention: Tools for public (mobile phone app) can be used to provide alert; and for institutions - to discuss new policy interventions.

Session: Carpathian Waters

- Identification of flash flood hazard zones in small water catchments and development of relevant adaptation strategies and warning systems is critical for protection of local communities.

Recommendations from Forum Carpathicum 2025

Session: Empowering communities to act for change (RPS)⁹⁴

- Scale up **community-led renewable energy** as a climate mitigation and adaptation tool.
- Integrate **climate-smart rewilding** into Carpathian climate strategies.

⁹¹ **Session Leaders:** Mariana Melnykovich, Bern University of Applied Sciences BFH

⁹² **Session Leader:** Isidoro De Bortoli, Eurac Research, (isidoro.debortoli@eurac.edu)

⁹³ **Session Leaders:** Simone Martino, The James Hutton Institute (Simone.Martino@hutton.ac.uk), Maria Nijnik, The James Hutton Institute, Mariana Melnykovich, Bern University of Applied Sciences, Sam Poskitt, The James Hutton Institute, Katy Joyce, The James Hutton Institute

⁹⁴ **Session Leader:** Mariana Melnykovich, Bern University of Applied Sciences BFH

- Support municipal climate plans with energy transition actions targeting public buildings.

Session: Collaborative Environmental Justice Initiatives in Central and Eastern Europe across Urban and Rural Divides (RPS)

- Improve quality of environmental impact assessment procedures, and associated licensing, regulations and monitoring in line with international standards - these should be actively connected with local development strategies
- Actively involve vulnerable groups in early warning and preventative measures should actively

Session: Historical Ecology and Geography: New Perspectives for Conservation and Management (RPS)⁹⁵

- Adopt **an integrated geospatial policy** that combines multi-source spatial data to improve monitoring, prioritizes persistence and legacy areas for long-term management, and pilots these approaches in other regions to test scalability and adaptability
- Integrated, international monitoring and management of invasive plants should be carried out to protect the Carpathian region
- Promote long-term monitoring of abandoned landscapes to evaluate the persistence of cultural features and biodiversity.
- As LiDAR is becoming more commonly and openly available in the Carpathian countries, compiling LiDAR data from different sources could enable the creation of a unified LiDAR dataset for the entire Carpathian region

Session: Carpathian Waters⁹⁶

- **Delineate flash flood hazard zones in small catchments and adaptation strategies.** Develop flash flood hazard identification tools for small catchments to inform warning systems. Inform adaptation strategies aimed at risk reduction, including housing design for affected areas.
- **Support establishment of a homogeneous and shared hydrological database for the Carpathian river basins.** Such database should integrate existing open-source hydrological data and coordinate national datasets in order to provide a transboundary perspective on water resources shared by the Carpathian countries. Harmonized data would enable more effective monitoring of changes in flow and sediment fluxes, as well as ecological conditions, and would directly support collaborative research and management actions across borders.

⁹⁵ **Session Leaders:** Ewa Grabska, Jagiellonian University (ewa2.grabska@uj.edu.pl) Dominik Kaim, Jagiellonian University

⁹⁶ **Session Leaders:** Joanna Zawiejska University of National Education Commission Krakow (joanna.zawiejska@uken.krakow.pl), Gabriela-Adina Moroşanu-Mitoşeriu, Institute of Geography of the Romanian Academy

Session: Session on Ukraine

- Require strategic environmental assessment for wind energy development programmes in the Ukrainian Carpathians prior to project-level approvals, including comprehensive assessment of cumulative impacts on biodiversity, landscape connectivity, and ecosystem services.

Session: Innovative Methods and Tools for Integrating Economic, Social and Environmental Aspects to Bridge Science-Policy Interface for Better Decisions in Forestry⁹⁷

- Combine Remote Sensing, GIS, and AI for the Monitoring of Natural Hazards of falling-over trees and rocks. Tools for public (mobile phone app) can be used to provide alerts and for institutions to discuss new policy interventions.

⁹⁷ **Session Leaders:** Simone Martino¹, Maria Nijnik¹, Mariana Melnykovich², Sam Poskitt¹, Katy Joyce¹, ¹ The James Hutton Institute, Aberdeen, AB18 8QH, Scotland, UK, contact: simone.martino@hutton.ac.uk. ² Bern University of Applied Science, Switzerland, contact: mariana.melnykovich@bfh.ch

DECISION COP7/18. Climate change

Article 12bis of the Carpathian Convention

Key Messages from Forum Carpaticum 2025

Session: Transboundary Strategies for Strengthening Carpathian Integrated Landscape Management Governance (RPS)

- **Geohazards and Climate Change (Georgia Landslides):** Landslides represent costly risks in mountain areas. GIS-based susceptibility mapping, early-warning systems, and the integration of hazard data into spatial planning are crucial for climate adaptation and safe regional development.

Session: Historical Ecology and Geography: New Perspectives for Conservation and Management (RPS)⁹⁸

- Carpathian climate variability reflects interactions between natural cycles (solar activity, Atlantic-continental influences) and intensifying anthropogenic impacts, with human influences increasingly masking natural patterns in recent decades. Understanding these multirhythmic cycles and regional paleoclimatic trajectories is essential for distinguishing natural variability from anthropogenic change and developing robust long-term conservation strategies
- Paleoclimatic reconstructions in the Carpathians reveal climatic optimum timing differences of up to 2,000 years between Carpathian sub-regions, demonstrating that climate impacts and ecosystem responses vary substantially across the mountain range. One-size-fits-all adaptation approaches are inadequate for this regionally heterogeneous system.
- Carpathian climate reflects multirhythmic natural cycles increasingly masked by anthropogenic impacts. Understanding these interactions through paleoclimatic evidence is essential for distinguishing natural variability from human-caused change in developing robust conservation strategies.

Recommendations from Forum Carpaticum 2025

Session: Transboundary Strategies for Strengthening Carpathian Integrated Landscape Management Governance (RPS)

- **Climate Change WG** should treat connectivity as a resilience measure.
- **Climate Change WG** can emphasize carbon storage and resilience value of old-growth forests.

⁹⁸ **Session Leaders:** Ewa Grabska, Jagiellonian University (ewa2.grabska@uj.edu.pl) Dominik Kaim, Jagiellonian University

Session: Historical Ecology and Geography: New Perspectives for Conservation and Management (RPS)⁹⁹

- Focus on region-specific strategies, recognising the distinct climate sensitivities of Western, Eastern, Southern, and Southwestern Carpathians

Session: Safeguarding Carpathian Pastoralism

- Integrate / consider potential adaptation and changes to traditional transhumance routines in light of climate change via sophisticated governance changes and educational activities.

Insights from IALE Europe 2025

- Integrate water-sensitive management and green infrastructure to enhance climate resilience.
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⁹⁹ **Session Leaders:** Ewa Grabska, Jagiellonian University (ewa2.grabska@uj.edu.pl) Dominik Kaim, Jagiellonian University

DECISION COP7/19 Awareness raising, education and public participation

Article 13 of the Carpathian Convention

Key Messages from Forum Carpaticum 2025

Session: Building Capabilities and Facilitating the Participation of Vulnerable Groups in Rural and Mountain Regions through SSE in Multi-Level Sustainable Development Policy (RPS)¹⁰⁰

- Social innovation and community initiatives can address social, economic, and political issues across different contexts, including faith-based organizations under authoritarian regimes in Hungary, rural resilience through the SSE in Austria, digital inclusion for seniors, depoliticization of poverty governance, empowerment of migrant women, intersectional research methodologies, and the role of Local Action Groups (LAG) in sustainable rural development in Turkey.

Session: Plastics in the Mountains - session and panel discussion

- Education and awareness raising of the impacts of plastic pollution on the ecosystem and human health and shaping adequate behaviours is of critical importance.

Recommendations from Forum Carpaticum 2025

Session: Safeguarding Carpathian Pastoralism

- Implement educational measures relevant for safeguarding Carpathian pastoralism
- **Traditional Ecological Knowledge:** promote different forms of knowledge and its respective role in biodiversity conservation and sustainable land custodianship
 - support intergenerational sensory transmission of knowledge (programmes that allow younger generations to participate in pastoral practices through being-with and sensory learning (e.g. shepherding summer schools, residencies, interactive apprenticeships)
- **Social recognition and awareness:**
 - Improve the public image and status of herders and shepherds
 - Recognize intangible sensory heritage of pastoralism;
 - Support multimodal documentation (photography, film, sound archives, smell mapping) as legitimate instruments of monitoring pastoral landscapes.
 - Facilitate creating a system to **recognize informal knowledge** in cases where there is a lack of formal education
- **Participatory governance:**
 - Be aware of power hierarchies and equitable representation of stakeholder voices in international processes focused on pastoralism
 - Allocate resources to build social capital and trust for bridging diverse perspectives and reducing conflicts.

¹⁰⁰ **Session Leader:** Agnes Nemeth, University of Eastern Finland (agnes.nemeth@uef.fi) Matti Fritsch, University of Eastern Finland

- Integrate stakeholder input to advance coordinated policies and practices that address pastoralist challenges effectively.

Session: Collaborative Environmental Justice Initiatives in Central and Eastern Europe across Urban and Rural Divides (RPS)¹⁰¹

- Vulnerable groups should be actively engaged in through action learning initiatives - special attention needs to be paid to training of local supporting professions in understanding the socio-environmental policy nexus
- Awareness raising and action learning should commence in school through cross-subject teaching and learning involving outdoor and interactive activities for local social and environmental impact - special attention needs to be paid to the local educators in terms of methodological and material support with provision of further training of future teachers in pedagogical programmes

Session: Plastics in the Mountains - session and panel discussion¹⁰²

- Strengthen public engagement and awareness of plastics in the environment through citizen science and education programs.

Session: Carpathian Waters¹⁰³

- **Foster increased visibility and accessibility of information (also in local languages) on** past and ongoing research and projects on Carpathian waters and natural hazards (e.g. project websites, deliverables, final reports, guidelines, toolboxes, good practice manuals), available to researchers.
- Foster science-based education programmes and citizen-science initiatives to raise awareness on river functioning, connectivity and understanding of river restoration efforts and benefits.

Session: Plastics in the Mountains - session and panel discussion

- Promote awareness and understanding of known impacts of plastics and plastics pollution on ecosystem and human health through formal and non-formal education programmes and initiatives

Session: Education for Sustainable Development: Session of the Carpathian ESD Expert Network (CESDEN) (RPS)¹⁰⁴

Strategic Framework & Policy Integration

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¹⁰² **Session Leader:** Joanna Zawiejska, University of National Education Commission Krakow (joanna.zawiejska@uken.krakow.pl)

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¹⁰⁴ **Session Leaders:** Tamara Mitrofanenko, UNEP Vienna Programme Office (tamara.mitrofanenko@un.org), Boglarka Kurka Ivanegová, SUSTO- Sustainability Tools and ŠPIRÁLA - the Slovak Network of Environmental Education Providers,

- Strengthen Carpathian Convention role as platform to translate and contextualize existing ESD priorities for the specific ecological, cultural, and socio-economic context of the Carpathians:
 - Build on existing international and regional ESD frameworks with a Carpathian ESD white paper
 - Aim at relevant inputs adaptable for both formal and informal education, supported by shared lesson plans and open-access materials.
- Develop a unified interpretive strategy to ensure consistent messaging and understanding of Carpathian values and sustainability goals
- Approach CESDEN and S4C for providing expertise and advice to policy-makers regarding facilitation integrating Carpathian-related contents into national curricula.

Curriculum Innovation & Vocational Training

- Facilitate integration of real-world Carpathian challenges and other Carpathian-related content into education by providing inputs to and supporting initiatives on project-based learning (PBL), case studies, and transdisciplinary approaches as well as Eco-schools, Earth Day, local NGO activities.
- Support collaboration between teacher education institutions, protected areas, and NGOs to co-develop and exchange training materials and project-based learning modules on Carpathian themes, building on existing ESD networks and funding opportunities (e.g. Erasmus+, Interreg, or national teacher development programs)
- Facilitate collaborations that support pre-service and in-service teacher training, vocational education and training and provide inputs to help align them with the Carpathian Convention as well as with local sustainable development needs (e.g., eco-agriculture, green tourism, renewable energy).
- Lobby ministries of education and environment in Carpathian countries to integrate ESD—tailored to regional challenges—into national curricula.

Community Empowerment & Awareness

- Complement ongoing national and local initiatives by:
 - Connecting, documenting, and amplifying efforts taking place across the region, which use education as a tool to empower local communities, especially youth and marginalized groups, to participate in sustainable development.
 - Providing a platform for visibility and exchange to strengthen regional identity, promote mutual learning, and showcase how education contributes to the CC in practice.
- Organize annual Carpathian Day celebrations to raise awareness of the region's ecological and cultural value, promote a shared Carpathian identity, and showcase local and regional sustainability initiatives.

4. Academia–Society Collaboration

- In close collaboration with the S4C, decide on and support activities that promote effective, accessible science communication to engage the public and policymakers
- Strengthen cooperation between academia and society through service-learning projects, cooperation programs, and citizen science initiatives.
- Facilitate networks for researchers and practitioners to share best practices in ESD, citizen science, and ecotourism.

5. Institutional Support & Funding

- Secure funding to support school outreach, teacher training, and community-based ESD initiatives.
- Address bureaucratic obstacles that hinder ecotourism and educational collaboration across borders.

Session: Innovative Methods and Tools for Integrating Economic, Social and Environmental Aspects to Bridge Science-Policy Interface for Better Decisions in Forestry¹⁰⁵

- Make information about project websites, deliverables, and final reports easily accessible. This would enable third parties to build upon existing work, cite relevant findings, and avoid duplicating efforts. They will add to the scientific literature available on international academic platforms, e.g. Web of Science, Scopus, OpenAlex and other repositories. Such visibility would also strengthen the scientific basis for state-of-the-art reviews and future research initiatives.

Session: Building Capabilities and Facilitating the Participation of Vulnerable Groups in Rural and Mountain Regions through SSE in Multi-Level Sustainable Development Policy (RPS)¹⁰⁶

- Safeguard democratic and plural welfare systems: Civil society organisations must be able to operate independently, without political interference, while maintaining clear accountability to the communities they serve.
- Strengthen community-based care and well-being: Rural development strategies should integrate community-centred “Green Care” and SSE models that combine care, ecology, and local employment.
- Increase digital inclusion through social innovation: Digital participation is now essential for social and economic inclusion, but rural seniors often remain excluded. Therefore, policy should prioritise community-led digital education programmes that use local networks of trust rather than top-down training schemes.
- Empower women and migrants through SSE-based employment: Governments should expand SSE-driven employability programmes that combine vocational and language training, psychological support, as well as practical job experience. These initiatives must include accessible childcare and flexible learning arrangements to ensure participation. Partnerships between SSE organisations, employers, and local governments can help match training to local labour market needs and create pathways to long-term employment.
- Adopt intersectional and critical systems thinking in policy design to better address vulnerabilities in rural communities: Policies that aim to empower vulnerable groups must comprise overlapping inequalities related to gender, class, ethnicity, disability, or migration status.
- Reinforce LAGs and bottom-up governance: LAGs should be strengthened as key mechanisms for inclusive rural policy. Governments and EU institutions should ensure

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that LAGs are open and representative of the full social spectrum, particularly women, youth, minorities, and other vulnerable groups. LAGs should be encouraged to integrate SSE initiatives alongside traditional agricultural and infrastructure projects, promoting solidarity-based local economies.

Session: Accessibility, Development Paths and Windows of Opportunities in Core-Periphery Systems: Challenges of Local and Regional Development in the Carpathians¹⁰⁷

- Synergy with existing European strategies (like the EU Demographic Toolbox; or the Long-Term Vision for Rural Areas) or initiatives (like the Smart Village Network) should be encouraged

"A multi-channel interactive learning model of social innovation" highlighted the essence of innovation in social development. This element is also crucial for the revitalization of both urban and rural areas, serving to develop the social and economic potential of the Carpathian region. The author's recommendations were as follows:

- Building trust between participants and SI practitioners is a prerequisite for empowerment
- Knowledge transfer and building social networks (i.e. investing into the development of participants' cultural and social capital) are crucial conversion factors
- There can be a trade-off between the type and degree of help and the short-term empowerment effects
- It is important to differentiate between short and long-term empowerment effects
- SI is a cumulative, path-dependent and interactive learning process ⇒ SI policy-making should also be perceived as a learning process ⇒ flexibility of support schemes

Session: Session on Ukraine and

Session: Empowering communities to act for change (RPS)¹⁰⁸

- **Strengthen the science–policy–practice interface for Ukraine's green recovery** by mobilizing Carpathian scientific networks, research institutions, and expert platforms to provide evidence-based guidance for sustainable reconstruction in the Ukrainian Carpathians.
- **Facilitate targeted capacity building at national, regional, and local levels in Ukraine**, ensuring authorities and communities can effectively apply scientific knowledge, environmental standards, and sustainability tools in recovery and development processes.
- **Promote structured cooperation between Ukrainian municipalities, universities, and civil society organizations**, and enhance linkages with Carpathian scientific networks to co-create innovative and nature-positive green recovery measures.
- **Highlight the importance of applying robust environmental standards, biodiversity conservation principles, and climate-resilient approaches** in all

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¹⁰⁸ **Session Leader:** Mariana Melnykovich, Bern University of Applied Sciences BFH

reconstruction projects, aligning them with the Carpathian Convention's objectives and scientific recommendations.

- **Integrate research and evidence on renewable energy, energy communities, and low-impact energy development** into the Carpathian Convention Programme of Work, strengthening science-based pathways for an environmentally responsible energy transition in the Ukrainian Carpathians.
- **Facilitate science-backed twinning, peer learning, and joint initiatives between Ukrainian Carpathian communities and communities in other Carpathian countries**, promoting shared learning, solidarity, and cross-border cooperation in green recovery.
- **Ensure open access and wide dissemination of CORINE Land Cover and other relevant environmental datasets** to enhance evidence-based planning, monitoring, and decision-making at local and regional levels in Ukraine.
- **Advocate for the use of science-based Environmental Impact Assessments and for mapping infrastructure projects (e.g. wind-energy potential areas)** before approving any reconstruction, energy, or infrastructure developments in the Ukrainian Carpathians.
- **Encourage investment in feasibility studies and preparatory assessments** developed in collaboration with scientific institutions to help Ukrainian communities design high-quality, sustainable recovery projects.
- **Strengthen awareness raising and public communication on green recovery, biodiversity, and sustainable reconstruction**, by supporting outreach campaigns, scientific communication efforts, and community-level education in cooperation with Carpathian scientific networks and Ukrainian partners.