Science for the Carpathians:

Report from Forum Carpaticum and recommendations relevant for WG Biodiversity

13th Meeting of the Carpathian Convention Working Group on Biodiversity

12 April 2022

Outline

- Update
  - Forum Carpaticum 2021
  - MOU with the Caucasus Research Network
  - S4C winter school
  - S4C Research Agenda
  - Outlook
- S4C recommendations relevant for the WG Biodiversity

6th FORUM CARPATICUM

Linking the Environmental, Political and Societal Aspects for Carpathian Sustainability

Date: 21 June - 25 June, 2021

Main Organizer: Mendel University, Brno, Czech Republic

Format: online

19 sessions and **5 workshops**

>180 registered participants

Supported by Visegrad Fund

http://forumcarpaticum.czechglobe.cz/

MOU with the Caucasus Scientific Network

- developed with support of the Convention Secretariat
- aimed at supporting exchange of information and joint research activities
- signed during Forum Carpaticum 2021

S4C Interdisciplinary Winter School

Sustainable development in hot spots of nature and tourism in the Carpathians

- Organised in Krakow-Zakopane 1-4.02.2022 with the support of VF
- With participation of students and young researchers from 9 countries (respresenting the Carpathians and the mountain regions) and multiple disciplines
- 1-day seminar followed by three days of field workshops

Outlook

- Continued close collaboration with the CC Secretariat
- Common activities with the Caucasus network
- Joint session on strengthening regional scientific networks with the Alpine and the Caucasus Scientific Networks at International Mountain Conference 2022
  *(*accepted as a Plenary session!)*
- Carpathian Chapter for the GLOMOS publication *Safeguarding Mountain Social-Ecological Systems: a Global Challenge*

  *(*submitted - Final revisions being made)*

Outlook

- Ensuring active membership in the S4C network
- Involving young scientists and supporting their research focus on the topics relevant to the Carpathian Convention
- Updating the Research Agenda of the Carpathians – 2022 – *just prepared*
- Introduction of thematic working groups to facilitate cooperation within network and outside (as with CC WGs)

Long-term idea: Carpathian Environmental Outlook?

Recommendations relevant for the WG Biodiversity

Input from CC working group

9th Meeting of the Carpathian Convention Working Group on Conservation and Sustainable Use of Biological and Landscape Diversity, Ostrava, May 2019

Biodiversity-related knowledge gaps

- Long-term processes and management measures for preservation of biodiversity;
- Indirect effects of human activities to species/biodiversity
- Effects of climate change to biodiversity.
- Consequences of forestry management to biodiversity
- Invasive species and their regulation
- Data on large carnivores' populations are mostly available from foresters; there is a need to apply other methods.
- Recent spruce dieback in Carpathians could be considered as threat to natural forests while in monocultures it could be considered as an opportunity.

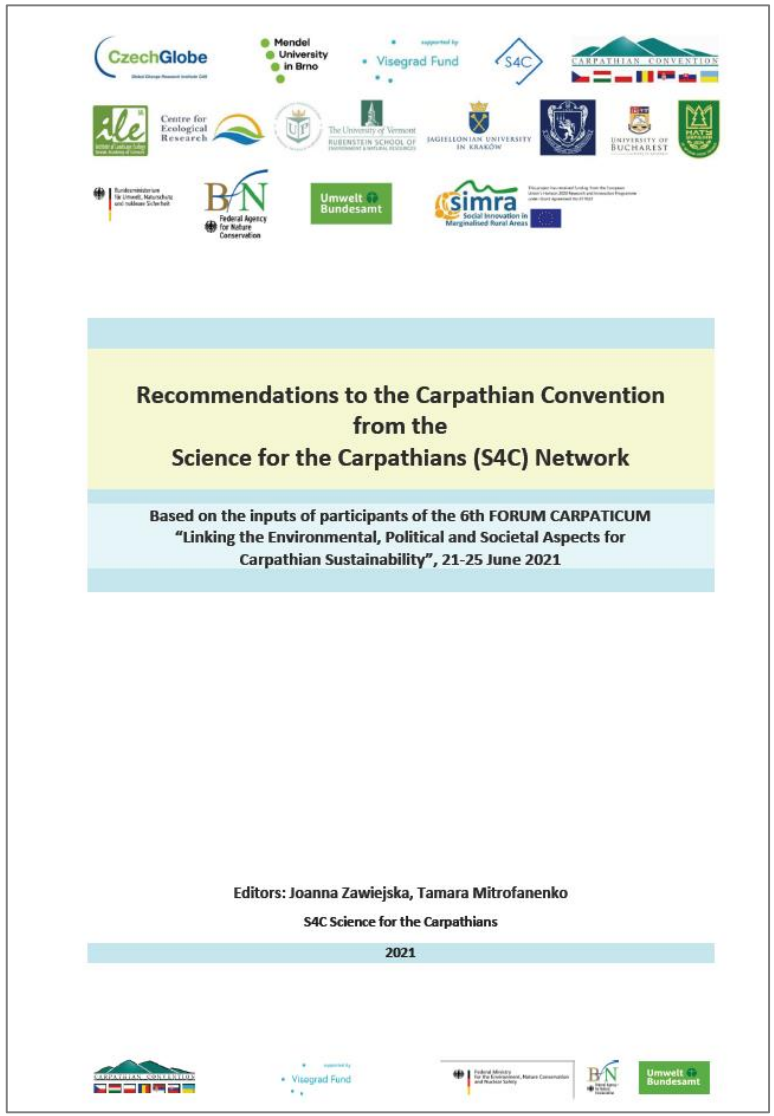
Input from CC working group

9th Meeting of the Carpathian Convention Working Group on Conservation and Sustainable Use of Biological and Landscape Diversity, Ostrava, May 2019

Biodiversity-related knowledge gaps

- The gaps exist in more complex approaches to biodiversity: ecosystem approach, services to humans, ecosystem effects to human health, methods of mapping and assessment of ecosystem services.
- Biodiversity-related data collection for spatial planning, landscape conservation
- Identification of ecosystem services provided by natural areas
- Considering capercaillie as an indicator/umbrella species
- Select a list of Indicator Species, and monitor these species on a long term to assess the state of Carpathian ecosystems

S4C Recommendations – source documents



FC 2021 recommendations

Editors: J. Zawiejska and T. Mitrofanenko

- Recommendations from FC2021 organised according conference sessions
- For each session indicated to which Convention articles and working groups are recommendations relevant
- Contains also recommendations for S4C and for research agenda

S4C Recommendations – source documents: S4C Research Agenda 2022-2030

Editors: P. Cudlin, J. Zawiejska, T. Mitrofanenko, K. Mazsa, M. Melnikovych

- Climate Change
- Water resources and management
- Natural hazards and risks
- Land use and land cover change
- Integrated landscape management and governance for better regional development policy
- Forests, their management and governance
- **Conservation and sustainable use of biodiversity**
- Ecosystem services and human well-being
- Urban and rural development
- Traditional Ecological Knowledge and Tourism
- Cultural heritage and traditional knowledge
- Education for Sustainable Development
- Participatory research, multi-actor dialogues and knowledge co-production
- Social innovation to promote sustainable development
- Green energy and energy efficiency
- Data Management

New research agenda: additions

- **New chapters on:**
  - Education for Sustainable Development
  - Cultural Heritage
  - Participatory research
  - Social innovation
  - Green energy and energy efficiency
- **New topics:**
  - Natural and human disturbances of ecosystems
  - Local communities' participation / involvement in research
  - Plastic pollution
  - Addressing the role of non-English-language science for the Carpathian region.
  - Integrating inter- and transdisciplinary approaches and participatory methods

Conservation and sustainable use of biodiversity

- Revealing the most threatened habitats and species, preparation of action plans for their protection
- Finalisation of the Red List of Species and Red List of Forest Habitats (2014) with involvement of relevant experts from all Carpathian countries
- Foster research of endemic and rare species for which the Carpathian countries have high responsibility, as knowledge gaps exist
- Support restoration of damaged or destroyed ecosystems
- Identification of conflicts between humans and wildlife and of measures to their resolving or reconciling using experience from other mountain regions

Conservation and sustainable use of biodiversity

- Evaluate the effect of linear infrastructure development to fragmentation of wild animal populations and to animal-vehicle collisions; identify measures to prevent or reduce them
- Assess impact of land use changes to natural and semi-natural habitats and their diversity
- Support collection of biodiversity-related data for spatial planning and landscape conservation
- Identification and promotion of ecosystem services provided by natural areas
- Addressing knowledge gaps in applying ecosystem approach, ecosystem services to humans, ecosystem effects to human health, methods of mapping and assessment of ecosystem services.

Biodiversity and ecosystem functions /services for nature protection and sustainable use

- Optimize landscape management practices to foster provision and conservation of relevant ecosystem services for tourism and recreation
- Promote carbon sinks through sustainable use of the landscape, particularly forests where carbon sinks are highest
- Support conservation of semi-natural areas and ecosystem services in the Carpathians, at local, national and international levels, and development of green infrastructure

Forests, their management and governance

- Focus on protection, restoration and re-connection of habitats
- Manage for high beta diversity in habitats, stand ages and structural conditions, and seral stages at landscape scales.
- Support development of novel concepts for adaptive forest management and forest policy in order to create healthy and stable forests for the next generation in the context of climate change and its unavoidable impacts on ecosystem services
- Respect natural disturbance dynamics, including alteration of disturbance regimes and implications for habitat and ecosystem services

Forests, their management and governance

- Avoid losses of carbon stocks from existing forests
- Conservation priorities to primary, old-growth, and under-represented seral stages and communities
- Pay attention to riparian ecology; forest-stream interactions; flood-plain forests
- Assess effects of invasive species on forest ecosystems and take the measures for their reduction or removal

Forest ecosystem and resource vulnerabilities to climate change

- Support the on-going assessment of the risks and impacts of climate change to forest ecosystems
- Support model development and forecasting methods to anticipate shifts in habitats and plant species composition and resulting impacts on flagship species
- Enhance resilience to increasing forest disturbances and develop adaptation responses to climate impacts on forest growth and productivity

Recent and future changes of agricultural areas of Carpathians

- Help modify funding schemes to tackle challenges facing the Carpathians: abandonment of rural areas; uncontrolled urbanization, unstable socio-economic factors; climate change and environmental degradation
- Prioritize strong protection of existing natural or semi-natural habitats (esp.) with lower regeneration capacity and facilitate restoration when needed
- Create an Atlas of Representative Biocultural Landscape Types of the Carpathian Region
- Designate bio-cultural refugia in the richest cultural landscapes of the region

Cultural heritage and traditional knowledge

- Promote the identification and increased use of traditional ecological knowledge in nature conservation and sustainable land management.
- Adapt agri-environmental support schemes to consider local-regional cultural environments
- Help adapt traditional practices to the recent socio-ecological changes, include empowerment of local communities in these developments
- Preservation of cultural landscapes, traditional land-use patterns, local agricultural practices and breeds of domestic animals, cultivated plant varieties, sustainable traditional use of wild plants and land use practices
- Support the domestic population to work in the local agro-sector.

Carpathian waters: From knowledge to management

- Facilitate integrated, adaptive land and water resource management
- Require management of mountain rivers that considers river history and interactions within entire river corridor
- Assess drivers and consequences of recent trends of development/decline of riparian forests along mountain rivers
- Consider and support ongoing projects on restoration and conservation of wetlands and peat bogs (incl. Natura 2000 areas).
- Strengthen support for monitoring of restoration projects

Thank You!

http://carpathianscience.org

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