New IAD Expert Group: Habitat Monitoring and Conservation

Peat depth (m)
- 1.2 - 0.8
- 0.7 - 0.5
- 0.4 - 0.2
- 0.1 - 0
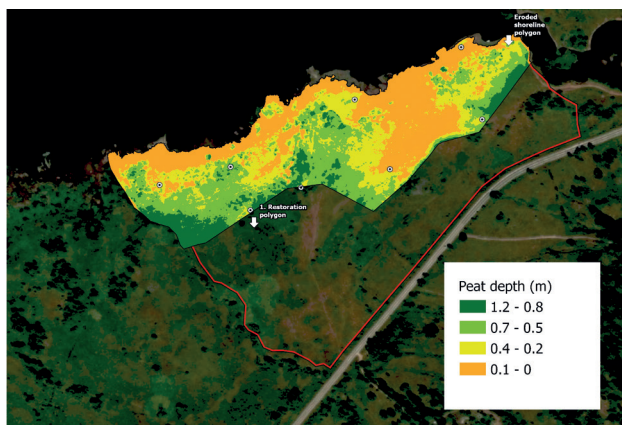
The Expert Group for Habitat Monitoring and Conservation works **to enhance habitat assessment and restoration across the Danube Basin.** By integrating EUNIS standards, remote sensing technologies, and key conservation frameworks such as the EU Habitats Directive and the Bern Convention, we promote **consistent monitoring, data-driven conservation strategies,** and regional collaboration to **preserve biodiversity.**

The specific Objectives and Goals are as follows:

- Develop and coordinate strategies for **long-term habitat monitoring** and monitoring of restoration measures, with a focus on riparian zones, floodplains, and wetlands.

- **Standardisation and Validation** – Conduct national-scale validation of floodplain assessment methods in collaboration with local stakeholders, refining tools for broader application across the Danube region.

- **Address the current gaps in habitat assessments** and promote the development and application of cost-effective remote sensing approaches in habitat monitoring.

- Implement harmonized techniques and classification systems aligned with EU directives in habitat protection and conservation in EU and non-EU countries (e.g., the **Water Framework Directive,** the **Bern Convention of the Council of Europe,** and the **European Union's Habitats Directive).**

- Compile and analyse habitat and species data from ongoing and past surveys to inform conservation strategies and **enhance water management programs.**

- Facilitate the exchange of information, tools, and experiences among projects, scientists, practitioners, and stakeholders in habitat monitoring and conservation assessment.

The Expert Group actively collaborates with universities, research institutes, NGOs, and governmental bodies across the Danube Basin. **We invite scientists and practitioners working in habitat conservation and monitoring to join our efforts, fostering a dynamic network dedicated to the protection and sustainable use of aquatic and terrestrial ecosystems.**

Expert Group leader: Prof. Dr. Dušanka Cvijanović

Prof. Dr. Dušanka Cvijanović is a full professor of Ecology at the University of Novi Sad, Faculty of Sciences, Serbia, a researcher at the Minds Europe-Institute for Research Excellence and Technological Advancement, and a leading expert in aquatic habitat monitoring, classification, and conservation. Her research focuses on integrating remote sensing and artificial intelligence into freshwater ecosystem monitoring, with specific attention to UAV photogrammetry and satellite data in wetland mosaics. She has participated in and coordinated national and EU-funded projects, including those aligned with the EU Natura 2000 network and Horizon Europe missions. Prof. Cvijanović currently leads the task in the Horizon EU 'Restore4Life' project and the EcoDalli task-force initiative. She actively contributes to the standardization of habitat monitoring methods. She fosters regional collaboration across the Danube Basin and the Western Balkans, supporting capacity-building and data harmonisation in line with EU directives.

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New IAD Expert Group: Coastal Ecology

With my background in coastal ecology and microbial ecology, **I propose to see the coastal Black Sea system as an ecotone between the Danube Delta and the marine system,** involving all marine organisms, including free-living microorganisms and microorganisms associated with animals and plants. This ecotone is characterized by dynamic biogeochemical processes, shaped by both autotrophic and heterotrophic microbial metabolism, which respond to seasonal dynamics and episodic events (as highlighted in studies on oligotrophic coastal marine ecosystems).

In this context, the expert group aims to examine microbial carbon fluxes, particularly bacterial carbon demand in relation to primary production, as recent studies suggest the need for a re-evaluation of carbon cycling in seagrass systems such as *Posidonia oceanica.* **The interactions between microbial communities and organic/inorganic particles further influence nutrient cycling and energy flow,** underscoring the role of viruses in regulating microbial populations. Viral ecology, particularly the influence of prokaryotic viruses on microbial commu-

nities, remains an essential factor in **understanding carbon turnover**, bacterial mortality rates, and **ecosystem resilience**. Additionally, changes in **bacterial community composition** due to top-down controls, such as enhanced flagellate grazing, may modulate the balance between bacterial production and viral-induced mortality, affecting overall trophic interactions in this ecotone.

By integrating these perspectives, the expert group seeks to advance our understanding of microbial-driven processes in the coastal Black Sea and their implications for ecosystem stability and biogeochemical cycles.

Expert group leader:
Dr. Markus G. Weinbauer

Affiliation: Laboraoire d'Océanographie de Villefranche, Sorbonne University and the French National Research Institute (France)

Main research field:
Viruses & Microbiology

Interests: My background is a master in the ecology and biology of gorgonian corals, i.e. population dynamics and skeletal-based biomarkers. Then I moved for my PhD to the ecology of viruses (still my main topic) and microorganisms.

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New IAD Expert Group: Sediment dynamics & Hydromorphology

The **Danube River Basin (DRB) is one of Europe's most dynamic fluvial systems,** where sediment dynamics and hydromorphological processes shape land- and riverscapes, sustain biodiversity, and impact socio-economic activities. Growing pressures from human interventions and climate change on sediment dynamics and hydromorphology underscore the need for sustainable river basin management. This newly established EG aims to:

- Advance the **understanding of sediment dynamics and hydrogeomorphic changes**
- Assess the **impacts of human activities and climate change** on sediment connectivity and river morphology
- Explore the **ecological implications of altered sediment regimes** on riverine habitats and biodiversity
- **Enhance public awareness** regarding the importance of sediment balance in sustaining river health
- Develop science-based recommendations for **integrated river and catchment management**
- Promote interdisciplinary and transdisciplinary collaborations among hydrologists, geomorphologists, ecologists, engineers, policymakers, and stakeholders
- **Support river restoration efforts** by providing knowledge on sediment transport processes and sustainable management practices

The expert group envisages to organise workshops, seminars, and scientific sessions within IAD conferences, to conduct collaborative research projects and synthesise knowledge on sediment-related issues, to develop guidelines and policy recommendations for sustainable sediment management, to establish a platform for knowledge exchange among scientists, practitioners, and decision-makers, and to engage with local communities and stakeholders to foster participatory river and catchment management.

The establishment of this expert group aligns with IAD's mission to promote **interdisciplinary research** and foster **sustainable management** of the DRB. By **bridging scientific knowledge with practical applications,** this initiative will significantly contribute to addressing current and future challenges in sediment dynamics and hydromorphology. I kindly seek interested IAD members and look forward to further discussions and future collaborations.

Expert Group leader:
Dr. Ronald E. Pöppl

Dr. Ronald Pöppl is a Senior Researcher at the Institute of Hydrobiology and Aquatic Ecosystem Management (IHG), BOKU University, Vienna, Austria, former Senior Lecturer for Physical Geography and Geoecology (Department of Geography and Regional Research), University of Vienna. Main research fields are fluvial dynamics, sediment transport, connectivity, hydromorphology and river (basin) management.

My research focuses on sediment dynamics and hydromorphology, with a particular interest in the role of humans as (dis)connecting agents in fluvial systems. I explore new concepts and applications in fluvial geomorphology and landscape research to better understand how human activities influence fluvial processes and connectivity. Since 2020, I have led the Human Impact and Connectivity (HI-CONN) research