

SavaParks Guiding Principles on Nature Conservation, River Rehabilitation and Flood Prevention and Sustainable Regional Development



The SavaParks Guiding Principles were adopted by the SavaParks Network members during the 2nd SavaParks meeting in Zagreb held on 02 February 2015.

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Preamble

Land, water, air and ecosystems need to be managed as integrated biophysical complexes for the sake of human development and welfare as well as the preservation of ecosystem services and biodiversity conservation at the same time. Consequently, a comprehensive understanding of the hydrological, physico-chemical and environmental flow-related processes occurring in freshwater ecosystems, such as rivers, streams and all other sorts of wetland habitats, as well as the implications on aquatic and semi-aquatic habitats induced by anthropogenic activities, is a crucial precondition. Fundamental processes that shape the river and its surroundings are hydro-morphological processes, ensuring the longitudinal connectivity along the river from the source to the mouth, as well as lateral connectivity of the river with its floodplain. Hydromorphology is the sum of physical characteristics of riverine structures (e.g. river bed, river banks, connection between the river and other landscape elements) that shape the habitat configuration of the ecosystem. In the upper parts of the river, higher slopes, turbulence and oxygenation are the main factors influencing the biocenosis. In the middle river section low slope, decreasing water velocity and consequent meandering of the river course provide different sets of environmental conditions for the development of plant and animal communities that are adapted to such conditions. The most important consequence of this ever-shifting mosaic of river habitats and ecotones is that riverine environments generally offer a large number of important habitats for a variety of species and feature outstandingly high biodiversity.

With the total length of 944 km and a basin area of 97,713.20 km² Sava River is the second largest tributary to the Danube River connecting four countries and supports the life of more than eight million people living in its catchment area. The Sava River's tributaries, particularly Ljubljanica, Krka, Kupa, Korana, Mrežnica, Odra, Una, Sanica, Sana, Janj, Pliva, Bosna, Tinja, Tara, Drina River, represent pristine, free-flowing rivers, which until the present day host a variety of rare and endangered habitats and rich aquatic and semi-aquatic biodiversity, characterizing them a freshwater biodiversity hotspot for the entirety of Europe.

At the same time, the Sava River basin has experienced several extreme hydrological events during the previous decade. Those trends were predicted by ICPDR¹. Extreme drought events will occur more frequently in summer. An increase in flash floods due to extreme weather events (torrential rainfall) is expected in the Sava River's headwaters. Water quality is expected to be reduced on the grounds of increased algal blooms with higher water temperatures in summer, and higher mobility of particle-associated pollution caused by flash floods. In addition, after long droughts, pollutants can pass rapidly into groundwater protection zones. An increase of irrigation could then lead to an increase of contaminated surface and groundwater bodies, after enhanced agricultural use. Due to a warmer climate, increased water demand by, and water withdrawal for, agriculture, industry, energy and human consumption is probable, especially in

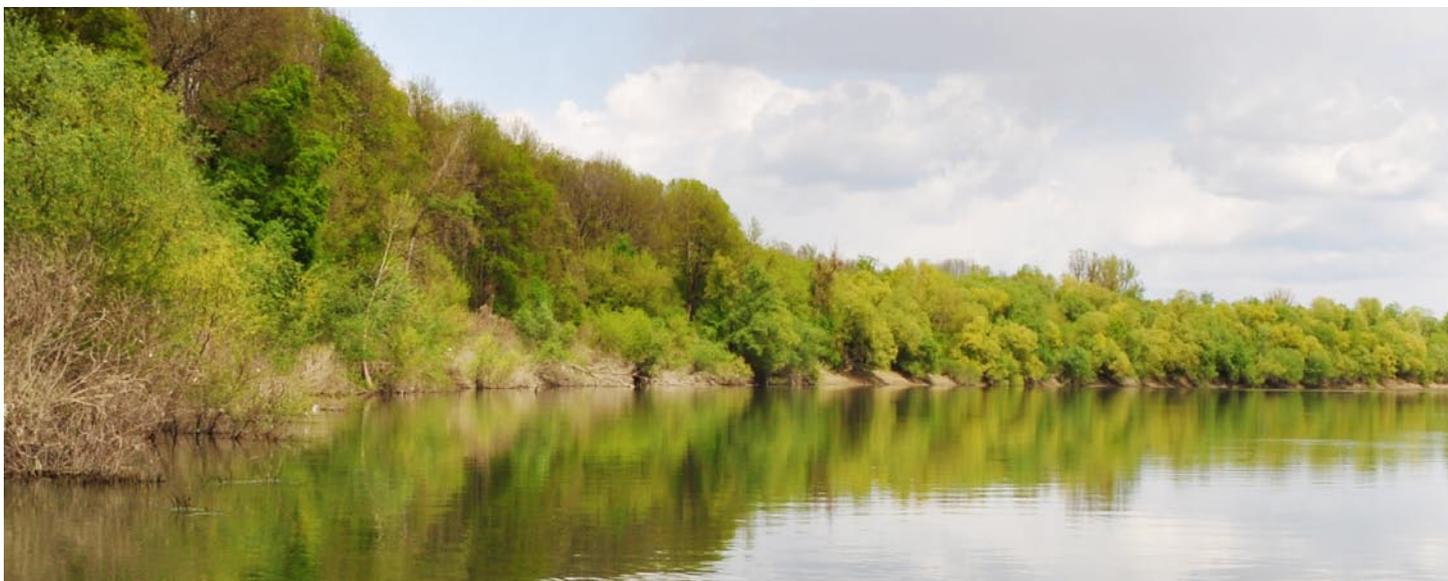


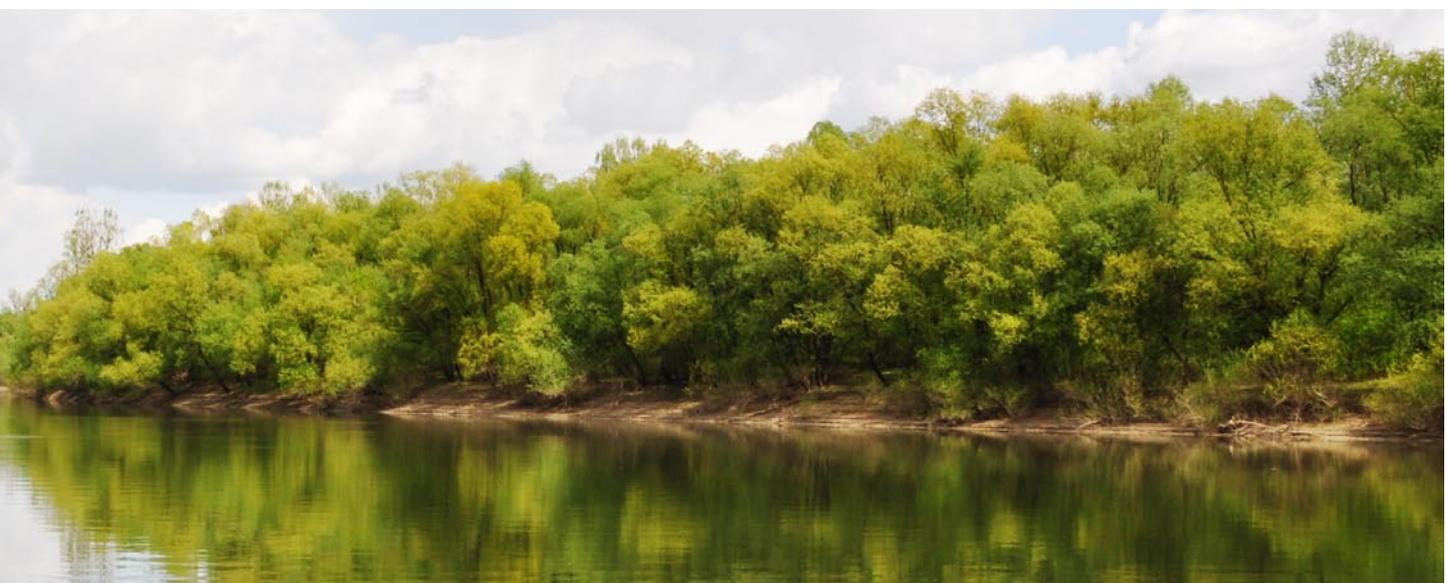
Photo: Martin Schneider-Jacoby

¹ ICPDR Strategy on Adaptation to Climate Change, 2013

the southeast SRB and in the hot season. At the occasion of the eighth European Regional Meeting in Kufstein (Austria), the Ramsar Convention's Contracting Parties stated their awareness about the fact that during disastrous flood events across Europe, such as in 2014 in the Western Balkans which caused many human casualties and economic damages, the importance of natural wetlands and floodplains and the questionable role of hydropower schemes in mitigating extreme flood events became obvious and called on the International Sava River Basin Commission (ISRBC) and its Member States to take into account the high potential of natural water retention measures (NWRM) in the region. They recognised that maintaining the significant capacity of existing and rehabilitating former natural floodplains and periodically flooded karst poljes, including Ramsar sites, make NWRM the most appropriate tool to mitigate the impacts of both disastrous floods and droughts. Therefore, they urged the ISRBC and its member states to develop and implement a strategy on NWRM, based on disaster and climate change scenarios and hydrological modelling for the Sava River basin and adjacent catchments, if necessary and appropriate in cooperation with the International Commission on the Protection of the Danube River (ICPDR), taking into account the negative impact of hydropower generation on flood mitigation.

The purpose of the presented guiding principles is to develop proactive guidelines for nature conservation, river and floodplain rehabilitation, climate change adaptation and sustainable regional development along the Sava River and its tributaries supported by all network members and respected by decision makers. These guiding principles shall define minimum standards to be acknowledged by ministerial bodies, planning agencies and administrations along the Sava River. They shall provide a framework to harmonize the use of natural resources in protected areas along the Sava, as well as river and floodplain stretches currently not under protection, with aspects of biodiversity conservation and the preservation of ecosystem services, maintenance of environmental flows and the protection of the cultural heritage of the Sava River basin.

According to the six-years management cycle of the European Union's Water Framework Directive (WFD), the Danube River Basin Management Plan will be reviewed and updated by the end of 2015 (2nd DRBM Plan). The planned adoption date equals the one for the completion of the 1st Danube Flood Risk Management Plan (1st DFRM Plan) according to the WFD. The flood risk management plan will be reviewed in 2015 as well and is to be updated in six-year planning cycles. The presented Guiding Principles shall be implemented through the Sava River Basin Management Plan and the Water and Climate Adaptation Plan for the Sava River basin.



I. Guiding Principles for Nature Conservation

The nature conservation Guiding Principles are developed with respect to the three main processes shaping the Sava River basin landscapes: 1) hydro-morphological dynamics, 2) temporal flooding, and 3) traditional and extensive land-use practice. The guiding principles should support the maintenance and improvement of these processes.

1. Hydro-morphological dynamics

To ensure long-term undisturbed natural processes along the Sava River and its tributaries with a special emphasis on the maintenance and improvement of hydro-morphological processes (e.g. free flowing river, unobstructed by the dams or river training structures, active meandering, redirection of the river course and lateral erosion, flooding and hydrological connectivity of rivers with their floodplains etc.)

- Promote and achieve the preservation, and wherever possible, restoration of a natural water regime and hydro-morphological processes implementing common trans-boundary river and floodplain management and restoration programmes with a clear aim to support and improve biological diversity along the river, its tributaries and floodplains.
- Promote and achieve long-term preservation of existing intact rivers and streams without barriers.
- Lobby and support improvement of the longitudinal connections on rivers with existing barriers and increase of the floodplain area wherever it is feasible.
- Promote and accomplish protection and sustainable use of waters (both surface and groundwater) crucial for conservation of related wetland habitats, which on the other hand may determine favourable status of these waters having in mind the provisions of the Water Framework Directive of the EU (Directive 2000/60/EC establishing a Framework for Community action in the field of water policy) and relevant national legislation.

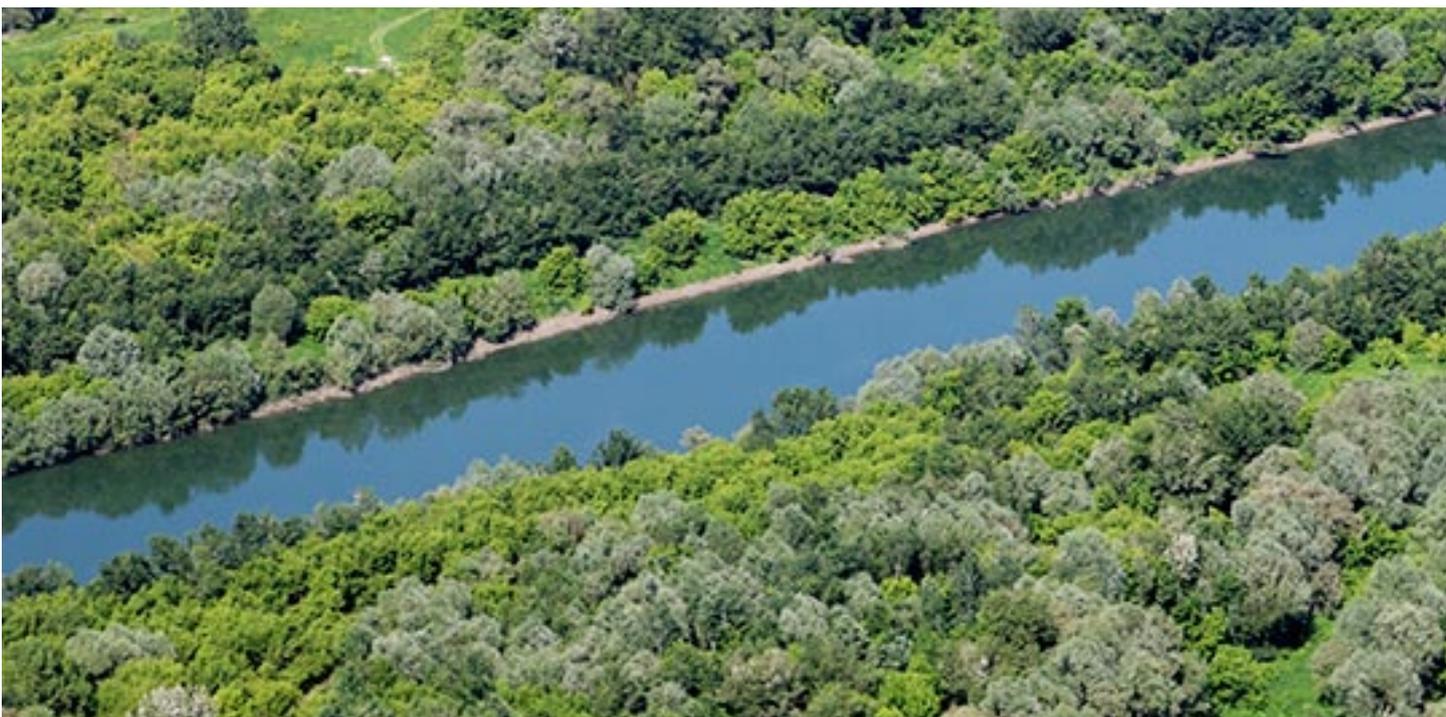
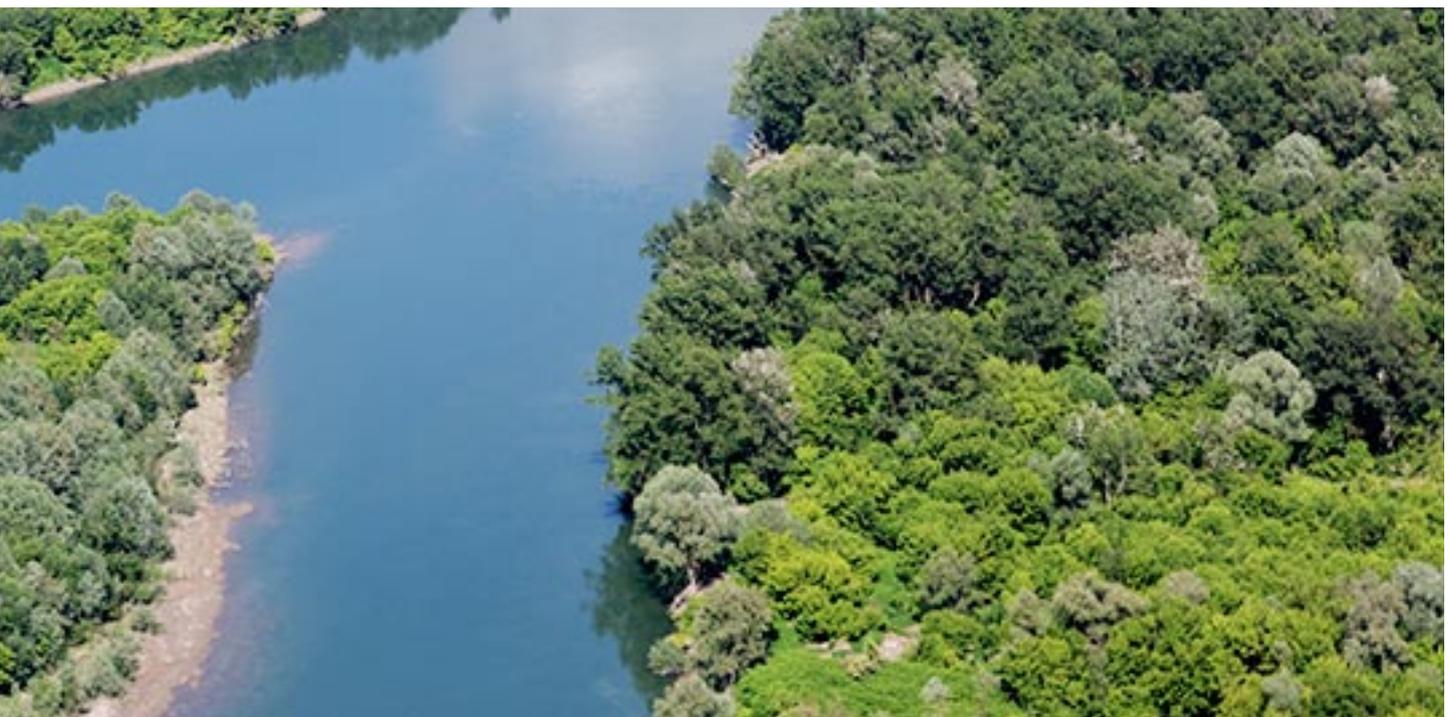


Photo: Goran Suljarek



Photo: Goran Safarek

- Prevent projects that may cause hydro-morphological deterioration, further riverbed degradation and incision, lateral and longitudinal hydrological disconnection and interruption of sediment flow according to these guidelines.
- Promote improvement and apply comprehensive river basin management between stakeholders and authorities of different sectors on national and trans-boundary level e.g. between water management and nature conservation, by using EU and other funding instruments.
- Achieve consensus of specialists (ecologists, hydrologists, river engineers, spatial planning, foresters, agronomists, etc.) on the importance of river restoration based on formulating common strategy for restoration and management within the whole Sava River basin area as an integral river system.
- Promote, advocate and actively participate in the establishment of new protected areas and extension of the existing ones along the Sava River basin that represent best examples of free-flowing, unregulated and unobstructed rivers and its floodplains, as well as hot-spots for biological diversity of the region.



2. Temporal flooding

To ensure natural flooding of the floodplain areas in order to prevent wetland loss and secure development of natural processes incl. migration and reproduction of water-dependent organisms such as fish, amphibians, birds and mammals.

- Promote and accomplish conservation, and wherever possible, restoration of natural habitats and populations of native species of wild flora and fauna, implementing common transboundary conservation/restoration programmes and promote the integration of wise use principles into objectives and measures of other sectors having in mind the provisions of the Bird (79/409/EEC) and Habitat Directives (92/43/EEC) and relevant national legislation.
- Promote importance and function of the floodplains of the Sava River basin as key areas for the protection of overall biodiversity and places for reproduction, feeding and resting of threatened species.
- Promote and achieve enhancement and re-connection of lateral connection of rivers and their floodplains in the Sava River basin that serve as migratory corridors and improve biological migration along the Sava River and its tributaries.
- Prevent projects that plan further drainage and deterioration of the hydrological regime of wetlands in the floodplain area of the Sava River basin and its tributaries.
- Promote and improve the surface and ground water quality by reduction of point and non-point sources of pollution.



Photo: Goran Suljarek

- Promote and implement projects that plan increase of the floodplain areas and further improvement of the retention capacity of the river and floodplains according to natural flood retention principles benefiting from financial tools provided by the EU as well as national tools.
- Promote re-connection of disconnected alluvial forests of the Sava River basin to significantly attenuate the flood wave and increase the flood retention areas (e.g., Spačva and Bosut forests) and, at the same time, preserve the natural biodiversity of the Sava River alluvial forests.
- Promote conservation of valuable habitats outside the protected sites such as meadows, forests, wetlands or hedgerows that are important for survival of wildlife in the cultural landscape.
- Support the implementation of Urban Green Infrastructure measures in areas of high population density in the Sava River basin to increase the infiltration of excess rainfall (e.g. green spaces, sustainable urban drainage and green roofs).



Photo: Goran Salfarek

3. Traditional and extensive land use practice

To ensure long term conservation and improvement of natural populations of native species of wild flora and fauna and their natural habitats, as well as the wise use of rivers and floodplains in the Sava River basin by adoption of best practice examples of international cooperation in river basin management

- Promote establishment of proper zones and harmonised management of different zones in protected areas.
- Prepare, adopt and implement threatened species and habitat conservation action plans on a river basin scale.
- Lobby and implement projects for the preservation of favourable status of habitats as well as establishment of secondary habitats as compensatory measure where it is feasible.
- Strengthen the implementation of principles of sustainable agriculture in Sava River basin respecting the needs of biodiversity and nature conservation, and maintain traditional environmental friendly forms of agriculture that support the landscape and biological diversity.
- Promote implementation of special grassland management on sites important for birds reflecting their special habitat requirements, including non-intensive breeding of livestock and low-intensity grazing.
- Promote forest management practices and nature friendly forest management based on PROSILVA principles using financial tools of the EU as well as national tools supporting sustainable forestry.
- Promote and implement natural renewal of forest with native wood species, gradual replacement of non-native forest plantations and intensive eradication of invasive and alien species within the Sava River basin.

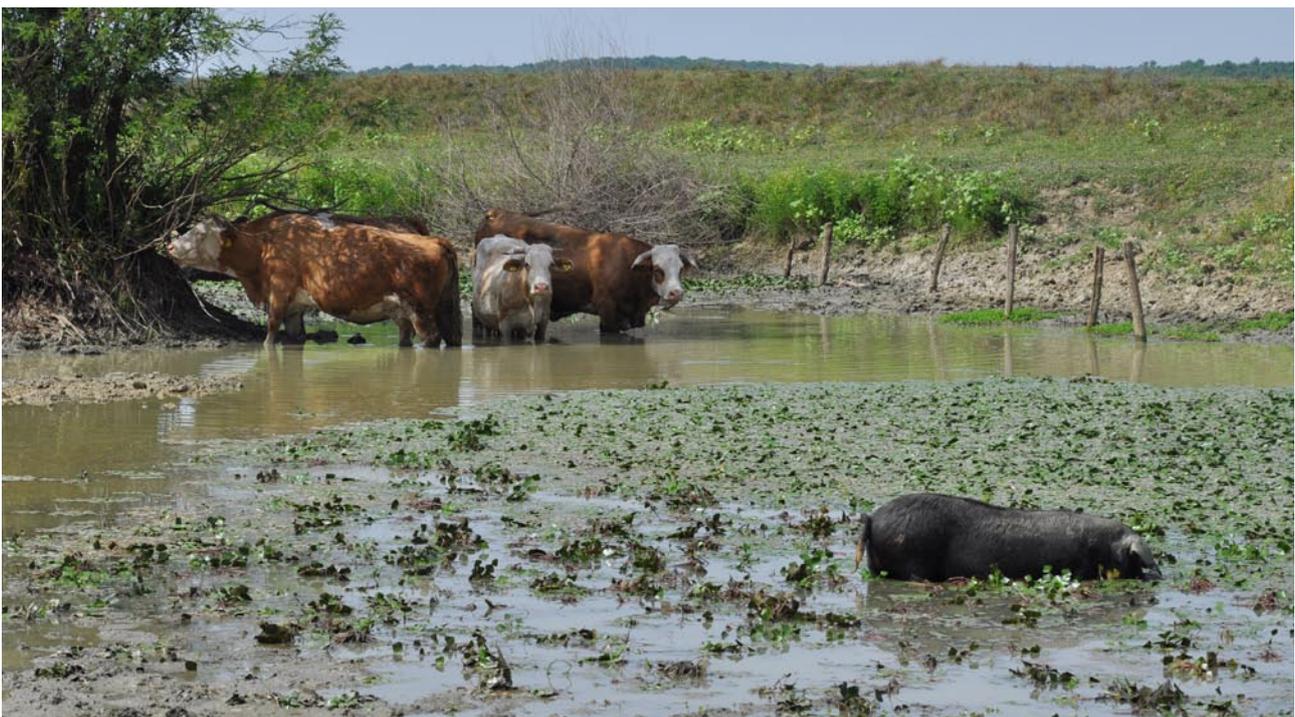


Photo: Martin Schneider-Jacoby

- Allow sustainable fishing in sites where fish species may be exploited without causing endanger of their favourable status or where fishing will not negatively impact on other species and/or habitats.
- Manage fish species in order to achieve viable and well-balanced populations reflecting habitat capacities and avoiding extinction as well as overpopulation.
- Enhance populations of indigenous fish species and support restoration of their natural spawning grounds and migration corridors to achieve viable population of fish community in the Sava River basin.
- Use scientific research and monitoring as a tool for observation of changes in the ecological character of the Sava River basin leading into modification of unfavourable management practices.
- Ensure harmonisation and implementation of these guidelines in the Sava River Basin Management Plan.
- Monitor and remove invasive and alien species.
- Members of the SavaParks Network shall take appropriate steps to avoid, in the special areas of conservation/ protection and areas of special community interest (Natura 2000 areas), the deterioration of natural habitats and the habitats of species as well as disturbances of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this directive and Habitat Directive (The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora - „The Habitat Directive“).



Photo: Guntler Willinger

II. Guiding Principles for river and floodplain rehabilitation and climate change adaptation and mitigation

1. River and Floodplain Rehabilitation to halt loss of biodiversity and cultural heritage

Reconnect and restore former free-flowing river sections, alluvial floodplains and wetlands that have suffered from anthropogenic alterations and deterioration in recent years

- Map those sections and areas
- Include them without delay in existing flood risk management and index them in basin-wide wetland inventory
- Prohibit any disconnection and fragmentation of intact floodplains
- Allow for lateral erosion to avoid deepening of the water course
- Prohibit any longitudinal stone construction in central and lower watercourses. Stone patterns are catalysing the spread of invasive alien species. Moreover, bank reinforcements are turning out to be an evermore inappropriate measure alongside the Sava River on the grounds of the appearance of undercutting.
- Identify and inventory forest stands today disconnected from the watercourse which have been showing patterns of riparian hardwood and softwood forests, as well as grasslands or arable land indicating former inundation. Appropriate sources of information beside aerial and satellite images might be forest management plans (search e.g. for oak-ash stands) and land registry (search e.g. for wet meadows and pastures).
- It is preferable to begin with the rehabilitation of protected areas and large former floodplain areas (like basins of Spačva and Bosut). Nevertheless, smaller areas, particularly in the headwaters of tributaries and areas near bigger settlements, might be of priority too.
Rehabilitate the coarse sediment connectivity between the headwaters of the Sava River in Slovenia and its central and downstream parts. The Alps remain the main source of gravel and coarse sediment, as numerous tributaries of the Sava River are watercourses of karstic nature.
- Remove any longitudinal stone construction and replace it with alternative solutions, but only if really necessary. If alternative solutions do not exist, develop them using natural material like wood and sediment. This is to be a new challenge for hydraulic engineering in the entire SRB.



Photo: Martin Schmetler-Jacoby

- Install groynes but not unless necessary and permit unilateral groyne construction only to allow for lateral erosion.
- Be aware of potential sources of pollution and mitigate against accidental pollution during floods.
- Start a fast track planning process and seek for additional funding for water treatment plants in the SRB. Better control of solid waste disposal sites as uncontrolled sources of water pollution and diffuse points of pollution from agriculture (nutrients from fertilization and plant protection products) in the SRB.
- Establish a sustainable and well-coordinated approach to ship waste management based on „polluter-pays“ principle.
- Floodplains, peat lands and periodically inundated karst poljes have to become areas of special policies (similar to the status of mountain areas or islands in many countries), particularly when they contain organically evolved cultural landscapes demonstrating adaptation approaches and techniques to flood dynamics and periodical inundation.
- Analyse traditional adaptation approaches and techniques and broaden their application wherever possible. At first glance these seem old-fashioned but they often contain (hidden) advanced solutions and principles of sustainability and adaptation.
- Promote water retention in the agricultural landscape, especially in drought prone areas and encourage more environmentally compatible (traditional) farming methods to preserve and improve biodiversity.
- Create forums for exchange of expert knowledge and traditional knowledge on an equal footing.



2. River and Floodplain Rehabilitation due to climate change adaptation and mitigation and flood risk management

NWRM are considered the most appropriate tool to mitigate both floods and droughts predicted for large parts of SRB and play a crucial role in the mitigation against both the impact of hydropower schemes during extreme flood events and the exclusion of ecologically most important small and medium-scale floods caused by such schemes

- Their implementation has to be based on a master plan for the entire catchment area, taking into account disaster and climate change scenarios and hydrological models (including those for droughts). Furthermore, the verification of the accuracy of current figures of 100 year waters: there is evidence to suggest that lately these water levels tend to appear more frequently.
- Assess consequences for the ecology of rivers and resilience to climate change from HPP and ensure adequate environmental flow downstream as well as up-stream retention areas at all times.
- Undertake modelling of Sava tributaries for evaluating flood risk and vulnerability.
- The findings of the master plan should then lead to a re-drafting of national spatial plans. Where necessary, the master plan should point out land purchase and exchange policies.
- The implementation of NWRM ought to also comprise the Alpine parts and headwaters of SRB and may include karst poljes as well as mountain and forest peat lands. The free-flowing rivers and river sections in the Sava River basin ought to remain as such.



Photo: Goran Suljarek

- Provide proposals for the use of NWRM upstream of hydropower schemes as to mitigate the negative impacts of hydropower generation during extreme flood events, particularly at the headwaters in Slovenia and tributaries in Bosnia-Herzegovina and Serbia.
- Build buffer zones in the vicinity of sensitive areas to reduce run-off by using NWRM.
- Nevertheless, NWRM should not be treated separately. They need to be accompanied by a process of adaptation. This process may include changes in the Common Agricultural Policy, in forest management and physical planning. When it comes to the implementation of subsidies and development policies, floodplain areas ought to receive a special status similar to what islands and mountain areas have got.
- Legal endorsement of proposed NWRM is essential.



III. Guiding Principles for Sustainable Development

Sustainable development of riverine landscapes and freshwater resources requires the adoption of Integrated Water Resources Management practice (IWRM).

Integrated Water Resource management aims at fostering sustainable development and wise use of freshwater habitats and biodiversity and is defined as: "A process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems" (definition of IWRM, GWP 2000).

With respect to the stipulated principles, the SavaParks Network adopts the following guiding principles for the sustainable development and wise use of the Sava River, its surface and groundwater resources, as well as adjacent aquatic and semi-aquatic habitats, biodiversity and environmental flows.

1. Protection of natural, cultural and historical heritage

Promote and foster the integrative protection of the intrinsic natural, cultural and historical heritage of the Sava River basin to become a main principle respected by national policies.

- Lobby for the capacities and resources of protected area administrations to be strengthened by adapted national funding strategies empowering them to improve and intensify their management practice.
- Lobby for protected area administrations and civil society organizations committed to the management and conservation of the natural, cultural and historical heritage of the Sava River basin to be acknowledged as valuable experts and to be involved in respective political decision making processes.



Photo: Romy Dürst



Photo: Romy Dust

- Support the involvement of the civil society and local communities in decision-making processes with the aim to create a feeling of ownership and responsibility for the future of the region.
- Urge the integration of the cultural, historical and natural heritage in regular school curriculums and the development and implementation of respective education, training and cultural programs for adults.
- Raise awareness of mutual interconnection of natural, cultural, landscape and historical heritage.



2. Management and development strategies

Implement harmonised responsible management and development strategies for the entire river basin

- Claim and support the harmonisation of infrastructure and energy development, as well as flood protection at national level as a precondition for successful transboundary harmonisation efforts in spatial planning.
- Claim and support the recognition of the natural and cultural heritage of the Sava River and its tributaries, as well as the requirements of the European Union enlargement process in the context of future infrastructure and energy development projects.
- Harmonise management principles in fishing grounds for the entire Sava River basin to stabilize and recover fish stocks.
- Lobby for the development and implementation of harmonised green energy strategies across the Sava River basin with respect to sustainability, their compliance with nature conservation goals, and the maintenance of environmental flows.
- Lobby for the establishment and harmonised management of a consistent network of protected areas along the entire Sava River and its tributaries based on national protected areas, the EU Habitats Directive and the Emerald Network.



Photo: Martin Schneider-Jacoby

3. Traditional land use and related products

Preserve and support traditional, as well as, innovative land-use practices benefitting biodiversity and typical habitats of the Sava River region through appropriate financing mechanisms and marketing concepts for regional products.

- Improve the integration of local community interests in strategies to preserve and manage the biodiversity in extensive agricultural areas.
- Lobby for the application of financial mechanisms to support traditional, as well as innovative, nature-friendly agricultural practice through agro-environmental schemes (loss-of-income compensation) in EU member states.
- Lobby for the development of financial mechanisms in non-EU member states neighbouring the Sava River to maintain and foster traditional, as well as innovative, nature-friendly agricultural practice, namely extensive pastures and grassland.
- Claim and support the maintenance of autochthonous livestock varieties typical for the Sava River region as an intrinsic part of the Sava River's cultural landscapes and heritage.
- Support the creation of new markets for traditional high quality products from the Sava region at national and international level.
- Improve the market situation of Sava River regional products through the certification of producers according to EU and International Organic Farming Standards, and identify products with the potential to be listed by the Slowfood Foundation for Biodiversity.



Photo: EuroNatur

4. Responsible nature and culture based tourism

Develop and ensure that the development of touristic offers in the Sava River region will not negatively impact, neither the natural nor cultural heritage, but benefit the local population through wise and responsible visitor guidance based on the capacities of the respective sites.

- Foster the promotion of protected areas as attractive nature and culture tourism destinations representing and interconnecting the characteristic natural and cultural elements of the entire Sava River basin at national and international level.
- Support protected area administrations with improving their eco- and ethno-touristic offers based on the specific capacities and potentials of the respective sites (improve infrastructure, visitor management, accommodation facilities and access to public transport etc.).
- Lobby for and support the development of branding for the protected areas in the Sava River basin to increase their international recognition and attractiveness and to ease the development of a Sava River Protected Areas marketing concept in the future.
- Involve nature tourism experts and environmentalists to jointly develop transboundary nature and culture-based touristic packages interconnecting the protected areas in the Sava River basin.
- Involve tourist information centres and travel agencies (national and international ones) into the selling of respectful transboundary nature-based tourism products in the Sava River basin.



SavaParks Network members (by July 2015)

International Organizations:

EuroNatur Foundation

Republic of Slovenia:

Public Institution Kozjanski Park

Public Institution Ljubljansko Barje Nature Park

Public Institution Notranjska Regional Park

Public Institution Triglav National Park

Republic of Croatia:

Brod Ecological Society

Croatian Society for Birds and Nature Protection

Public Institution for the Management of the Protected Areas of the Sisak-Moslavina County

Public Institution Lonjsko Polje Nature Park

Public Institution for the Management of the Protected Areas of the Brod-Posavina County

Public Institution for the Management of Protected Natural Values of Vukovar-Srijem County

Public Institution of Zagreb County Green Ring

Bosnia and Herzegovina:

Center for Environment Banja Luka

Ministry of Education and Culture of Republic of Srpska, Republic Institute for Protection of Cultural, Historical and Natural Heritage

Public Company Una National Park

Republic of Serbia:

Institute for Nature conservation of Vojvodina Province

Nature Conservation Movement of Sremska Mitrovica

Provincial Secretariat for Urban Planning, Construction and Environmental Protection

Tourism Organization of Ruma

Vojvodinašume Public Enterprise

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Photo: Nenad Sertina