



Challenges and river restoration potentials in the Croatian-Serbian Danube stretch

Preparing FAIRway2 works in the Rhine Danube Corridor
Stakeholder Forum
25.03.2025

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Reminder: Croatian-Serbian Danube - European outstanding ecological values



- **50% of the most natural river stretches** on the first 2000 km (ICPDR 2014/21)
- **Most natural floodplains** on the first 2,000 kilometers (source to Iron Gate) → corresponds to 50% of all river stretches with intact floodplains on the Danube (ICPDR 2014/21)
- **the largest floodplain forests** on the entire Danube River
- **5 large protected areas totalling about 82,000 ha** (2 nature parks, 2 nature reserves, Natura 2000 and Emerald sites → all included in the **5-country Biosphere Reserve**)
- **the highest breeding density of white-tailed eagles** in continental Europe (over 100 breeding pairs)
- **the most important fish spawning area** (Kopacki Rit) next to the Danube Delta
- probably the **last refuge** for the almost extinct **ship sturgeon** (*Acipenser nudiiventris*)



Marko Mrkonjic

12.2.2025., 08:37

Ivica GETTO



Baranjski biser prirode pred povijesnom prilikom: Postaje li Kopački rit nacionalni park?

Inicijator je ideje državni tajnik Ministarstva zaštite okoliša, Željko Vuković

U Hrvatskoj je osam nacionalnih parkova: Brijuni, Kornati, Krka, Mljet, Paklenica, Plitvička jezera, Risnjak i Sjeverni Velebit.

← Google oglasi

Pošaljite povratne informacije

Zašto ovaj oglas? ⓘ

High values are at stake - river bed degradation

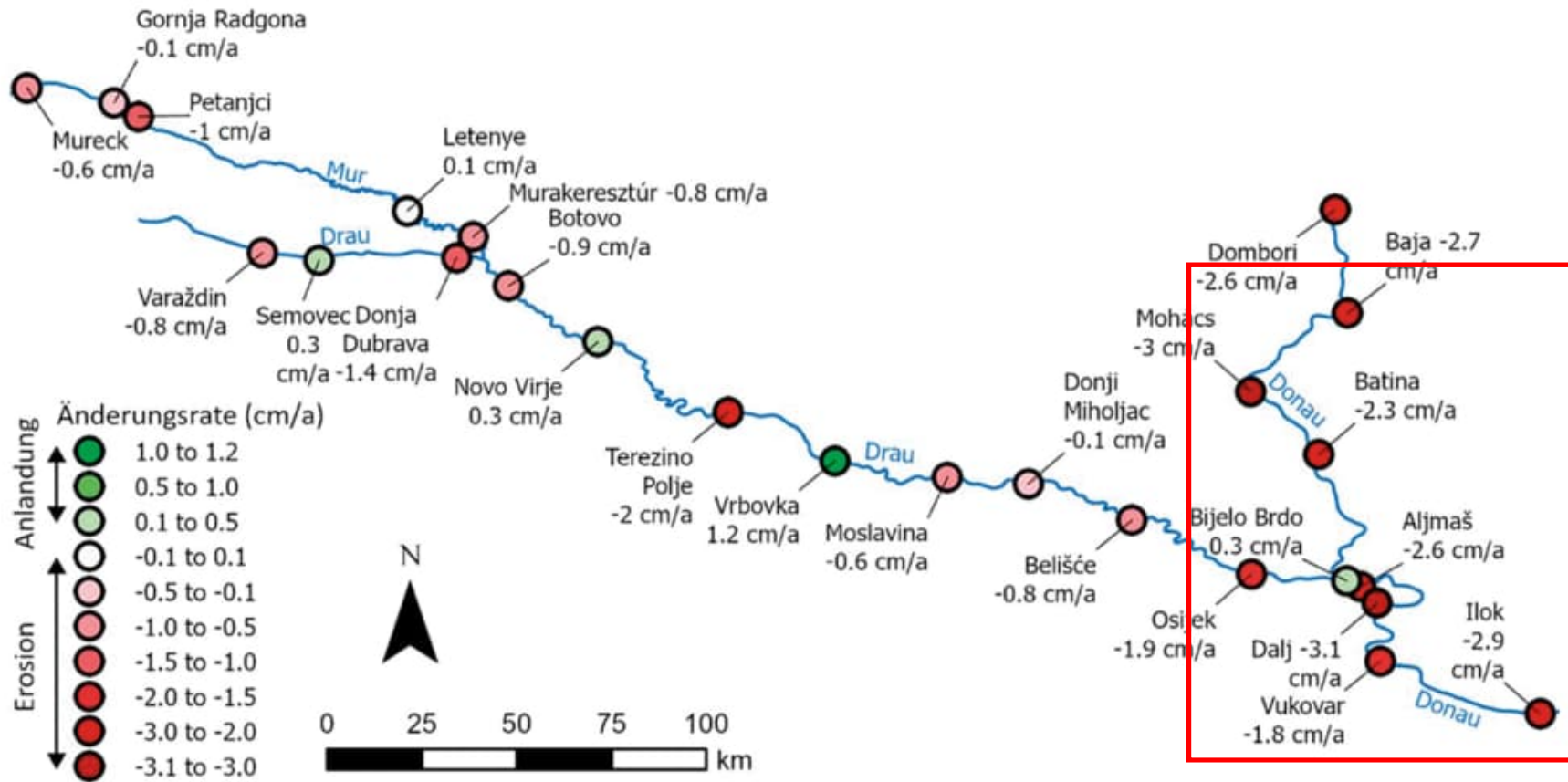
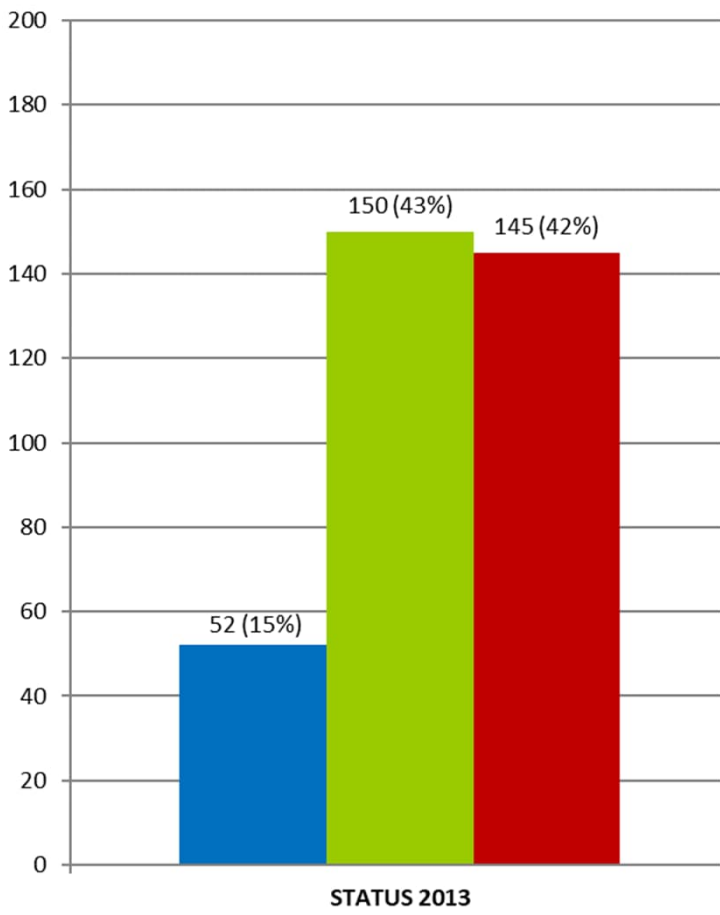


Abb. 11 Durchschnittliche Änderungsraten der Sohlage zwischen 1993 und 2019 basierend auf Niederwasseranalysen

High values are at stake – Loss of natural river banks



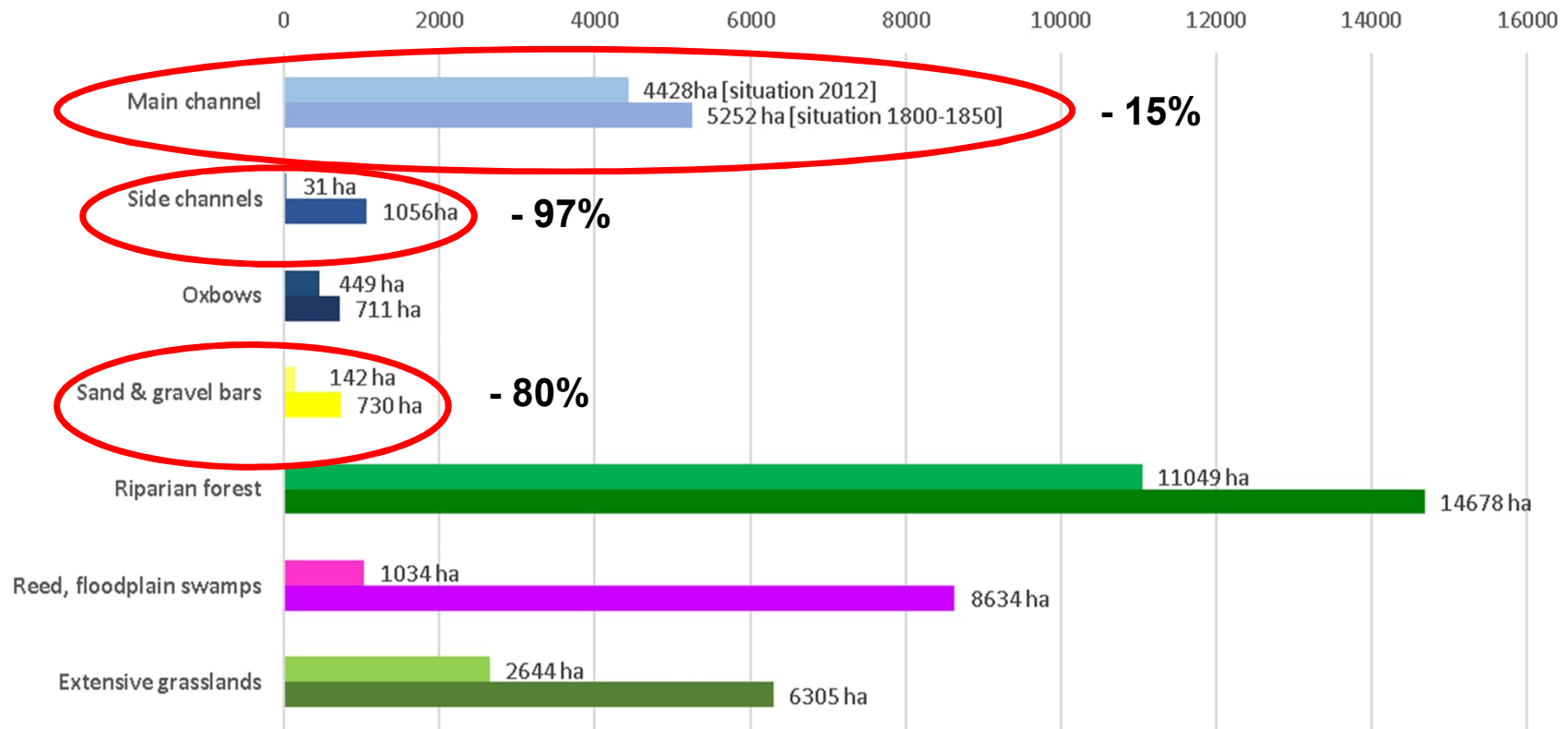
Status of river banks along HR-RS Danube

- Highly dynamic banks (steep and shallow banks)
- Others (mostly nearly natural banks)
- Embankments (rip-rap)

High values are at stake – Loss of dynamic river habitats



Historical situation Danube 1382-1295 downstream Drava



Legal framework



EU Directives:

- Water Framework Directive
- Floods Directive
- Habitat and Birds Directive/Natura 2000
- Nature Restoration Law

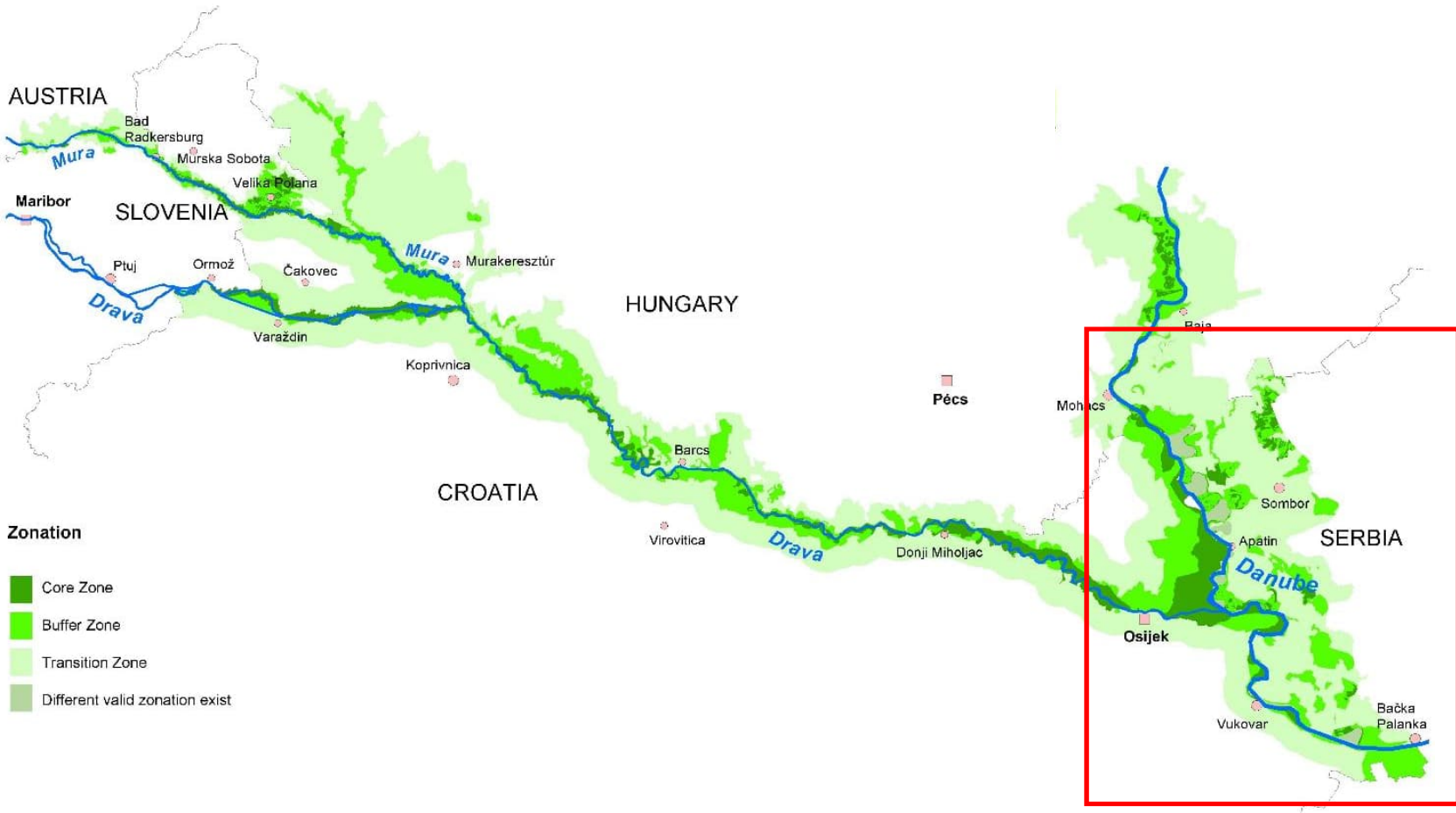
National Protected Areas:

- Nature Park incl. Special Zoological Reserve Kopacki Rit
- Special Nature Reserve Gornje Podunavlje
- Nature Park Tikvara
- Special Nature reserve "Karadjordjevo"

International Protected Areas:

- UNESCO 5-country Biosphere Reserve Mura-Drava-Danube incl. 2 national BRs
- Ramsar Sites

Croatian-Serbian Danube - core area of the 5-country Biosphere Reserve



LONG-TERM GOAL (Nomination form 2019)

1. Ecological Conservation and ecosystem services:

In the TBR MDD area, the **natural processes of a dynamic river and the associated floodplains** is preserved and/or restored, as well as the **natural hydrological and natural hydro-morphological regime** and the corridor function of rivers. The ecological connectivity will be improved and maintained. As a result, there will be a positive influence on the conservation of key species and habitats on a long-term scale.

TRANSBOUNDARY NOMINATION FORM



**5-COUNTRY BIOSPHERE RESERVE
MURA-DRAVA-DANUBE
(TBR MDD)**

Austria | Croatia | Hungary | Serbia | Slovenia

Das Land
Steiermark

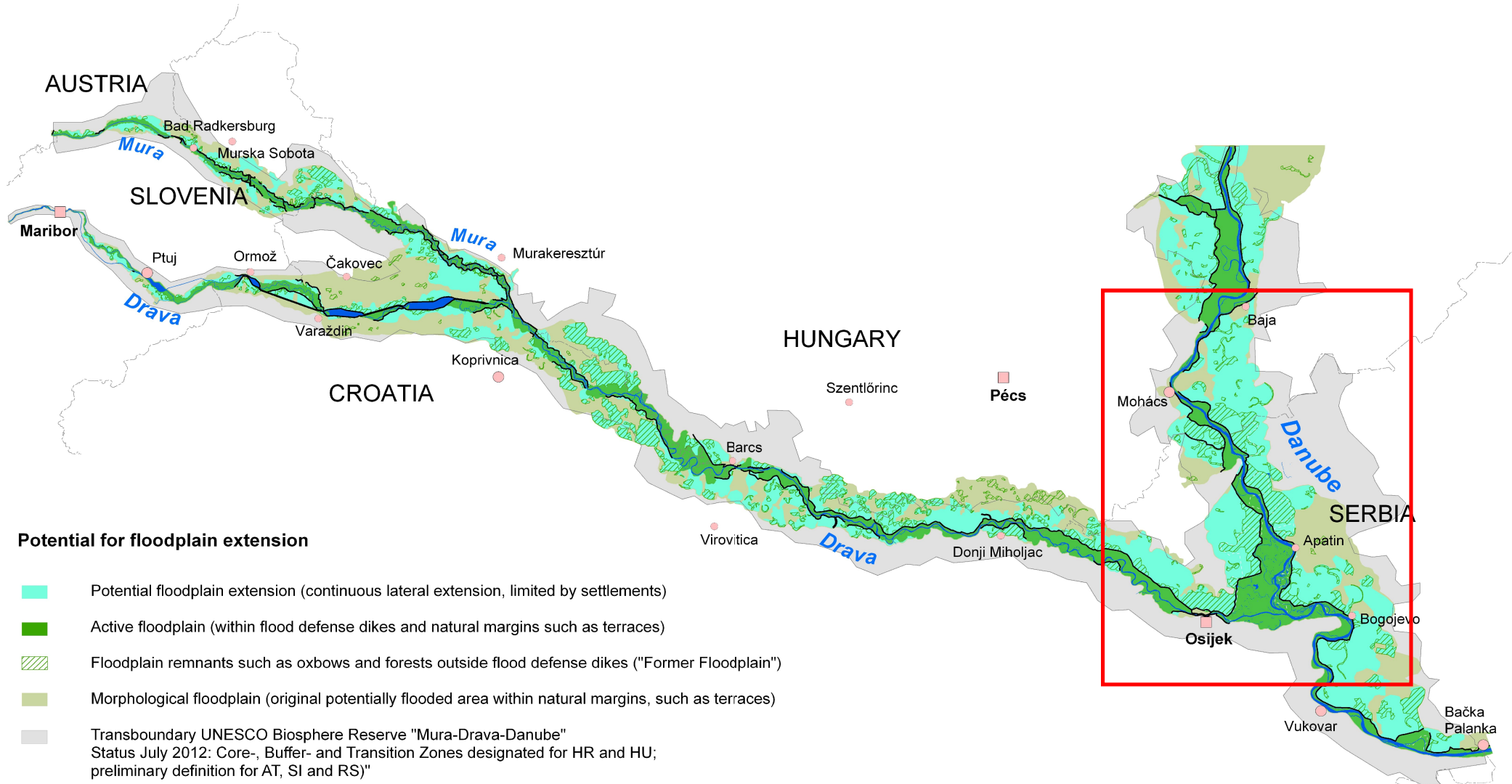
REPUBLIKA HRVATSKA / REPUBLIC OF CROATIA
Ministarstvo zaštite okoliša i energije

Operational Goals e.g.

- Promote the **restoration of natural hydro-morphological processes/hydrological regime**
- Strive to **prevent further embankments/other structures** along intact riverbanks
- Promote the **removal of existing, non-functioning river training structures** and enlarge floodplain areas by reallocating dikes where possible
- Advocate **ban on further sediment extractions**
- Support **compliance with the provisions of the Joint Statement**, “no further deterioration” principle of the **EU Water Framework Directive**, no further deterioration of the favorable conservation status according to the **Habitats-Directive**, as well as **Platina manual** during the development of river engineering and navigation projects

Assessment of the Restoration Potential in the TBR MDD

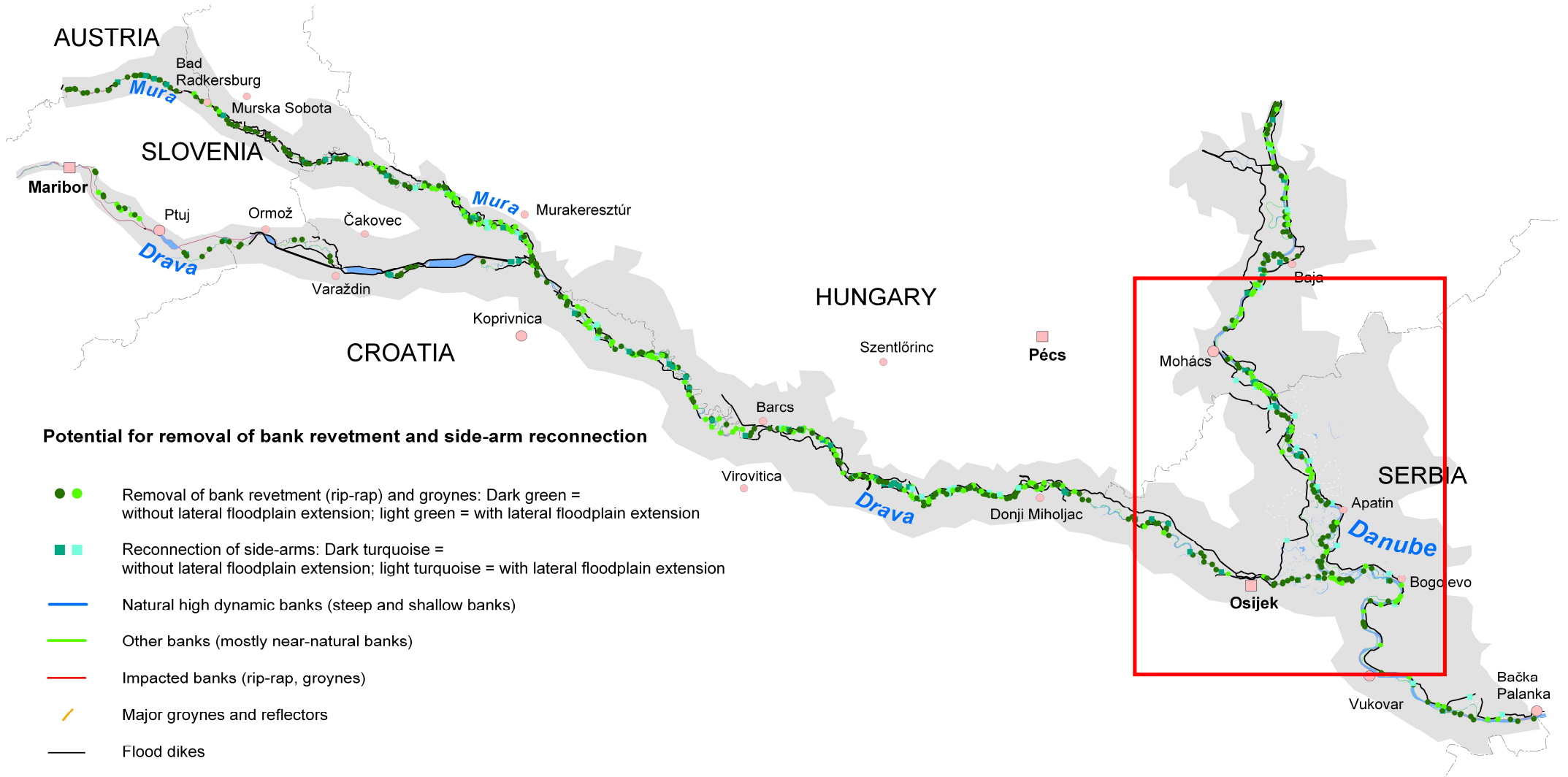
Map 5: Restoration potential of floodplains



Assessment of the Restoration Potential in the TBR MDD

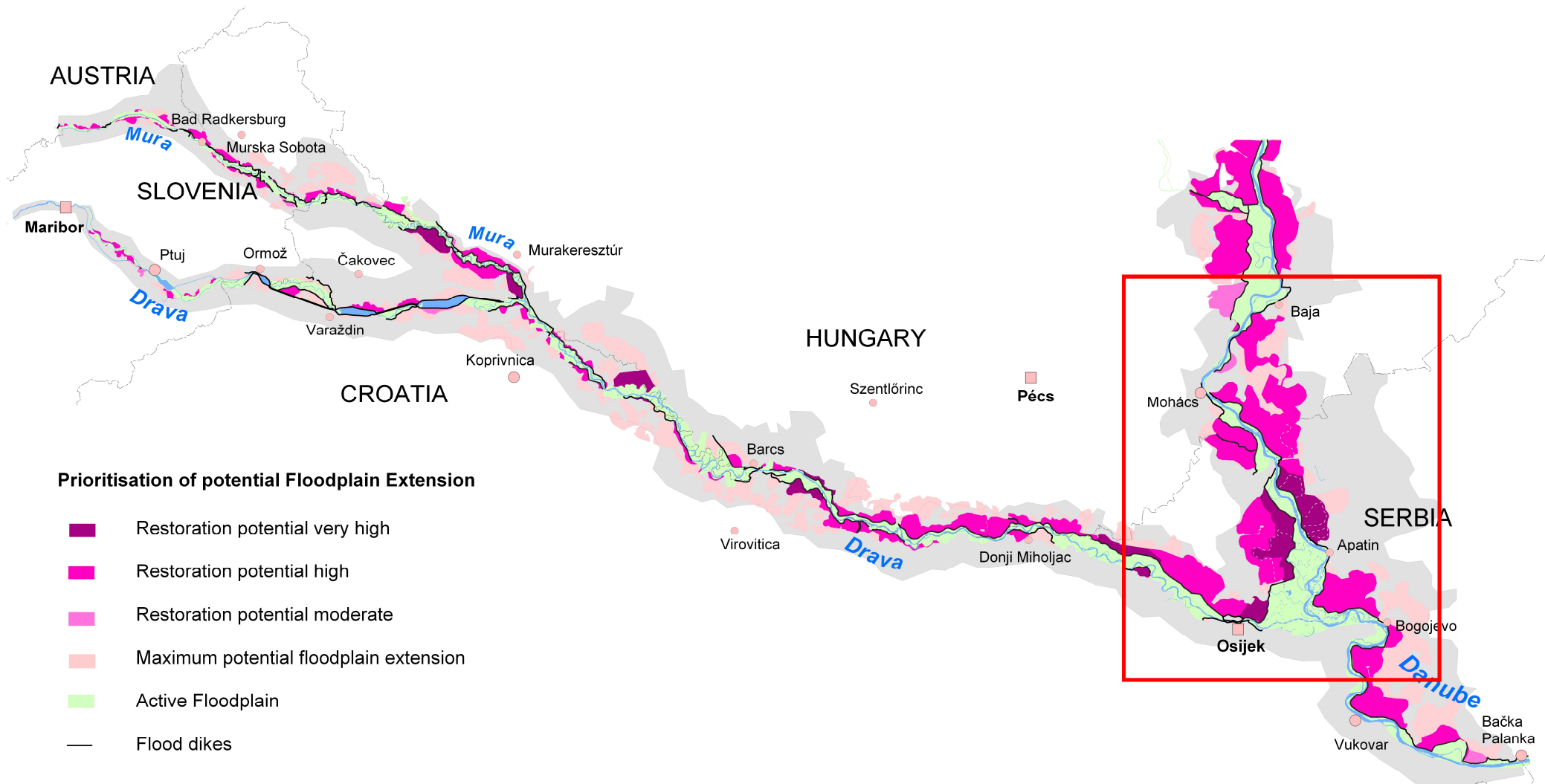


Map 4: Restoration potential of river banks and side-arms

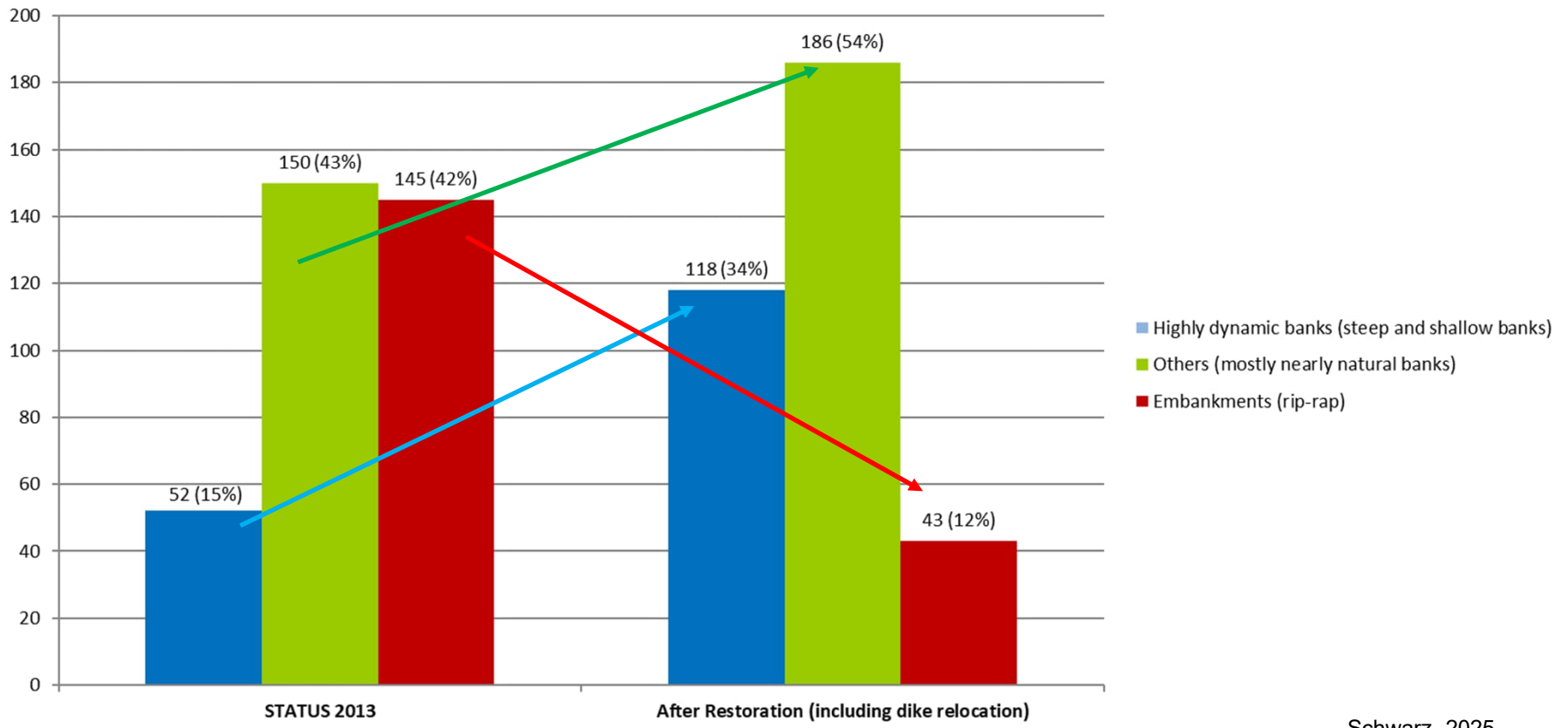


Assessment of the Restoration Potential in the TBR MDD

Map 6: Prioritisation of Restoration Potential of Floodplains



Restoration potential along the Croatian-Serbian Danube



Schwarz, 2025

Considerable restoration potential



The restoration potential within the common Croatian-Serbian Danube sector is considerable:

- All in all up to **102 km of river banks could be restored** to near natural or highly dynamic conditions by removing existing embankments.
- A total of up to **21 major side-channels with a length of 180 km** could be reconnected with the river.
- Up to **55,344 ha of new floodplain areas** could be created through the replacement of existing dykes.

Conclusions from nature conservation perspective



- Croatian-Serbian Danube - Outstanding ecological ecosystem in Europe
- Nature legal framework aims to preserve and restore river and floodplain dynamics
- Further development of navigation route should comply with conservation goals
- **Natural river stretches (“holy stretches”): No Go areas for structural measures**
- **Impacted river stretches: Adaption/removal of existing structures**
- **No sediment removal, only sediment reallocation**



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Perspectives for the project



- Preparing Fairway 2 - **project as starting point**
- Potential perspectives for the project:
 - **Status Quo/Business as usual** – navigation continues without any new structural measures
 - **Implementation of proposed structural measures** - will not be successful without following an integrative approach
 - **Integrative approach** – project development considering nature conservation goals and restoration needs



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Thank you!

