



Assessment of restoration potential and next steps Danube and main tributaries

ERRC 2014, Vienna

Laurice Ereifej
WWF DCP,
Head of FW Programme

Dr. Ulrich Schwarz, FLUVIUS
Floodplain Ecology and
River Basin Management,
Vienna



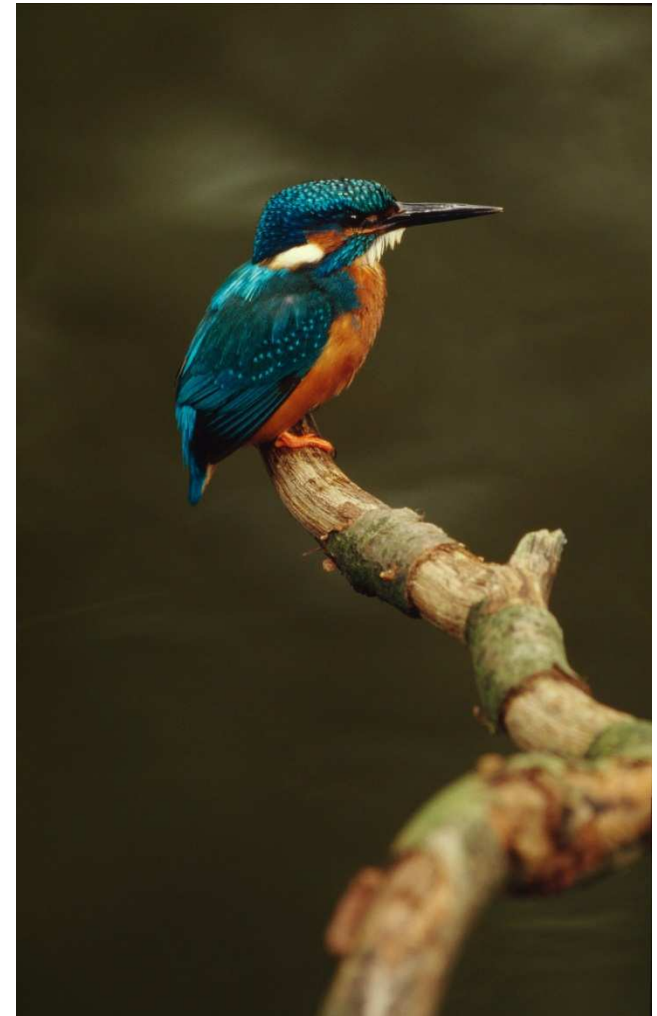
Existing knowledge

Existing materials:

- National RBMPs + DRBMP
- Experiences of previous projects
- Other plans

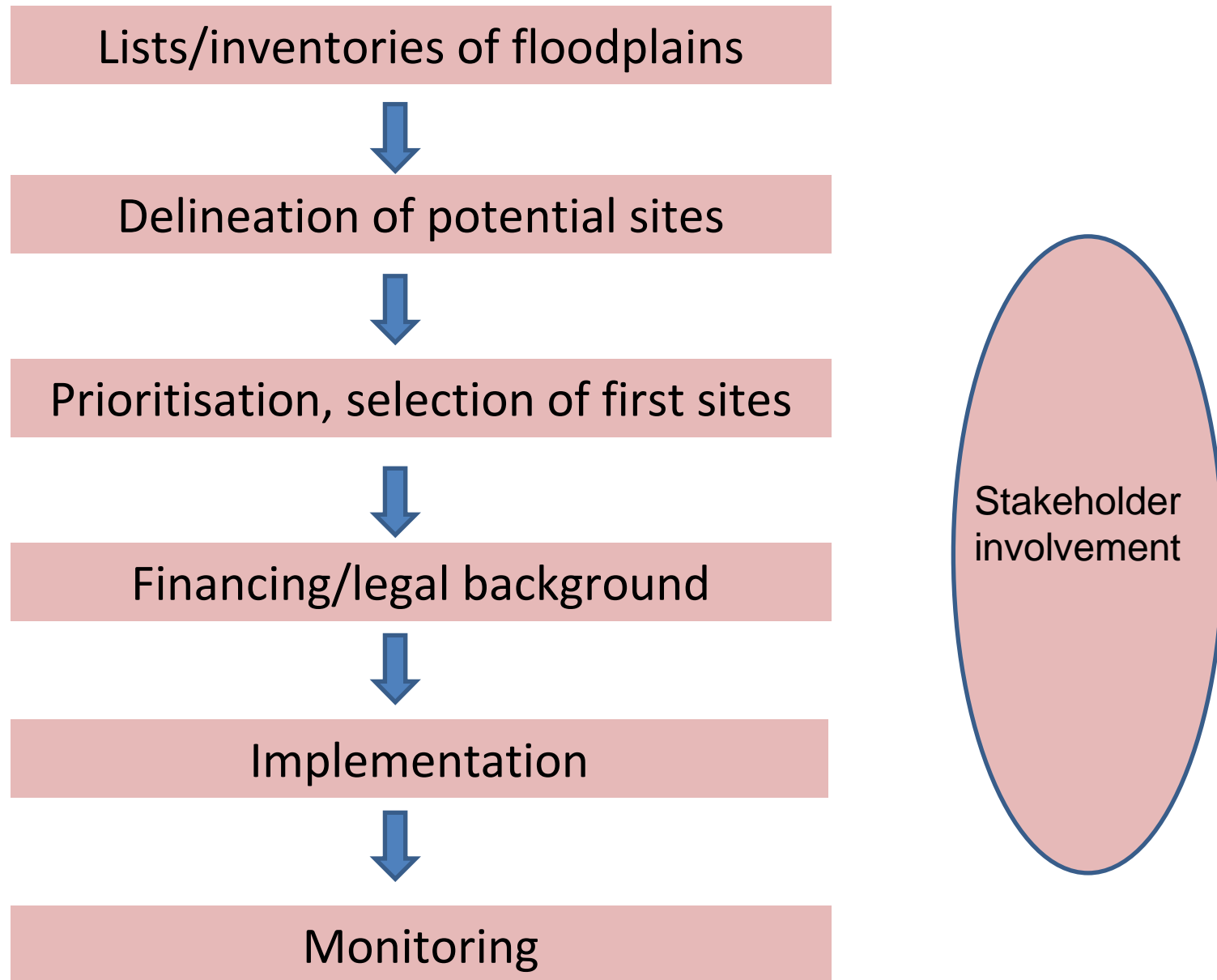
Existing approaches:

- Long „wish lists“
- Mainly technical aspects
- „Only“ small scale restorations
- Mainly focusing on active floodplains





Larger scale restorations, Necessary steps

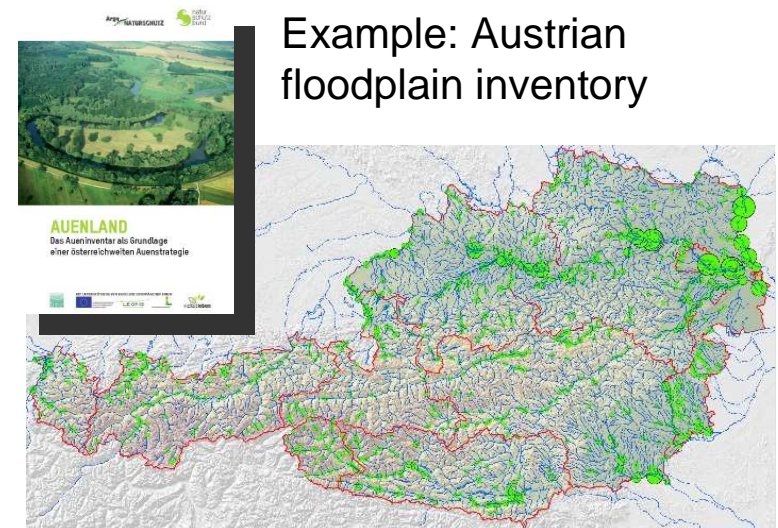




Necessary next steps

Lists/inventories of floodplains

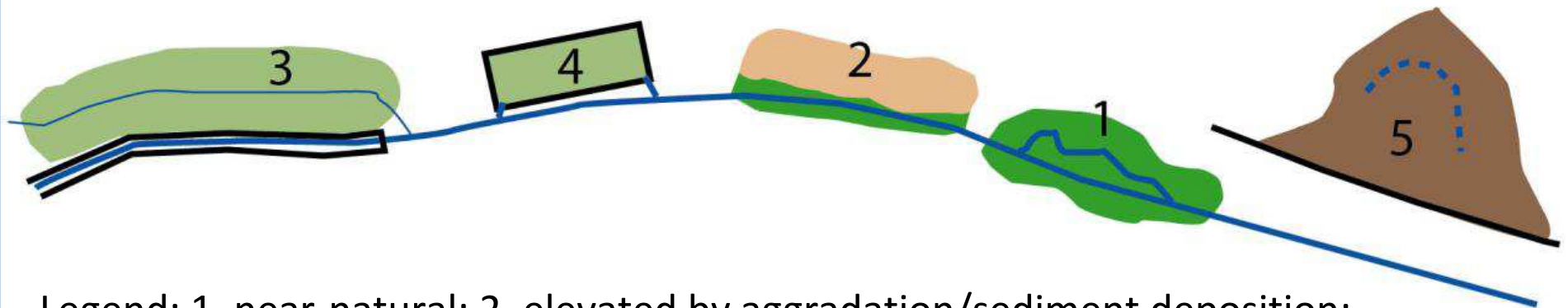
- Assess former floodplains as well:
 - **Former fp. (morphological fp.):** Potentially flooded area without flood defences- e.g. along postglacial terrace systems for ≥ 100 years flood events
 - **Active fp.:** within current flood protection dikes
- Survey also tributaries





Delineation of potential restoration sites

Main “physical” floodplain types under current conditions in the DRB:



Legend: 1. near-natural; 2. elevated by aggradation/sediment deposition; 3. along impounded reaches/backwaters; 4. flood polder; 5. former floodplain (disconnected by dikes and dams, shown by black lines)

-> The delineation of potential sites is based on the active and former floodplain areas, land use/habitats (exclusion of settlements and infrastructure), size, shape and position and is an interactive process from up- to downstream



Assessment and prioritisation, selection of first sites

Initial prioritisation

- JDS (ICPDR Joint Danube Survey) overall
Hydromorphology category:
class 1-2 the restoration potential is => very high (1)
class 3 => high (2)
class 4-5 => low (3)
- **Size class:**
>5,000 ha => very high (1)
1,000- 5,000 ha => high (2)
<1,000 ha => low (3)
- **Protection status:**
Overlap >60% => very high (1)
30-60% => high (2)
< 30% => low (3)
- **Absolute land use coverage:**
<30% agriculture => very high (1)
30-60% agriculture => high (2)
> 60% agriculture => low (3)

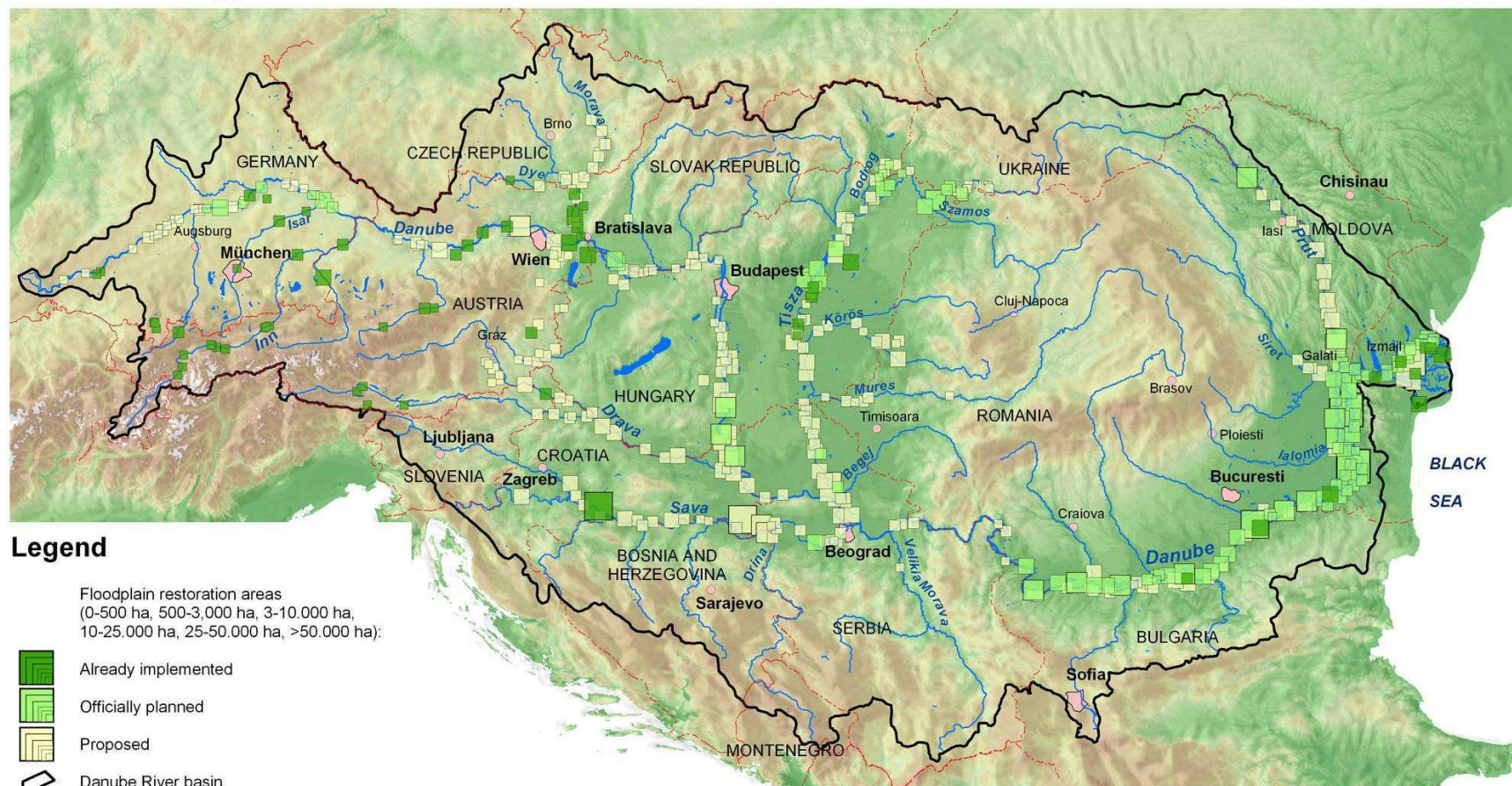
Initial prioritisation

DRB overview



WWF® for a living planet®

Floodplain restoration areas (implemented, planned, proposed) along the Danube and major tributaries



Legend

Floodplain restoration areas
(0-500 ha, 500-3,000 ha, 3-10,000 ha,
10-25,000 ha, 25-50,000 ha, >50,000 ha):



Already implemented



Officially planned



Proposed



Danube River basin



Rivers and lakes



Border



Metropolis > 1 million inhabitants



Other important cities

0 75 150 300 Kilometers



Prepared by FLUVIUS, Vienna, May 2010

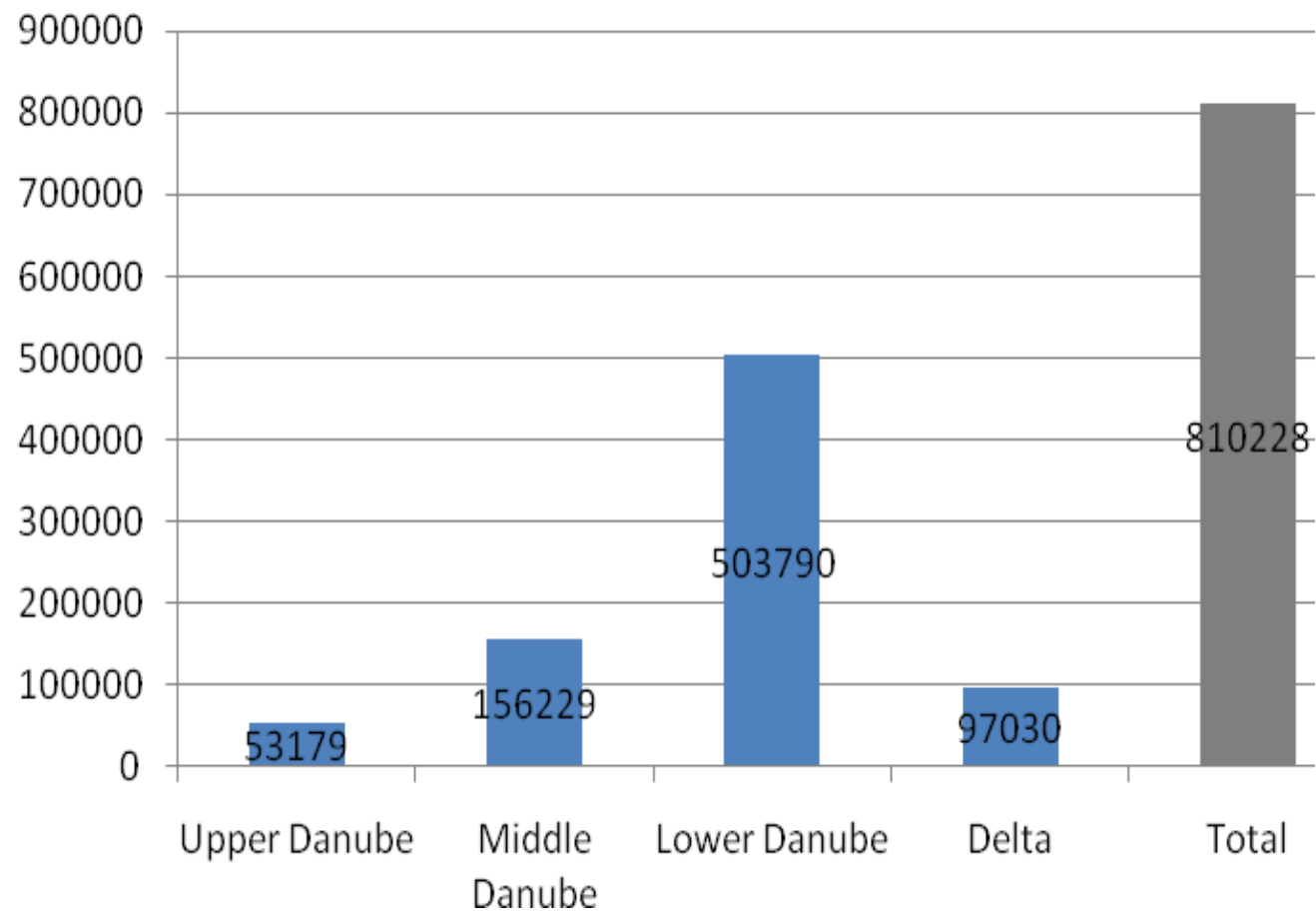




Initial prioritisation

Floodplain restoration potential

Total area in ha

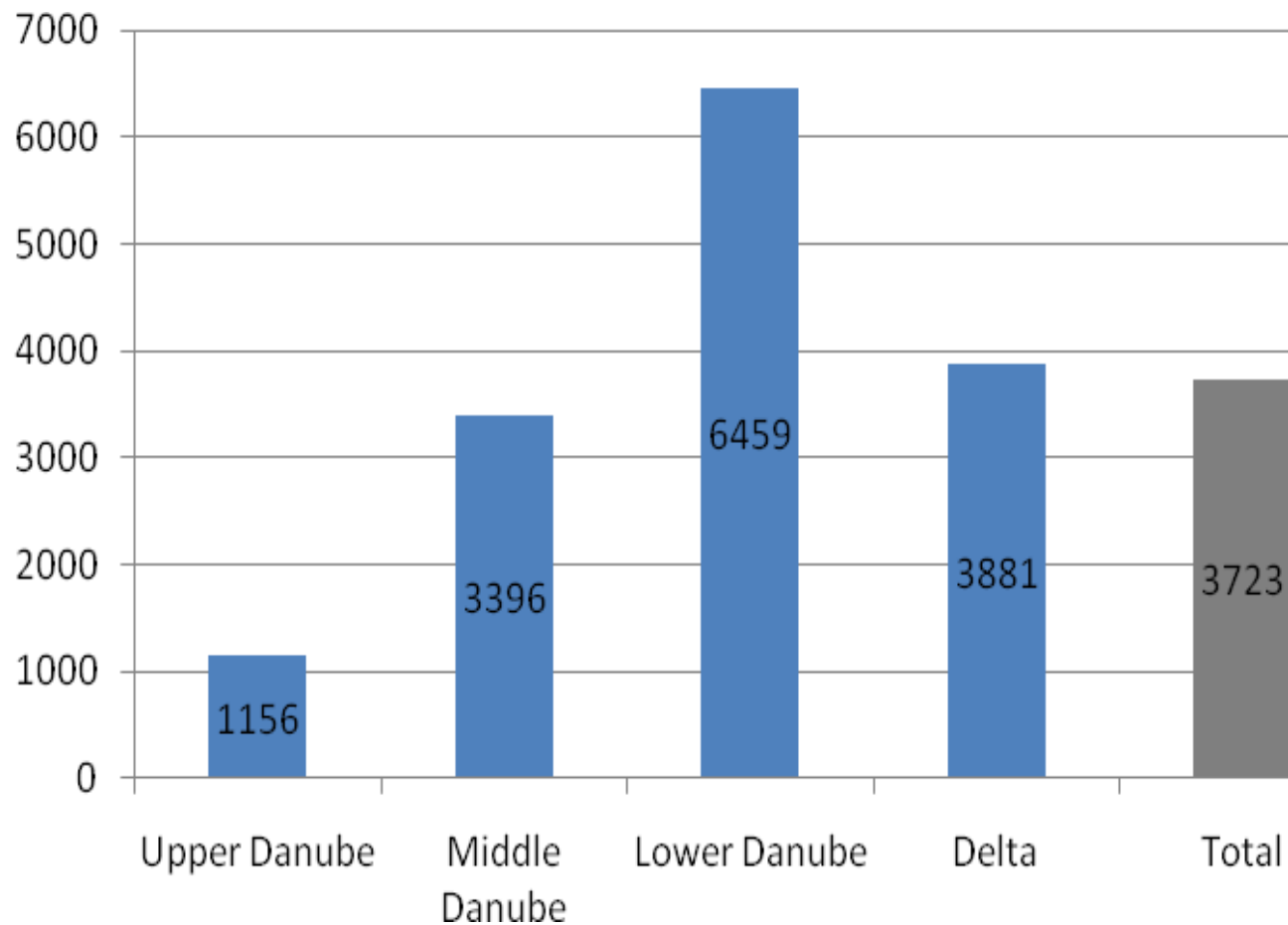




Initial prioritisation

Floodplain restoration potential

Mean area size in ha



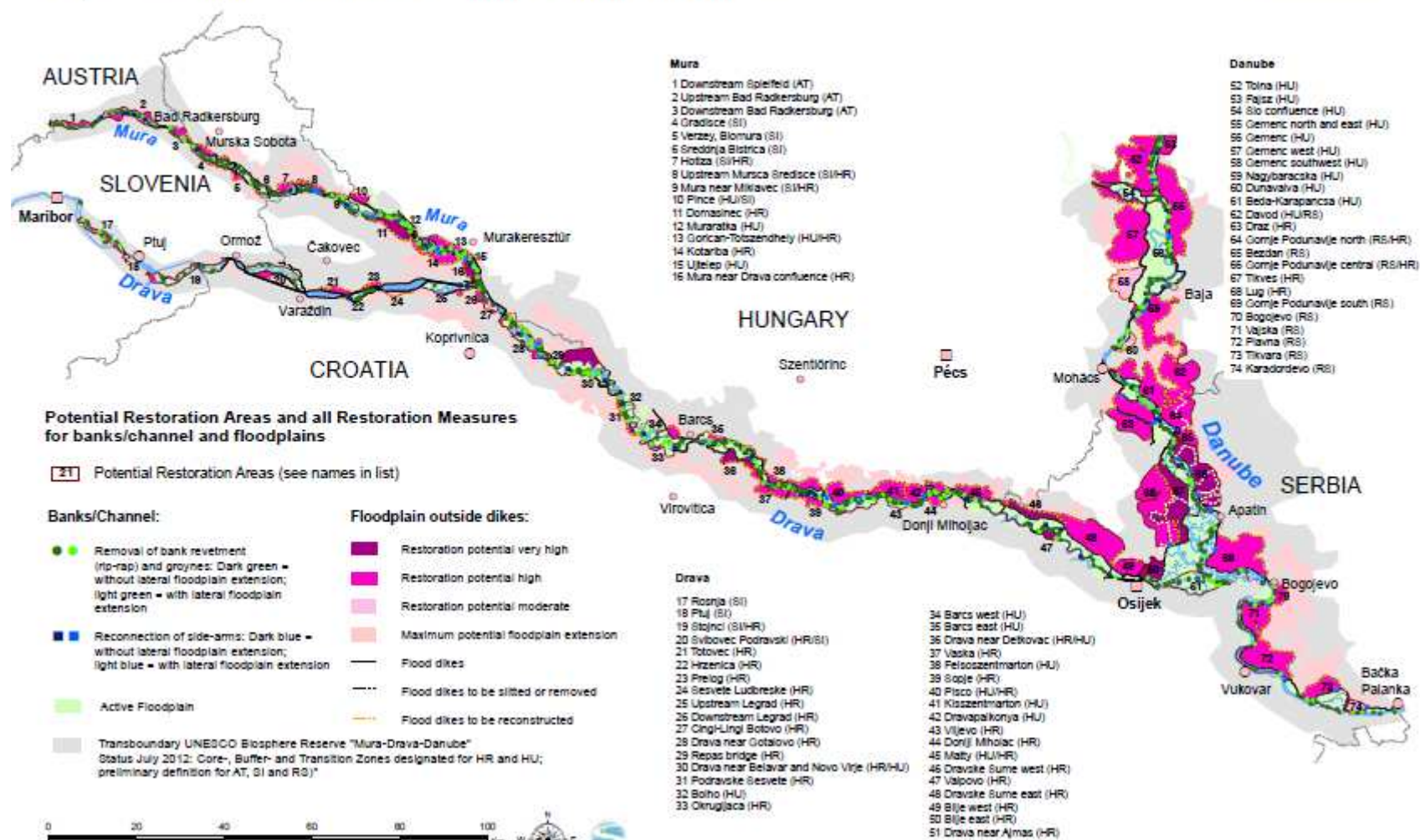


Initial prioritisation

Mura-Drava-Danube BR overview

Assessment of the Restoration Potential in the TBR MDD

Map 7: Potential Restoration Areas and all Restoration Measures





Further prioritisation criteria

- Achieving conservation goals / improved biodiversity
- Landownership, landowners'/users' will, interest
- Socio-economic benefits /ecosystem services like:
 - Flood and Drought mitigation
 - Carbon sequestration/fixation
 - Nutrient retention and self purification
 - Natural resources for local communities
 - Recreation





Further prioritisation criteria

- Detailed survey/assessment of shorter reaches/sites by using hydraulic modelling (discharges, water level, flow velocities, sediment)
- Hydromorphological data and monitoring, in particular regarding lateral connectivity -> overlay (interdisciplinary) assessment together with ecology and socio-economic indicators
- Detailed habitat and species survey for potential sites (in conjunction with FFH directive, but also regarding water bodies and the ecological status defined by WFD)



Financing/legal background

Ensure basis for large scale restorations
on *national level*:

- Proper financial mechanism for land use change
- Integrated projects financed by 1 donor as 1 package
- Ensured cofinance
- Proper legal background





Financing / legal background

Ensure basis for large scale restorations
on *local level*:

- Land use / land ownership:
e.g. land cadaster in place and up to date; clear land ownership
- Payment for Ecosystem Services:
 - e.g. rice farm owner profiting from water provision after restoration > thus ready to contribute to restoration/maintenance costs
 - e.g. reed biomass > used for energy production > financing reed management measures after restoration



Financing/legal background

Studies: pre-feasibility, feasibility, socio-economic analyses: applied research	<ul style="list-style-type: none">- CBC;- Danube Transnational Programme;- European Structural and Investment Funds: Technical Assistance- EEA- Horizon 2020
Compensation/ land purchase	<ul style="list-style-type: none">- European Agricultural Fund for Rural Development (CAP – Pillar II) - Rural Development Programmes,- LIFE
Training for farmers and other managers	<ul style="list-style-type: none">- Rural Development Programmes, European Social Fund - OP Human Capital
Incentive for farming, land-use change (LEADER type)	<ul style="list-style-type: none">- Rural Development Programmes
Field work	<ul style="list-style-type: none">- European Structural and Investment Funds – ESIF: Cohesion Fund and Regional Development Fund, European Agricultural Fund for Rural Development (CAP – Pillar II), European Maritime and Fisheries Fund (EMFF);- LIFE- EEA
Maintenance cost/ sluices	<ul style="list-style-type: none">- national budget (initially covered by investment)
Monitoring	<ul style="list-style-type: none">- European Structural and Investment Funds: Technical Assistance- if considered as research – Horizon 2020
Communication + education	<ul style="list-style-type: none">- part of each project- LIFE Communication- European Social Fund
Experience exchange for authorities, lawyers, engineers, researchers	<ul style="list-style-type: none">- INTERREG EUROPE- Danube Transnational Programme- Horizon 2020



Stakeholder involvement

- Stakeholder involvement in time
- Stakeholder involvement on the necessary level: Information, consultation, and/or active involvement
- Help to prioritize potential sites for restoration
- Save money and capacity by avoiding useless measures
- Adjust actions, measures to reality
- Ensure viability of restoration, keeping the results for long term
- Find win-win situations from ecological, social and economic point of view





Stakeholder involvement

Importance for the project:	Unknown (0)	No (1)	Little (2)	Middle (3)	Important (4)	Extreme (5)	Critical (6)
Project effect on stakeholder:							
Unknown (0)							
No (1)							
Little (2)							
Middle (3)							
Important (4)							
Extreme (5)							
Critical (6)							



Implementation

- Various partners from different sectors
- High quality preparation of project proposals
- Proper technical, legal, financial background
- Same understanding of objectives, activities, deliverables, definitions
- Agreed roles, responsibilities

Monitoring

- Monitor success
- Lessons learnt, sharing experience



Highlights / Conclusions

- Find win-win situations where ecological and socio-economic benefits meet like flood mitigation with floodplain restoration
- Involve stakeholders from the beginning of the process
- Develop national floodplain restoration Action Plans
- Strengthen spatial planning as instrument
- Set the legal and financial basis
- Choose only some areas first and implement it



THANK YOU!

Laurice Ereifej, laurice.ereifej@wwf.hu

Ulrich Schwarz, Ulrich.Schwarz@fluvius.com

