Floodplains and Wetlands in Germany
Significance, threat and measures for protection and restoration

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Wetlands in Germany

photo: U. Steer, BfN
photo: B. Neukirchen, BfN
photo: T. Ehlert, BfN
photo: J. Heyden, BfN
Threats to wetlands in Germany

- Industrialization
- Urbanization
- Land use change
- Drainage
- Falling groundwater levels
- Global warming
- Changed discharges
- etc.

Global Change
Past anthropogenic activities in bogs and floodplains

Changes in Lower Saxony‘s landscape between 1800 and 1980

Costs for water management and land improvement in floodplains 1954-2000

<table>
<thead>
<tr>
<th>Description</th>
<th>EUR billion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drainage</td>
<td>23.25</td>
</tr>
<tr>
<td>Irrigation</td>
<td>0.99</td>
</tr>
<tr>
<td>River training</td>
<td>11.69</td>
</tr>
<tr>
<td>River maintenance</td>
<td>8.42</td>
</tr>
<tr>
<td><strong>Σ</strong></td>
<td><strong>44.34</strong></td>
</tr>
</tbody>
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Schäfer & Kowatsch (2015)
Loss of inundation areas

2/3 of former floodplains have been lost due to dike construction, in many places at the Rhine, Danube, Elbe and Oder even more than 80%
Only 10% of active floodplains are ecologically intact.
Endangered floodplain and water habitats

80 % of floodplain and water habitat types are endangered (Finck et al., 2017)

Current trend

- Stable: 45%
- Decreasing: 38%
- Increasing: 3%
- No classification: 14%
Ecological network of rivers and wetlands

Network quality of rivers

- **High quality**
- **Medium quality**
- **High need for development**
- **Very high need for development**
- **No data**
Floodplain restoration at Lenzen, Elbe

Foto: J. Purps
Natural flood protection of floodplains

Effect of dyke relocation Lenzen during flood 2013

- Section of water level lowering approx. 30 km
- Lowering 49 cm
- Dike relocation

Source: Promny et al. (2014): Untersuchungen zur Wirkung der Deichrückverlegung Lenzen auf das Hochwasser vom Juni 2013 an der unteren Mittelelbe, Korrespondenz Wasserwirtschaft 7, S. 348
National political programs

2014: National Flood Protection Program
- > 30 dike relocations covering more than 20,000 ha
- > 60 projects for controlled flood retention by polders
- BfN research project investigating synergies with nature protection an the aims of WFD

2017: Federal Government Program “Germany’s Blue Belt”
- Establish of national biotope network along federal waterways
- Restoration of minor waterways
- Ecological stepping stones at major waterways
What is going on in floodplain restoration?

170 large floodplain restoration projects at rivers throughout Germany

- Reconnection of oxbow lakes
- Restoration of alluvial forests, wet meadows, alluvial waters
- Relocation of dikes
- More extensively use
- ...

Causes for implementation

- 50 % water protection, conservation
- 20 % flood protection

Nationwide, the impact of the measures implemented so far is still limited
• 5,500 ha reconnected so far
• Only 14 projects > 100 ha
  (gain in inundation area ~ 3,800 ha)
• Most measures < 50 ha

Still, major efforts are needed to recover former floodplains

(Ehlert & Natho 2017)
Conclusions

Protection and restoration of wetlands such as floodplains...

- is urgently necessary

- **improves ecosystem services** like biodiversity or flood prevention sustainably

- **is challenging but feasible** — promote good and large-scale projects

- **should be implemented in cooperation** with water management (FD, WFD), lokal authorities, agriculture, forestry, etc.

- **is a task for generations**
A future task in good hands

Thank you for your attention

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