On the way to an Austrian Mire Protection Strategy

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EUROPARC Conference 201, Parc Jura Vaudois, St. Georges, Switzerland, 16.10.16
Issues

• Physiographic diversity of Austrian mires
• Status of Austrian Peatlands
• Existing legislative framework
• ...and its execution
• New issues: Ecosystem services and greenhouse gases
• Structures and coordination
Physiographic setting of Austrian mires
Physiographic setting for Austrian mires
Austrian mire database

Database Reiter & Steiner, 2013

n = 3,388
area = 26,940 ha

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# Size and conservation status of different mire types in Austria, based on the Austrian mire conservation data base

Grüning & Steiner, 2010, modified

<table>
<thead>
<tr>
<th>Mire type</th>
<th>Undisturbed [ha]</th>
<th>Disturbed [ha]</th>
<th>Total [ha]</th>
<th>(83,871 km² = 100%) [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raised bog</td>
<td>1650</td>
<td>2292</td>
<td>3942</td>
<td>0.047</td>
</tr>
<tr>
<td>Condensation mire</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>0.000</td>
</tr>
<tr>
<td>Blanket bog</td>
<td>161</td>
<td>161</td>
<td>322</td>
<td>0.002</td>
</tr>
<tr>
<td>Rainfed mires</td>
<td>1840</td>
<td>2292</td>
<td>4132</td>
<td>0.049</td>
</tr>
<tr>
<td>Complex mire</td>
<td>161</td>
<td>161</td>
<td>322</td>
<td>0.002</td>
</tr>
<tr>
<td>Transition mire</td>
<td>375</td>
<td>304</td>
<td>679</td>
<td>0.008</td>
</tr>
<tr>
<td>Kettle hole mire</td>
<td>40</td>
<td>40</td>
<td>80</td>
<td>0.000</td>
</tr>
<tr>
<td>Transition mires</td>
<td>576</td>
<td>304</td>
<td>879</td>
<td>0.010</td>
</tr>
<tr>
<td><strong>Bogs and transition mires</strong></td>
<td><strong>2416</strong></td>
<td><strong>2595</strong></td>
<td><strong>5012</strong></td>
<td><strong>0.060</strong></td>
</tr>
<tr>
<td>Percolation mire</td>
<td>636</td>
<td>1757</td>
<td>2393</td>
<td>0.029</td>
</tr>
<tr>
<td>Spring mire</td>
<td>278</td>
<td>278</td>
<td>556</td>
<td>0.007</td>
</tr>
<tr>
<td>Inundation mire</td>
<td>374</td>
<td>2066</td>
<td>2440</td>
<td>0.029</td>
</tr>
<tr>
<td>Surface flow mire</td>
<td>911</td>
<td>2141</td>
<td>3052</td>
<td>0.036</td>
</tr>
<tr>
<td>Terrestrialisation mire</td>
<td>1520</td>
<td>667</td>
<td>2188</td>
<td>0.026</td>
</tr>
<tr>
<td>Paludification mire</td>
<td>333</td>
<td>1125</td>
<td>1458</td>
<td>0.017</td>
</tr>
<tr>
<td><strong>Fens</strong></td>
<td><strong>4051</strong></td>
<td><strong>7757</strong></td>
<td><strong>11,808</strong></td>
<td><strong>0.141</strong></td>
</tr>
<tr>
<td><strong>Total mire area</strong></td>
<td><strong>6467</strong></td>
<td><strong>10,352</strong></td>
<td><strong>16,820</strong></td>
<td><strong>0.201</strong></td>
</tr>
</tbody>
</table>
Legislative framework

**NATIONAL**

- 1971 RAMSAR convention (Austria joined 1982)
- 1994 United Nations Framework Convention on Climate Change (UNFCCC)
- 1996 Convention on Biological Diversity (CBD)
- 1999 Austrian Wetlands Strategy
- 2002 Austrian Biodiversity Goals
- 2002 RAMSAR Strategic Plan 2003-2008
- 2008 Reducing Emissions from Deforestation and Forest Degradation (REDD)
- 2010 WWF Study Peatlands in Climate Change
- 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands
- 2014 Austrian Biodiversity Strategy

**INTERNATIONAL**

- 2016 EUROCARE Conference 201, Parc Jura Vaudois, St. Georges, Switzerland, 16.10.16
Naturschutzbund Österreich 2010: „In the last 200 years, Austria has lost >90% of its peatland area, 250,000 ha“

intact: 7,000 ha
hydrologically disturbed: 14,000 ha
intensive agricultural use: 100,000 ha
...of which pasture 10,000 ha
...of which meadows 30,000 ha
...of which arable land 60,000 ha

21,000 ha
Threats

**PAST**
- Peat extraction
- Drainage and subsequent land-use intensification
- Large-scale drainage projects (i.e. Ennstal)

**PRESENT**
- Small-scale drainage and land use changes
- Eutrophication
- Encroachment of shrubs and competitiveness plant species
- Pasture on peatlands

**FUTURE**
- Climate change

*Steiner & Essl, in press*
Success stories:
Überling
Success stories:
Torfstube
Success stories:
Brettersberg
Success stories:
Federal forestry agency taking responsibility for peatlands

But:
Future challenges
Naturschutzbund Österreich 2010: „In the last 200 years, Austria has lost >90% of its peatland area, 250,000 ha“

intact: 7,000 ha
hydrologically disturbed: 14,000 ha
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...of which pasture 10,000 ha
...of which meadows 30,000 ha
...of which arable land 60,000 ha

C-storage: 100 Mio. t

CO₂- Emission reduction potential when rewetting ALL Austrian peatlands: 0,55-4,5 Mio t CO₂ a⁻¹
Austrian mire vegetation database

Database Reiter & Steiner, 2013
Peatland **vegetation** and **peat soils** in Austria
Peatland vegetation and peat soils in Austria

Vorarlberg

Burgenland

Vergleich Moore nach Vegetation (Reiter & Steiner) ->grün und Digitaler Bodenkarte ->braun (Moorböden)
We don’t know Austria’s **peat soil area**
We aren’t reporting honestly

C-storage density (t C ha\(^{-1}\)) of Austrian peatlands and wetlands (0-50 cm; [www.borisdaten.at](http://www.borisdaten.at); NIR 2014)

<table>
<thead>
<tr>
<th>IPCC LU category</th>
<th>National LU category</th>
<th>Bohemian Massif</th>
<th>Inner Alps</th>
<th>Calcare-ous Alps</th>
<th>Foothills</th>
<th>Alpine Ridge</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetlands</td>
<td>Bogs</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>Expert judgement</td>
</tr>
<tr>
<td></td>
<td>Surface waters and reed beds</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Expert judgement</td>
</tr>
</tbody>
</table>
We need to follow the example of Switzerland
We need to follow the example of Switzerland
Austrian mire protection agenda 2016-2018 (I)

- Recognition of peat soils under non-native vegetation and their role as a source of greenhouse gases
- Mapping of peat soils analogous to the recent report from Switzerland
- Coordination of mire protection activities in the federally fragmented administrative landscape
- Prioritization of mire protection activities following an ecosystem service approach
- Creation of structures for the long-term coordination of mire protection activities
- Establishing / strengthening mire research in Austria
Austrian mire protection agenda 2016-2018 (II)

• Establishing legislation for mire protection measures in a fragmented federal system

• Consideration of cultivated peat soils and establishment of wise use concepts

• Tackling perverse incentives

➡ Comprehensive Austrian Mire Protection Strategy
Thank you for your attention

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