Introduction

- Many areas with high conservation effect are located on privately owned land, but protection of private land often leads to conservation conflicts.
- To ease conflicts, voluntary and incentive-based conservation measures have been widely applied.
- Many scientific papers report successful protection through voluntary measures and celebrate their ability to make conservation socially more acceptable.
- However, voluntary measures do not only the social aspects of conservation, but also the biodiversity representation, by limiting the options for protection.

Does emphasizing landowners’ willingness to conserve affect the resulting biodiversity representation and economic costs of a protected area network expansion?

Methods

Three scenarios using ZONATION (Conservation planning software)

1) Fully voluntary protection (FVP): Landowners can decide whether to protect their mires or not. Zonation was coded to remove all the opposed peatlands from the solution despite their biodiversity representation.

2) Mostly voluntary protection: Landowners’ willingness to protect is taken into account, but their land can be expropriated, if it contains very high or irreplaceable biodiversity. Zonation was coded to consider landowners’ resistance as a continuous variable trying to balance resistance and biodiversity representation.

3) Biodiversity matters most: Landowners are not able to influence conservation decisions and their land will be expropriated for conservation. Zonation was coded to maximise biodiversity representation without considering landowners’ resistance.

Results

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Area (ha)</th>
<th>Cost (M€)</th>
<th>Biodiversity (%)</th>
<th>Resistance (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully voluntary protection</td>
<td>115 400</td>
<td>97.9</td>
<td>67.4</td>
<td>0</td>
</tr>
<tr>
<td>Mostly voluntary protection</td>
<td>115 400</td>
<td>53.7</td>
<td>80.1</td>
<td>0</td>
</tr>
<tr>
<td>Biodiversity matters most</td>
<td>114 700</td>
<td>53.7</td>
<td>80.1</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 1. In the scenario of Fully voluntary protection 115 400 hectares (about one third of all candidate mires) were free from landowners’ resistance. Cost of this scenario was 97.9 million euros and it protected 67.4% of biodiversity included to the analyses. Other scenarios are fixed one after another to area, cost, biodiversity and resistance of Fully voluntary protection.

Choosing the scenario Fully voluntary protection (FVP) as a starting point according to which area and cost were fixed to see the results of other scenarios.

Conclusions

- Enabling landowners categorically to decide about protection is likely to make conservation ineffective for the nature and expensive for the society.
- It is possible to find conservation solutions that are cheaper for the society than fully voluntary protection, decrease landowners’ resistance remarkably compared to the situation of not taking resistance into account at all (scenario Biodiversity matters most), and are still able to protect fairly large proportion of biodiversity representation.
- If carefully planned and implemented, conservation will not be a zero sum game!