How to reconnect biodiversity across motorways?

Practical experiences of establishing ecological hinterland connections of fauna passages in a highly fragmented northern German landscape


Holstein Habitat Corridors

Reconnection of habitats for dormouse, deer & Co.

- Where do we work?
- What is our plan?
- How do we tell different species where the fauna passage is?
- Do we have any success? (targets and preliminary results)
- What will be done in the future?
Where do we work?
In the federal state of Schleswig-Holstein, the land bridge to Scandinavia.

Where do we work?
In the district of Segeberg, which is dissected by 3 motorways.
Where do we work?
Intensive agricultural landscape, few forests and fewer nature reserves...

...but with possibilities to overcome barriers and with good partners!

Jornadas técnicas del Grupo de Trabajo de Fragmentación de hábitats causada por infraestructuras de transporte ‘Conectividad ecológica y vías de transporte’.
Cáceres, 13-14 de noviembre de 2013
### What is our plan?

#### Threats

- Loss of habitat (motorway with up to 43.5 m road width)
- Reduced habitat quality (noise, dust, salt, hydrology, ...)
- Road mortality
- Loss of connectivity
- Extinction

#### Counteractions

- Nature Conservation (Natura2000, federal & regional measures, ...)
- Compensation (legal obligation)
- Fauna passages (legal obligation)
- Reconnection of habitats
- Resettlement

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**Holstein Habitat Corridor** combines all counteractions to a coherent concept on a landscape level.

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**Cáceres, 13-14 de noviembre de 2013**
How do we tell species of **native forests** where the fauna passage is?

**target**: increase & spread of populations of „native“-forest-species across bridge

**action**: 20 ha of surrounding forest were selected (criteria: age, species, location), partly reconstructed (all foreign trees removed), discarded from forestal usage

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How do we tell species of **dry grassland** where the fauna passage is?

**target**: increase & spread of populations of species of dry grassland & heath

**actions**: linear forest clearings, topsoil removal (sod plugging), flora transfer,...
How do we tell species of **dry grassland** where the fauna passage is?

How do we tell species of **ponds** where the fauna passage is?
How do we tell species of ponds where the fauna passage is?

Introduction or expansion of grazing systems to keep ponds in a good quality!
How do we tell species of ponds where the fauna passage is?

First results & future prospects for the reconnection amphibians & reptiles
Species found at fauna passages during time

<table>
<thead>
<tr>
<th>Year</th>
<th>Amphibians</th>
<th>Reptiles</th>
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<tbody>
<tr>
<td>2006</td>
<td>6</td>
<td>3</td>
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<tr>
<td>2008</td>
<td>9</td>
<td></td>
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<td>2014</td>
<td>3</td>
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<tr>
<td>2020</td>
<td>3</td>
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</tbody>
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- **Triturus vulgaris** (least concern)
- **Rana temporaria** (vulnerable)
- **Bufo bufo** (least concern)
- **Rana arvalis** (vulnerable)
- **Anguis fragilis** (near threatened)
- **Triturus cristatus** (vulnerable)
- **Natrix natrix** (critically endangered)
- **Pelobates fuscus** (endangered)
- **Bufo calamita** (critically endangered)
- **Vipera berus** (critically endangered)
- **Hyla arborea** (endangered)
- **Coronella austriaca** (critically endangered)
- **Lacerta agilis** (critically endangered)

- **2006 before actions**: Fauna bridge complete
- **2008 compensation actions completed**: Ongoing actions for reconnection of habitats on a local scale
- **2010**: Future target for reconnection of habitats on a regional scale
How do we tell arboreal & large mammals where the passage is?

**Target:** exchange of individuals between forests on a large scale

**Action:** increase of density of stepping stones (woods) and linear corridors (hedges), ~3 km of desolate hedges are restored up to now

Common dormouse *Muscardinus avellanarius*

Red deer *Cervus elaphus*
Overview about coherent actions for local reconnection

- time: 2010 – 2013
- costs: ~ 1 Mio € (incl. personell)
- (fauna passage: 2.5 Mio €)
- actions for species of:
  - forests: 26 ha
  - open land: 40 ha
  - aquatic habitats: 28 ponds

How will we tell species, where the next fauna passages are?

Development of a coherent network of
a) ecological hinterland connections (for each fauna passage) with
b) existing nature reserves and
c) large scale habitat corridors for different habitat types
   (forests, dry grassland and water bodies)