



Motorway at Silkeborg in relation to Natura 2000 - a case study from Denmark

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Natura 2000 in Denmark



254 Sites of Community Interest (SCI) in Denmark

- Terrestrial 3.173 km² (7,4 % of Danish land surface)
- Marine 7.963 km² (7,5 % of Danish waters)

133 Special Protected Areas (SPA) in Denmark

- Terrestrial 3.591 km² (8,34 % of Danish land surface)
- Marine 13.047 km² (12,3 % of Danish waters)

In general: large areas, covering both natural habitats and other types of land use (e.g. arable land, private gardens)

The SCI Silkeborgskovene

The SCI no 181 Silkeborgskovene, covers 1.455 ha.

The SCI is designated for the protection of:

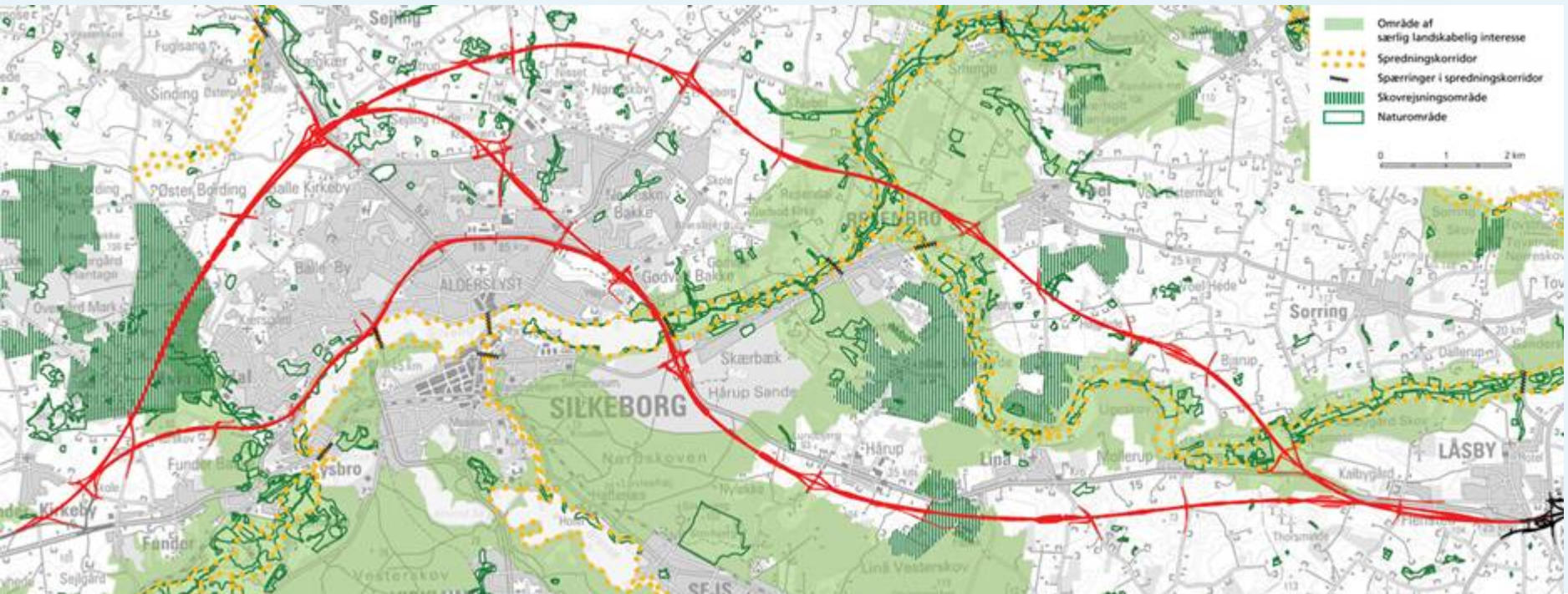
- Otter *Lutra lutra*
- Crested newt *Triturus cristatus cristatus*
- Brook lamprey *Lampetra planeri*
- Pond bat *Myotis dasycneme* as well as a number of community types.



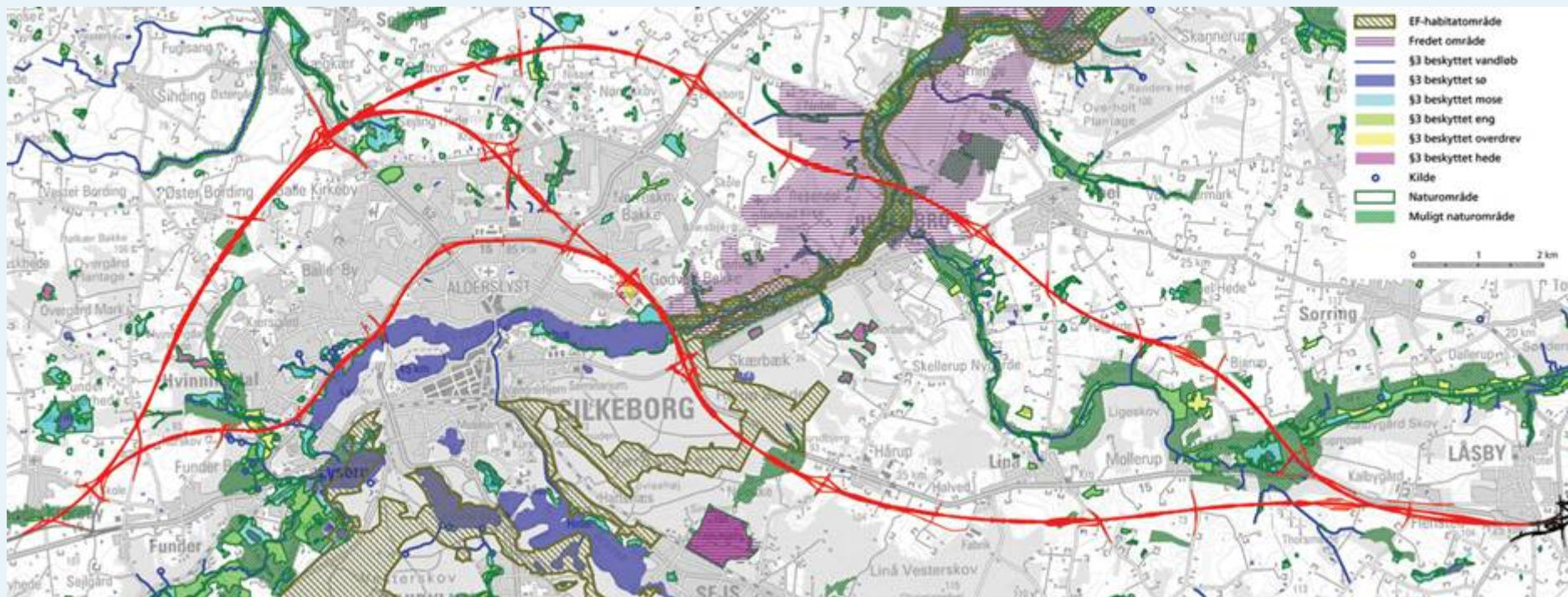
The road project

- EIA 1992, 2000 and 2006
- Motorway 4 lanes

The nature and wildlife in the area was surveyed in the periods 1992, 2004-05 and 2007 as a part of the EIA



Alignment



Silkeborgskovene



- 3110 Oligotrophic waters containing very few minerals of sandy plains (Lobelia-lakes)
- 3140 Hard oligo-mesotrophic waters with benthic vegetation of *Chara spp.*
- 3150 Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* - type vegetation
- 3270 Rivers with muddy banks with *Chenopodion rubri p.p.* and *Bidention p.p.* vegetation
- 7140 Transition mires and quaking bogs
- 9120 Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrub layer
- 9130 *Asperulo-Fagetum* beech forests
- 91D0* Bog woodland
- 91E0* Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*

Annex IV-species in the area

- European pond turtle *Emys orbicularis*
- Sand lizard *Lacerta agilis*
- Moor frog *Rana arvalis*

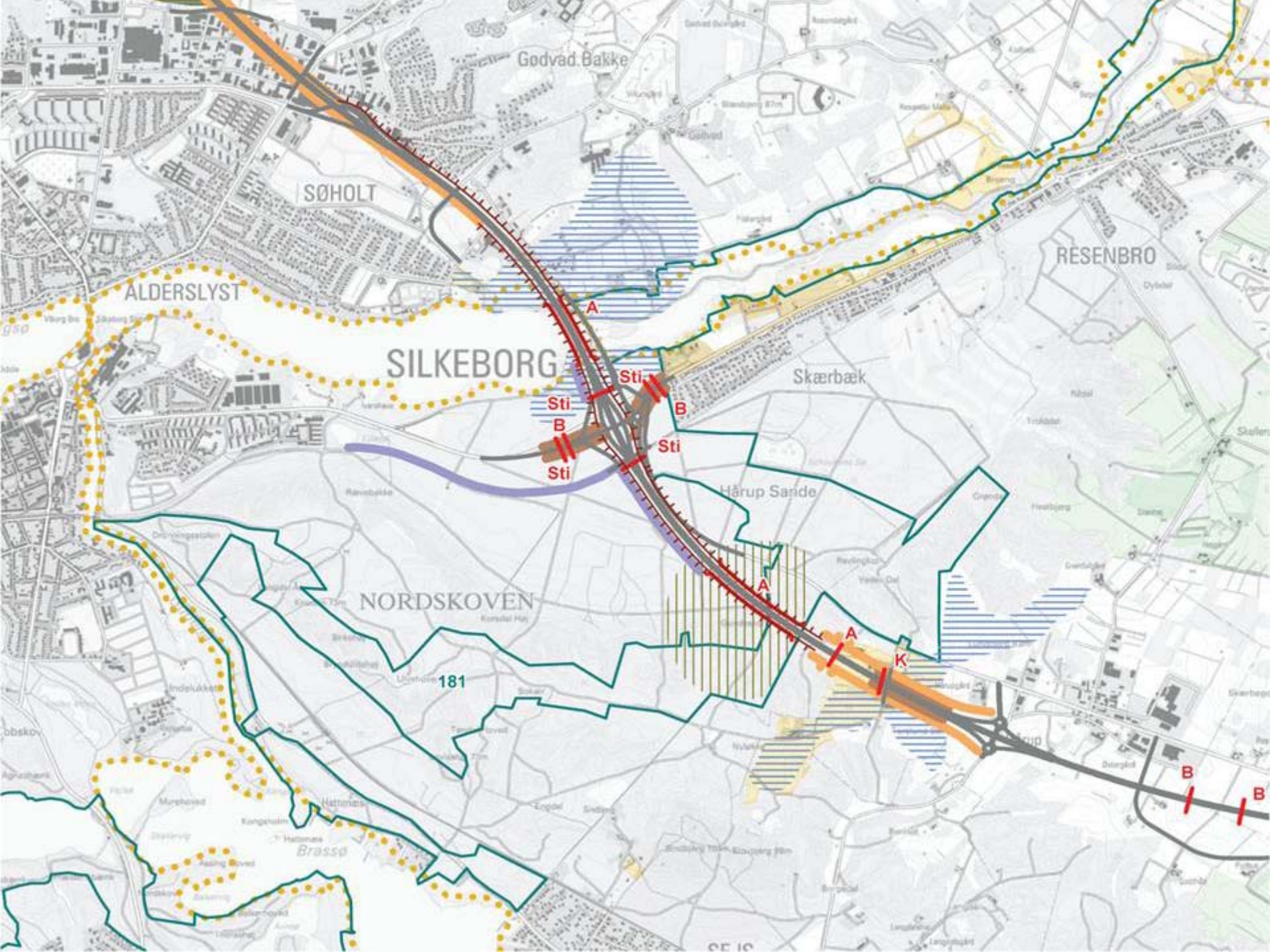
- and six bat species!



The Impact



- The planned motorway passes 0.4 km of the SCI on a bridge
- Destruction of habitat
- Disturbances during construction
- Disturbances of breeding ponds
- Barrier effects
- Risk of road kills
- Discharge of road surface water.



Godvad Bakke

SØHOLT

ALDESLYST

SILKEBORG

RESENBRO

Skærbæk

Hårup Sande

NORDSKOVEN

181

Brassø

A

Sti

B

Sti

Sti

B

Sti

A

A

A

K

B

B

Mitigation annex IV Species

- Establishment of a number of fauna passages:
- Landscape bridges
- Ecoducts
- Small culverts
- Leading hedges Fauna passages
- Building of a 4 m noise- and light protection barrier, all along the stretch where the motorway passes through the SCI
- Fences to protect amphibians against road kills



Mitigation Annex IV Species



- Establishment of 25 compensation biotopes (new breeding ponds)
- Placement of breeding boxes for bats to compensate for the possible loss of other suitable breeding places such as hollow trees etc
- Planting of compensation forest
- Management for road verges and embankments for the benefit of annex IV-species

Conclusions

The permission for road construction from the responsible authorities is given on terms of conditions including a number of mitigation measures

Direct mitigation (e.g. deminishing of barriers and prevention of road kills)

Indirect mitigation: Improvements of ecological function.



Questions

Are the populations of Annex IV species boosted by the road project?

Are we making nature restoration in stead of roads?

Will similar terms apply in other Nordic countries?

What about the integrity of the Natura 2000 sites?

