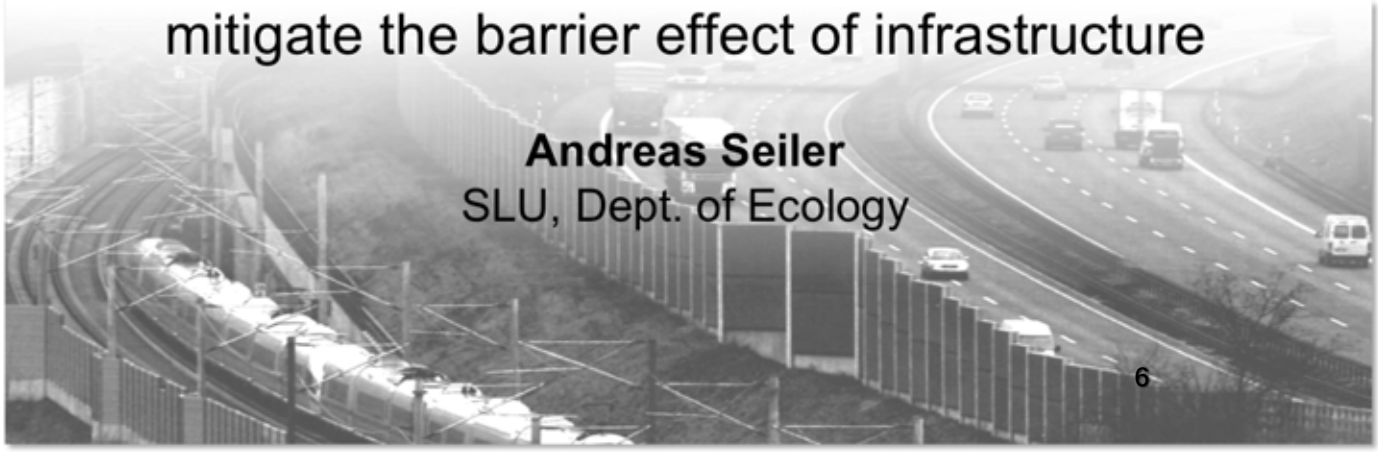
Include

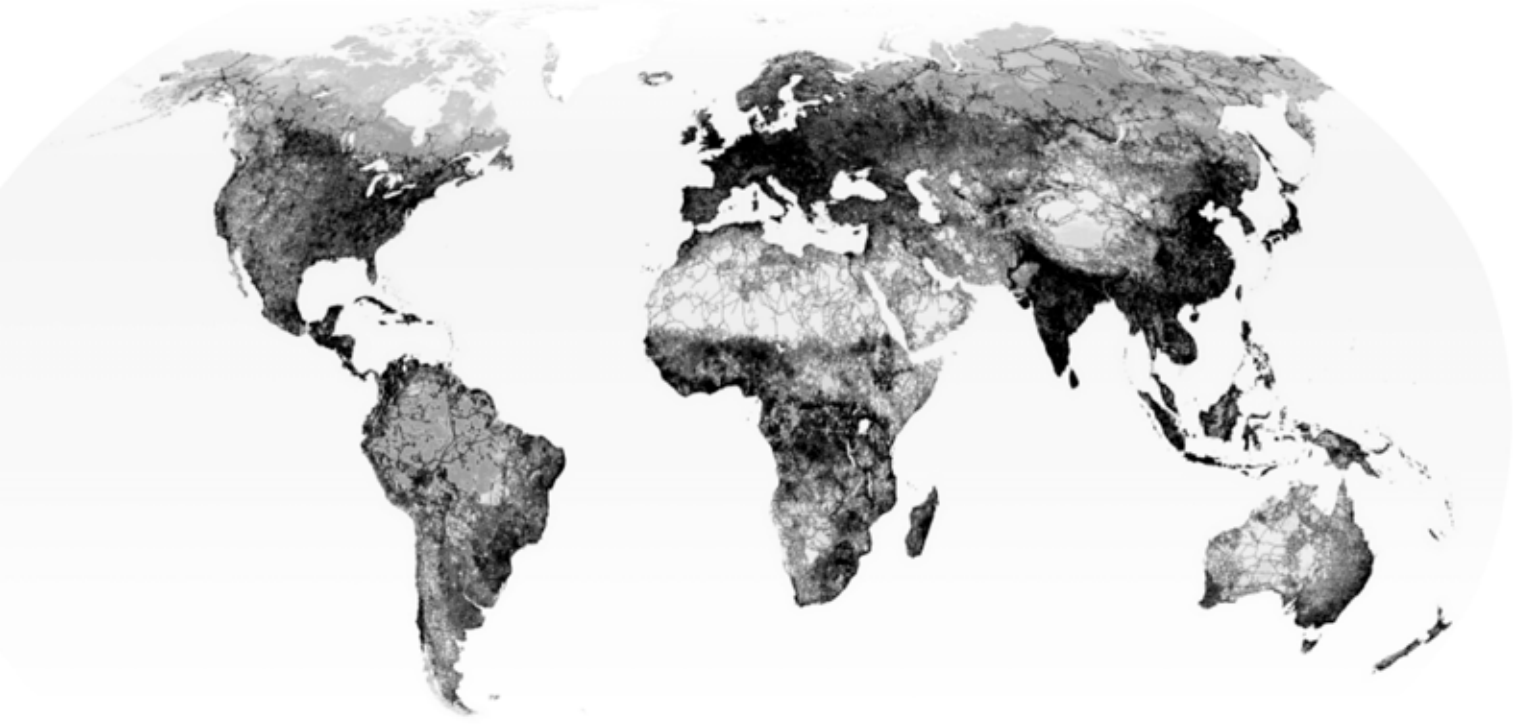
- a TransportMistra programme

Identifying and prioritizing the need to mitigate the barrier effect of infrastructure



Andreas Seiler
SLU, Dept. of Ecology

Transportation infrastructure



GLOBIO – future outlook 2002 – 2032
http://www.globio.info/

Pressure on the environment

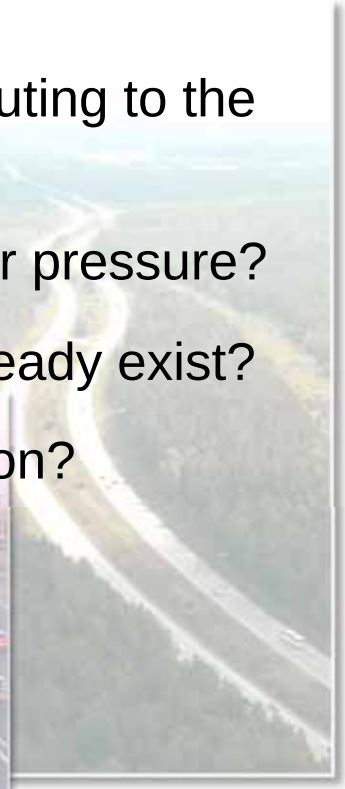
- Direct pressures and impacts
  - Physical imprint and loss of habitat
  - Barrier to movements and processes
  - Disturbance, degradation of adjacent areas
  - ...
- Indirect and secondary effects
  - Urban sprawl and secondary development
  - Increased access to natural resources
  - …
- Cumulative effects
  - “Landscape fragmentation”
  - …

Mitigation action plan

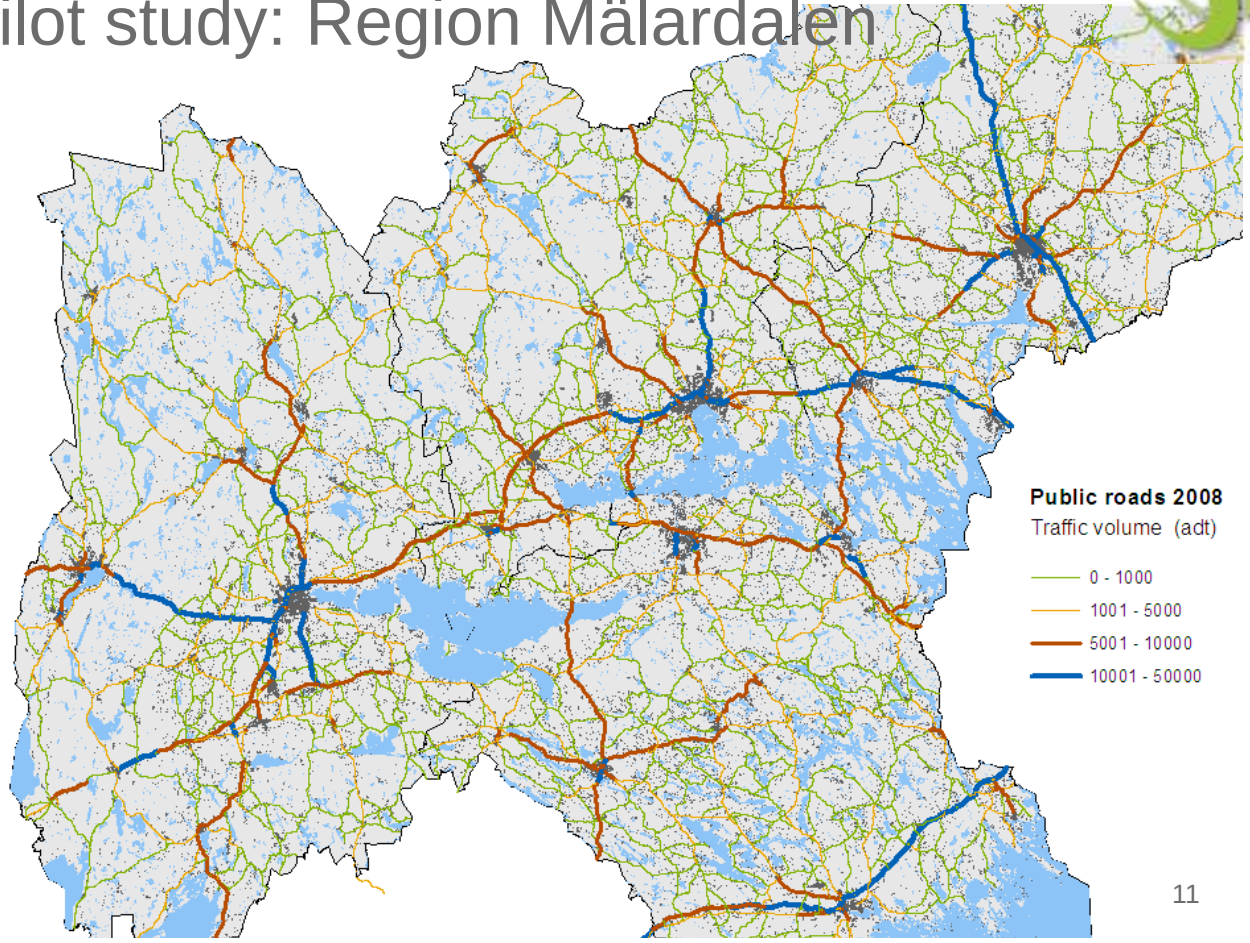
- Part of the strategic environmental plan for landscape 2008-2017
- … identifying and solving environmental deficiencies on existing roads with respect to barrier effects on wildlife and outdoor activities
- … setting priorities and propose actions
- … complete all actions of highest priority before 2015

Barrier questions …

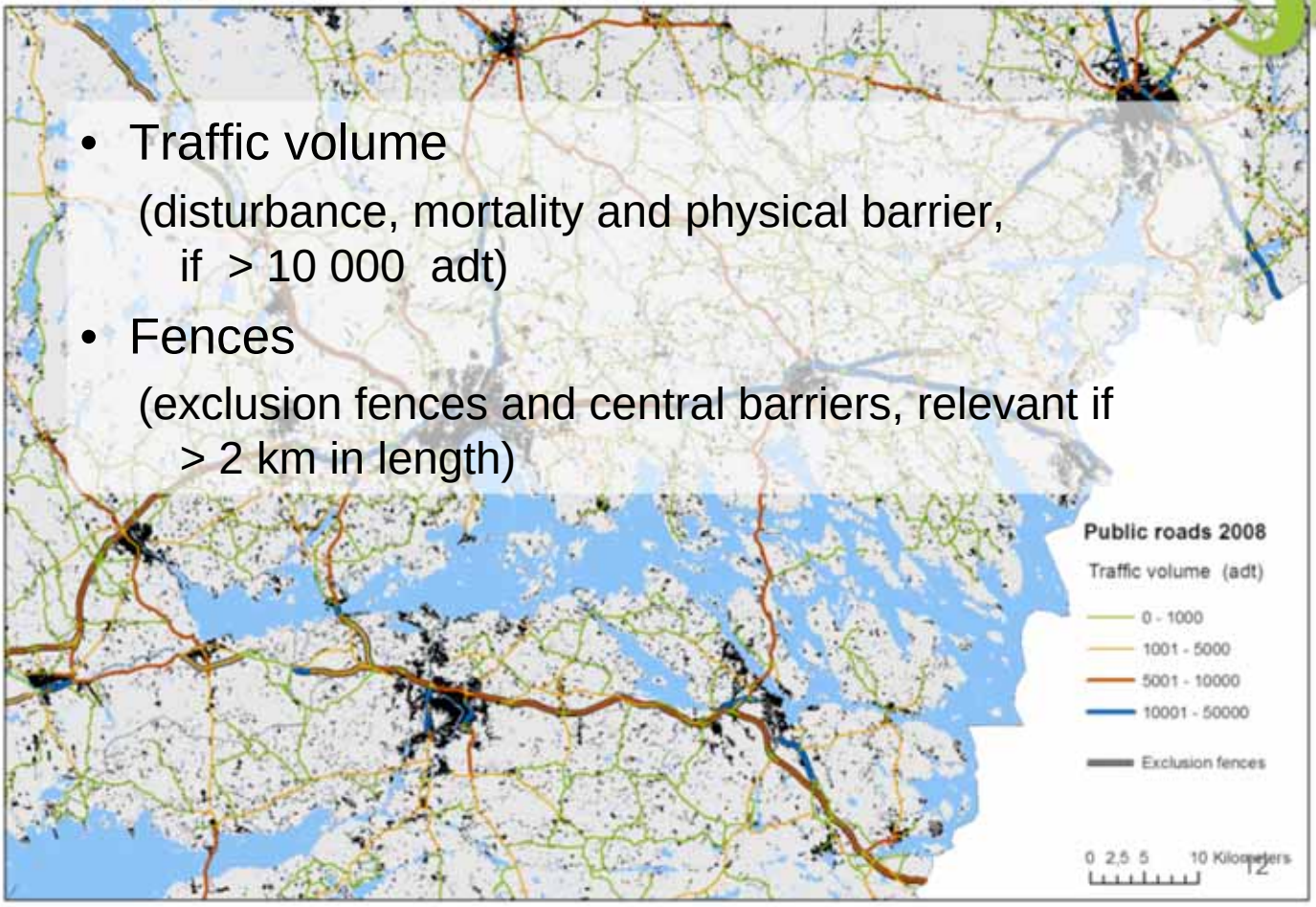
- What are the relevant factors contributing to the barrier effect on wildlife (moose)?
- How can we map the resulting barrier pressure?
- What counteractive measures do already exist?
- How can we set priorities for mitigation?



Pilot study: Region Mälardalen



Traffic flow + Fence 2008



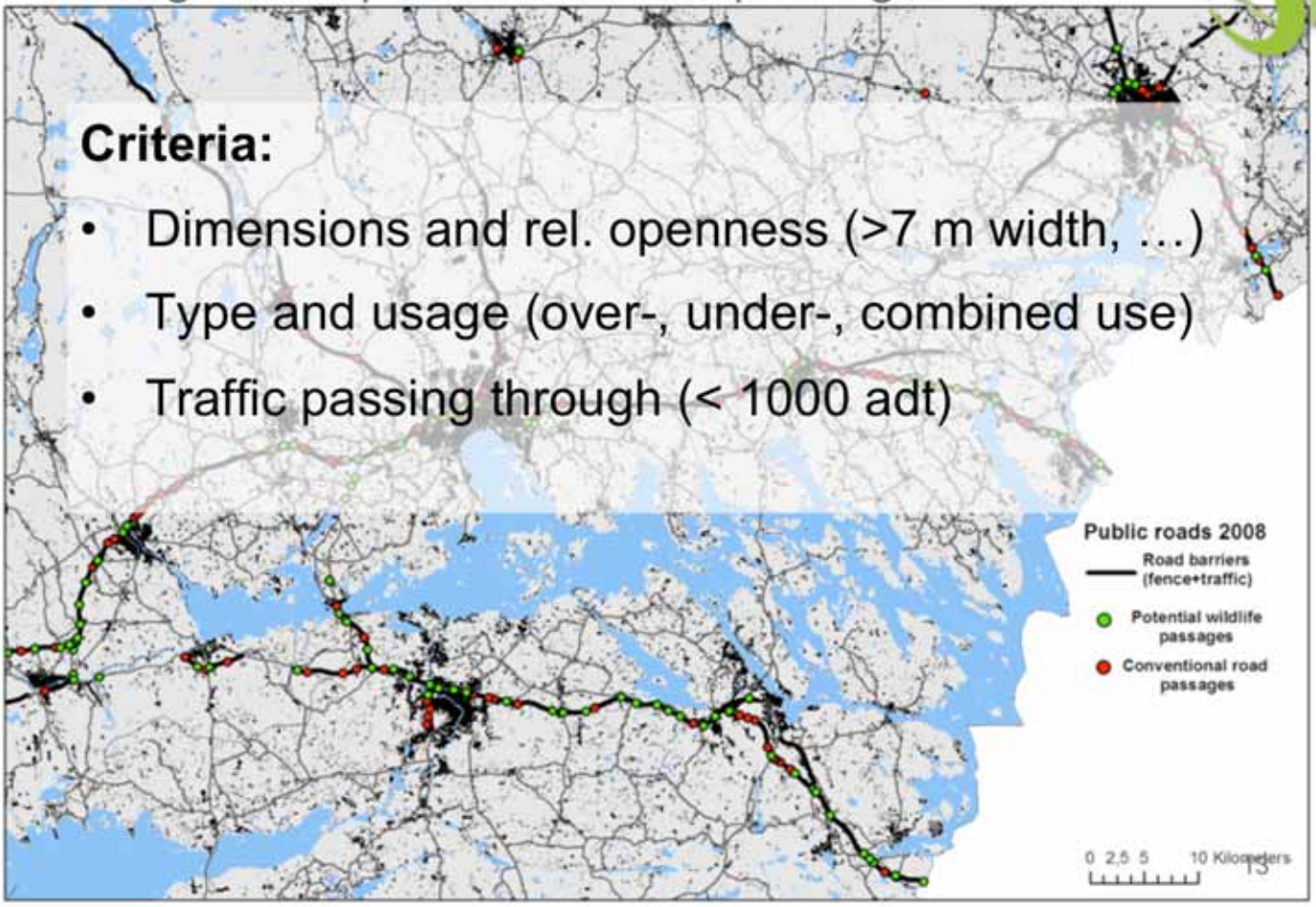
- Traffic volume

  (disturbance, mortality and physical barrier, if > 10 000 adt)

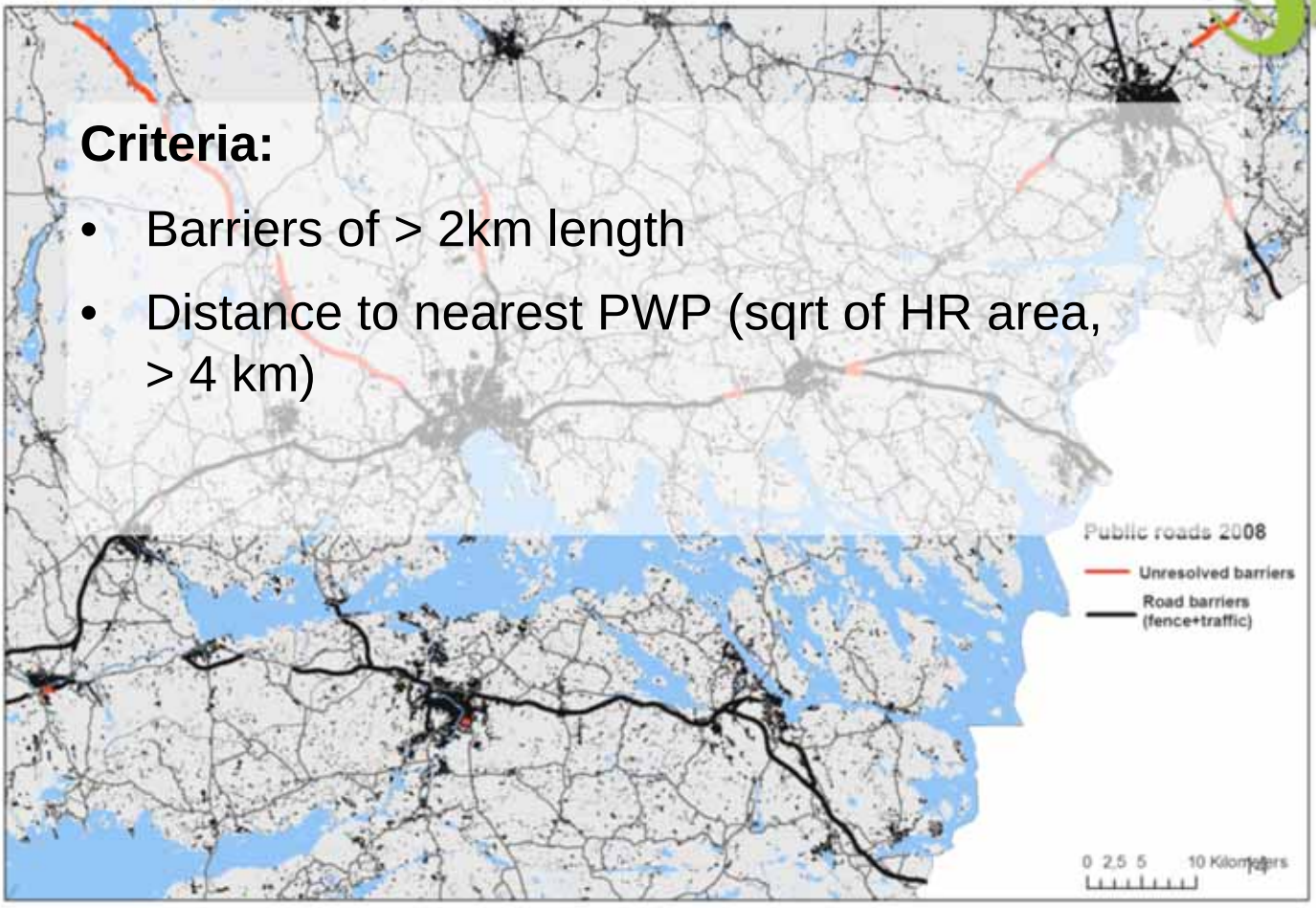
- Fences

  (exclusion fences and central barriers, relevant if > 2 km in length)

Bridges and potential wildlife passages



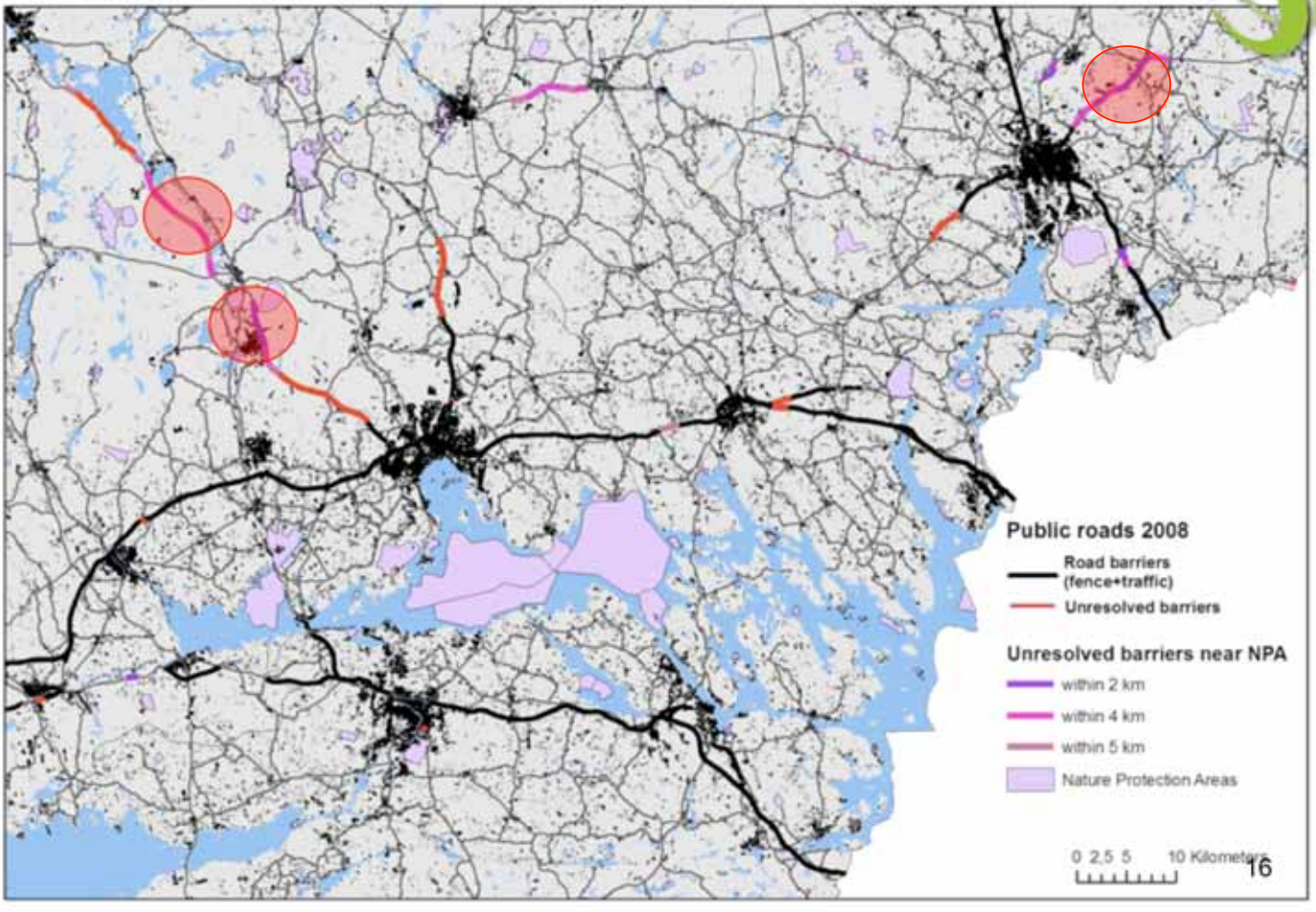
Unresolved barriers 2008



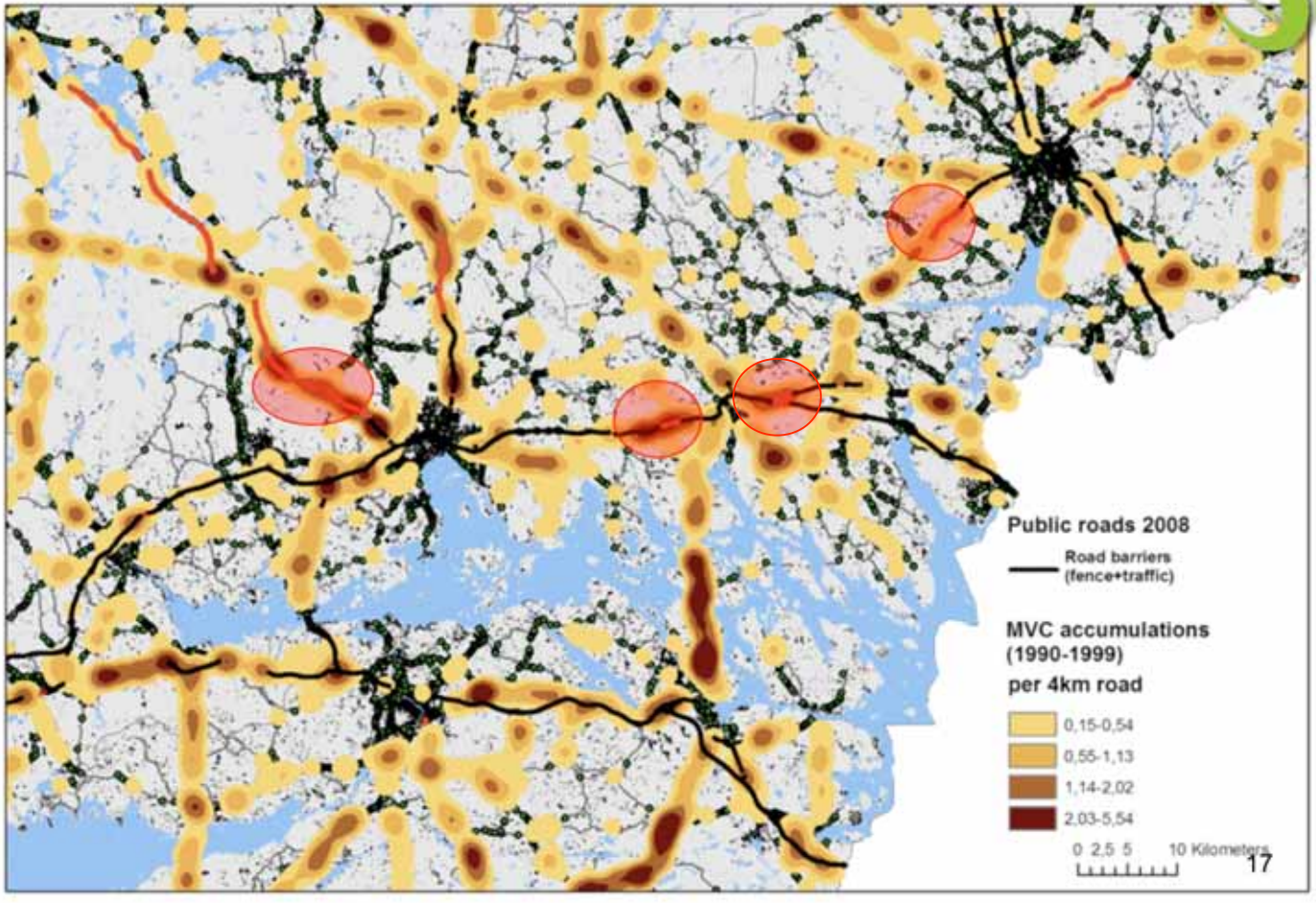
Setting priorities …

1. Vicinity to nature protection areas
2. Hotspots in animal-vehicle collisions
3. Landscape fragmentation
4. Habitat pattern and animal movements
5. Ecological (regional) networks
6. Traffic trends and future development
7. Practical considerations
8. Expert judgments (combined)

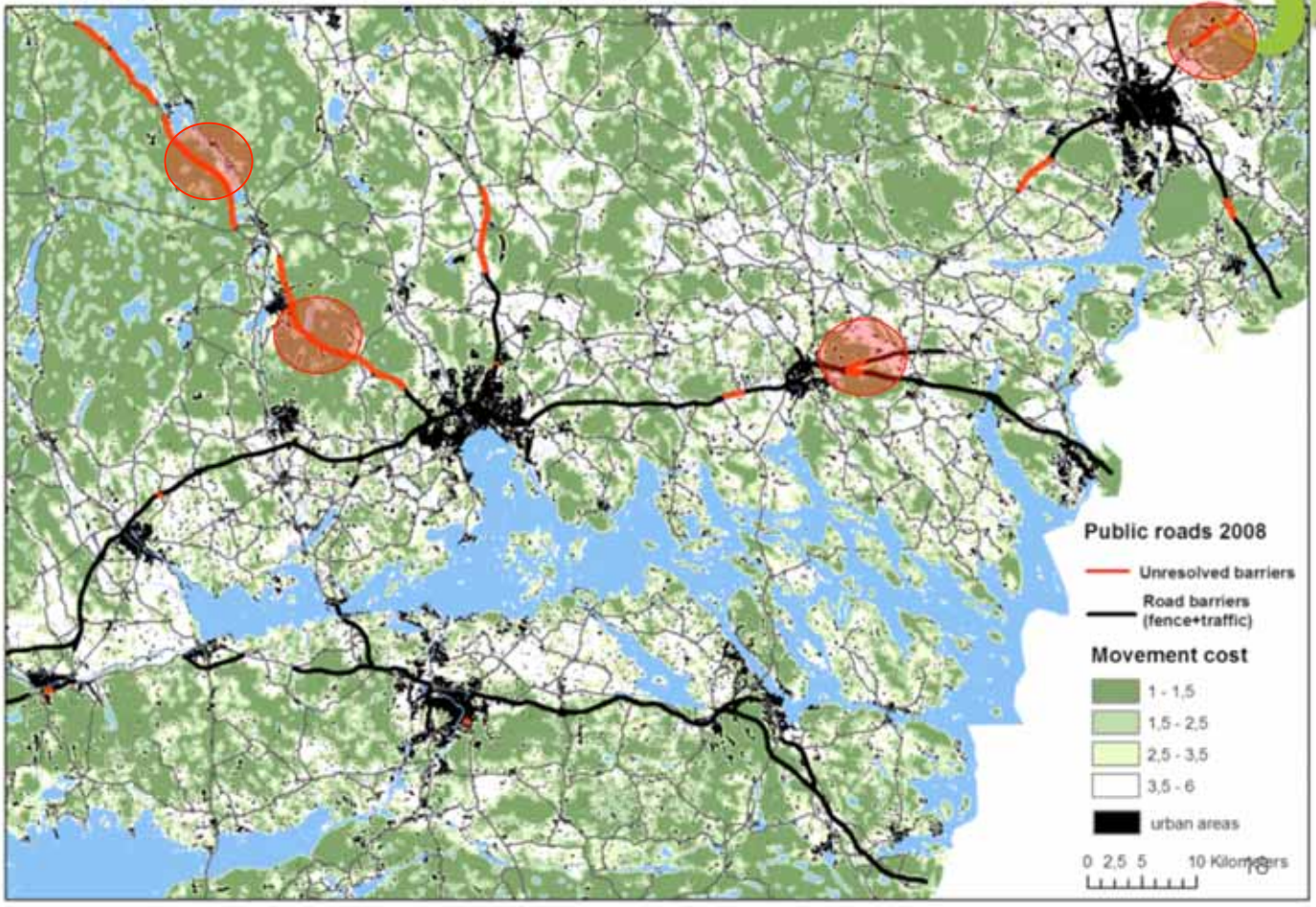
Vicinity to nature protection areas



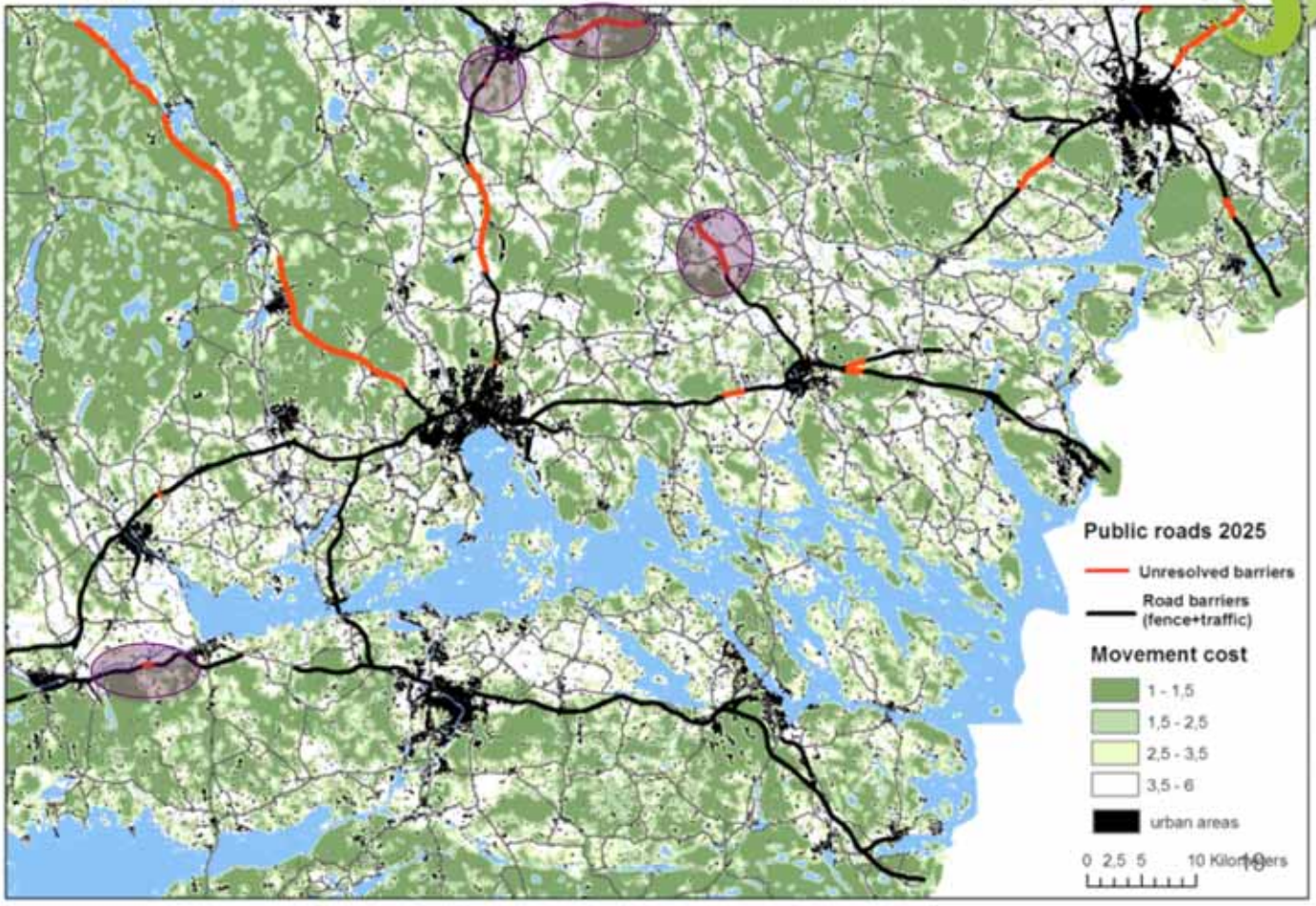
Hotspots in moose-vehicle collisions 1990-1999



Habitat suitability – movement costs



Unresolved barriers 2025 (2% traffic increase per year)



Ongoing work …

- Sensitivity testing of parameters
- Different focal species profiles
- Scenarios for future transport and landscape development
- Developing ecological corridors for prioritization of mitigation efforts

Lessons learned …

- Improvement needed in the geographical databases of roads, traffic and accidents with wildlife
- Future development must be taken into account (landscape dynamics, traffic, infrastructure, land use, …)
- Clear objectives for the desired state of the road network (degree of tolerable barrier) must be set a priori
- Prioritization process must involve local expertise

What can be done

- Joined responsibilities: transport sector, environmental sector, county boards and public
- International cooperation and knowledge exchange on mitigation
- Nordic transport and environmental cooperation
- Pan European Ecological Networks
- IENE

www.IENE.info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