



Holistic approach to **river restoration** in Northern Sweden

From the smallest microscopic **microscapania**...

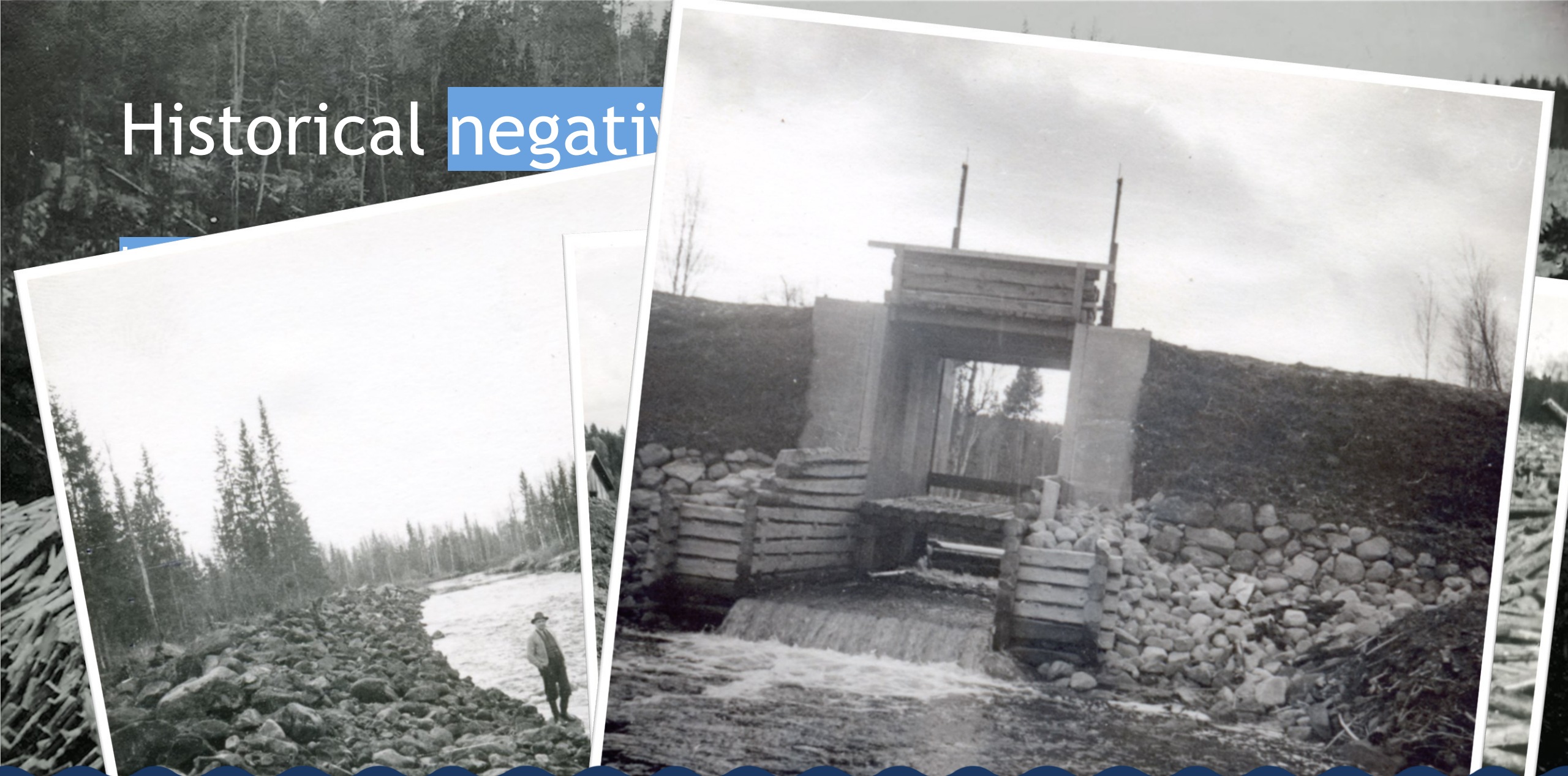


...to the mammal, **human**



"Everyone's joining"

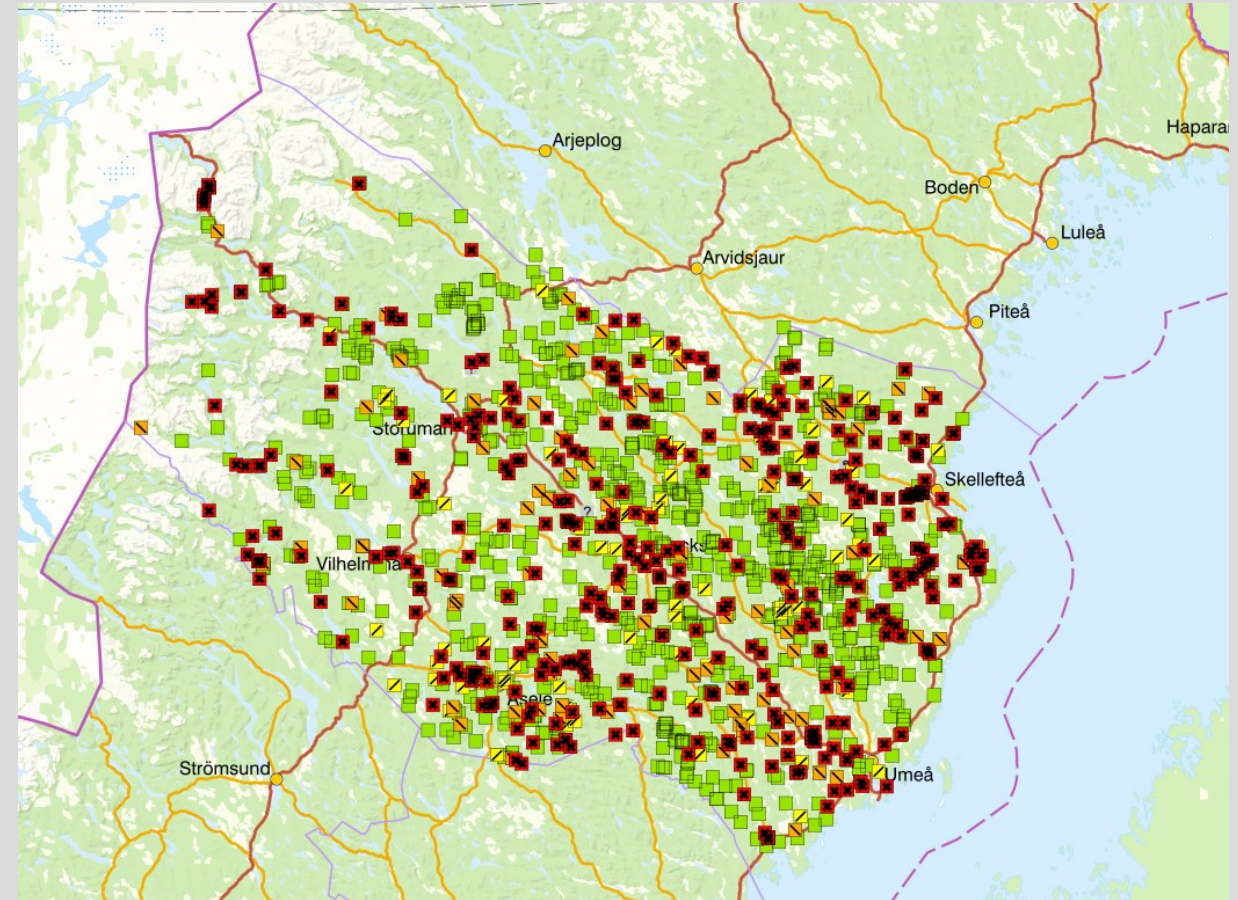
Historical **negativ**



Historical **negative** effects

Expansion of roads + road culverts

1 out of 3 are **migration obstacles**



Microscapania - (Sc)



Problems

- Substrate (large, old wooden debris) eradicated
- Lateral connectivity disappeared

Measures

- Recreating habitats, piles w suitable
- Restoring lateral connectivity
- Relocation of gemmae



Noble crayfish - (*Astacus*)



Problems

- Implantation of Signal crayfish
- Crayfish plague (*Aphanomyces*)

Measures

- Prevent spread - information



Freshwater pearl mussel (*Margaritifera margaritifera*)

Problems

- Bulldozer era (log rafting clearing)
- Eradicated habitats
- Deficiency of host fish (migration)

Measures

- Removal of migration obstacles
- Restore habitats
- eDNA sampling
- Population genetic analysis



Atlantic salmon (*Salmo salar*)



Measure: Restoring habitats



Measure: Removal of migration barriers





Otter passage



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Human (*Homo sapiens*)

- Problems
 - The ones who exploit and overuse natural resources
 - → Loss of ecosystem services
- Measures
 - Knowledge building
 - Children - important - next generation leaders

Thank you



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Credits

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Picture of Microscapania:

Henrik Weibull

Picture of Atlantic salmon:

Jörgen Wiklund

Picture of Otter:

Erling Stenmark

Picture of children:

Anders Sundin

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