

Wetland conservation in Sweden

Michael Löfroth, Ministry of the Environment

Presentation Vadsø 2-3 October 2019

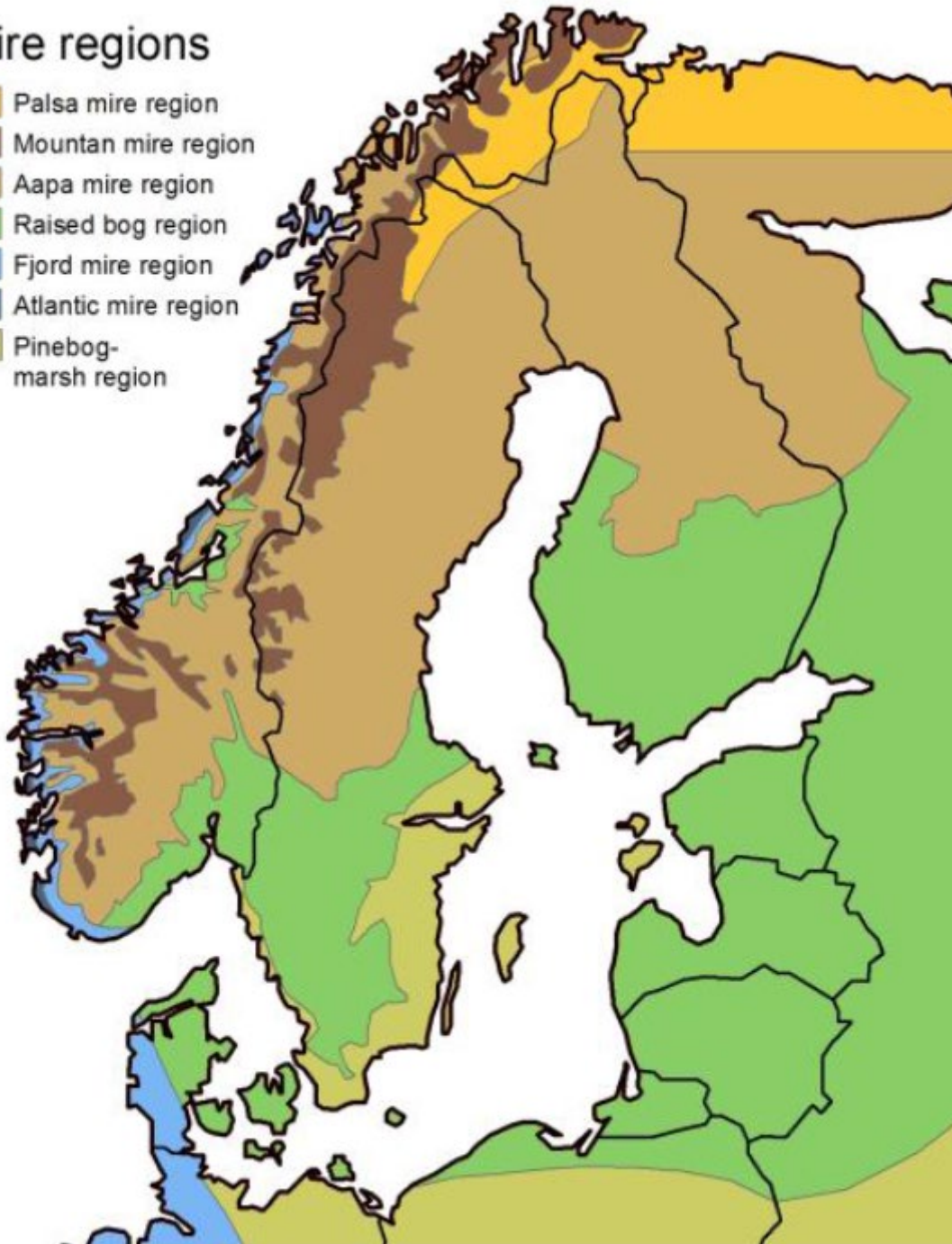
Mires and wetlands in the North Calotte Area



Vadsö 1/10 2019

Mire regions

- Palsa mire region
- Mountain mire region
- Aapa mire region
- Raised bog region
- Fjord mire region
- Atlantic mire region
- Pinebog-marsh region



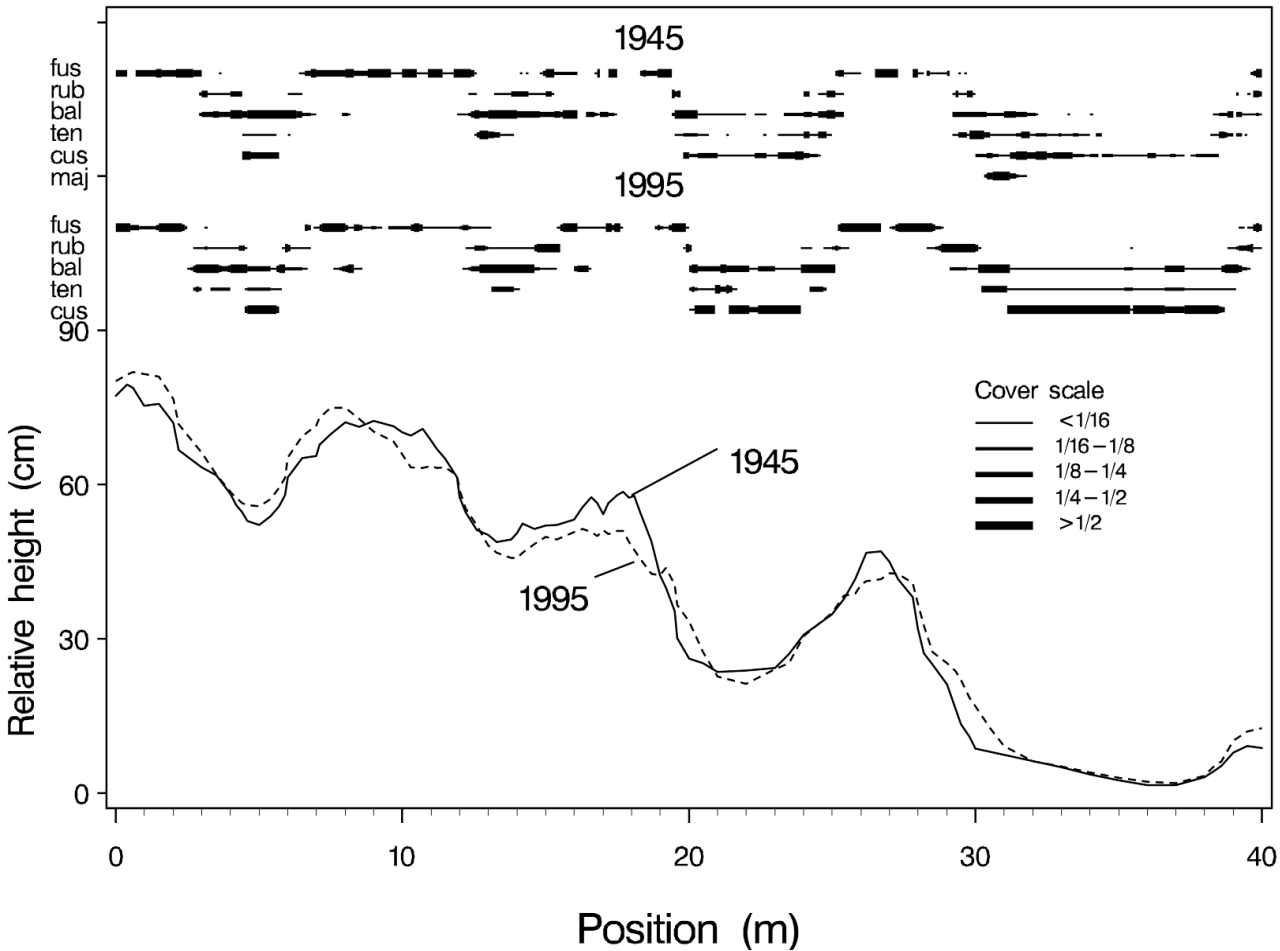
Sweden

Total wetland area: 9,3 M ha

Total peatland area: 6,5 M ha

Monitoring vegetation changes on Skattlösbergs Stormosse

A 40 m transect 1945 (Sjörs) and 1995 (Gunnarsson)



Ecosystem services from wetlands

- **Climate:** Carbon storage. Drained peatlands in Sweden causes GHG emissions at a total of more 11,4 million ton CO₂ ekv (1/5 of total SE emissions).
- **Eutrophication:** CAP support for wetland restoration reduces transport of P to the sea with 18 ton yearly and N with 170 ton yearly.
- **Biodiversity:** 800 redlisted species in wetlands.
- **Water maintenance in the landscape:** wetlands stores and balances water in the landscape, buffer floodings and supports groundwater.

Sphagnum mires of the world

- Total area $3.5 \times 10^6 \text{ km}^2$
- Peat depth average about 2 m
- Maximum peat depth about 10 m
- Carbon storage 300-400 Gt
- Atmospheric carbon 750 Gt

efter Håkan Rydin

Drainage destroys numerous ecosystem services



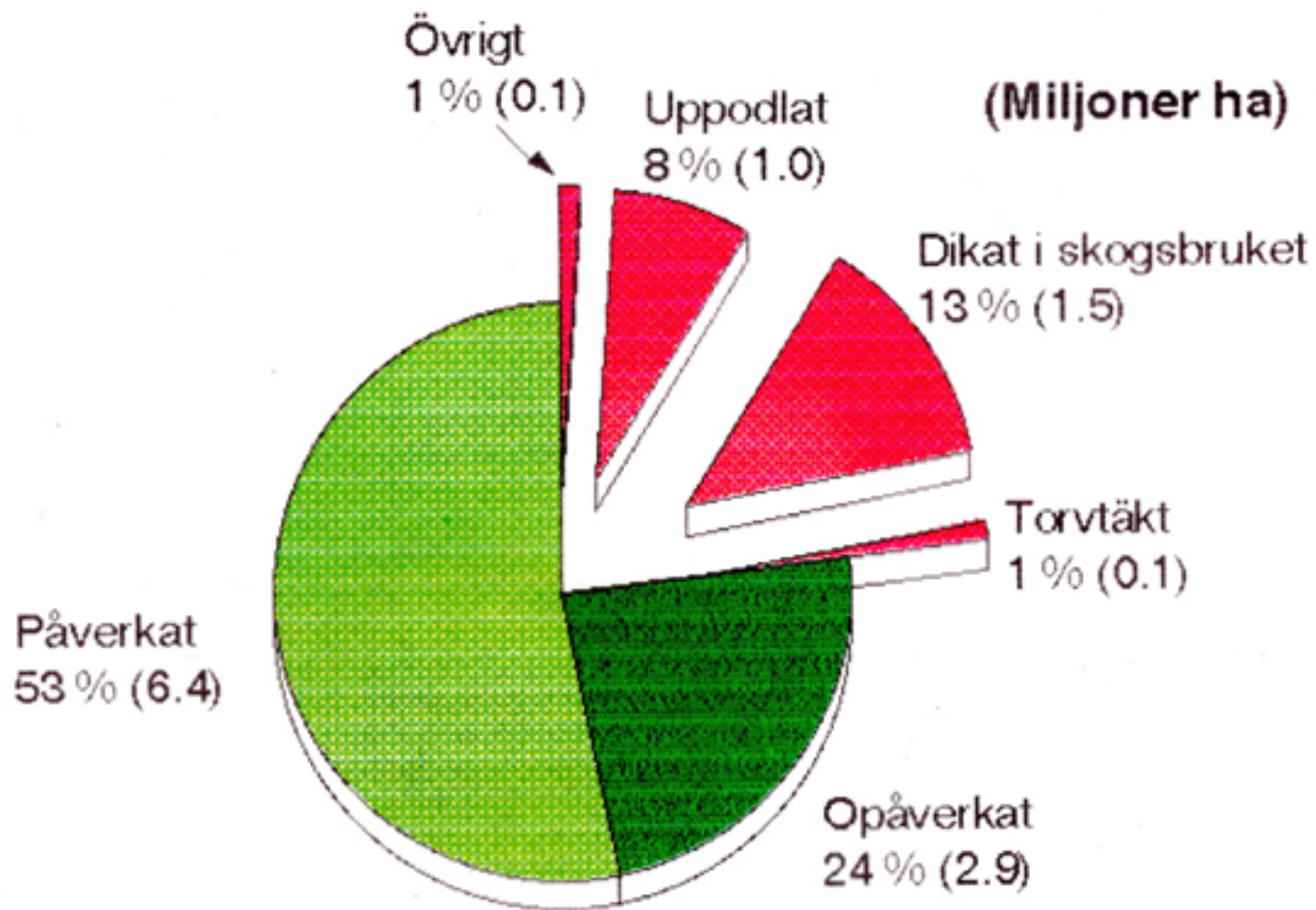
Tracs from terrain-wehicles





Forrestry roads affecting wetlands

PÅVERKAN PÅ SVENSKA VÅTMARKER



Climate change

- **Will hydrology change in parts of the landscape?**
- **Will drainage for land use and urban areas increase due to higher precipitation?**
- **Will drought exceed in areas that already have water scarcity**
- **Will the time wetlands are frozen decrease and more carbon released or captured?**
- **Will palsa mires and other mire types change?**

Wetlands –one of Swedens environmental goals

Specifications:

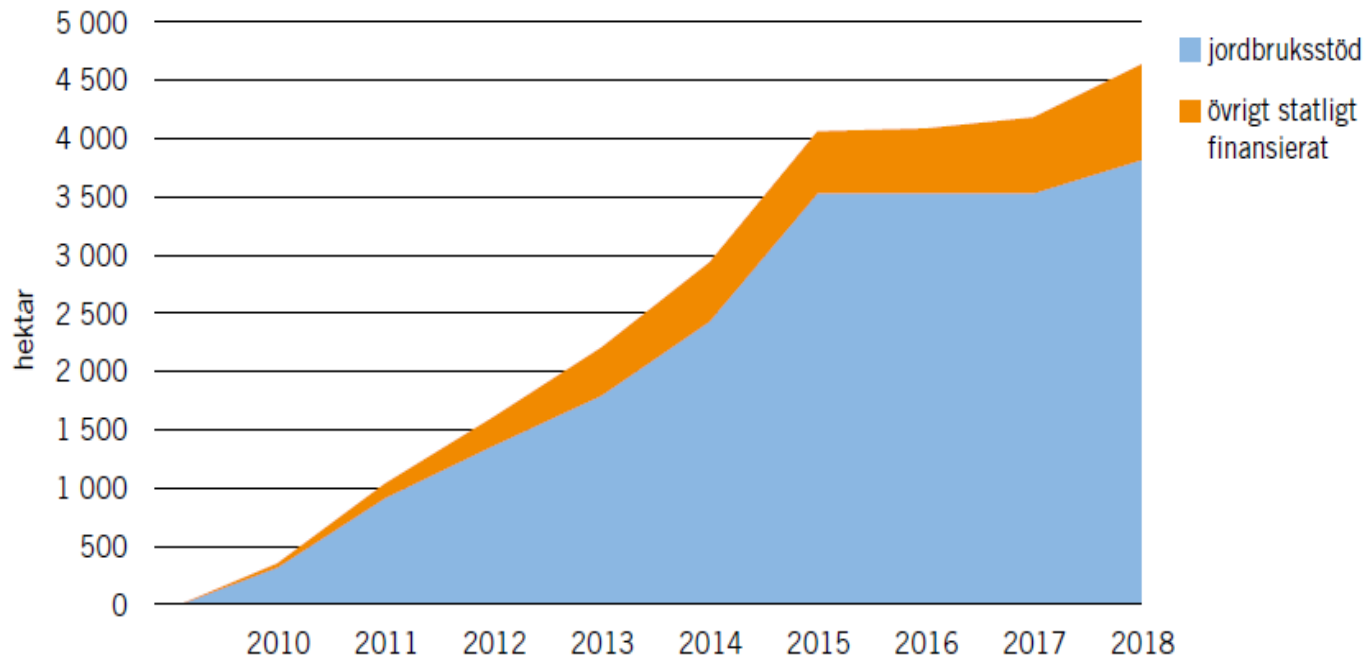
- Conservation of nature- and cultural values
- Wetland distribution
- Ecosystem services
- Restoring (constructing) wetlands
- Favourable Conservation Status
- Recreation
- Species connectivity
- Genetical variation
- Threatened species and habitats
- Invasive ailians species and GMO

What does the government do for the wetlands?

- The Swedish Mire Protection plan
- EU: Natura 2000
- CBD, Ramsar-convention, Climate-work
- Arctic Wetland Initiative
- Green infrastructure
- IAS-work (i.e. racoon dog, some plants)
- Regulations for terrain-vehicles are being overlooked

Total restored wetland area in Sweden 2010-2018

Figur 11.2 Anlagda eller restaurerade våtmarker



Figuren visar sammanlagd areal anlagd och restaurerad våtmark för perioden 2010–2018. Totalt har cirka 4 500 hektar våtmark återställt. Den största delen av arbetet har finansierats via Landsbygdsprogrammet.

Källa: Naturvårdsverket, indikatoruppföljning 2019.

The Swedish governments special wetlands campaign 2018-2020

2018

- Local municipality projects (goal: 740 ha) 167 MSEK
- County administration boards projects (goal: 2500 ha) 36 MSEK
- Informations, meetings, webinars, courses, investigations

2019

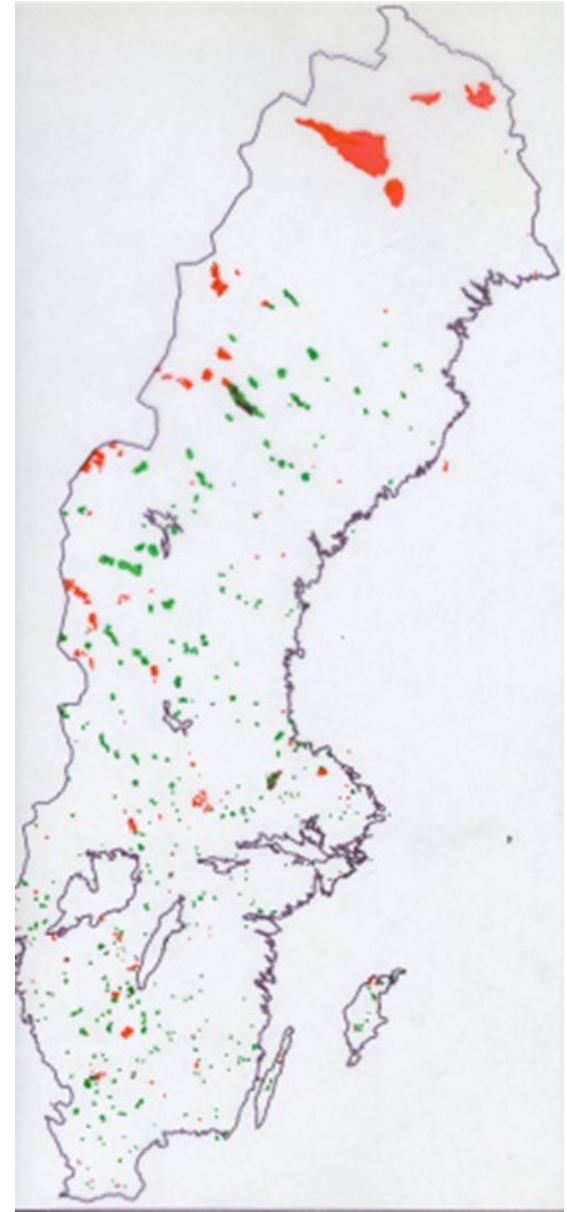
- Over 100 applications
- Budget cut and partly restored

2020

- Budget for 2020 depending on if the parliament accepts the governments budget proposal

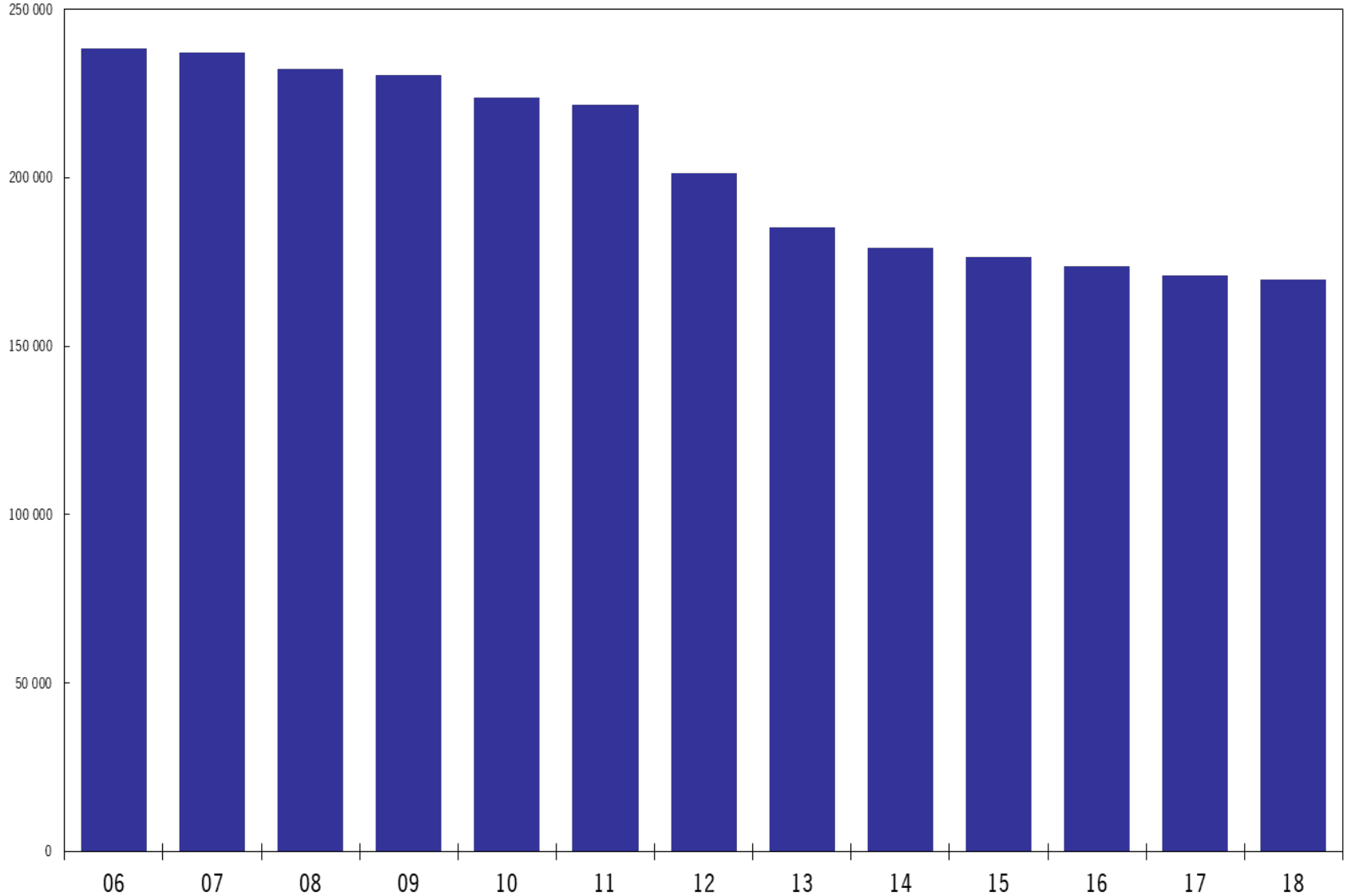
Swedish mire protection plan 1994

- Norrbotten and fjällen missing
- Presents the 491 most valuable mires in the country except Norrbotten and alpine mires (for completion later)
- Covers 6% av the country:s mires
- 345 needing protection



The Swedish Mire Protection Plan

Remaining area to protecte 170 000 ha (out of totally 550 000)



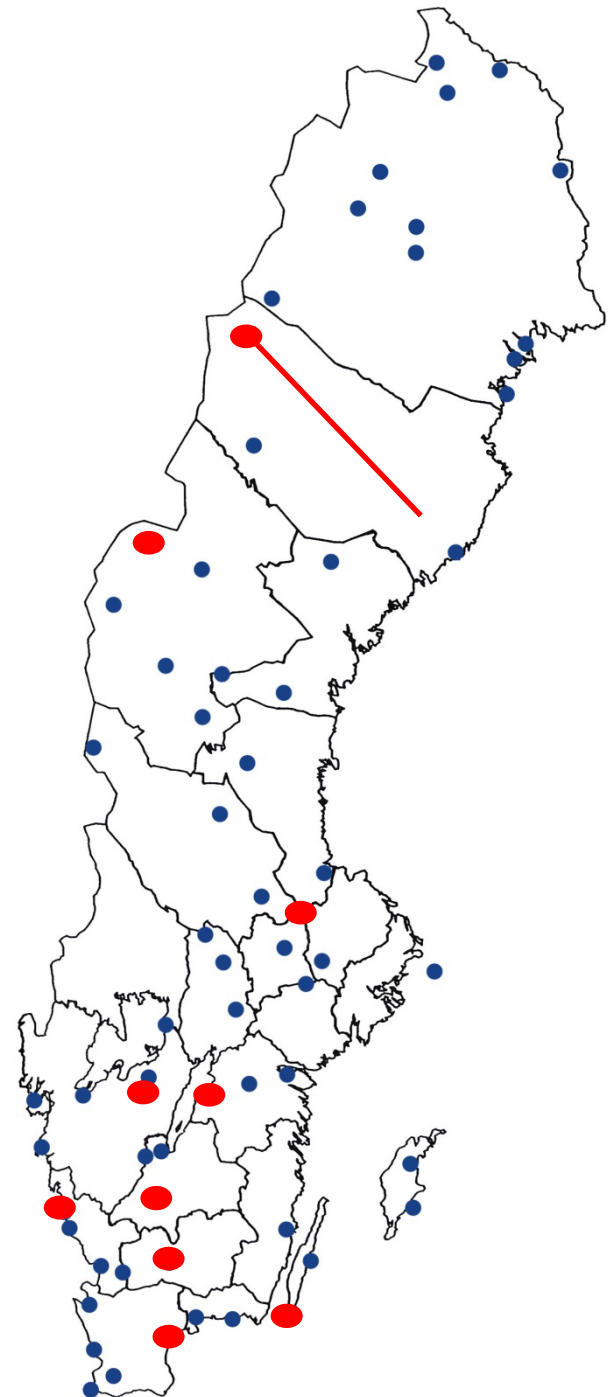
Ramsar

Ramsar sites in Sweden

66 sites

646 000 hectares

Nordic Baltic Wetlands Initiative
Projects on Mires and climate

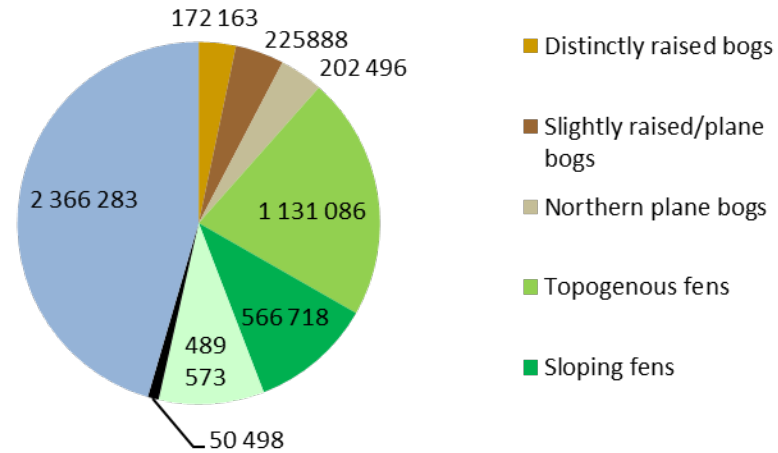


VMI - The Swedish wetland survey

- The survey took place 1981-2005
- The whole of Sweden except the alpine zone (Nordic Council)
- Included all wetlands larger than regional minimum size limit
- 35 000 sites and about 12 000 of them visited in the field.
- 3.4 millions hectares of wetland surveyed

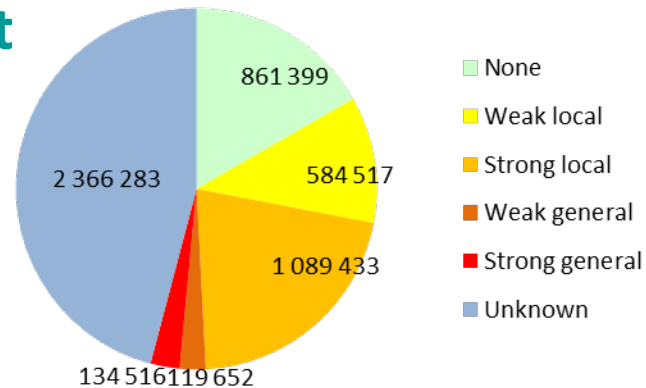
VMI – Mire types

Total mire area 5.1 million ha, or 12,7% of total land area



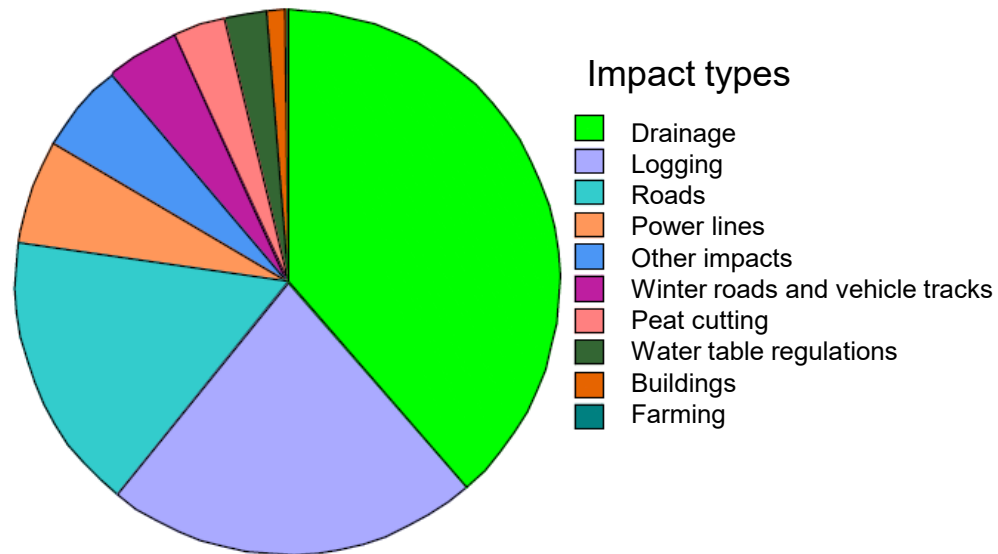
VMI – Human impact

What the degree of human impact is for the sub-site. Sub-site with local impact also include large areas with no impact.



Pressure – Human impact in VMI

- Assessment of the survey show 89000 registered impacts



Gunnarsson and Löfroth, 2009. Våtmarksinventeringen – resultat från 25 års inventeringar. www.naturvardsverket.se/978-91-620-5925-5

Gunnarsson and Löfroth, 2014. The Swedish Wetland Survey – compiled excerpts from the national final report. www.naturvardsverket.se/978-91-620-6618-5

Arctic Wetland Initiative (SE GOV)

Policy recommendations on wetland management

*Climate change *Biodiversity *Indigenous peoples

Project about Arctic wetlands within the Arctic Council /CAFF

- Identify knowledge-base: inventories, land-use, damage, indigenous peoples use
- Produce case-studies –good examples of different restoration/management measures in different regions, with different stakeholders
- Produce maps of wetland distribution, status, threats, landuse in the Arctic
- Produce policy recommendations for different regions within the Arctic

Draft Ramsar resolution on wetland in polar and subpolar areas

- Under preparation for Ramsar COP October 2018
- Input can be sent to jenny.lonnstad@naturvardsverket.se



Life to addmire

A presentation in how we restored 40.000 hectares of mires and rich fens

Budget: 6.8 milion Euros

2010-2015

Skåne, Kronoberg, Östergötland, Jönköping, Dalarna, Västernorrland and Jämtland Counties

Life to ad(d)mire – restoration of mires

- Restoration of 35 Mire sites, with high conservation values
- Effects 2435 hectares
- Different techniques depending on the conditions of the site
- (Raising water level/ lowering ground level.)



**Thanks to Lisa Tenning and Jenny
Lonnstad for letting me use some of
their powerpoint-pages**

Thank you for listening! /Micke

Swedish publications in English

The Swedish Wetland Survey

<http://www.naturvardsverket.se/Documents/publikationer6400/978-91-620-6618-5.pdf?pid=13166>

Restoration project Life to Ad(d)mire

<http://www.lansstyrelsen.se/Jamtland/Sv/djur-och-natur/skyddad-natur/life-projekt/life-to-addmire/Pages/default.aspx>

Continue to "Final seminar" and "In English"