



# Kunnskapsbehov

Torkild Tveraa



# Omstridte konklusjoner ?



Sami herder Per Anders Eira wrangles a reindeer calf in northern Norway.

## ECOLOGY

### What's killing the reindeer?

Conservationists and herders in Norway differ about whether to blame predators or overpopulation

By Eli Kintisch, in Nordkapp, Norway

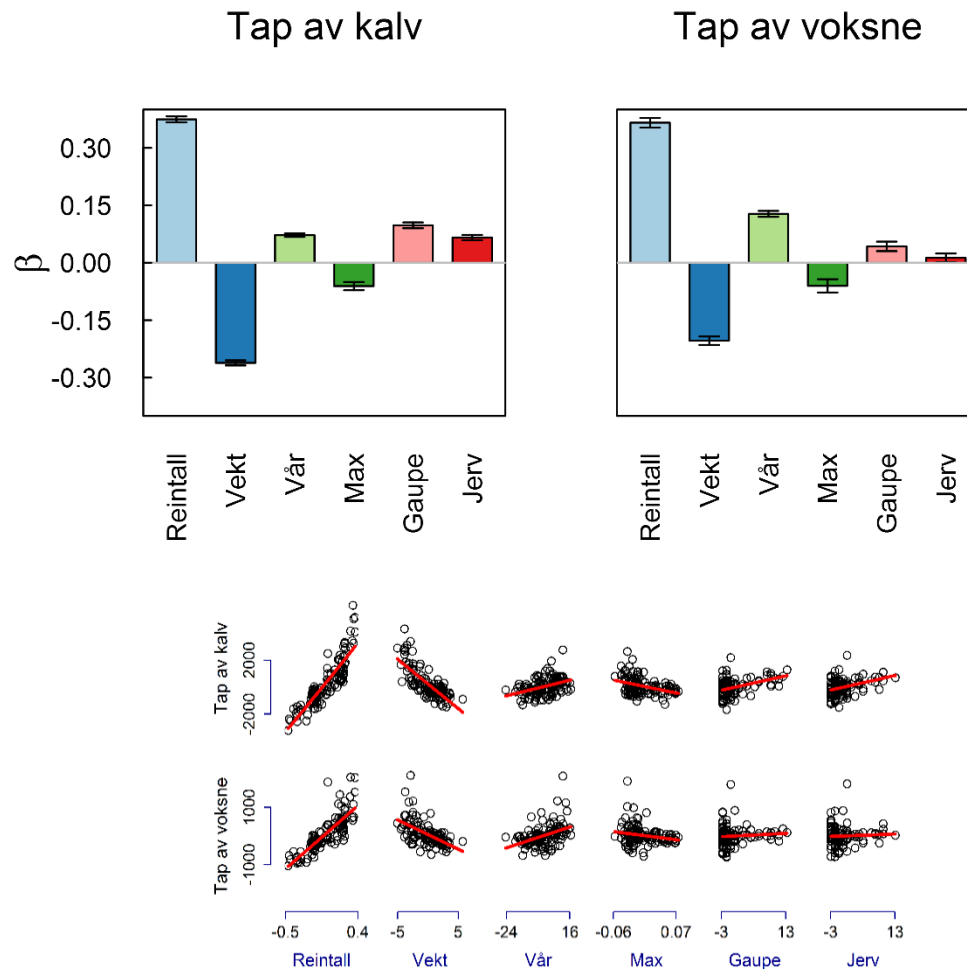
**A**n ecologist's study of reindeer has touched off a firestorm in this land of ice, tundra, and Sami herders, who tend vast numbers of the semi-domesticated animals. Each year, the herders file compensation claims for tens of thousands of reindeer deaths that they blame on carnivores, primarily lynx and wolverines. Ecologist Torkild Tveraa, however, pins the blame on overpopulation: The land simply cannot support the herds, which number roughly 180,000 here in Finnmark, Norway's most northern region.

Tveraa, who is with the Norwegian Institute for Nature Research in Tromsø, first presented his case in a government-funded report last year, and he added new analysis in a study published in the October issue of

conservationists and herders in Norway differ about whether to blame predators or overpopulation

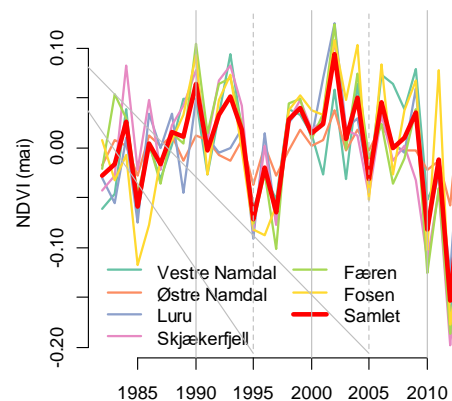
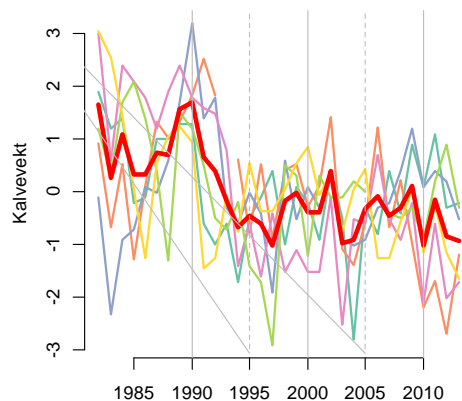
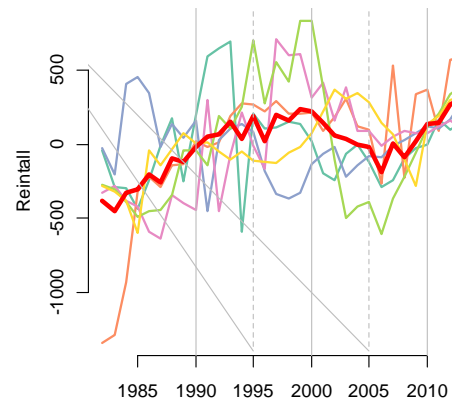
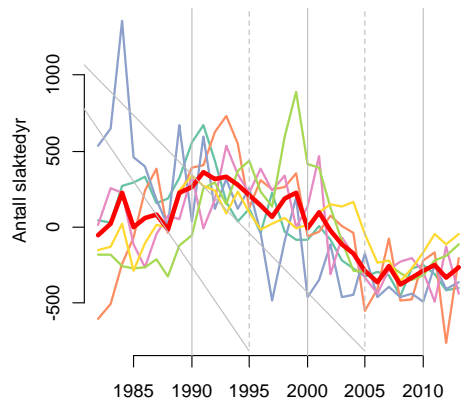
vations of lynx and wolverines, and satellite data on grazing areas. They found that as a factor in reindeer mortality, food scarcity was two to three times more significant than lynx, and more than 20 times more significant than wolverines. "Tveraa has a very solid basis for these findings—a very large data set collected over a very long time series," says Terje Bø, head of wildlife management in the Norwegian government's environment division in Trondheim. In the global canon of human-carnivore conflict research, Tveraa's "robust" study, says Matt Hayward, an ecologist at Bangor University in the United Kingdom, "goes against the grain of papers saying, 'It's the predators' fault.'" Other experts agree that the findings are plausible. "It's sort of official: We have too many reindeer," says Emil Halvorsrud, a wildlife official in Lak-

# Nasjonalt: Matmangel viktigst for tap

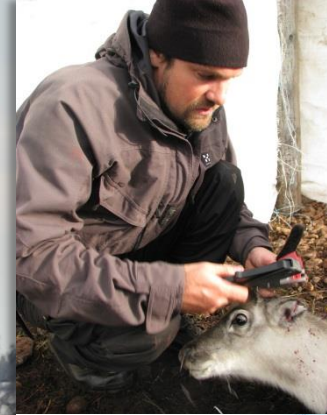
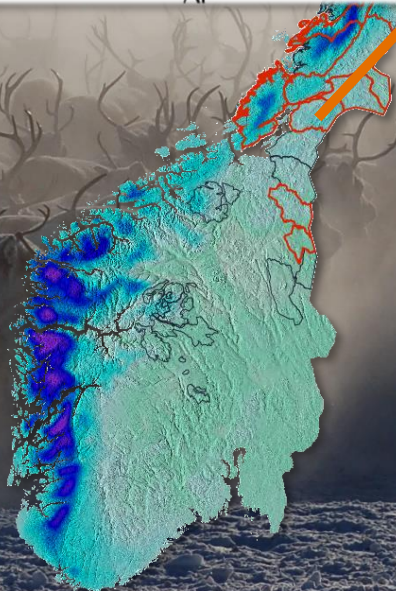
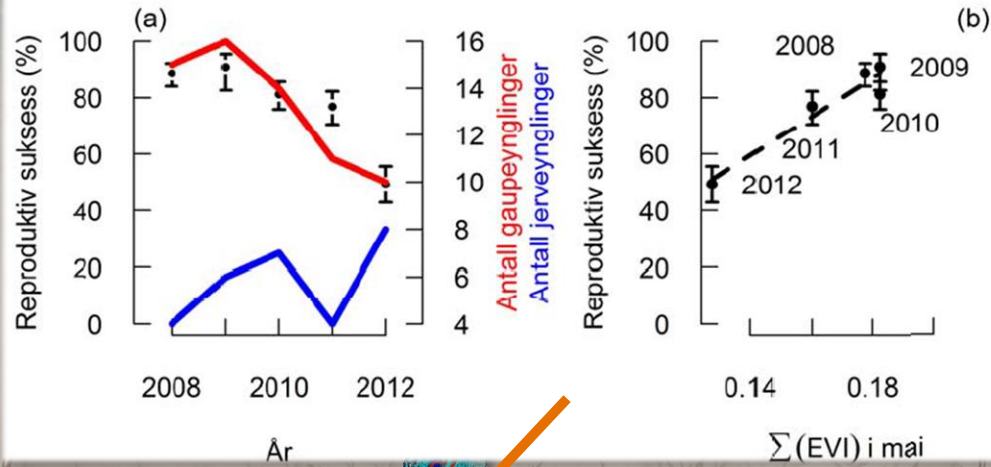




# Nord-Trøndelag:



# Skjækerfjella





# Veien videre

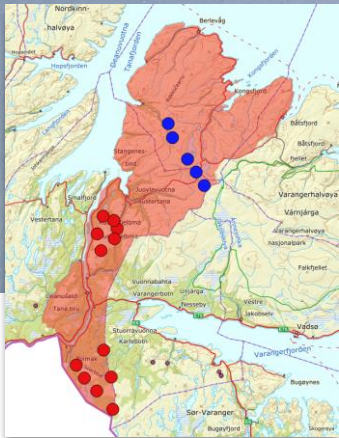
- [www.reinbase.no](http://www.reinbase.no)
- Studier i eksempelflokker
  - ▶ Fungere som 'pilot-flokker'
  - ▶ Fokus på blant annet tap til kongeørn
  - ▶ Tett samarbeid med næringen



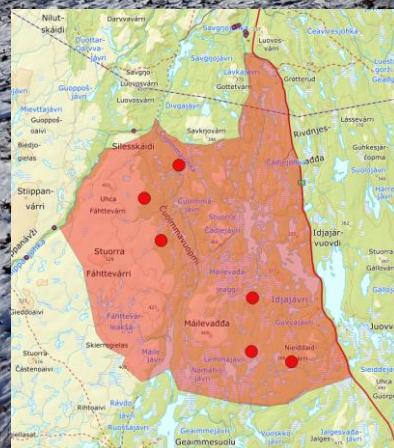
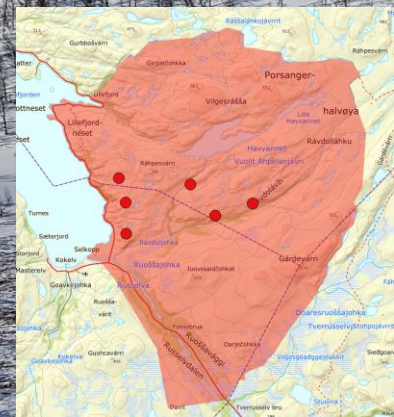
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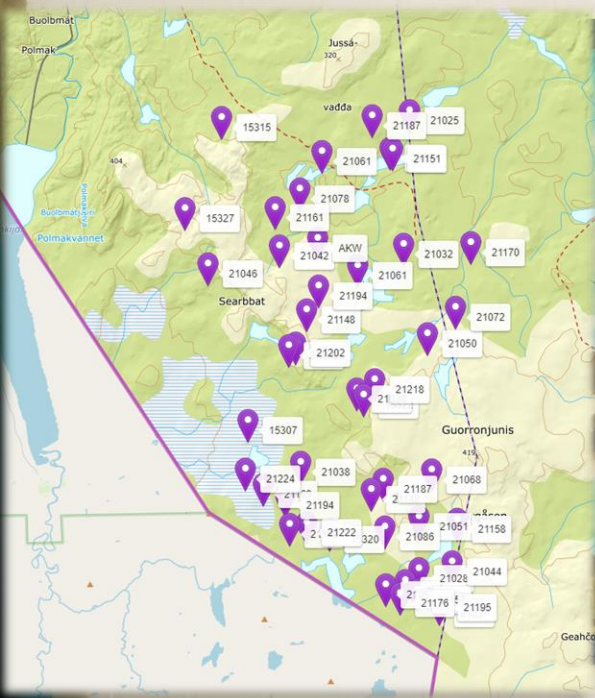














# 24 mil ny vei skjærer gjennom vill natur

Her skal Europas største landbaserte vindkraftanlegg stå ferdig i 2020. Da vil anleggsveier tilsvarende halve strekningen mellom Trondheim og Oslo gå på kryss og tvers i det som tidligere var vill natur.



**Ingrid Lindgaard Stranden**  
Journalist

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Geitfjellet vindpark i Snillfjord er ett av seks anlegg selskapet Fosen Vind bygger i Trøndelag. Her lages det 42 kilometer vei. Prosjektet er det største i Europa.

FOTO: OLE MARTIN WOLD / OLE MARTIN WOLD

Polar Biol (2017) 40:477–482  
DOI 10.1007/s00300-016-1960-8

SHORT NOTE

Wildlife response to infrastructure: the problem with confounding factors

Jonathan E. Colman<sup>1,2</sup> · Tine Bergmo<sup>1</sup> · Driess Tsegaye<sup>1,2</sup> · Kjetil Flydal<sup>1</sup> · Sindre Eftestøl<sup>1,2</sup> · Marte S. Lilleeng<sup>1,3</sup> · Stein R. Moe<sup>1</sup>

[www.nina.no](http://www.nina.no)

**Journal of Animal Ecology**



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doi: 10.1111/1365-2656.12275

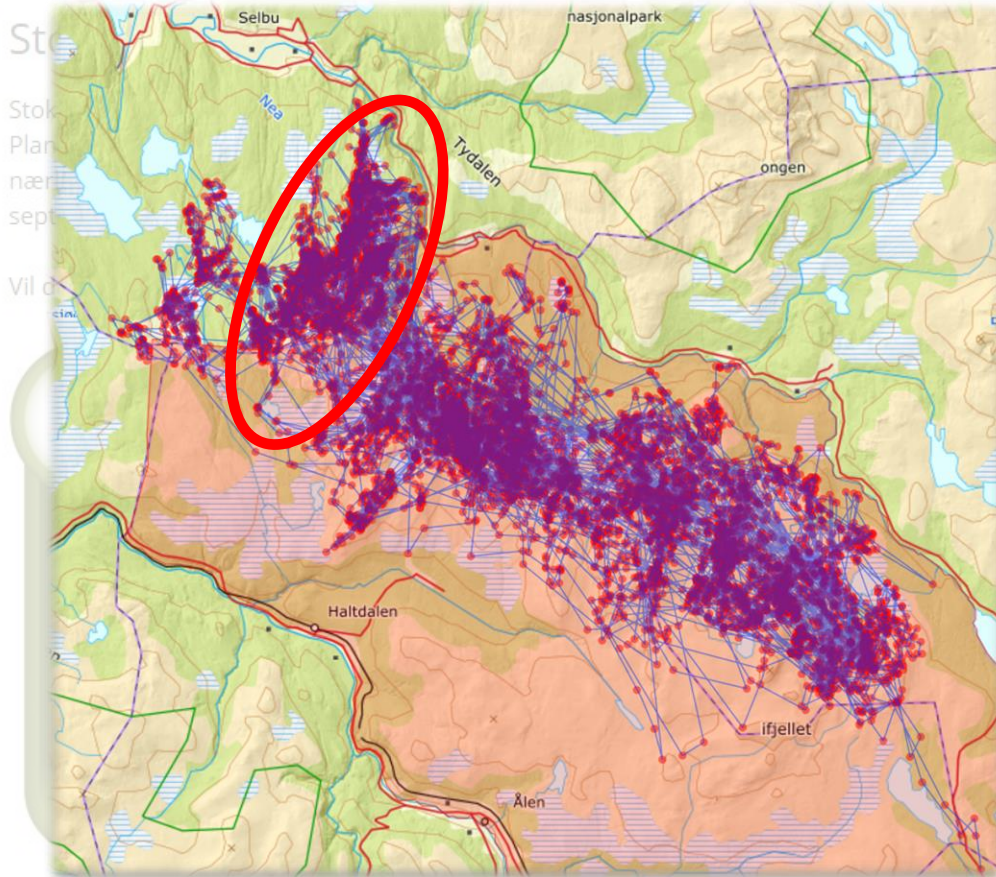
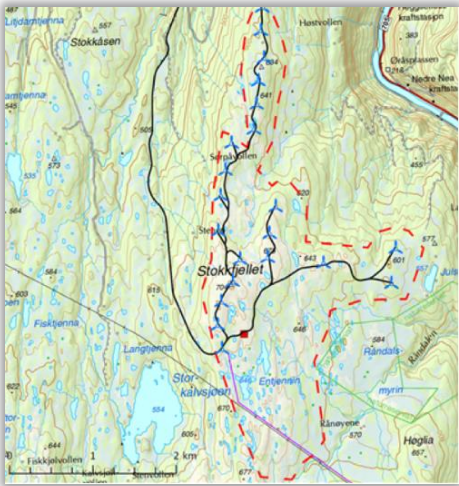
**SPECIAL FEATURE: STUCK IN MOTION? RECONNECTING QUESTIONS AND TOOLS IN MOVEMENT ECOLOGY**

**'You shall not pass!': quantifying barrier permeability and proximity avoidance by animals**

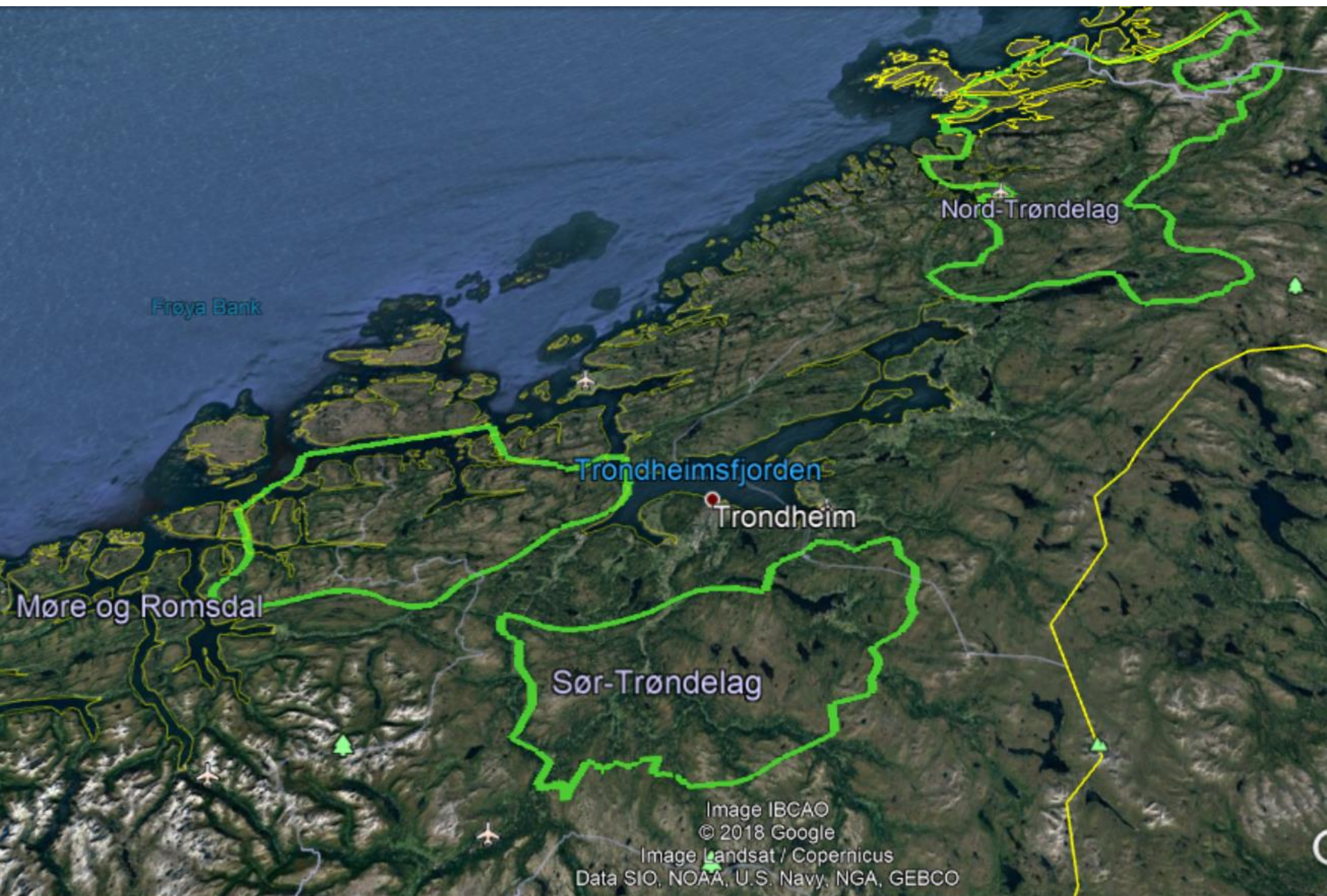
Hawthorne L. Beyer<sup>1\*</sup>, Eliezer Gurarie<sup>2,3</sup>, Luca Börger<sup>4</sup>, Manuela Panzacchi<sup>5</sup>, Mathieu Basille<sup>6</sup>, Ivar Herfindal<sup>7</sup>, Bram Van Moorter<sup>5</sup>, Subhash R. Lele<sup>8</sup> and Jason Matthiopoulos<sup>9</sup>



- Vindkraft
- Sørmarkfjellet
- Stokkfjellet
- Frøya
- Hundhammerfjellet
- Ny vindkraft







Froya Bank

Nord-Trøndelag

Trondheimsfjorden

Trondheim

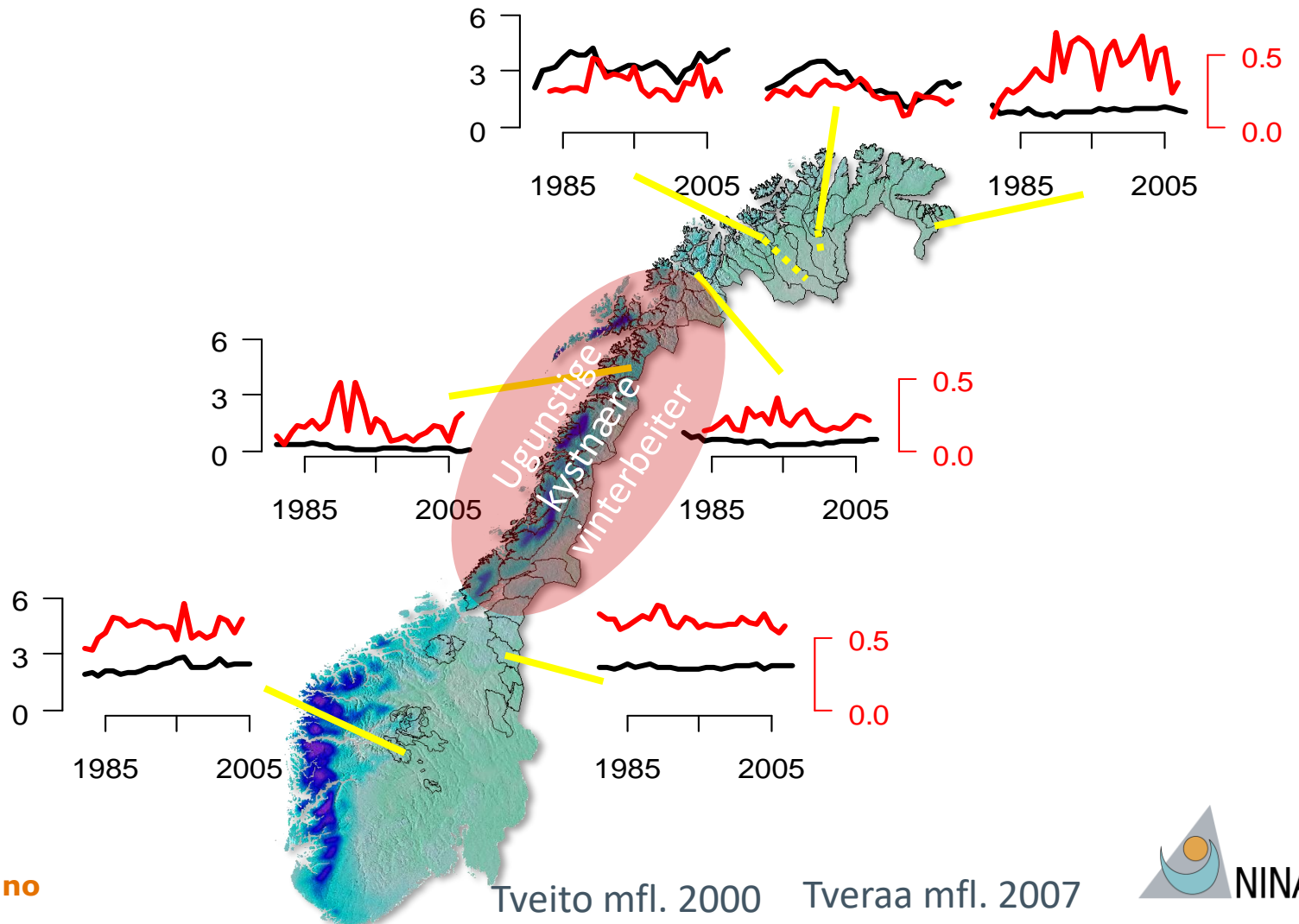
Møre og Romsdal

Sør-Trøndelag

Image IBCAO  
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Image Landsat / Copernicus  
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

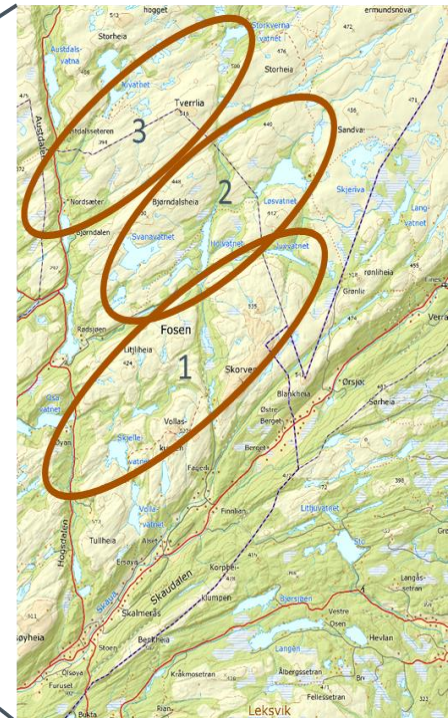


# Reintetthet & slakteuttak



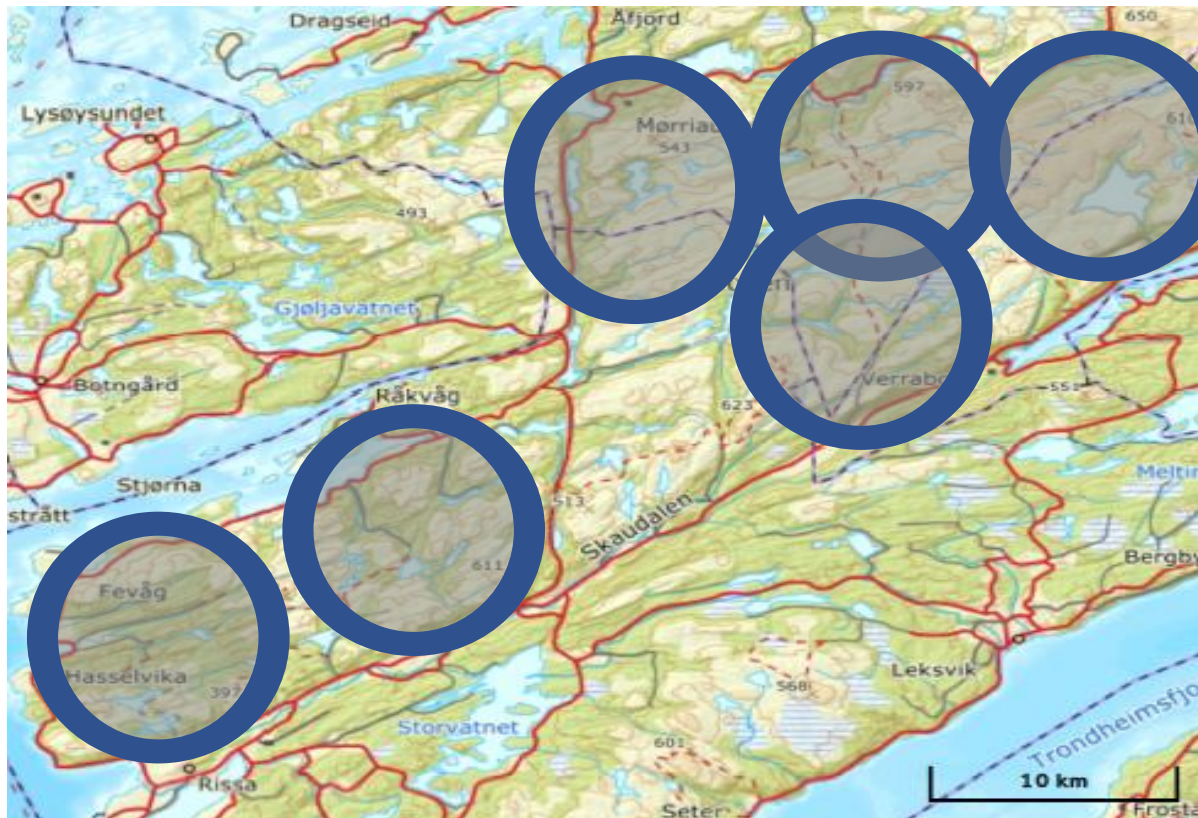


- Tapsstudier på radiomerkede lam
  - 3 besetninger, ca 400 lam radiomerket per år
  - Både sykdom, predasjon (og ulykke) evalueres for alle kadaver der det er mulig
- Eksperimentelle studier mhp sykdom og kondisjon
  - Manipulasjoner før beiteslipp
- GPS merking av kongeørn (og noen havørn)
  - Målsetning om å merke en betydelig andel av de kongeørnene som benytter studieområdet og ett mindre antall havørn
- Viltkamera på kadaver
  - Viltkamera med bevegelsessensor på plasser der lam er funnet døde. Utlegg av åte som kompensasjon for fjernet kadaver
- Genetikk
  - Blodprøver fra merkede ørn og fjær fra reir og rundt lammekadaver





# Kongeørn-territorier





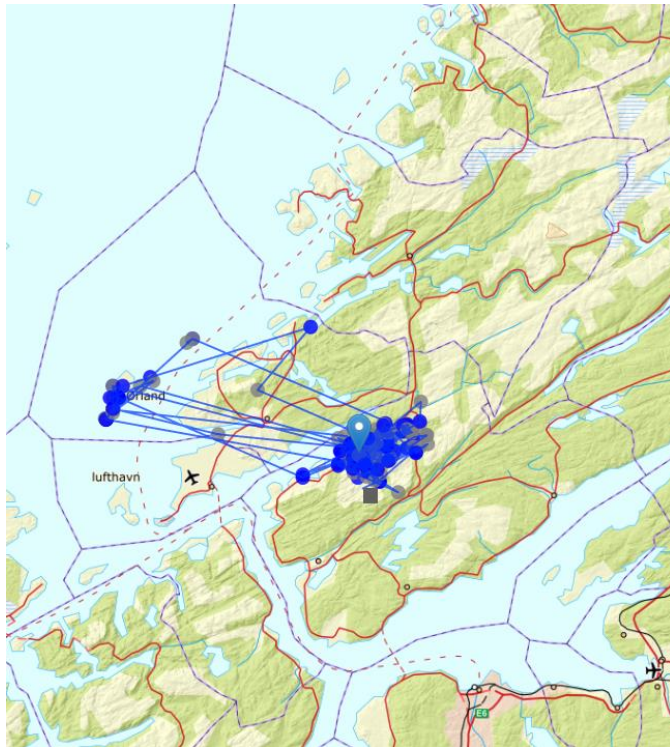
- GPS-merkede fugl



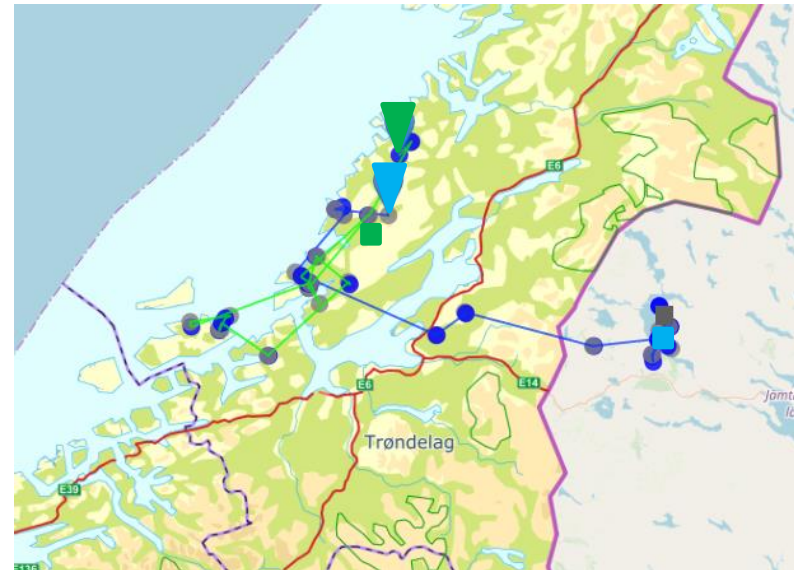


# Områdebruk hos kongeørn

Territoriell kongeørn



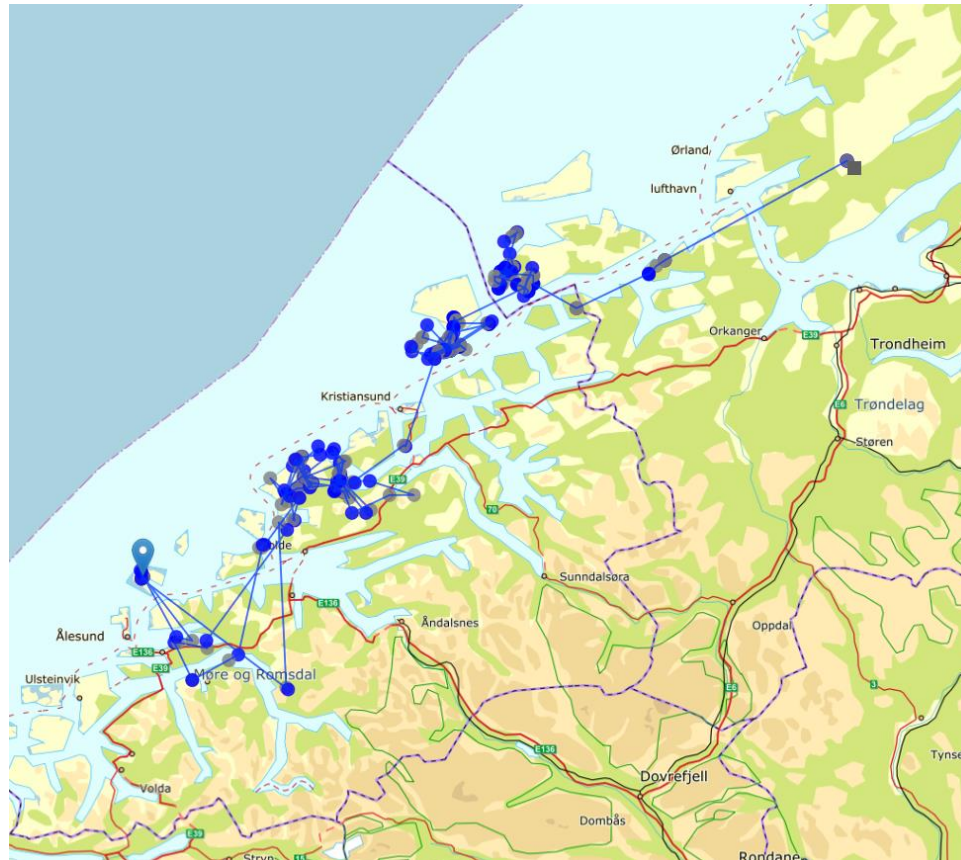
Ung kongeørn





# Områdebruk av ung havørn

## Ung havørn





# Forskningsutfordringer

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- Forstyrrelser/tap av beiteland
  - ▶ Vinterbeitesituasjonen i kystområdene
- Rovdyr
  - ▶ Gaupe
  - ▶ Jerv
  - ▶ Kongeørn
  - ▶ Bjørn
- Klimaendringer
- Sykdom?
  - ▶ F. eks. reinens hjernemark



# Konkrete forslag

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- Vinterfôring
  - ▶ Rovdyrtap, klimaendringer
- GPS-merking
  - ▶ Rovdyrtap, områdebruk, lettere drift
- Samarbeid med Nordland?