Veterinærinstituttet
Norwegian Veterinary Institute

# Chronic Wasting Disease
# - an emergent health threat to European cervids

World Organisation for Animal Health
Founded as OIE
Organisation mondiale de la santé animale
Fondée en tant qu'OIE
Organización Mundial de Sanidad Animal
Fundada como OIE

Workshop for WOAH National Focal Points for wildlife in Europe (6th cycle)
27 - 29 June 2023, Warsaw, Poland

**Jørn Våge**, Petter Hopp, Knut Madslien, Attila Tarpai, Hildegunn Viljugrein and Sylvie L. Benestad
**Norwegian Veterinary Institute**

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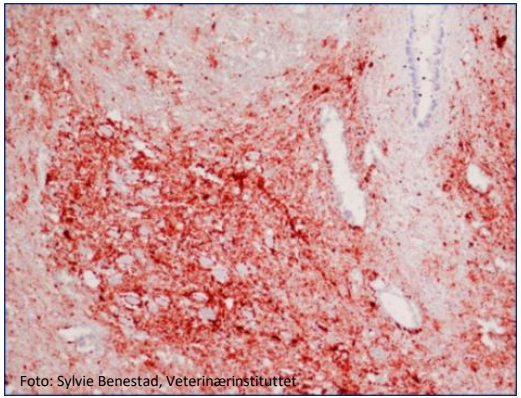
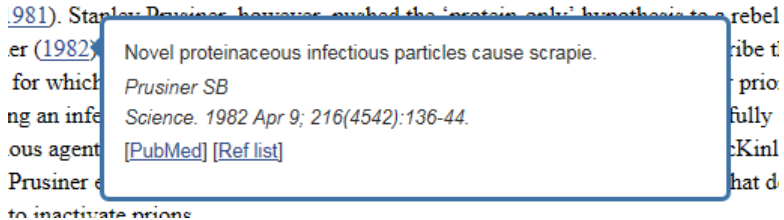
# Chronic wasting disease (CWD)
# - a member of the transmissible **spongiform** encephalopathies

# Chronic Wasting Disease – a prion disease in cervids

- Transmissible spongiform encephalopathies (TSE) are chronic neurodegenerative diseases, invariably fatal.
- No bacteria, virus or fungi
- Scrapie – symptoms in the 18th century
- CJD – described 1920
- Stanley Prusiner - called this proteinaceous infectious pathogen a prion.

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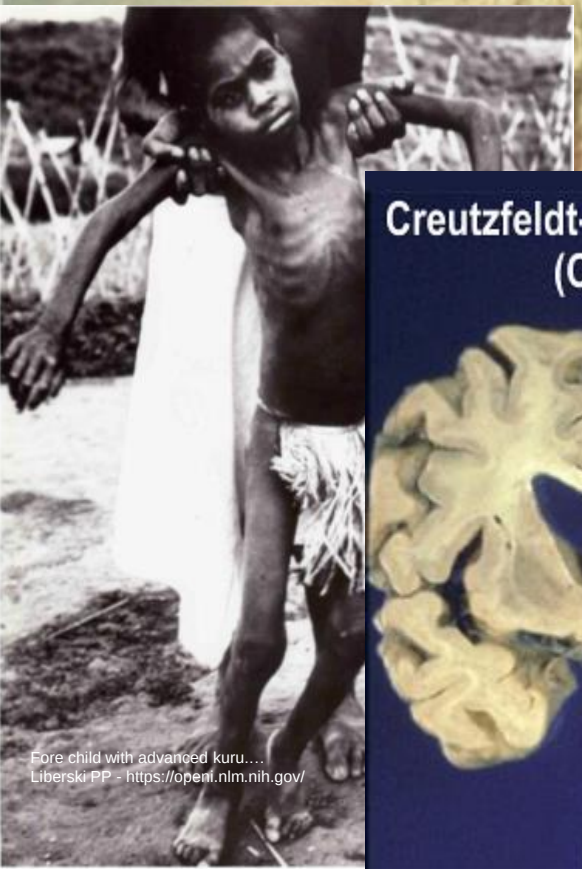
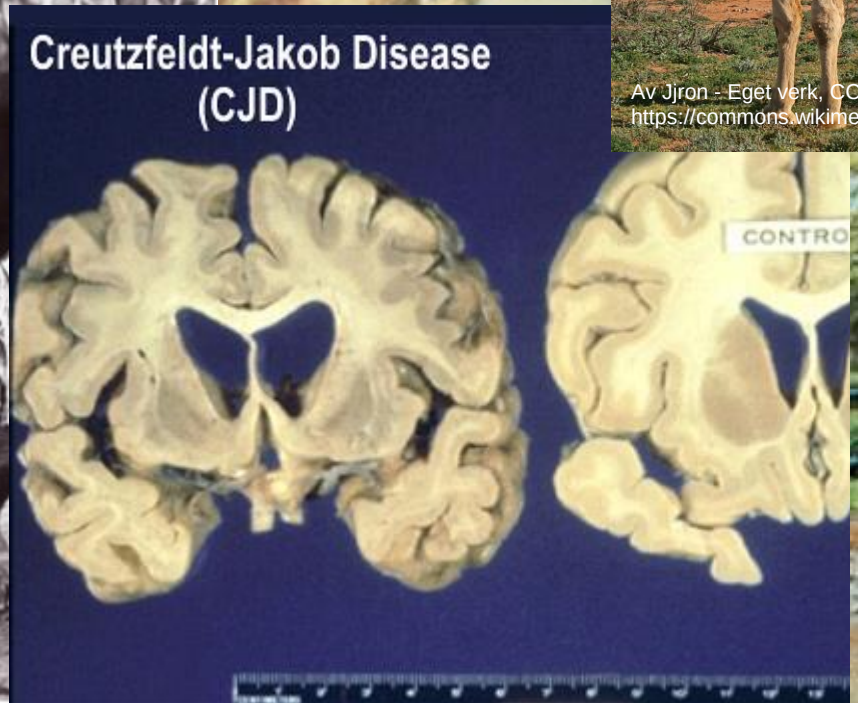


Fore child with advanced kuru.... Liberski PP - https://openi.nlm.nih.gov/

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Av Jjron - Eget verk, CC BY-SA 3.0, https://commons.wikimedia.org

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Foto: Wisconsin Department of Natural Resources

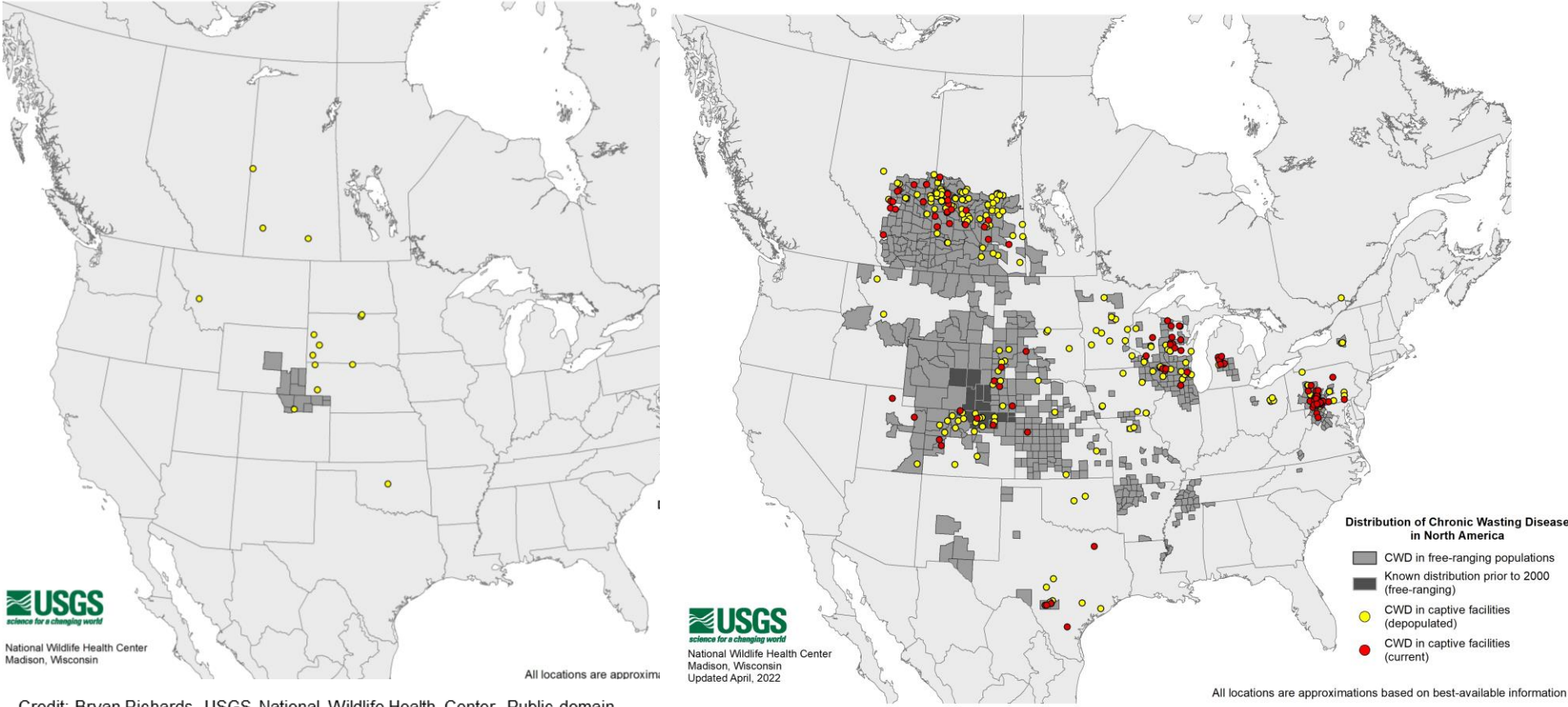
Photo: CDC Ccenters for Disease Control and Prevention

# CWD - host species in North America

Mule deer
(*Odocoileus hemionius*)

White tailed deer
(*Odocoileus virginianus*)

Elk / "wapiti"(*Cervus elaphus nelsoni/canadensis*)




Credit: Bryan Richards, USGS National Wildlife Health Center. Public domain.

Last 2 decades development

# CWD – circle of contagious prions


Long incubation period - months to years, appear healthy

Saliva

Contagious

Urine

Faeces

Lymphatic tissue
- early detection


Stabile and resistant
- long infectivity from
environment (years)


Fatal – no cure


Behavioural change
and wasting away
(emaciation, urination
and salivation)

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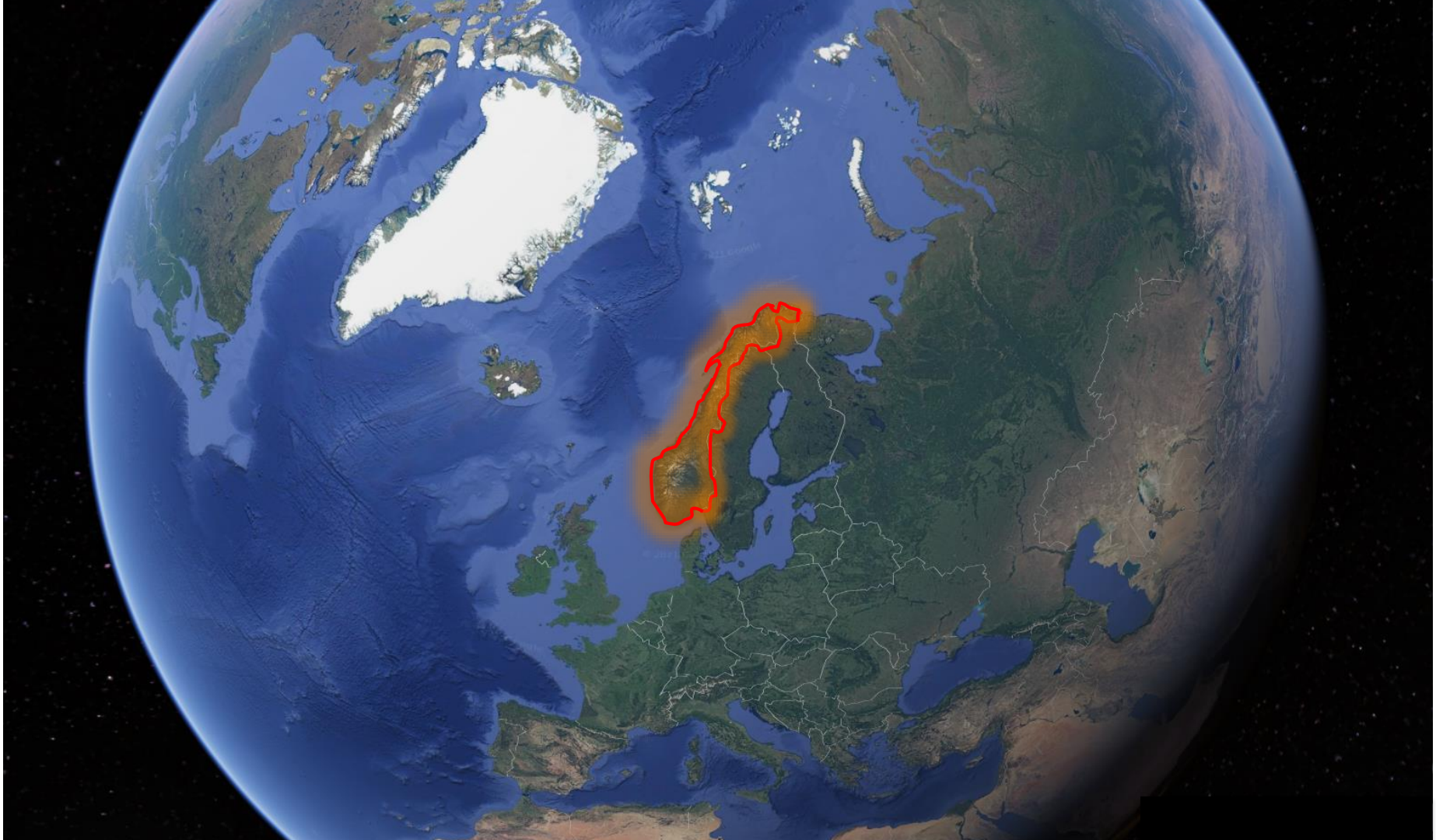
Rapport 27 - 2022

# The surveillance programme for Chronic Wasting Disease (CWD) in free ranging and captive cervids in Norway 2021


*Photo: Lars Nesse, Nordfjella Villreinutval*



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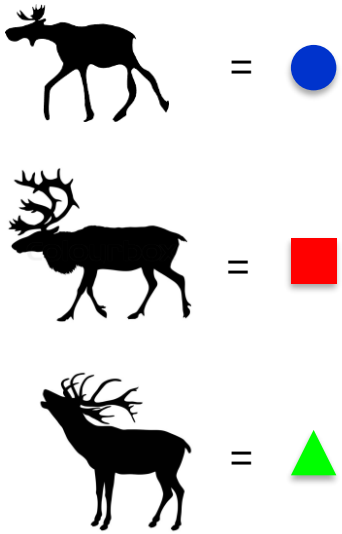

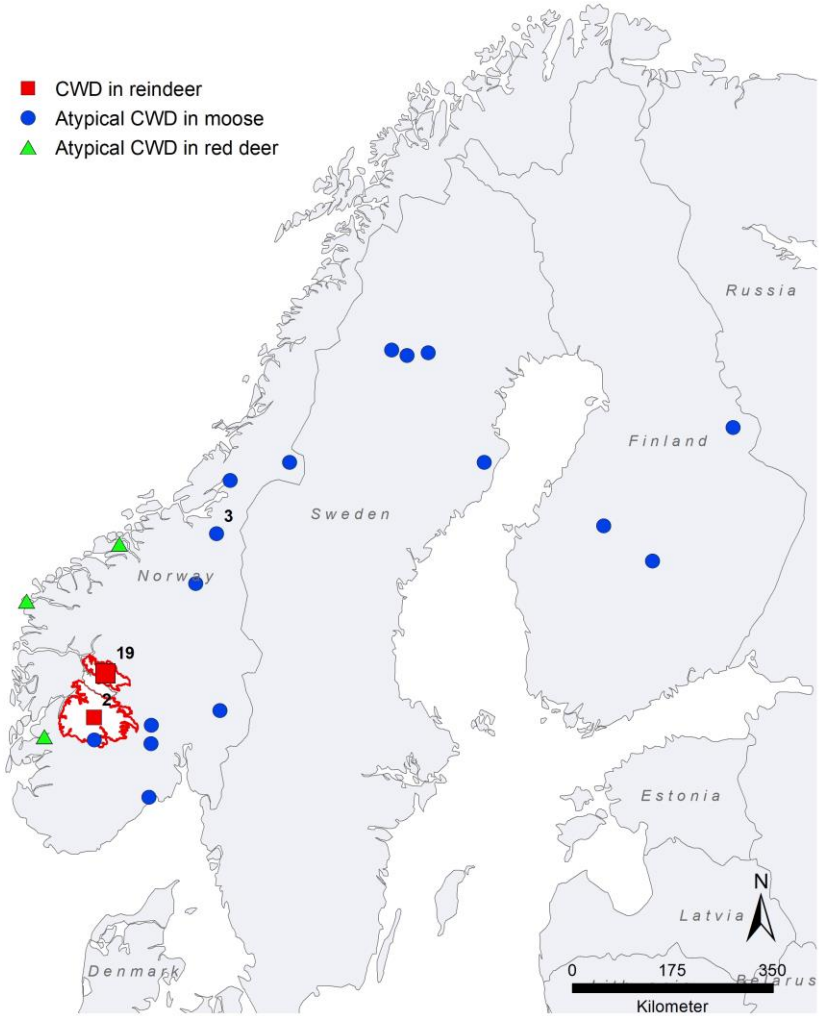

Photo: Jarle Fuglem

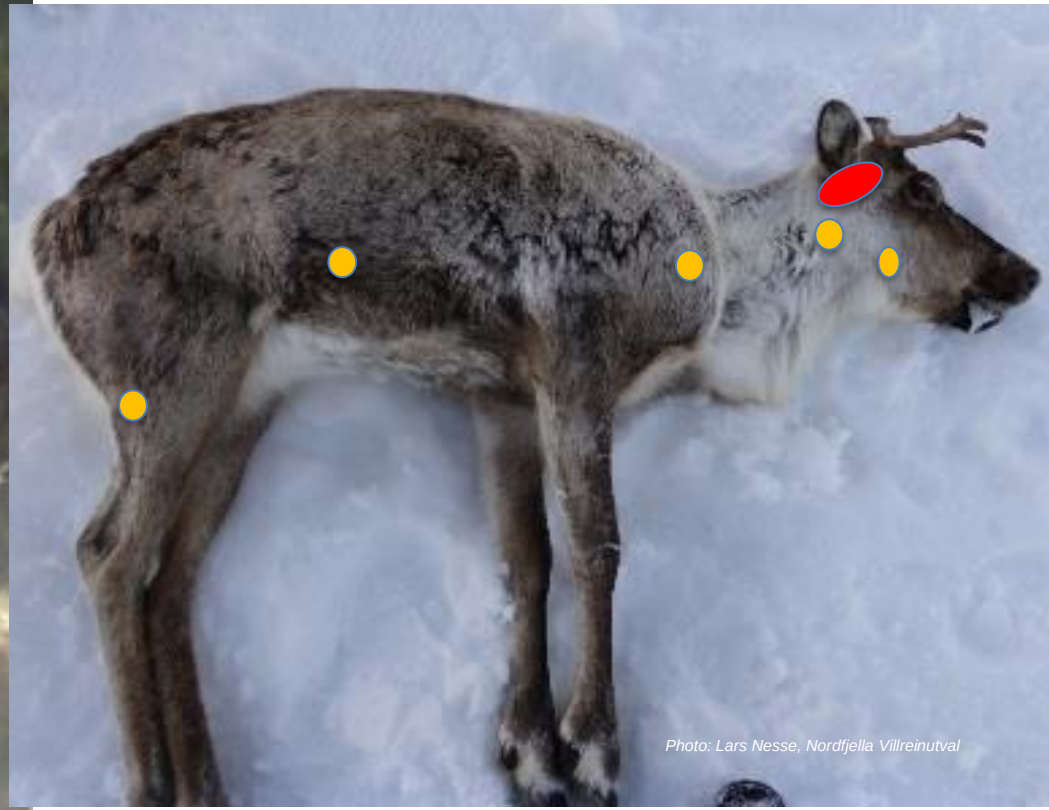

*Photo: Lars Nesse, Nordfjella Villreinutval*


Photo: Jarle Fuglem


*Photo: Lars Nesse, Nordfjella Villreinutval*

# Inoculation / typing of prion strains



- Contagiousness – an important differentiation
- Sporadic prion disease – most probably old

# Scientific advise - political decision to cull of affected herd

Photo: Sondre Dalaker /NTB, Scanpix

©HÅVARD HEGGEN / NRK

Photo: Marit Hommerdal /NTB, Scanpix

Photo: SNO.NO

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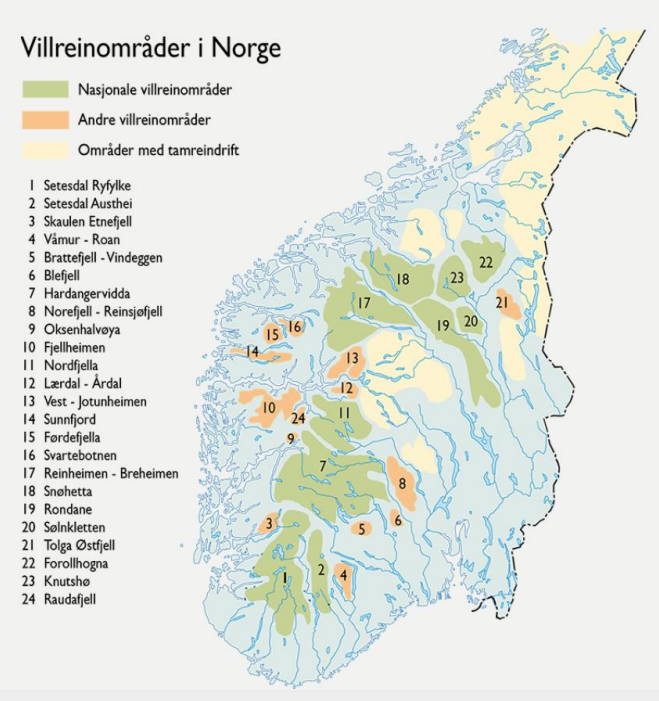
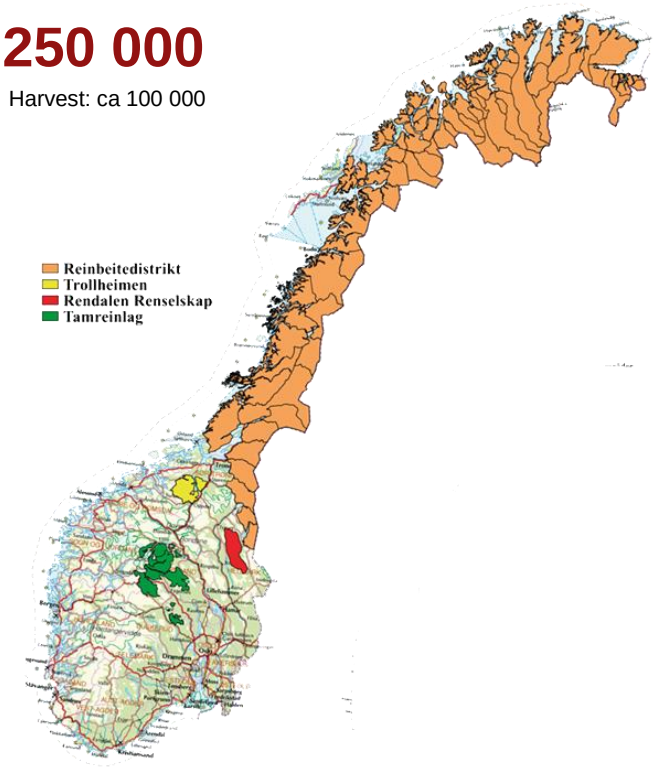



https://www.villrein.no/om-villreinomrdene

**Reindeer**

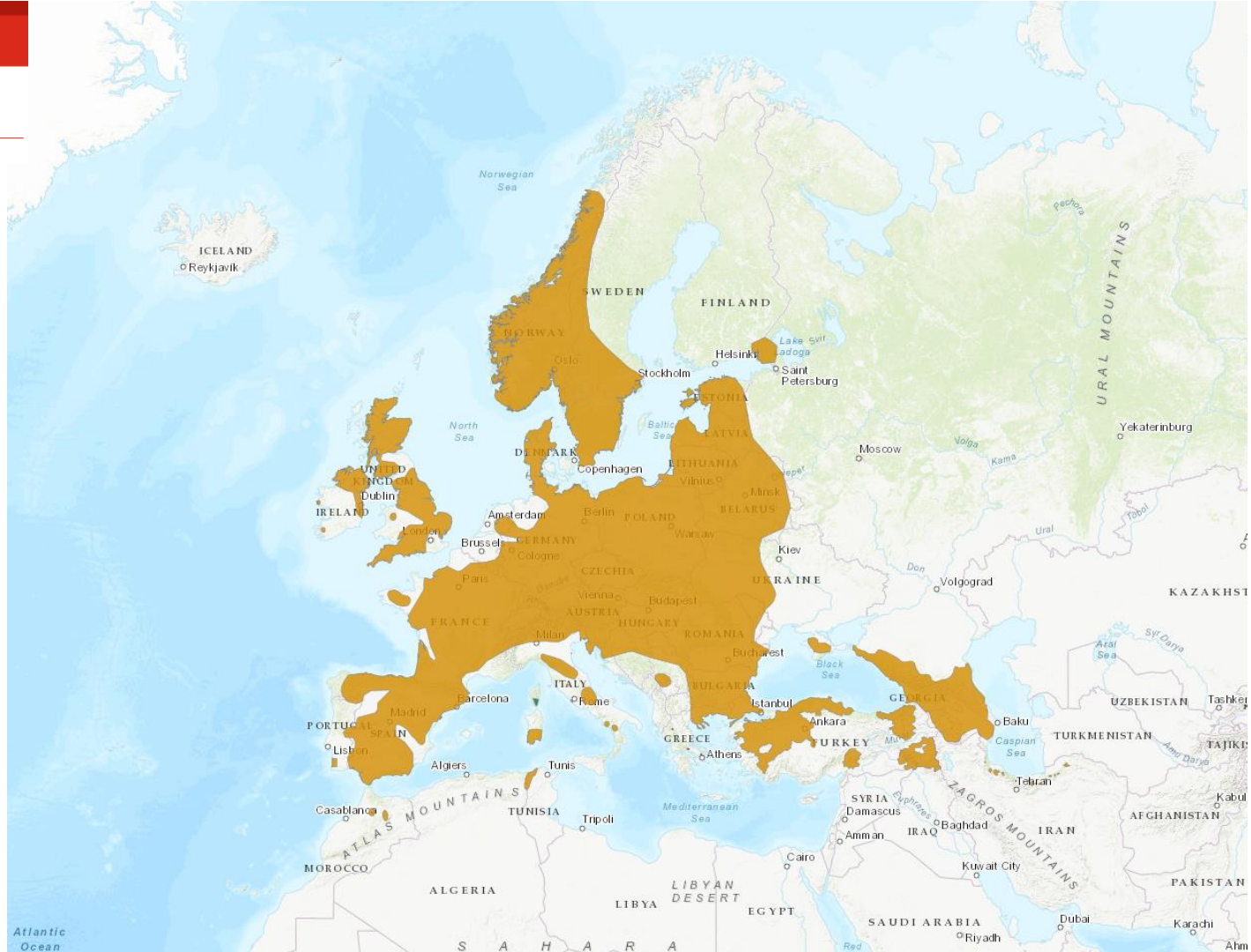
**Semi-domesticated**
**250 000**
Harvest: ca 100 000




**Wild**
**25 000**
Harvest: ca 5000

# Red Deer

*Cervus elaphus*

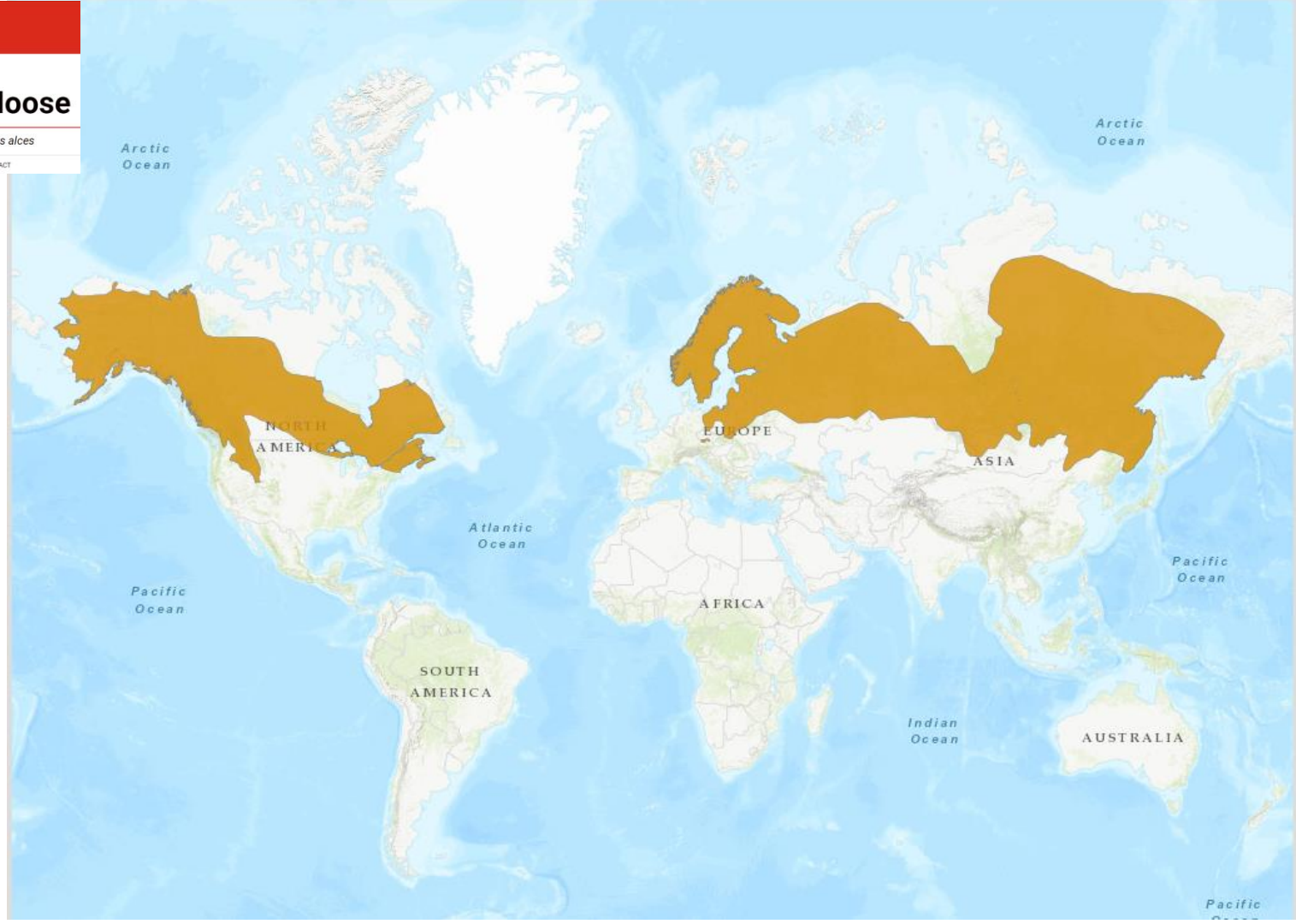


Jump to Moose: In detail

# Moose

*Alces alces*

ABSTRACT



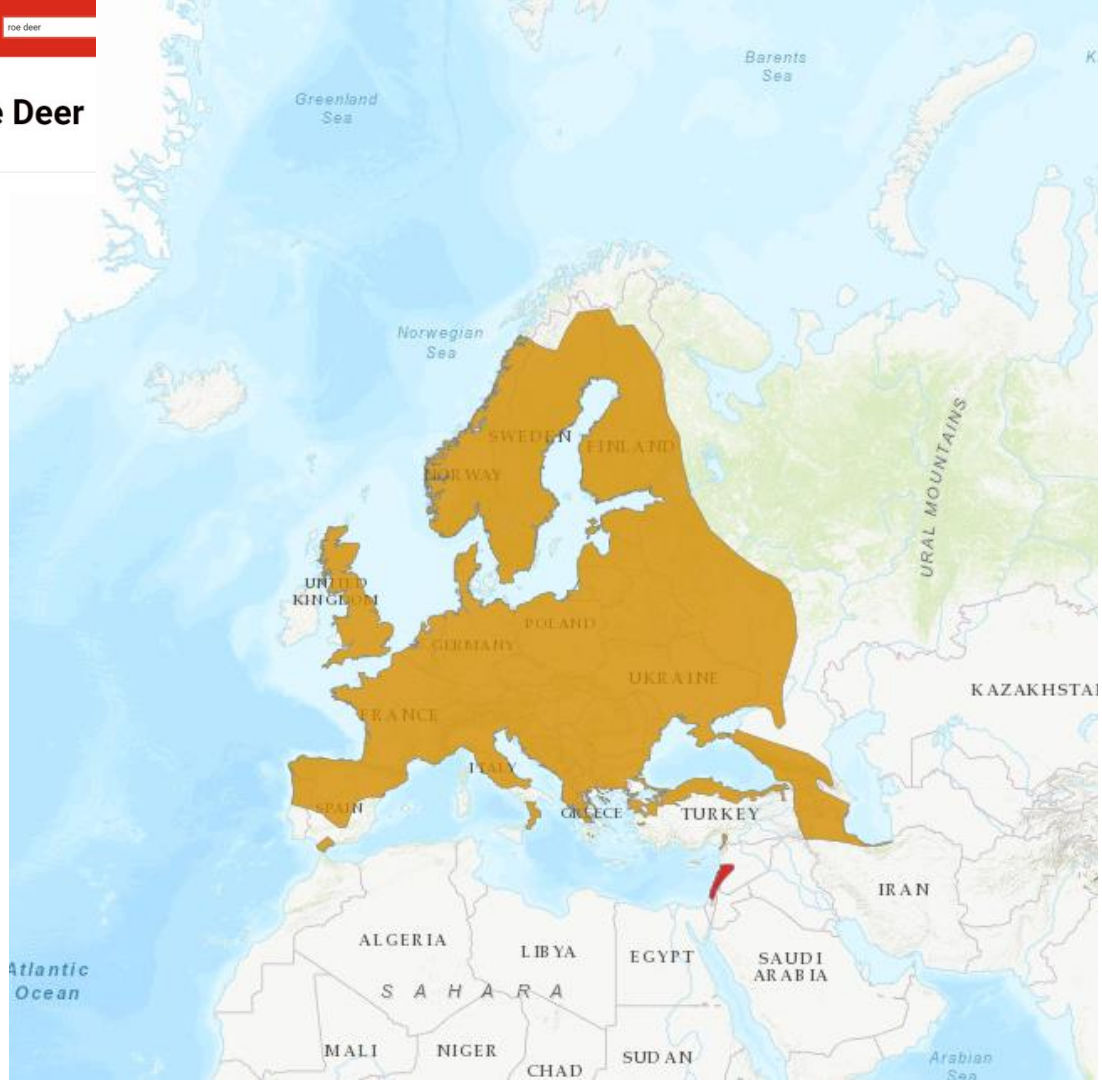
roe deer

Back to search results  Jump to European Roe Deer: In detail

# European Roe Deer

*Capreolus capreolus*

ABSTRACT



Back to search results  Jump to Reindeer: In detail

# Reindeer

*Rangifer tarandus*

ABSTRACT


Odocoileus vi
Back to search results
Jump to White-tailed Deer: In detail
White-tailed Deer
Odocoileus virginianus
ABSTRACT
Norwegian Sea
Davis Strait
Hudson Bay
Gulf of Alaska
CANADA
ROCKY MOUNTAINS
UNITED STATES
APPALACHIAN MTNS.
MEXICO
Pacific Ocean
Caribbean Sea
VENEZUELA
COLOMBIA
PERU
ANDES
AMAZON BASIN
BRAZIL
BOLIVIA
Atlantic Ocean
SWEDEN
FINLAND
UNITED KINGDOM
POLAND
GERMANY
UKRAINE
FRANCE
ITALY
SPAIN
GREECE
TURKEY
ALGERIA
LIBYA
EGYPT
SAUDI ARABIA
SAHARA
MALI
NIGER
CHAD
SUDAN
NIGERIA
ETHIOPIA
DR CONGO
TANZANIA
ANGOLA
ZAMBIA
NAMIBIA

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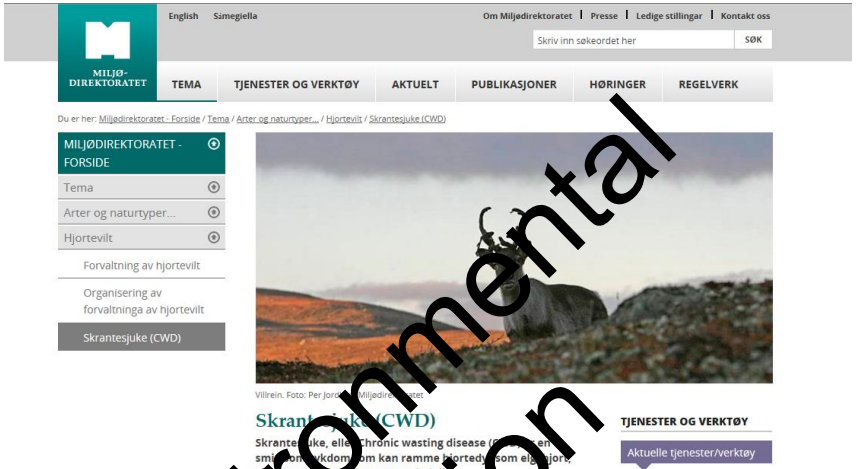
## Antall prøver undersøkt for skrantesjuke

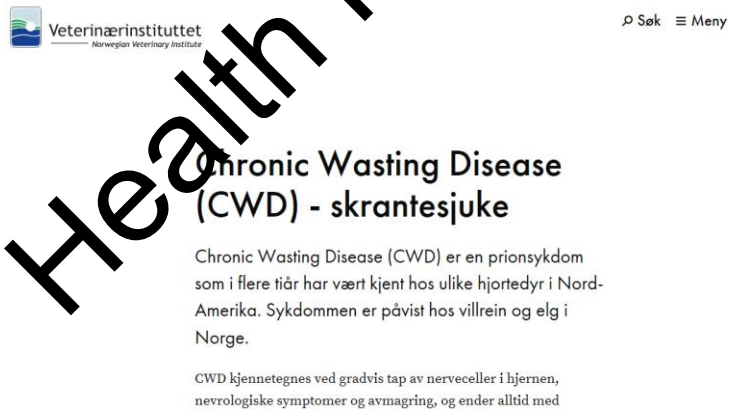
Oversikt over undersøkte prøver fra hjortedyr i Norge i 2016-2023. Antallet er gruppert på utvalgte områder og art/produksjonsform.

| Art og produksjonsform | Antall negative | Antall positive |
|---|---|---|
| **Villrein** | **20572** | **21** |
| Nordfjella 1 | 2085 | 15 |
| Nordfjella 2 | 277 | 0 |
| Nordfjella | 501 | 4 |
| Hardangervidda | 6917 | 2 |
| Andre områder | 10602 | 0 |
| Ukjent | 149 | 0 |
| Svalbard | 41 | 0 |
| **Tamrein** | **59063** | **0** |
| **Rein i dyrepark o.l.** | **8** | **0** |
| **Vill hjort** | **29762** | **3** |
| Gjemnes | 698 | 1 |
| Andre områder | 28653 | 2 |
| Ukjent | 411 | 0 |
| **Oppdrettshjort** | **3295** | **0** |
| **Elg** | **36895** | **11** |
| Selbu-sonen | 5969 | 3 |
| Lierne | 804 | 1 |
| Andre områder | 29527 | 7 |
| Ukjent | 595 | 0 |
| **Elg i dyrepark o.l.** | **8** | **0** |
| **Rådyr** | **12886** | **0** |
| **Dåhjort (dådyr)** | **261** | **0** |
| **Ukjent art** | **2742** | **0** |
| **Totalt** | **165492** | **35** |

http://apps.vetinst.no/skrantesykestatistikk/NO/#omrade

# Who manages what?

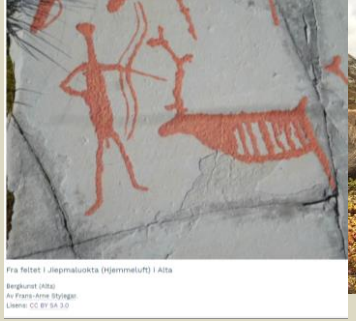





Health regulation

Environmental regulation


Risk animals !!!!
Foto: Forskerforbundet.no



Fra feltet i Jiepmaluokta (Hjemmeluft) i Alta

Bergkunst (Alta)
Av Frans-Arne Stylegar
Lisens: CC BY SA 3.0

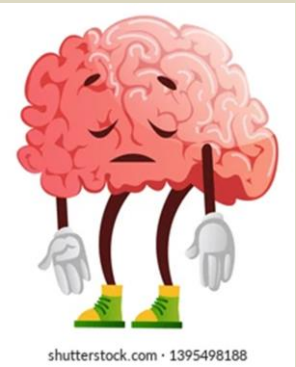
NJFF Møre og Romsdal


Photo: Lars Nesse

kronikk

**Er sau viktigere enn føre var-prinsippet?**

Laboratorieforsøk viser at CWD kan smitte mellom arter. Er det lurt å la sau beite i CWD-området Nordfjella?




www.nina.no

1400 NINA Rapport

Miljøkvalitetsnorm for villrein

Forslag fra en ekspertgruppe

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# Thank you for your attention!

Photo by Jørn Våge