

Field

# Hogstflatedeteksjon fra Sentinel-2

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Floris Groesz

TERRATEC

BLOM  
NORWAY

KVS technologies

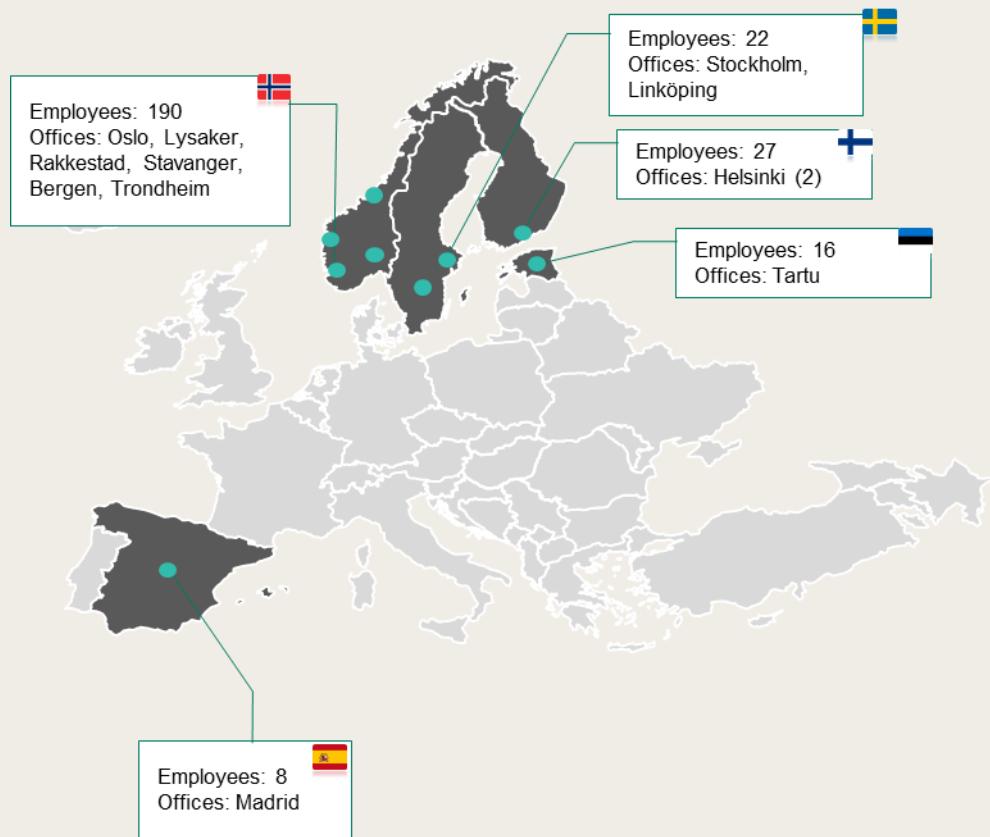


Field



# ← Field

Office footprint and key metrics per geography<sup>2)</sup>



← Field



# Sentinel-2

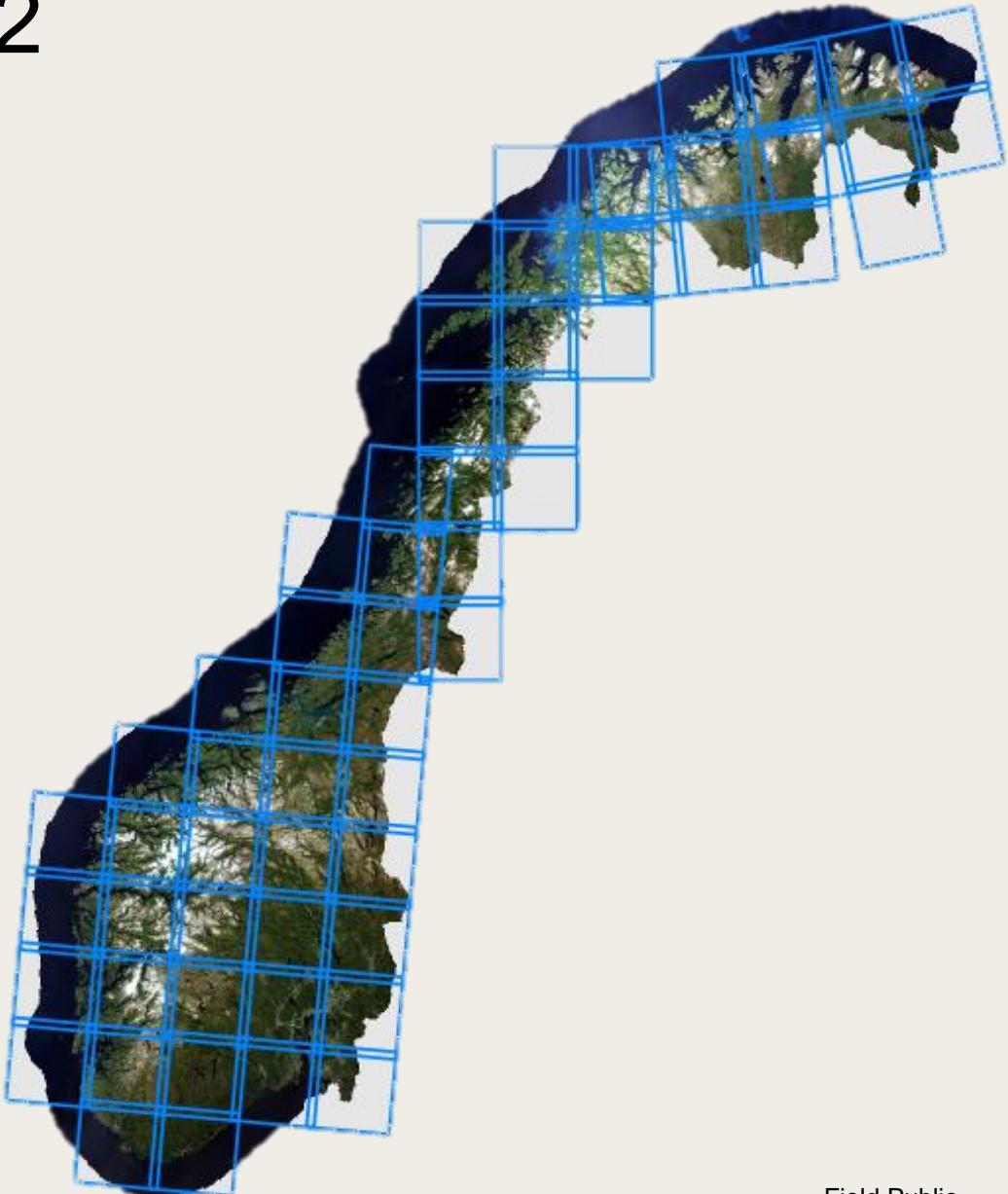
- Generelt
  - Start 2015
  - 13 optiske kanaler
  - Åpne data
- Oppløsning
  - 10 x 10 m RGB + NIR
  - 20 x 20 m VNIR, SWIR
  - 60 x 60 m UV, SWIR
- Omløpstid
  - To satellitter: S2A, S2B
  - 2 – 3 dagers intervall

Hogstflatedeteksjon  
fra Sentinel-2



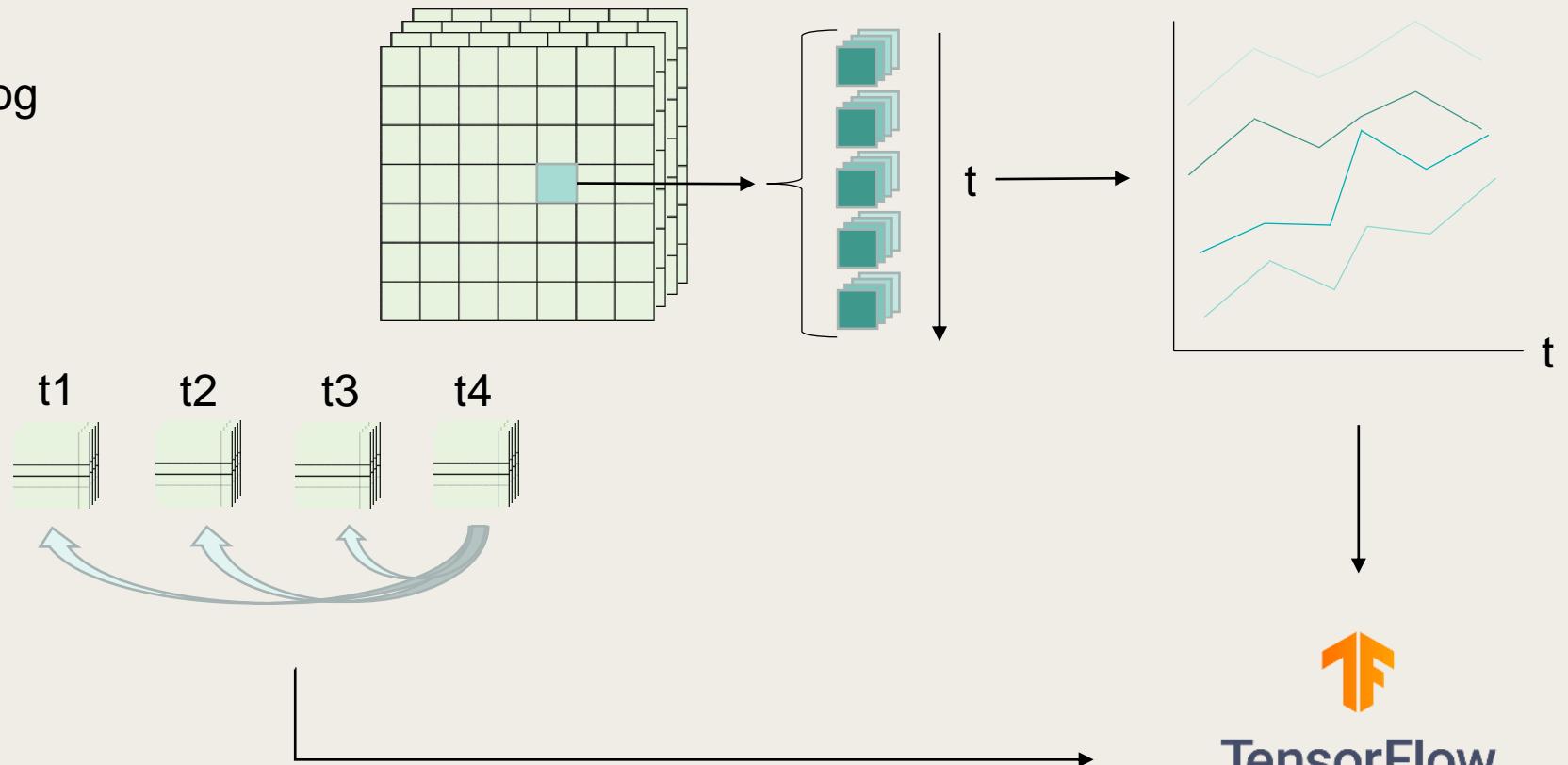
# Hogstflatedeteksjon fra Sentinel-2

- Kontinuerlig overvåking av hogstaktivitet i Norge
- Operasjonell tjeneste siden 2017
- Tidsserier med åpne Sentinel-2 data
- 10 og 20-meter kanaler
- Dyp læring
- Tilpasning til ulike behov



# Prosessen

- Kombinasjon av
  - Semantisk segmentering av endringer i ulike bildepar
  - Tidsserie-analyse
- Leter kun etter endringer i skog

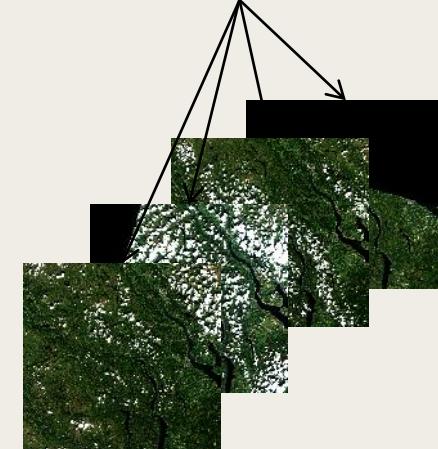
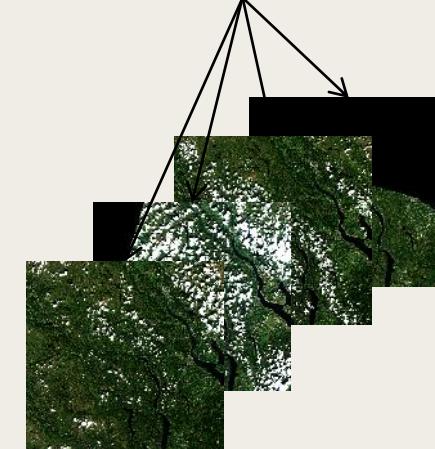
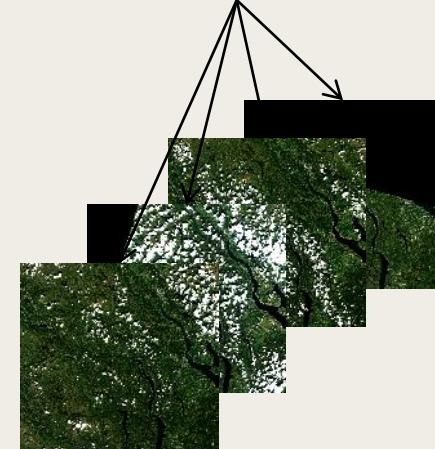
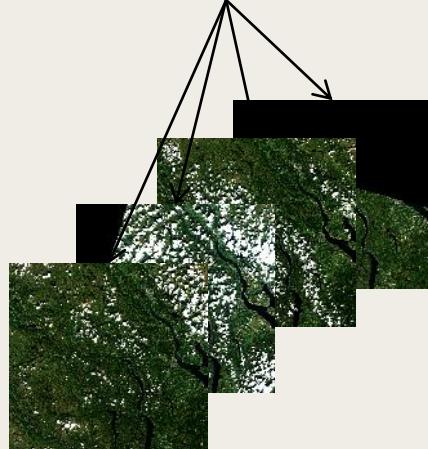
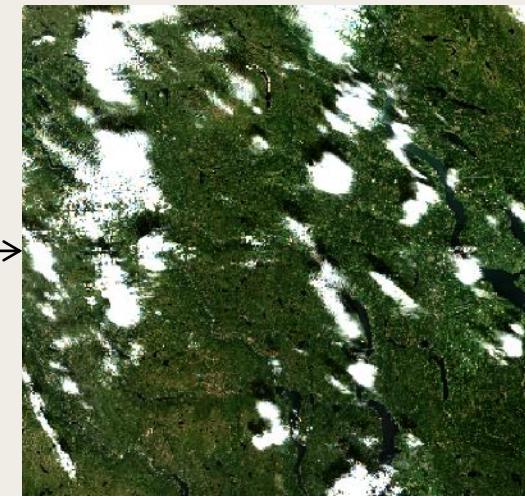
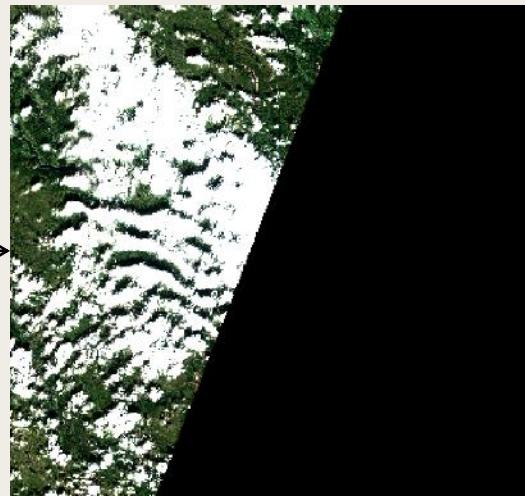


20220629

20220707

20220716

20220719



2021

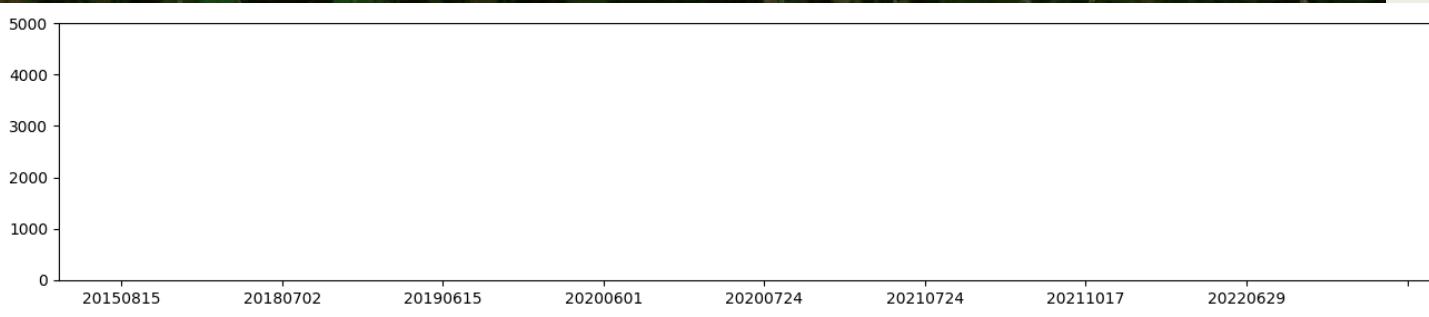
2021

2021

2021

↖ Field

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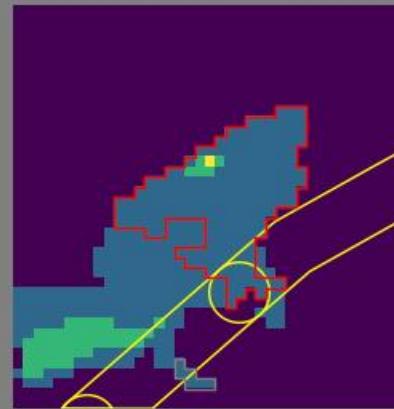
20211002



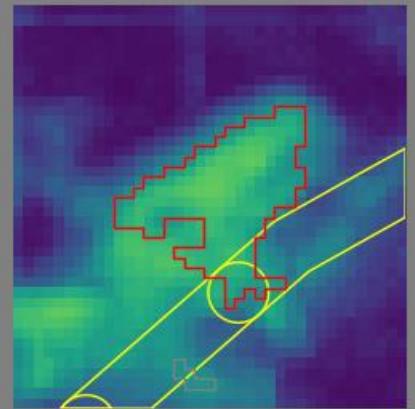
20221030



detections



heatmap



2021102



20211018



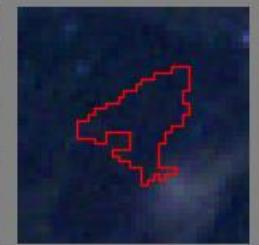
20211006



20211107



20211112



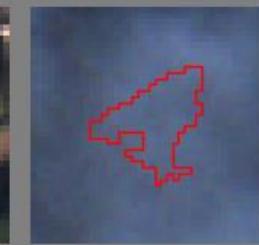
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20221023



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20221030



20221107



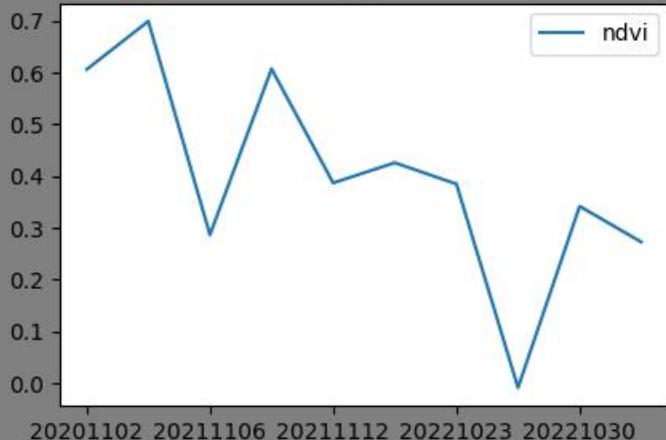
bfv



orto



ndvi

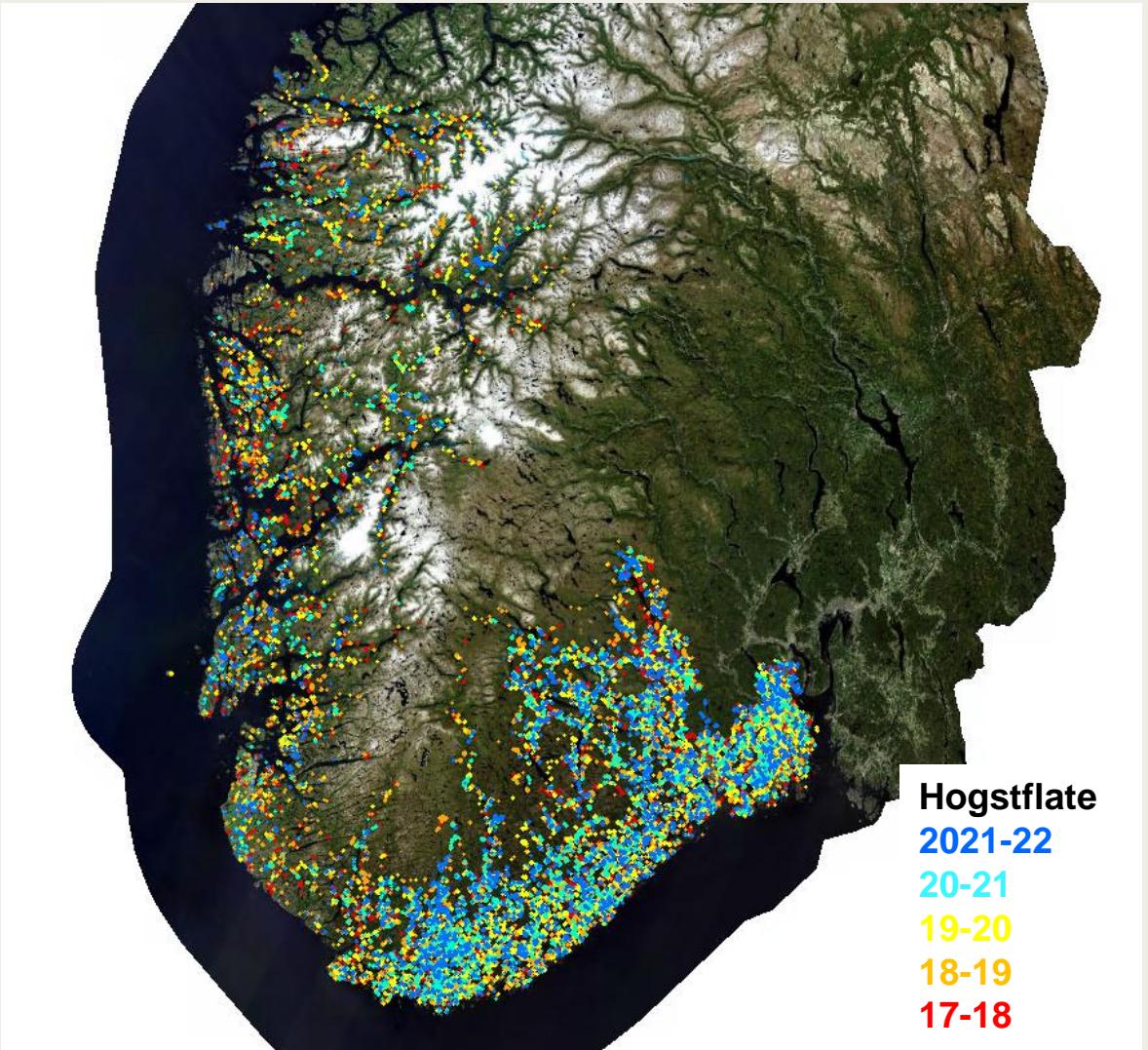


info

det score: 1.03  
area: 18100.0  
proba: 76

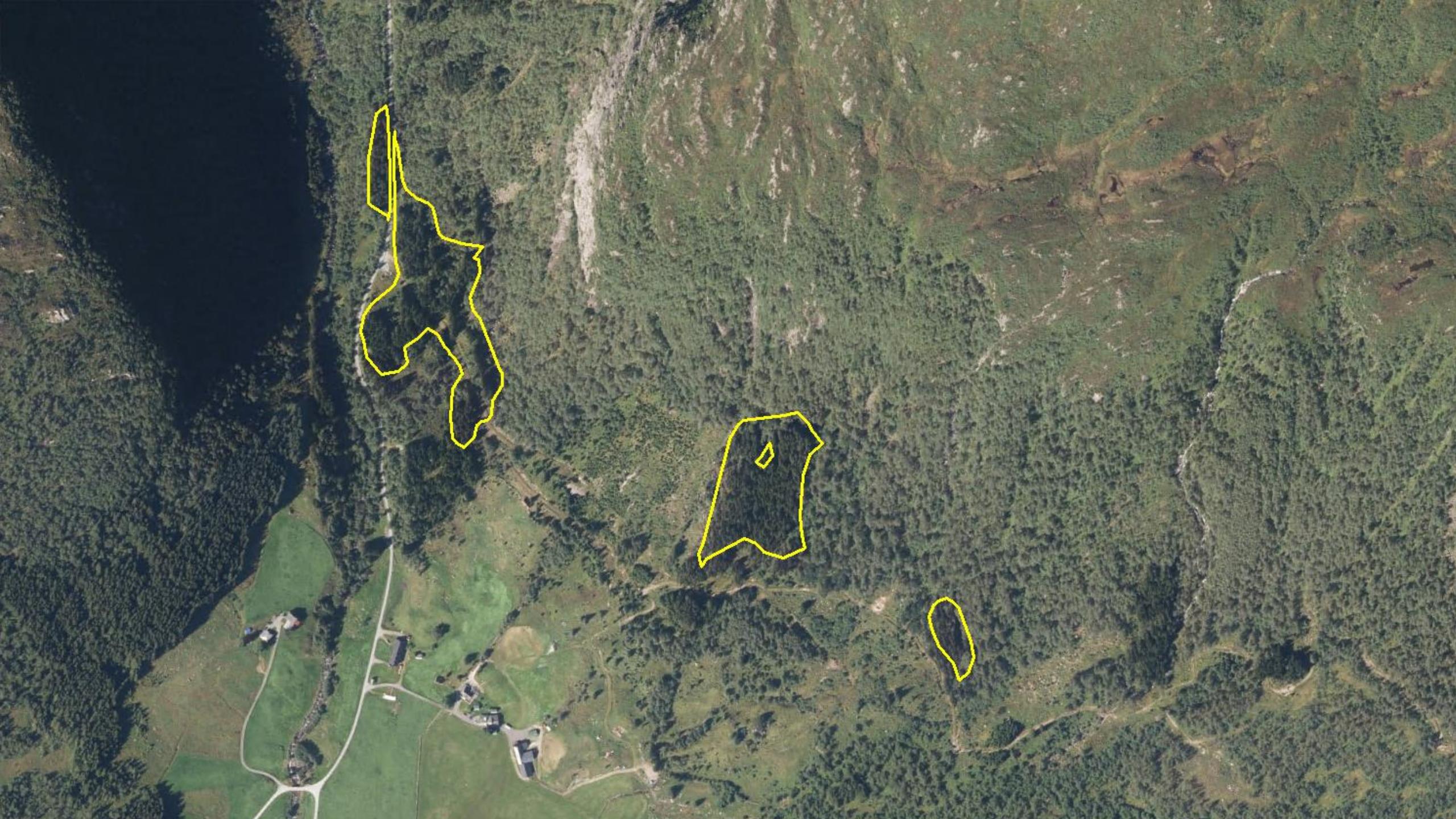
# Skogeiersamvirke

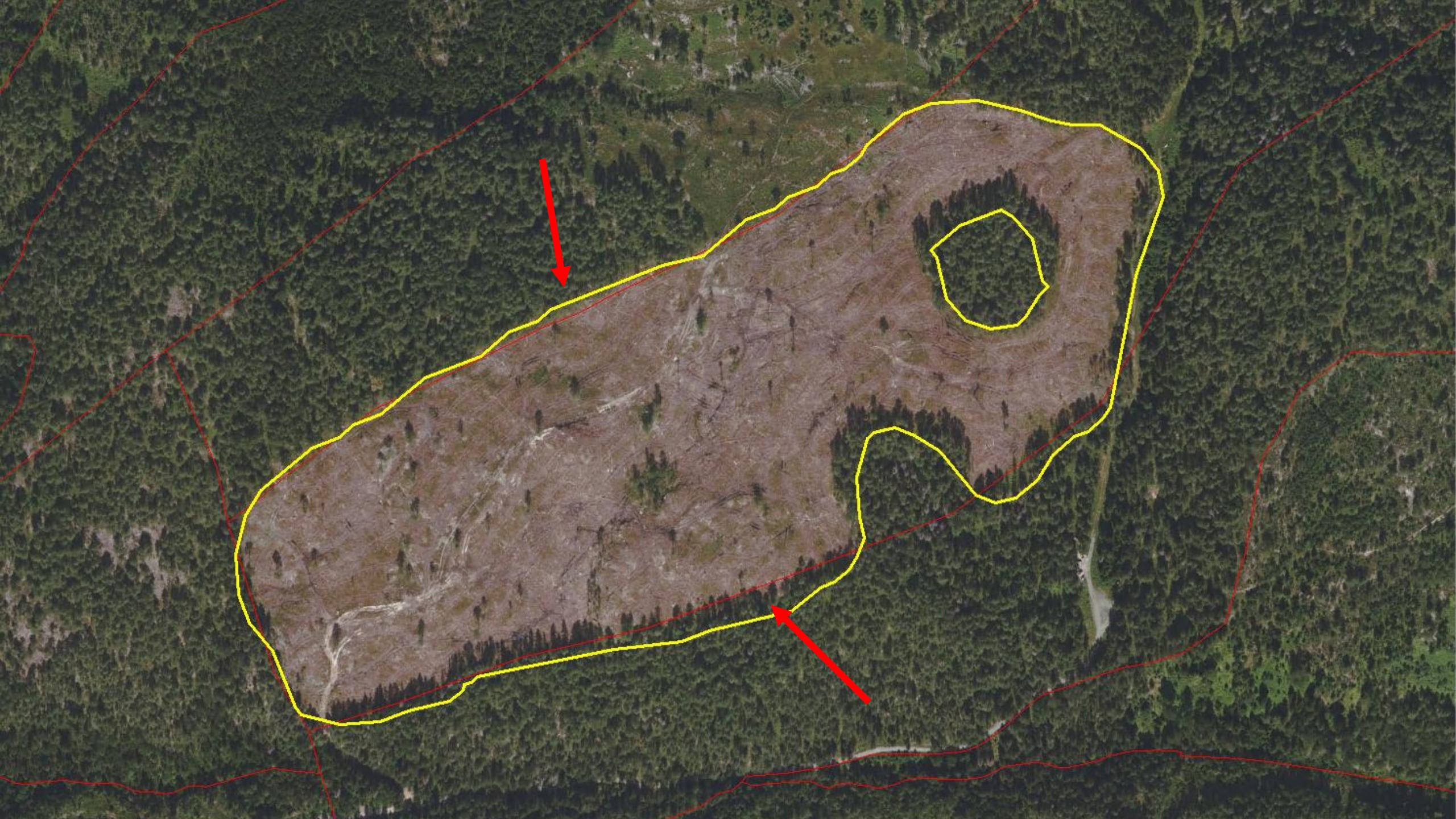
- Ønsker å:
  - Oppdatere skogbruksplaner
  - Kontrollere drifter
- Leveranse:
  - Detekterte hogster som flater (vektordata)
  - Estimert hogsttidspunkt
  - Areal (minst 0.5 dekar)
  - Sannsynlighet
- Hyppighet:
  - årlig eller flere ganger per år





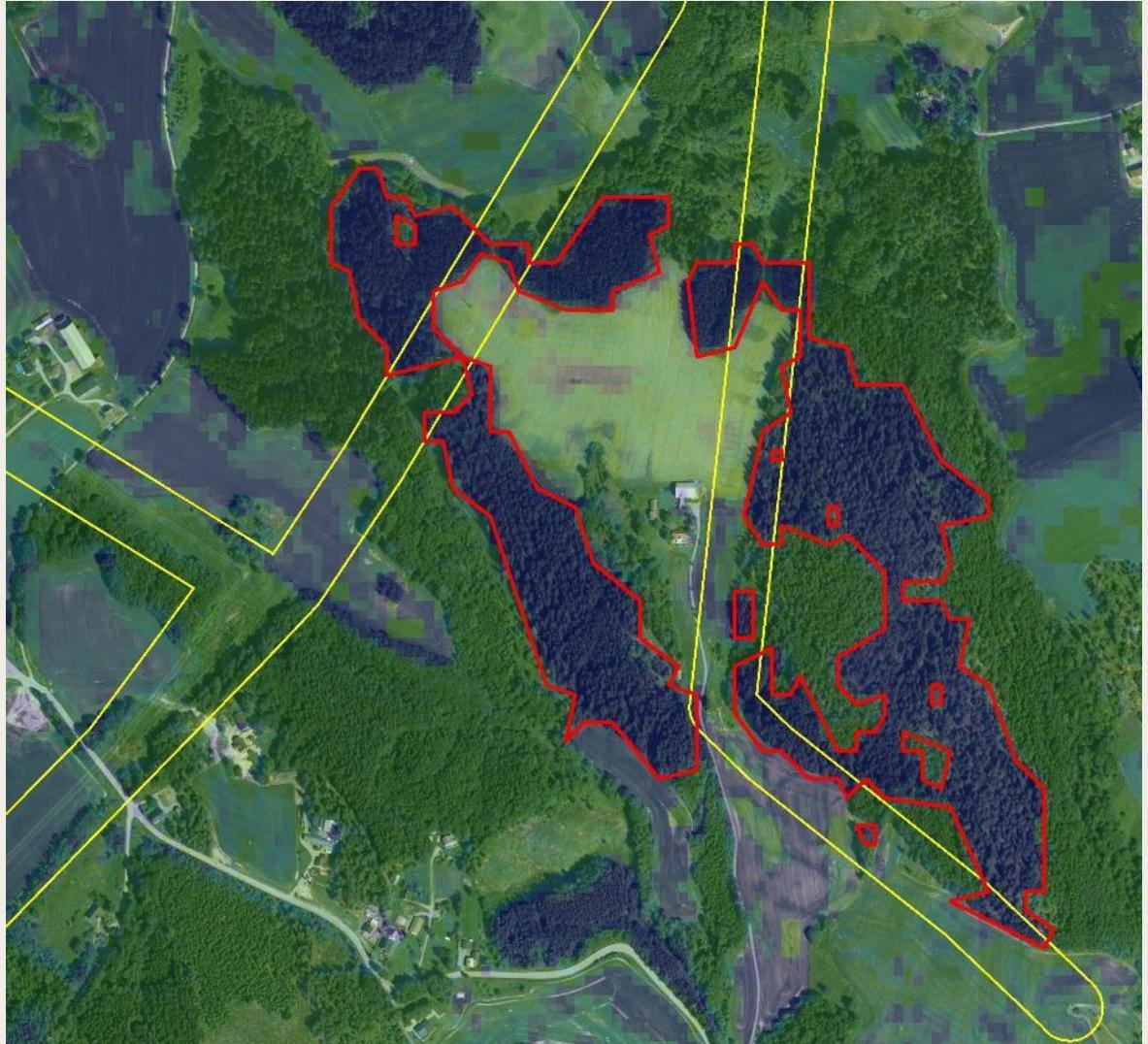


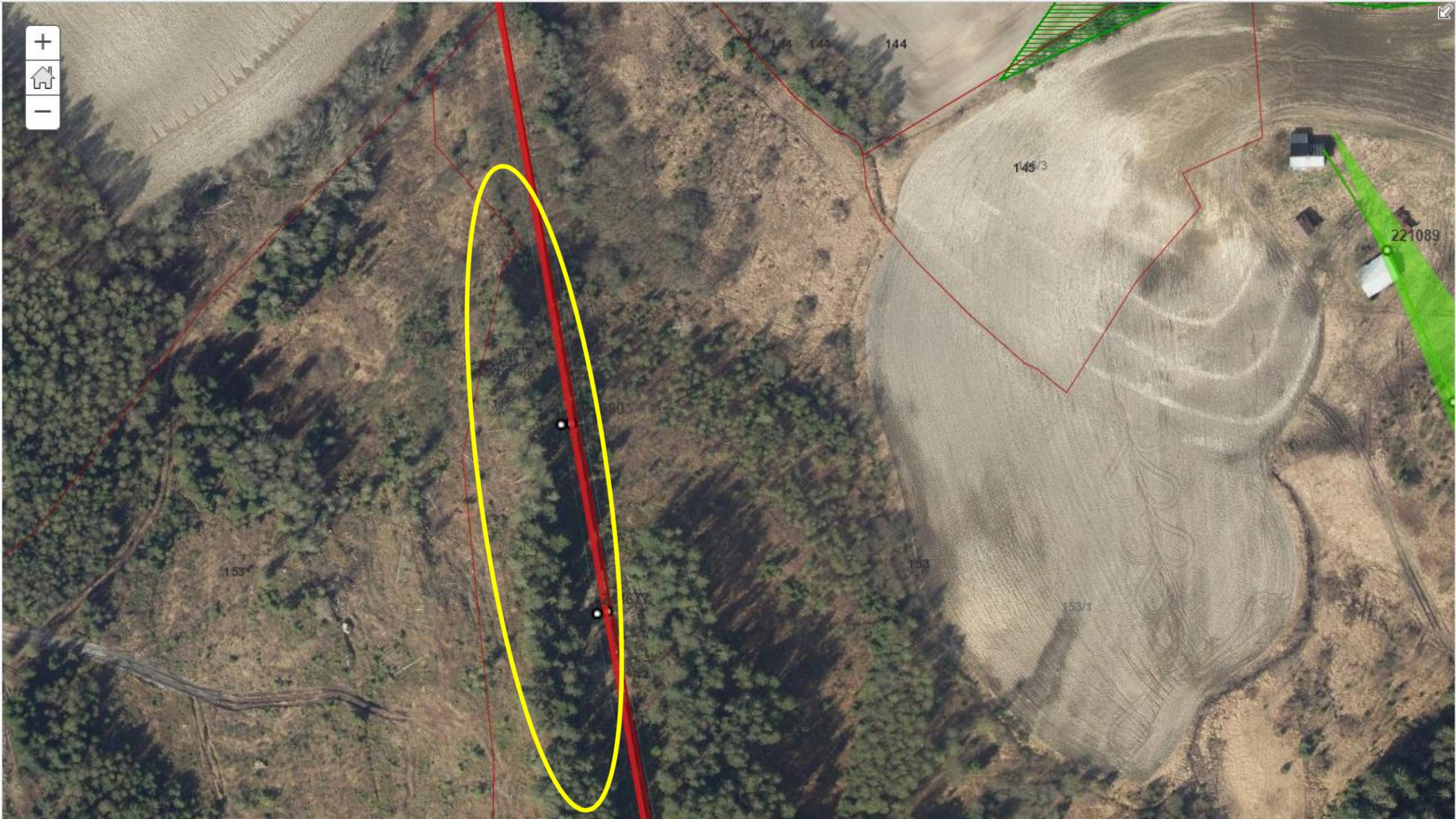




# Nettselskaper

- Ønsker å:
  - Vite hvor det hogges i nærheten av høyspent-linjene  
Risiko for at gjensatte trær kan falle over linjene.
- Leveranse:
  - Varsel om hogster i nærheten av ledningsnettet
- Hyppighet:
  - Månedlig eller to-månedlig





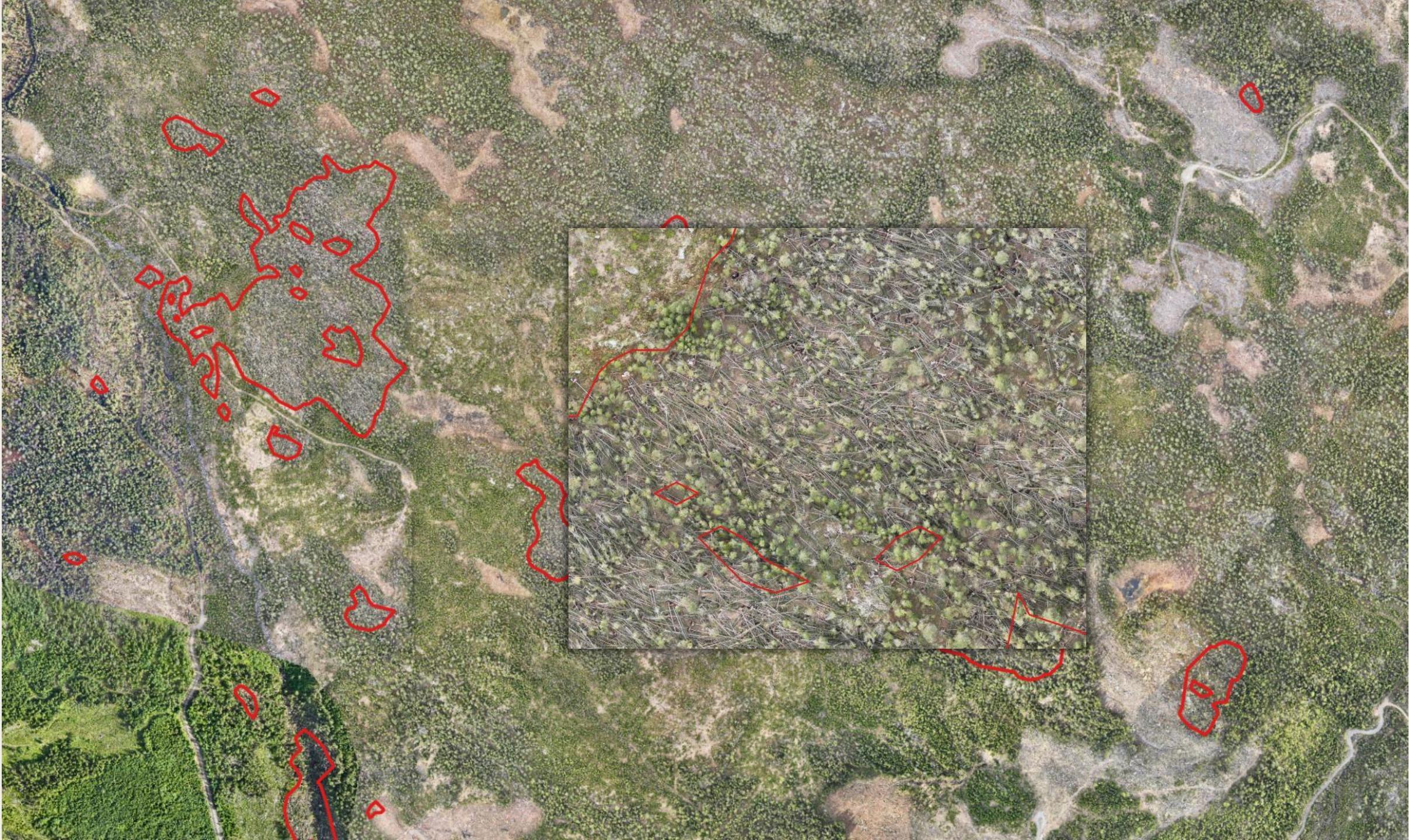


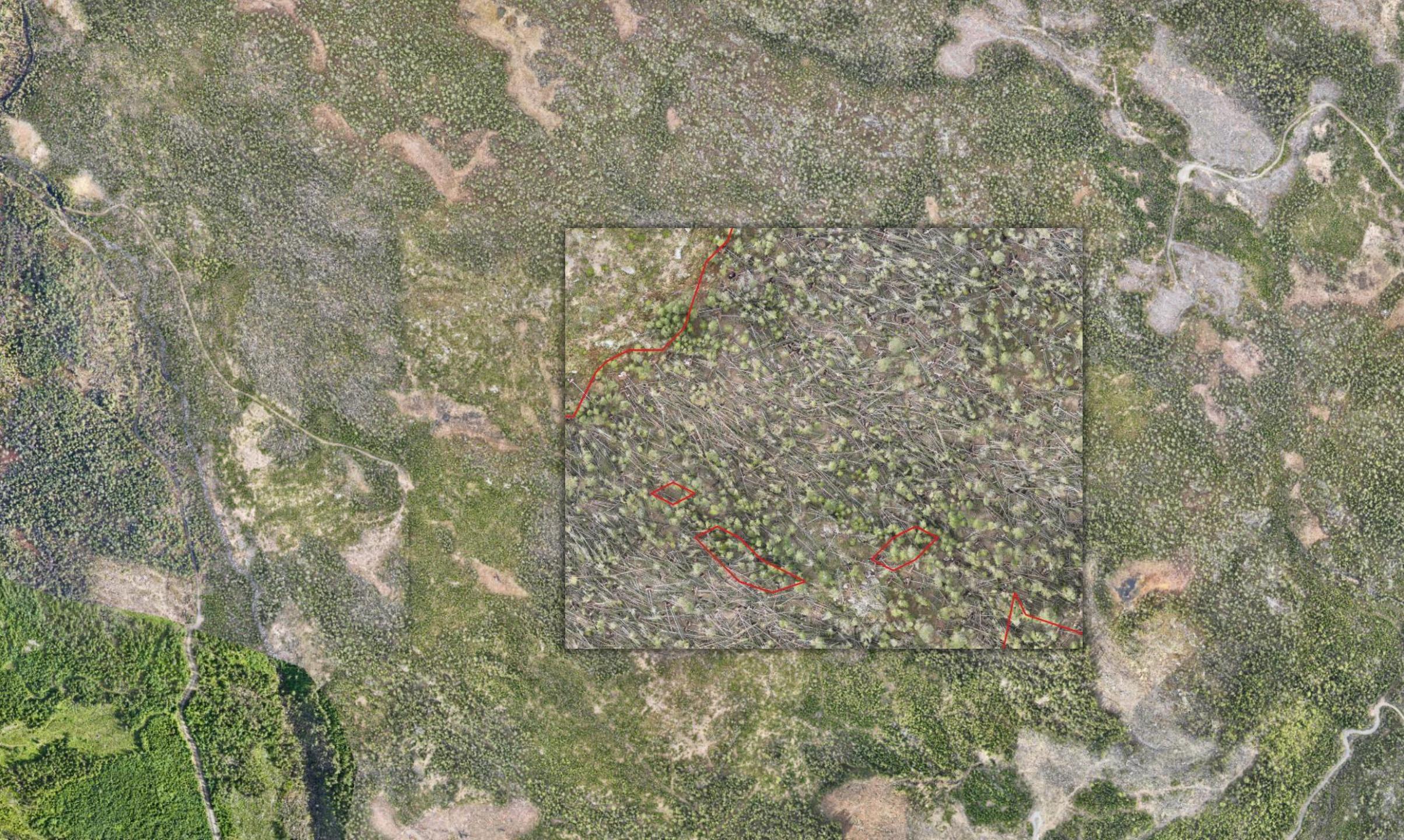


# Stormskadekartlegging

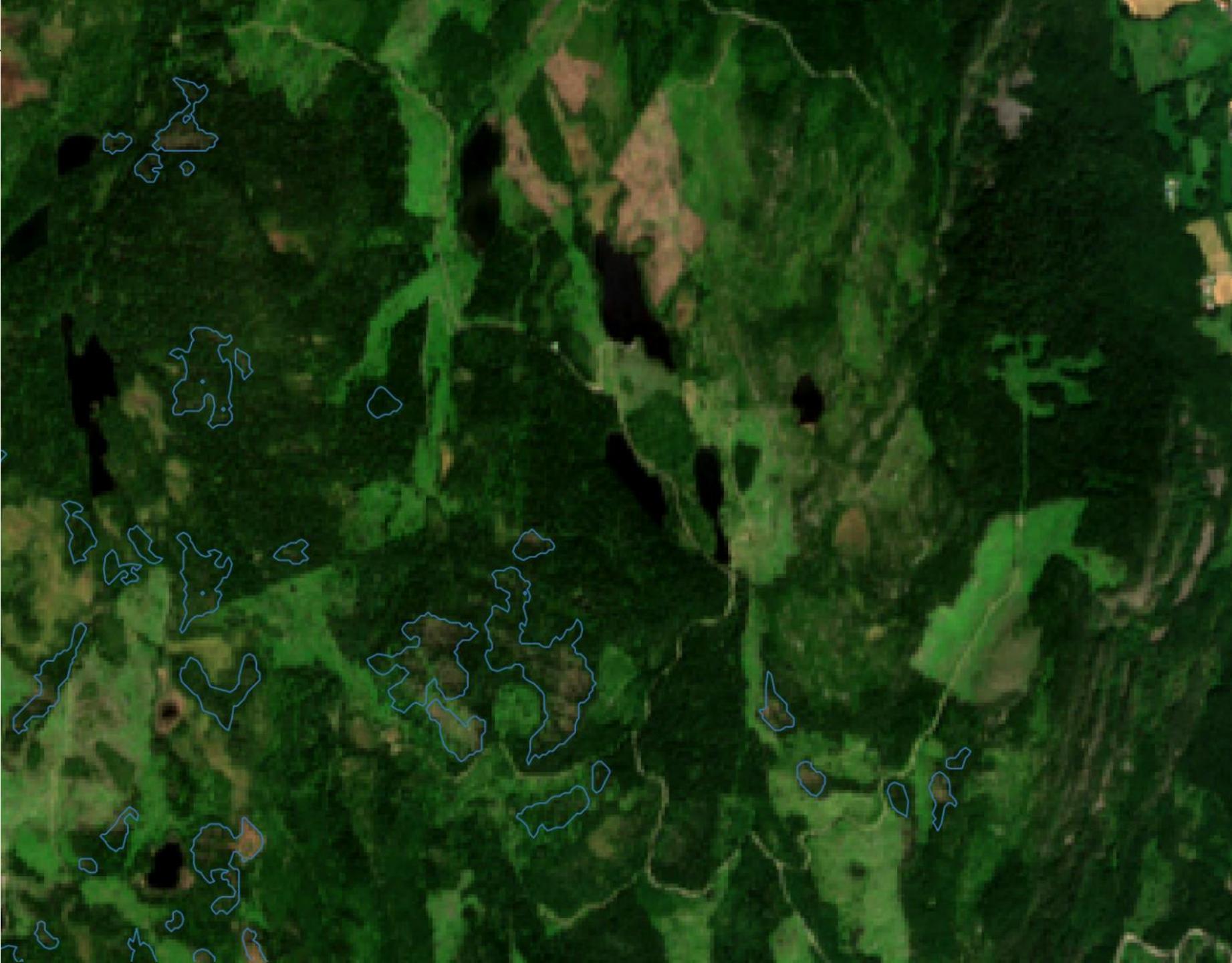
- Kan vi kartlegge stormskade med Sentinel-2?
  - Er skadene synlige nok?
  - Kan vinterbilder brukes eller må man vente?
- Del av en større test med
  - Sentinel-1
  - Sentinel-2
  - Maxar (høy oppløselig satellitt i stereo)
  - Dronedata
- Skogbrand – Landbruksdirektoratet – Field – NIBIO





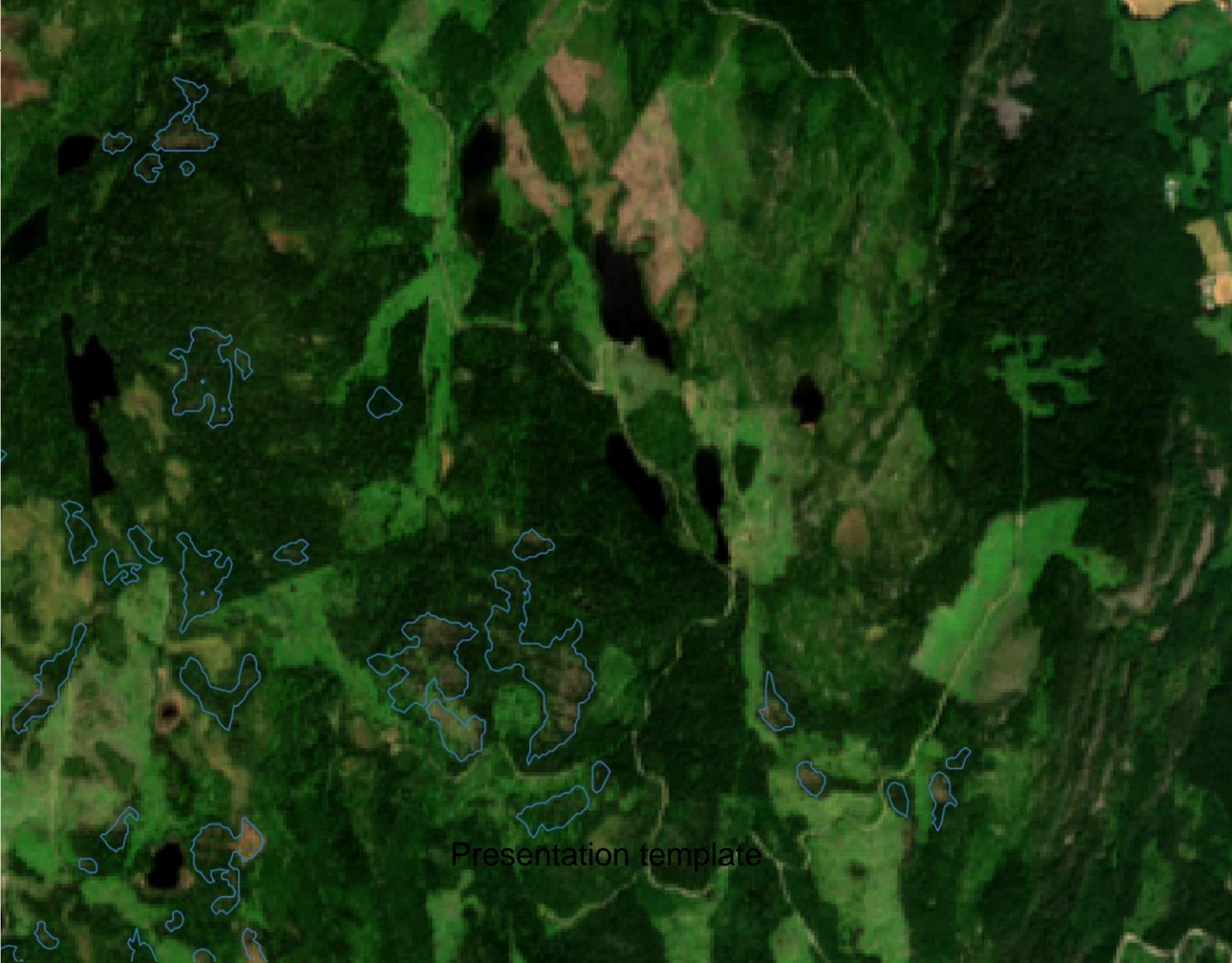


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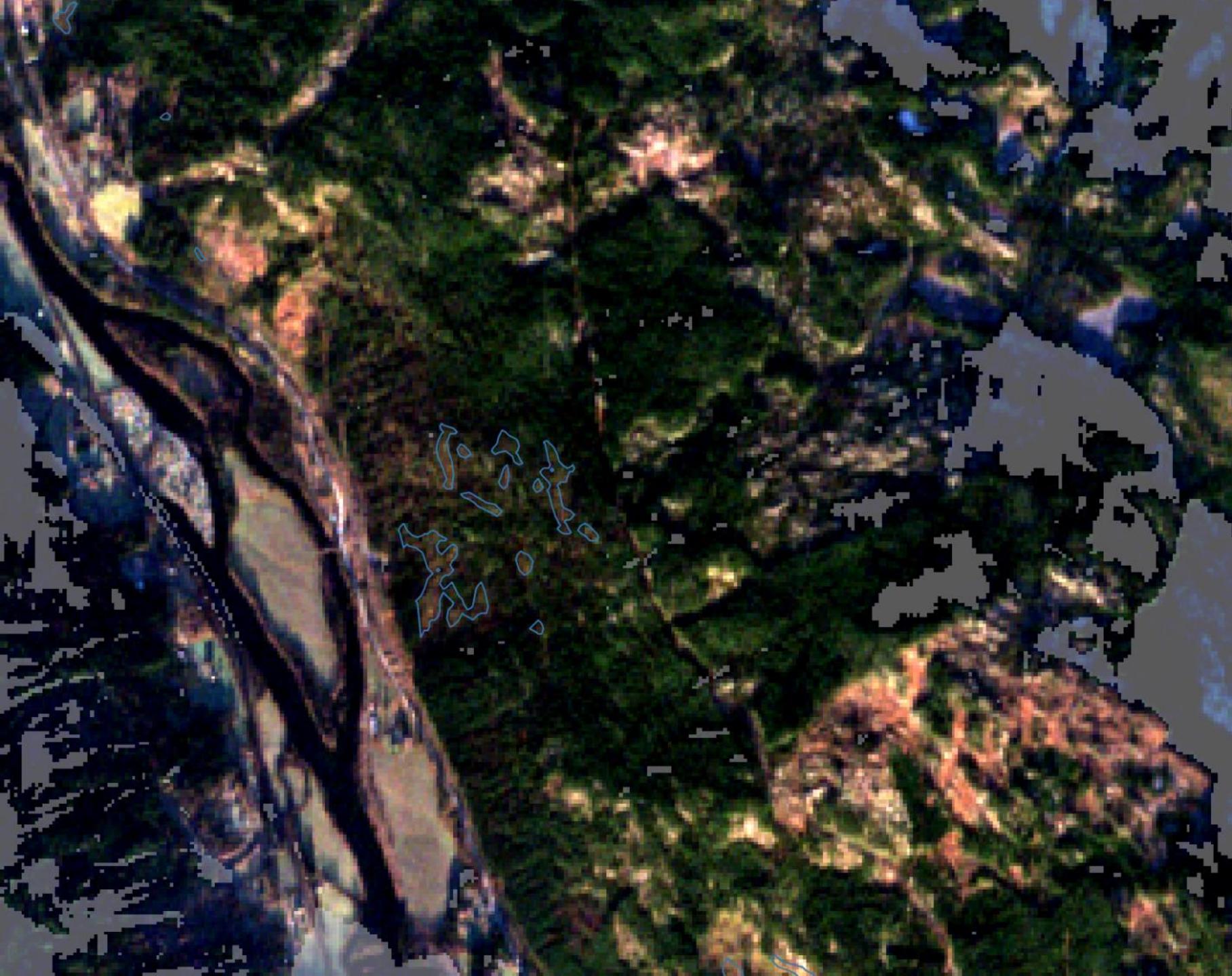
Field Public

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Field Public

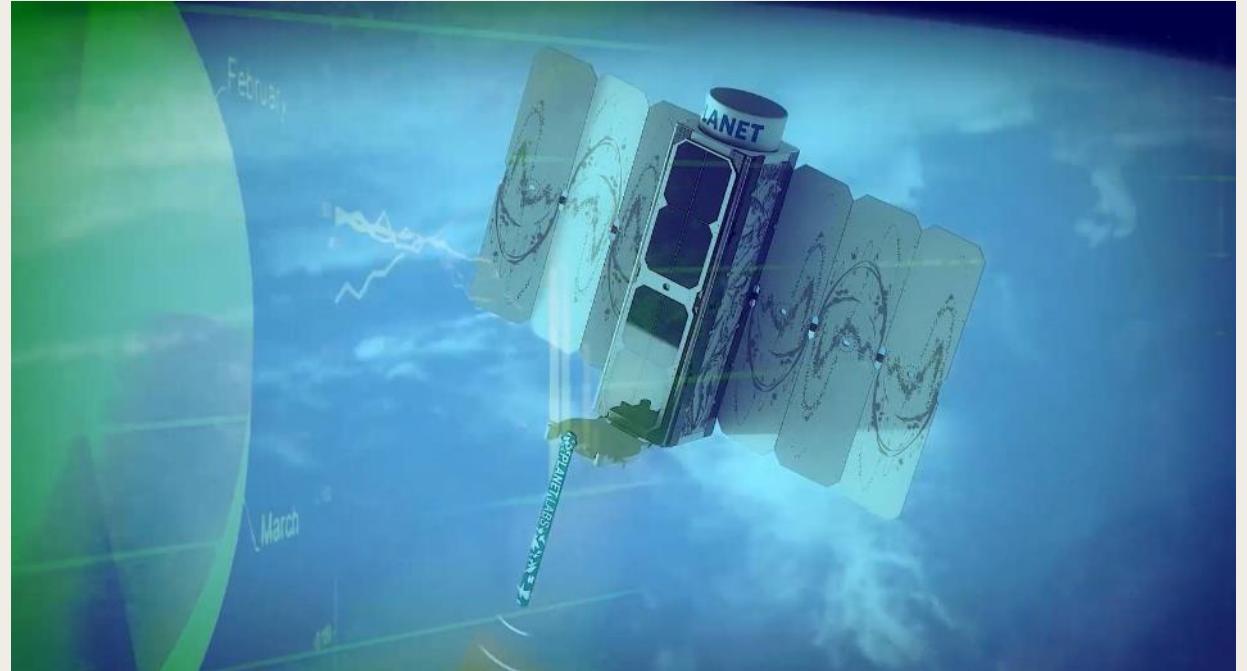
 Field



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# Gjøremål

- Forbedringer
  - Ordentlig validering
  - Co-registrering
  - Detektere tynninger
- Flere datakilder
  - Sentinel-1 SAR data
  - Planetscope data
  - Iceye / Capella / Umbra SAR data
  - SkyFi (Diverse)
- Bruksmuligheter
  - PEFC Sertifisering
  - Plantekontroll



The background of the image is a dense forest of tall, dark green trees. Sunlight filters through the canopy, creating bright highlights on the leaves and branches. The overall atmosphere is natural and serene.

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