

An aerial photograph of a forest landscape in winter. The ground is covered in a thick layer of snow, with some trees and small structures visible. The forest is dense with evergreen trees, and the overall scene is bright and clear.

Mapping of primary and old-growth forests in Sámi homeland in Finland

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(In Finnish: Luonnonmetsät Sápmi –työryhmä)

27th January 2025

Workshop on the Implementation of the European Commission's Forest Guidelines in the Boreal Region

Project and data



View from Sotkapää (Inari) to NW. Old-growth forest in front of the lakes and primary forest behind.

Funded by Kone foundation 2024-2025

Data

- remote sensing data
- Inventors' field observations on forest features
- gps-tagged field photos, approx. 200 000 images
- findings on red-listed + indicator species
- field measurements
 - 3000 field points
 - dead wood m³/ha
 - stumps/hectare
- local knowledge: forest use history
- + data from several previous years

Criteria and mapped forest categories

Forest category	Stumps/ha	Time from last selective logging	Very old trees	Deadwood	Note	Compliance with EU BD criteria for primary and old-growth forests	Compliance with Finnish criteria for primary and old-growth forests
Primary forest	<10	50 years	not required	not required	Can be both young and old forest	Yes	Partially
Old-growth forest	10 - 100	50 years	Required	>10 m ³ /ha		Yes	Yes
OGF w more intensive use	100 - 200	not required	Required	>10 m ³ /ha		Yes	Yes
Old logged forest	>100	not required	Required	No deadwood		No	No
Cultural and landscape forests	not required	not required	not required	not required	Cultural values or important forest for the landscape	No	No
Forest with other conservation values	>100 - 200	not required	not required	not required	Logged area with conservation values (dead wood continuity, red-listed species etc.)	No	No
Logged area	>100 - 200	not required	not required	not required		No	No

Criteria for stumps depend on the productivity of the forest. For low-productive forest the limit is lower.

Methodology to find potential primary and old-growth forests

- Areas were pre-selected by using maps and remote sensed data. Areas with no visible logging history and abundance of old trees (EU guidelines for criteria on age!) were delineated for further examination

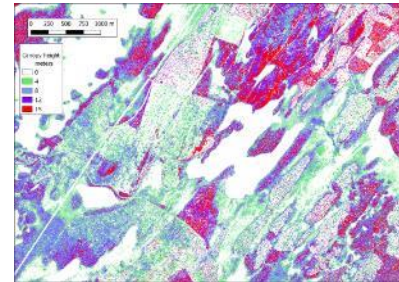
Topographic map by



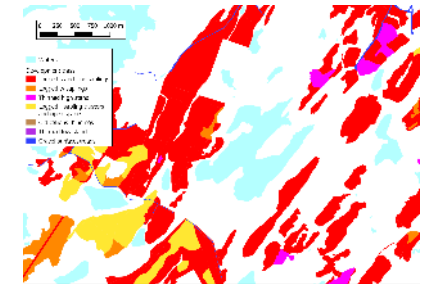
Aerial false color imagery



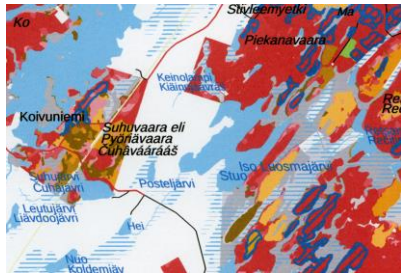
Canopy models/Lidar data



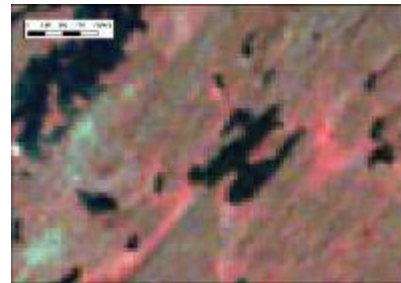
Digitized logging areas



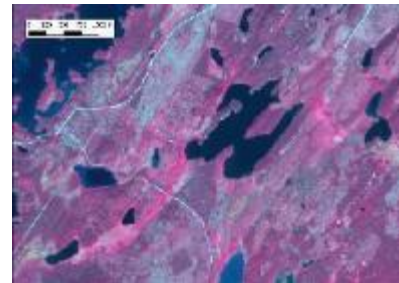
State forest maps by Metsähallitus



Landsat imagery (here 1971)



Sentinel 2 imagery (here 2018)



Land areas – (logging areas + treeless areas)

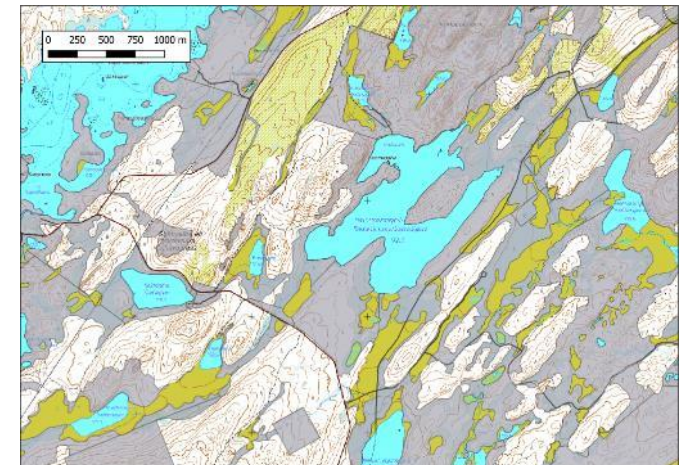
“Continuity forests” or forests without known logging history

Historical aerial imagery (here 1966)



Other important data:

- BPAN-data
- Syke Tarkka –web service
- Interviews of reindeer herders and a retired forest worker



Overview of mapped areas

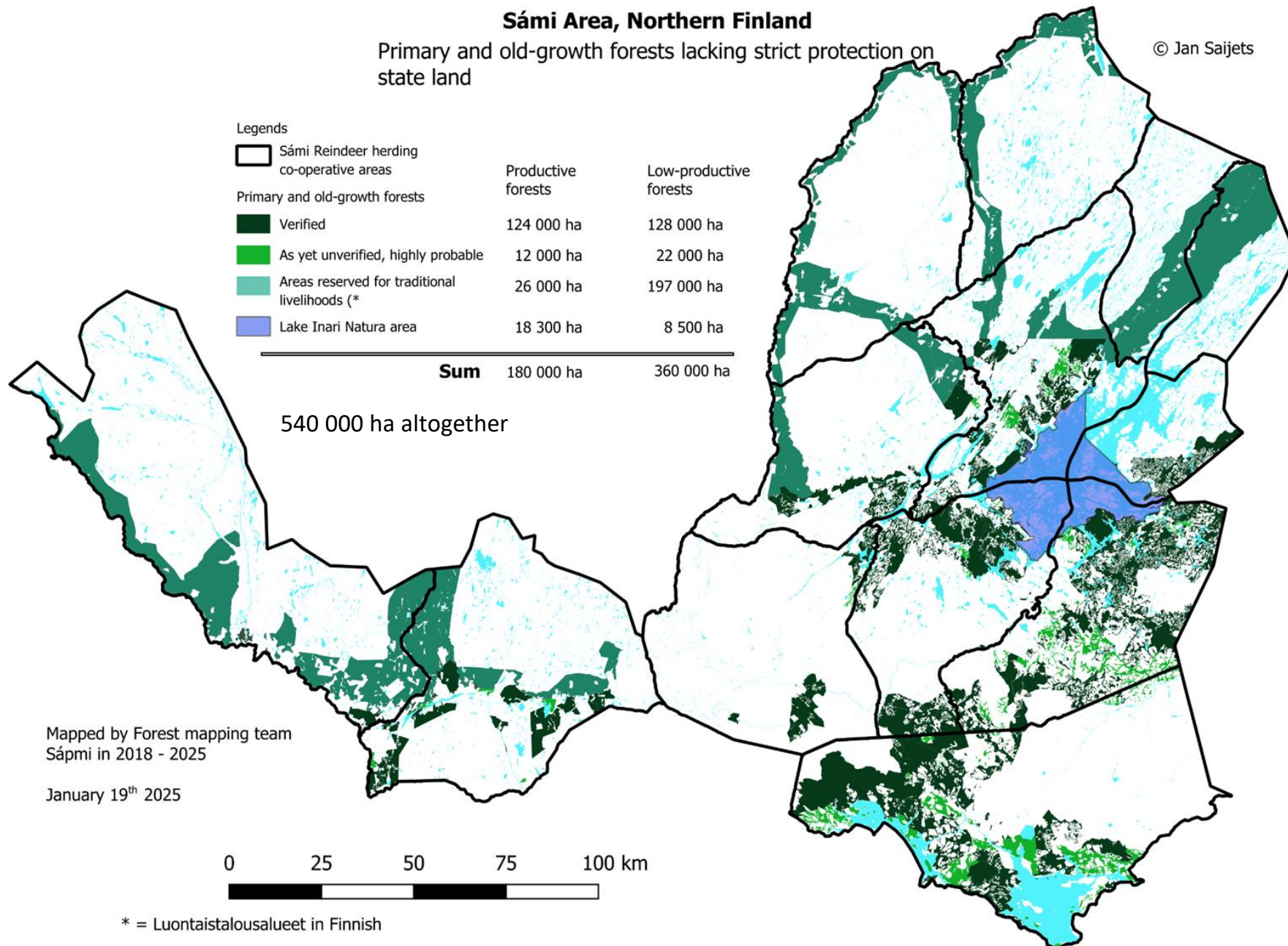
Primary and old-growth forests found in Sámi homeland area:
540 000 ha!

Practically, all standing forests with old trees are either primary, old-growth or other only once selectively logged forests

200-300 -year-old or older trees are very common and the stands are typically of mixed age.

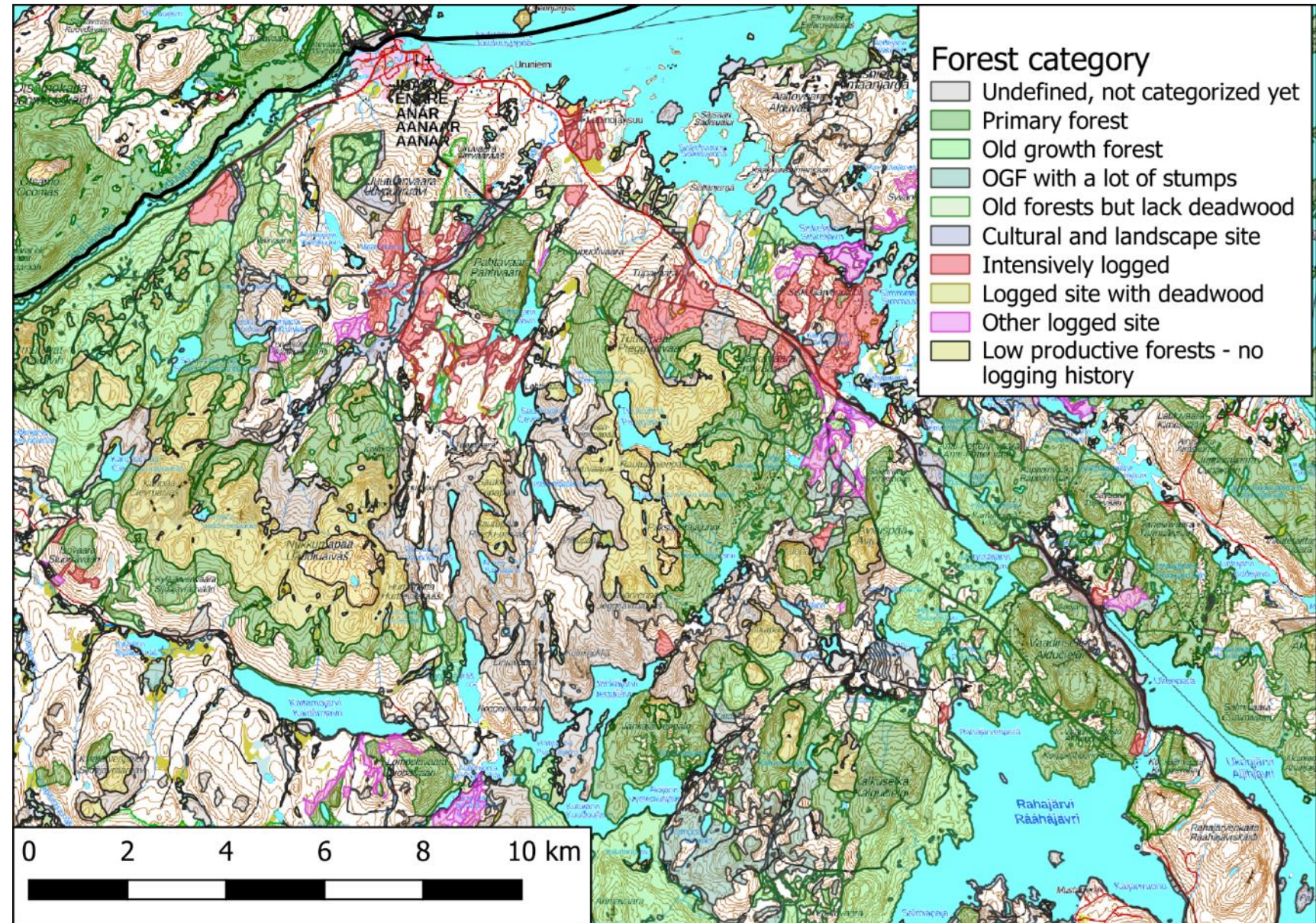
Note:

Delineations in the map include unforested areas - i.e. wetlands, poorly wooded hills and waters.



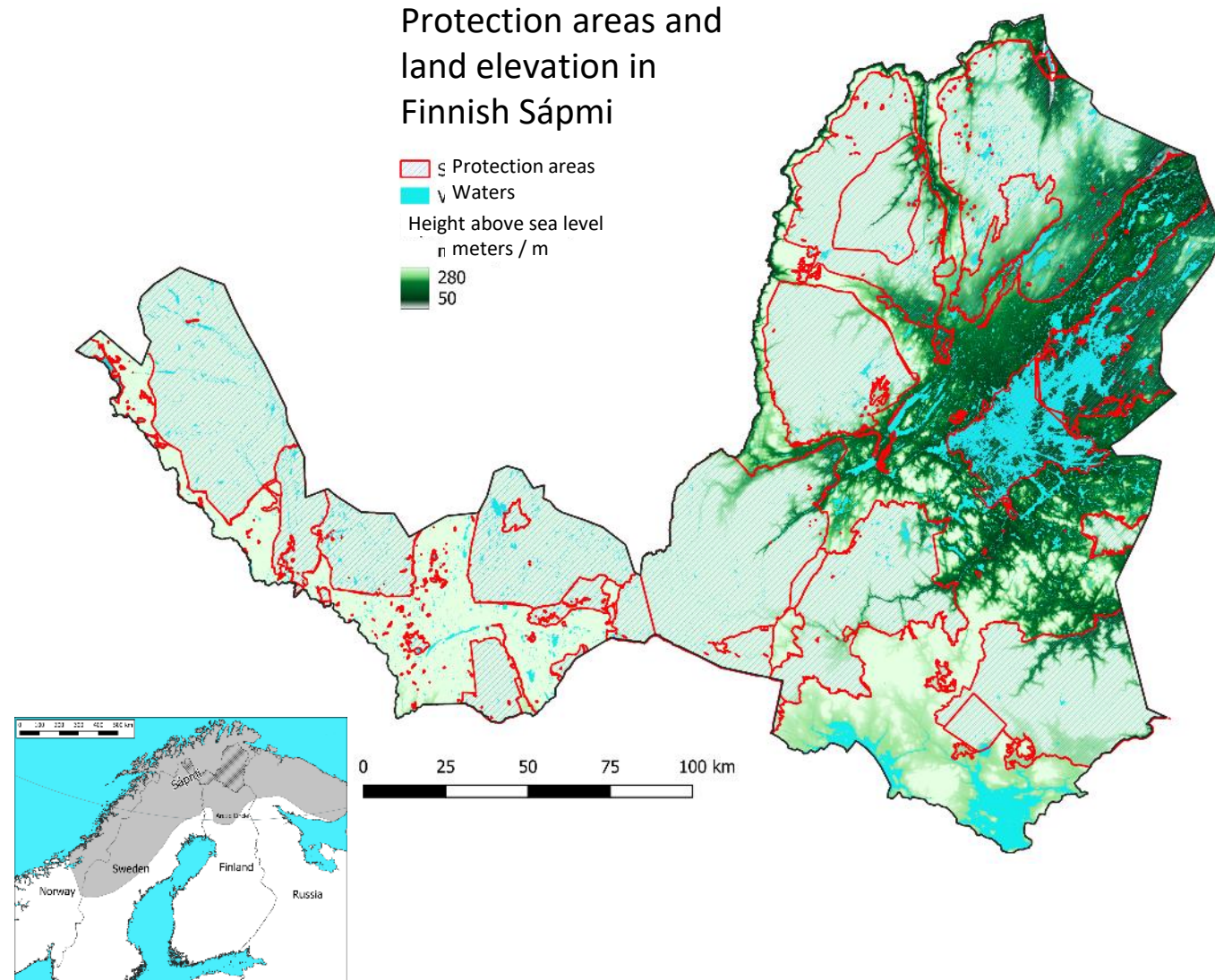
Detailed delineated forest data

- The general map on the previous slide is based on the more detailed categorisation of forest stands (polygons) shown on this map.
- The areas marked in grey are yet to be defined. As the mapping progresses, it has been found that over 80 % of them will turn out to be forests that meet the criteria.



Sámi rights and status of land protection

- Sápmi, Sámi homeland area : 90% of the lands are controlled by the State.
- Forestry is found on low lands, protected areas mostly on high-elevated areas with no or low-productive forests
- Many protected areas are loosely or temporarily protected - strict protection missing
- Sámi Parliament on 8th of October:
 - criteria for primary and old-growth forest proposed by the Finnish government not acceptable for Sápmi
 - a separate process for these criteria should be established for the Sámi homeland area
 - criteria of Forest Mapping Team Sápmi should be applied
- International Indigenous peoples' rights and domestic law prohibit causing **significant harm** to Sámi reindeer herding. In many places this threshold most likely exceeded already due to the impact of intensive forestry on Sámi reindeer herding

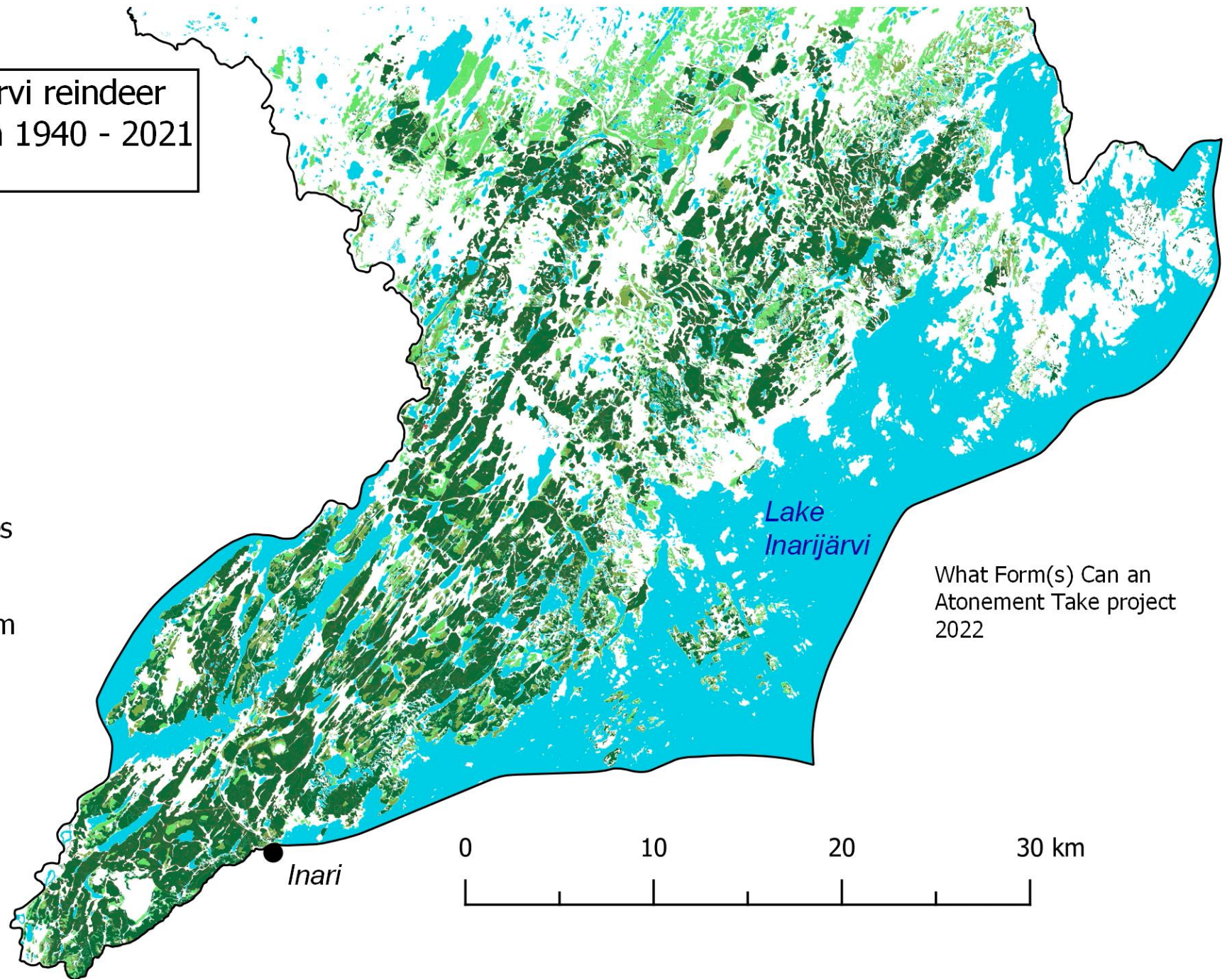


Fellings in Muddusjärvi reindeer herders' cooperative in 1940 - 2021

Year 1940

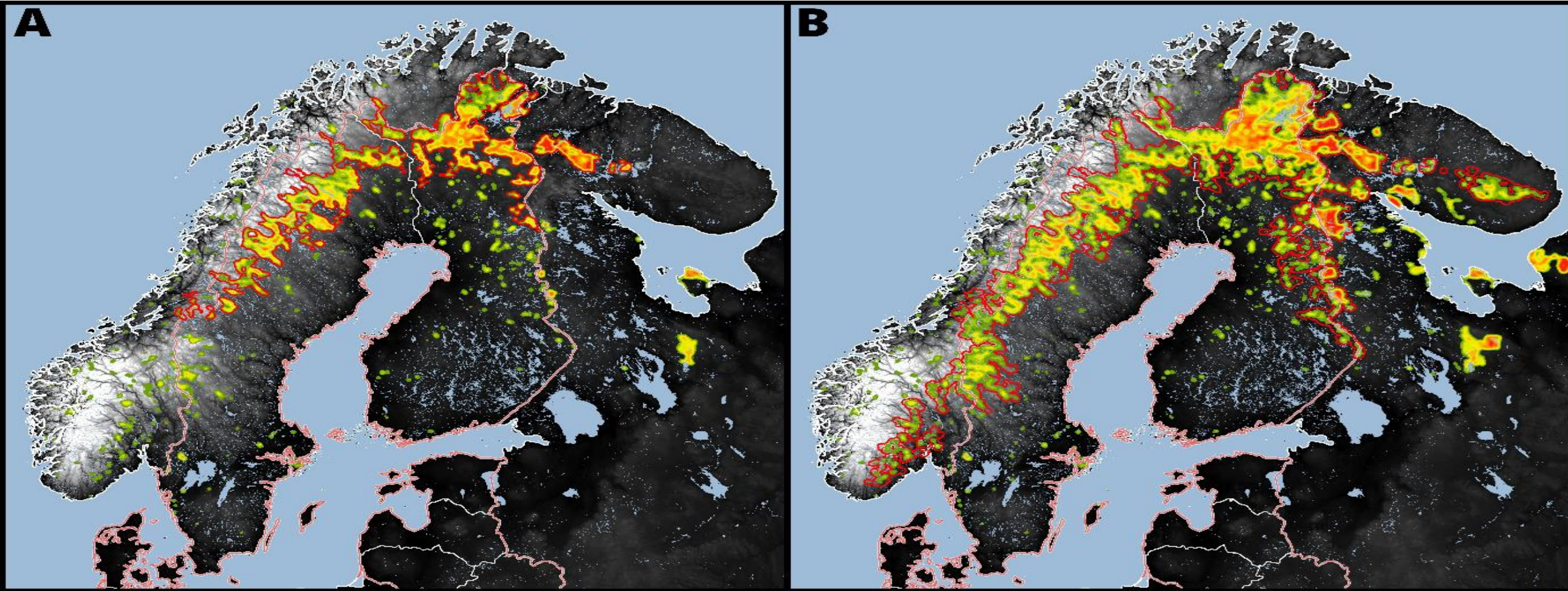
Legend:

- Water bodies
- Forest category
 - High and dense trees
 - Uneven-aged trees
 - Low trees, below 8 m
 - Felled areas



What Form(s) Can an Atonement Take project 2022

Crown of Europe - Fennoscandian Horseshoe of Primary and Old-Growth forests



Caption. Concentration analysis of remaining OGF and mapped continuity forest in Norway, Sweden and Finland. In A is OGF currently under legal protection, and in B, both the legally protected forests as well as OGF and continuity forests that are mapped outside the legally protected areas. Note that losing the OGF and continuity forest currently found outside the legally protected areas, will break up much of the continuous belt of old forest we see today.



Ollu giitu!

= "Thank you" in Northern
Sámi language