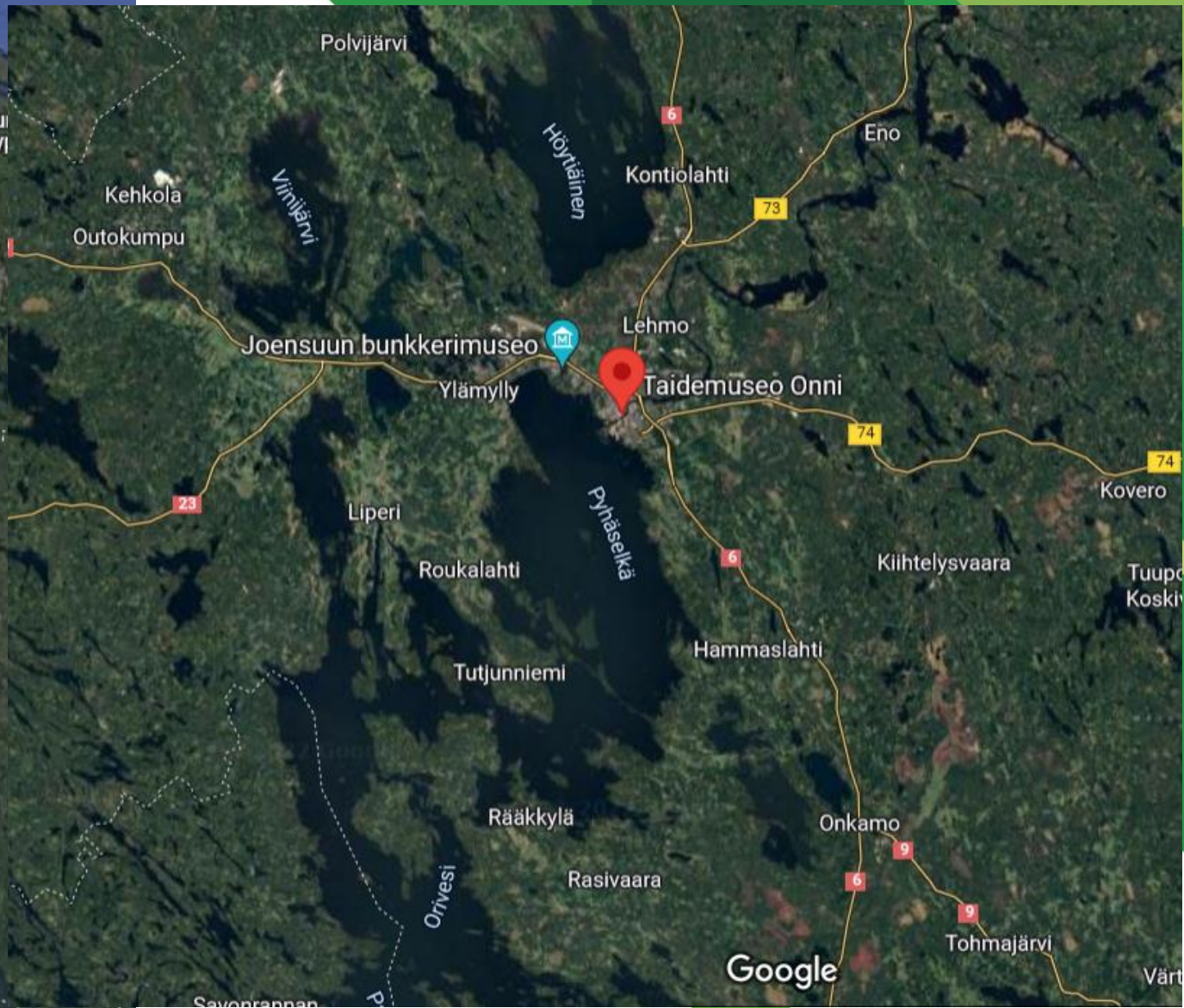
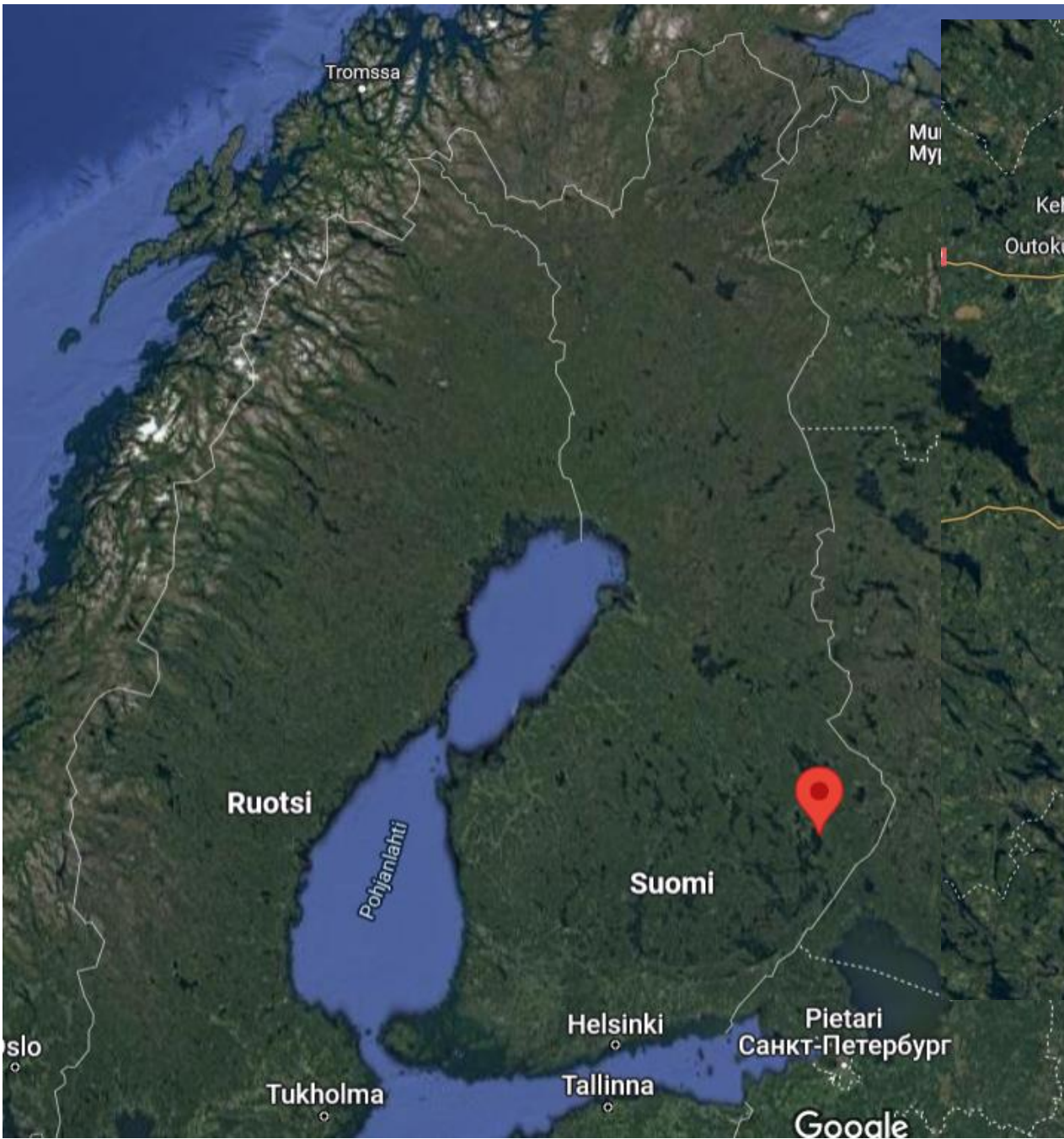


Ari Talkkari

Marteloscopes for forestry education and training in Eastern Finland



Background

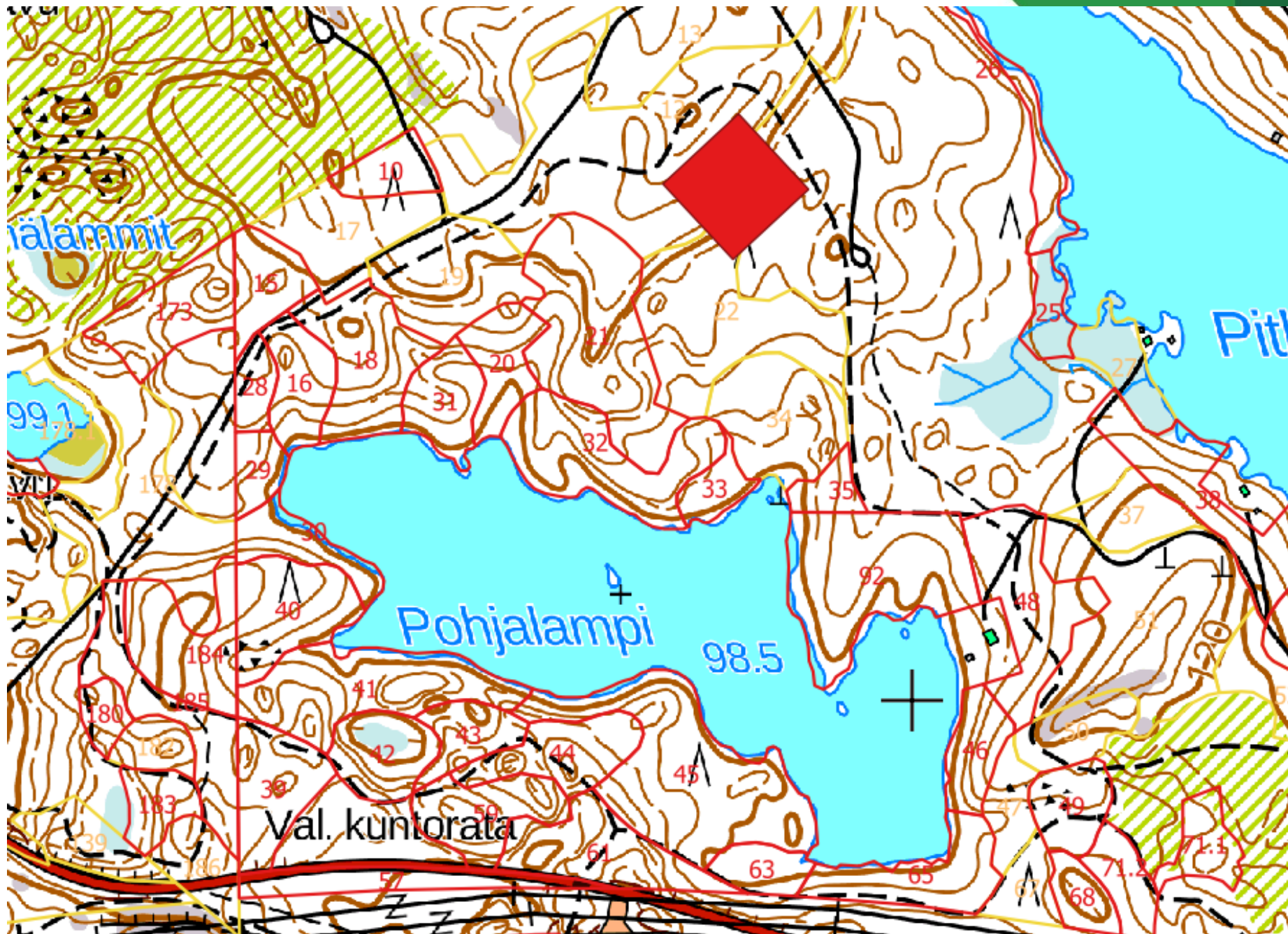
- Project funded by European Agricultural Fund
- Duration 3/2021–6/2023
- Karelia University of Applied Sciences,
European Forest Institute, Forest Centre
- Target group forest owners in North Karelia

Background

- WP1: Establish and measure marteloscopes in Joensuu area
- WP2: Further develop I+ Trainer mobile application
- WP3: Plan and conduct training for forest owners

Martelocopes

- Should cover the most common site classes
- Marteloscope Guidelines as a reference
- Four quadrants
- Tree locations
- Tree characteristic
 - Measured: diameter, height, crown
 - Calculated: Sawn wood, pulp wood, waste wood
- Micro habitats







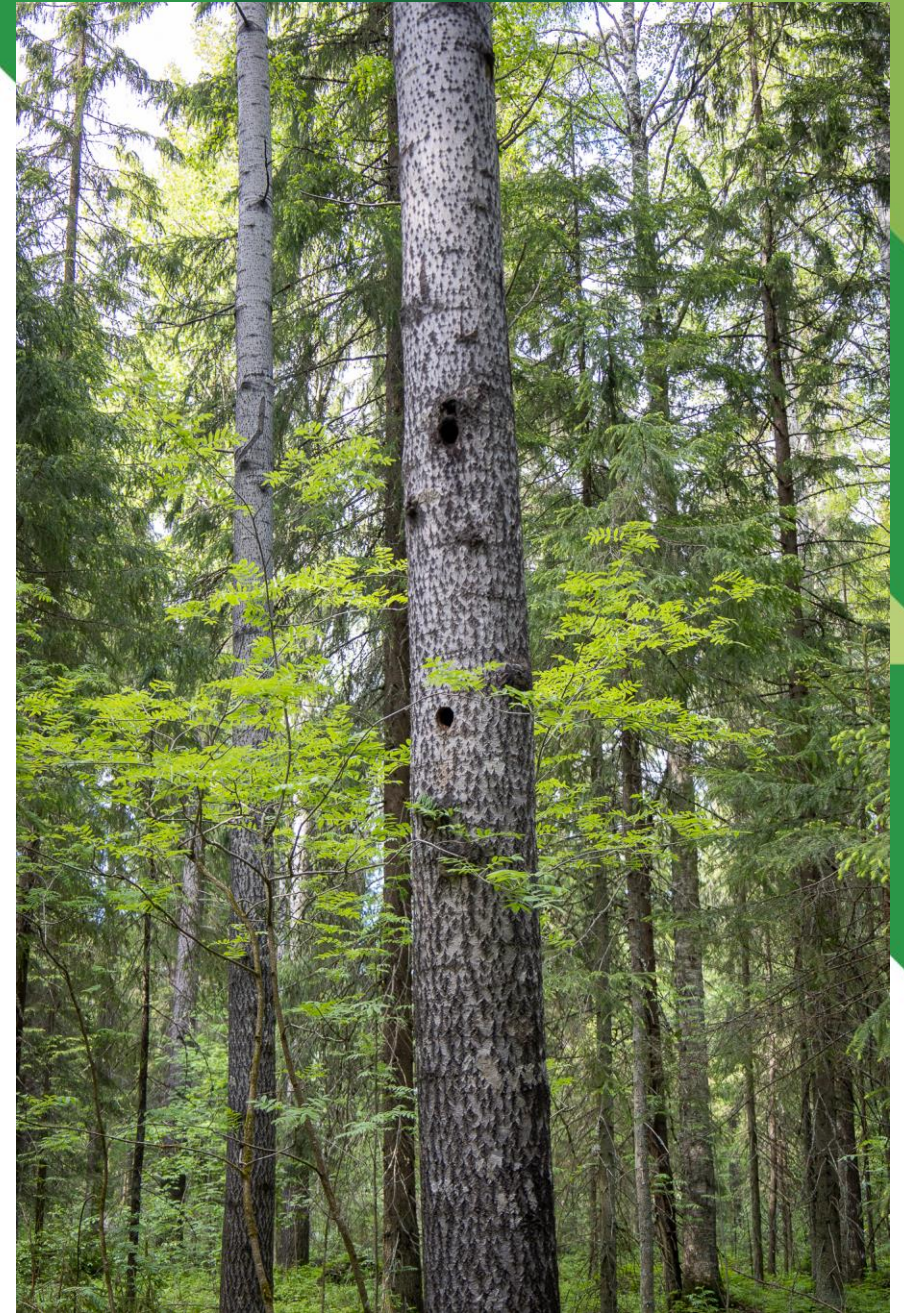
Pärnävaara

- Size 100 m x 100 m
- Dryish heathland
- Grown up growing forest
- Stem count 720 n/ha
 - Scots pine 707
 - Norway spruce 1
 - Downy birch 11
 - Aspen 1
- Mean diameter 19,4 cm
- Mean height 18,7 m
- Basal area 22,9 m²/ha
- Volume 217,2 m³/ha
 - Sawn wood 143,7
 - Pulp wood 69,1
 - Waste wood 4,4





relia

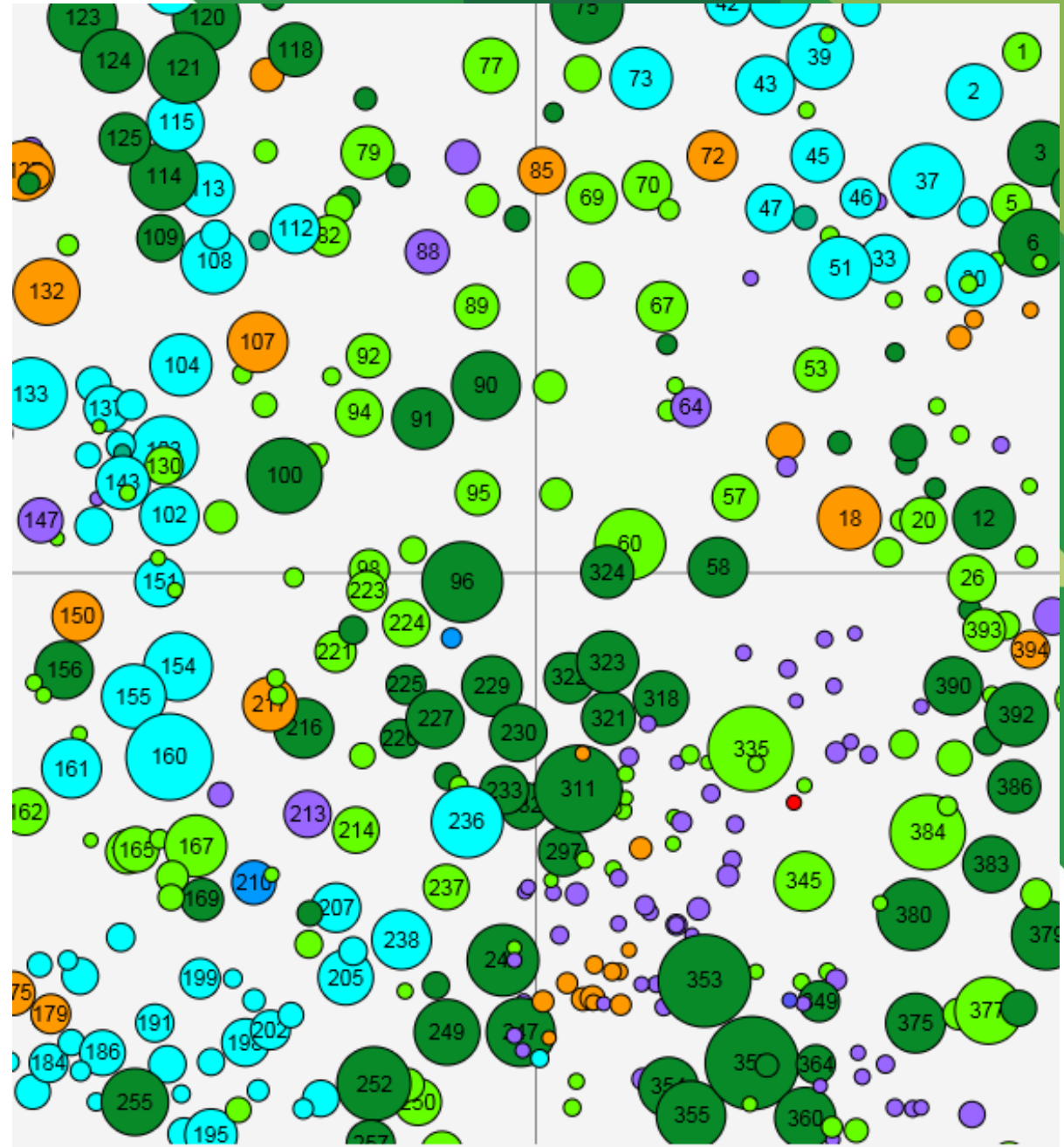


Repokallio

- Size 100 m x 100 m
- Grovy heathland
- Mature forest
- Stem count 535 n/ha
 - Scots pine 3
 - Norway spruce 449
 - Downy birch 62
 - Aspen 15
 - Rowan 5
 - Goat willow 1
- Mean diameter 25,1 cm
- Mean height 23,2 m
- Basal area 32,4 m²/ha
- Volume 425,0 m³/ha
 - Sawn wood 378,2
 - Pulp wood 42,7
 - Waste wood 4,1

I+ Trainer

- User interface in Finnish
- Multiple tree selection (against Integrate idea?)
- Growth calculation
- Carbon component
- Realtime response



Training forest owners

- Tree selection for thinning (Pärnävaara)
- Tree selection for selective cutting (Repokallio)
- Tree selection for maintaining biodiversity
- About 40 forest owners so far
- Feedback from training and I+ Trainer application
- More training in 2023

Training forest owners

- Marteloscope is not well known
- Forest owners tend to think practically and economically
- Some interest to continuous cover forestry
- Exercises were logical, but needed some effort to go through
- Limited discussion

Training forestry students

- Martelloscopes were presented to forestry lecturers at Karelia UAS
- Vaste amount of possibilities
 - Single tree assessment and measurement
 - Tree selection for thinnings
 - Continuous cover forestry
 - Biodiversity management
 - Carbon storage

Training forest professionals

- Same themes as for forestry students
- Forest engineers
- Harvester drivers

Thank you!