



Calculating urban greenery and canopy cover for Nature Restoration Regulation

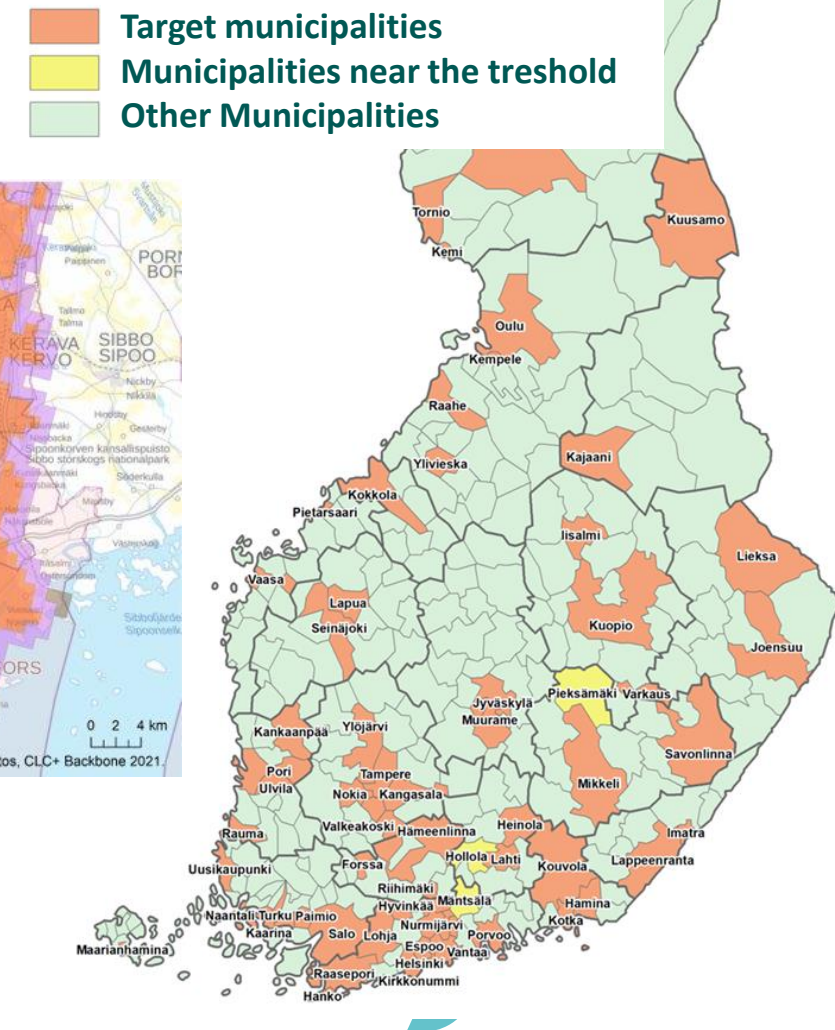
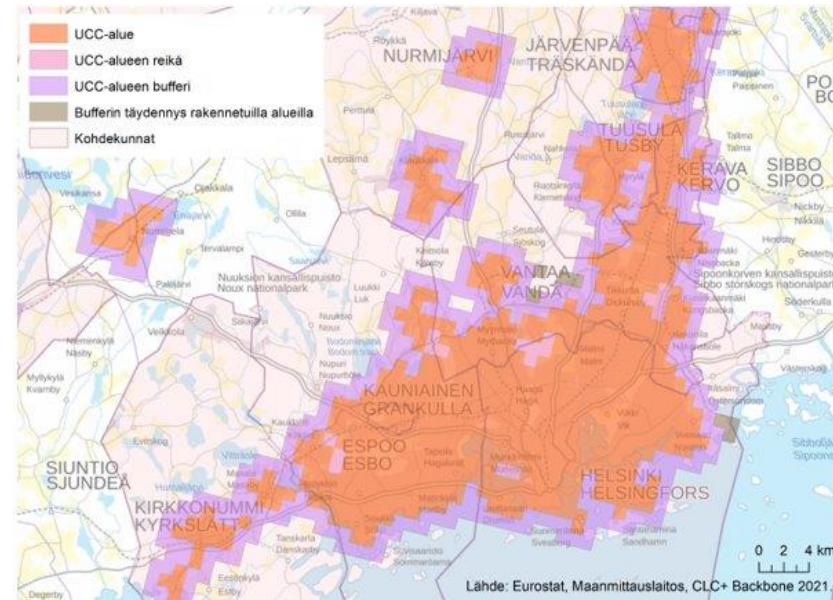
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The Urban Article of NRR covers the densely populated areas of municipalities (Urban Centres and Urban Clusters)

- Multiple optional ways to define an urban ecosystem area
- Urban centres and urban clusters are required to be included. They have been combined into UCC areas (orange)
- UCC areas are calculated in 1 km² grid cells based on population density (Eurostat)
- In Finland, municipalities have had an option to include 1 km buffer grid cells (violet) in the target area
- In Finland, 67 municipalities are included.

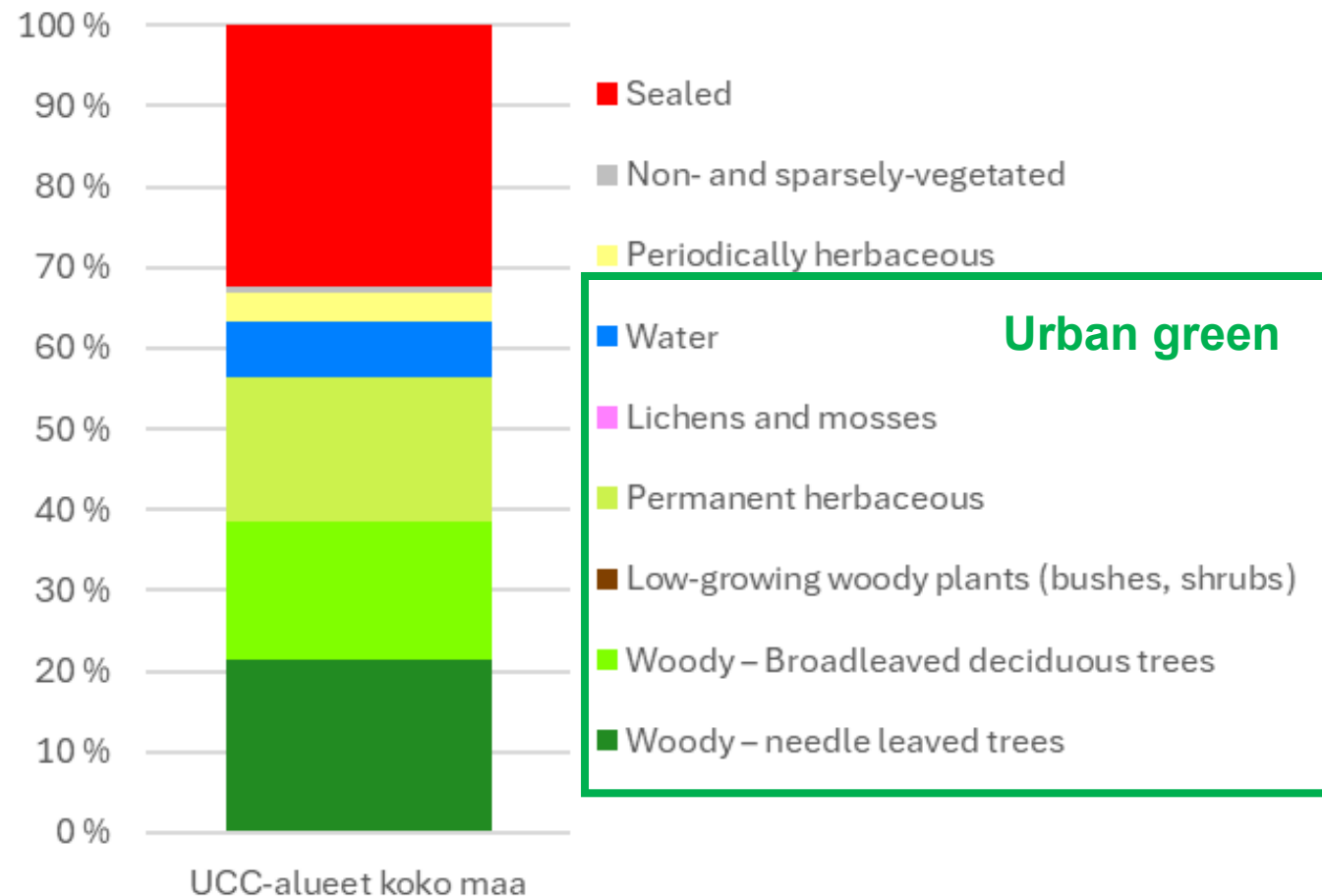


The definition of urban green space in the NRR is based on the Copernicus CLCplus Backbone data (10 m)

- Urban green includes forests and areas permanently covered with vegetation, as well as inland waters.
- Sealed land, other land without vegetation cover and cultivated fields with seasonal vegetation cover are not included in urban green.

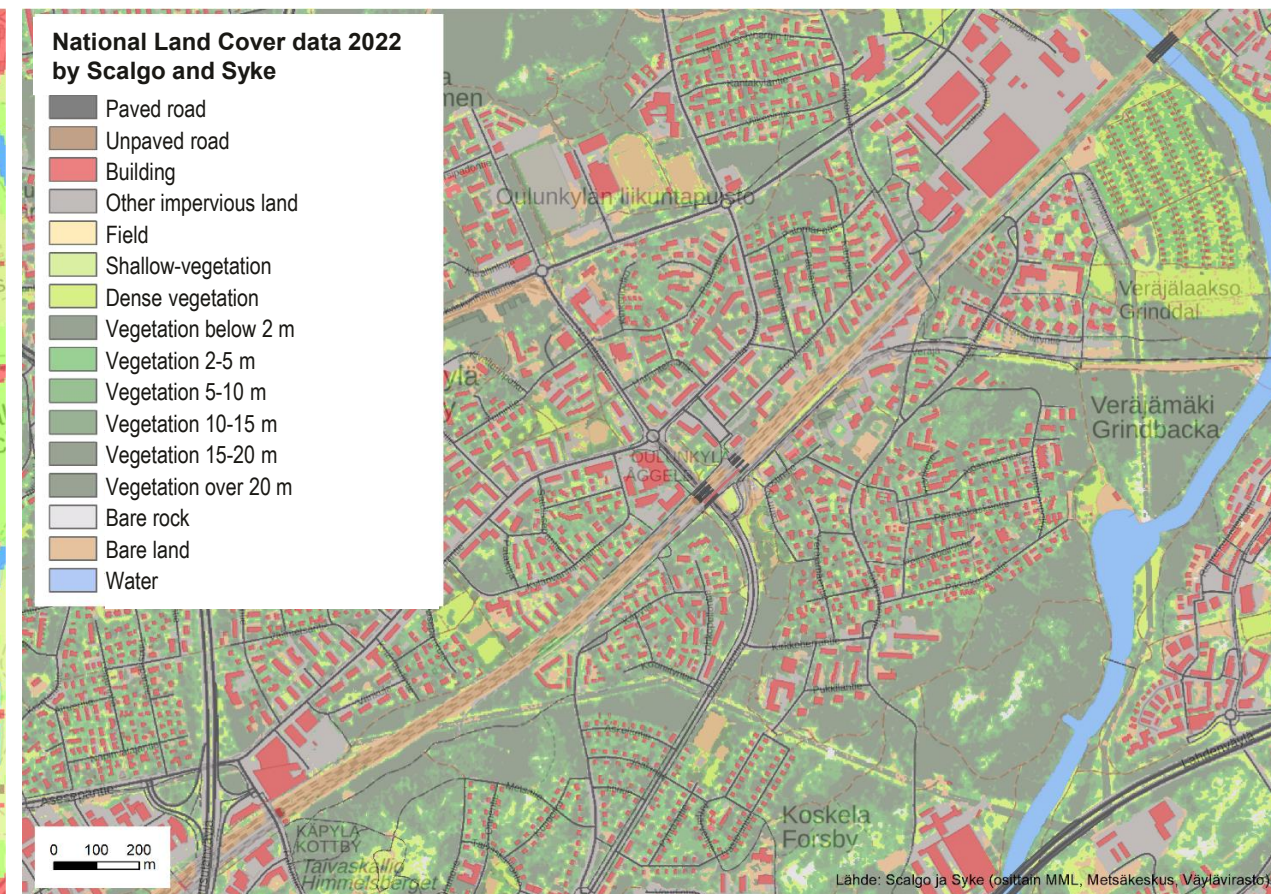
1: Sealed
2: Woody – needle leaved trees
3: Woody – Broadleaved deciduous trees
4: Woody – Broadleaved evergreen trees
5: Low-growing woody plants (bushes, shrubs)
6: Permanent herbaceous
7: Periodically herbaceous
8: Lichens and mosses
9: Non- and sparsely-vegetated
10: Water
11: Snow and ice
253: Coastal Seawater buffer

Share of land cover classes in all Finnish UCC areas 2021



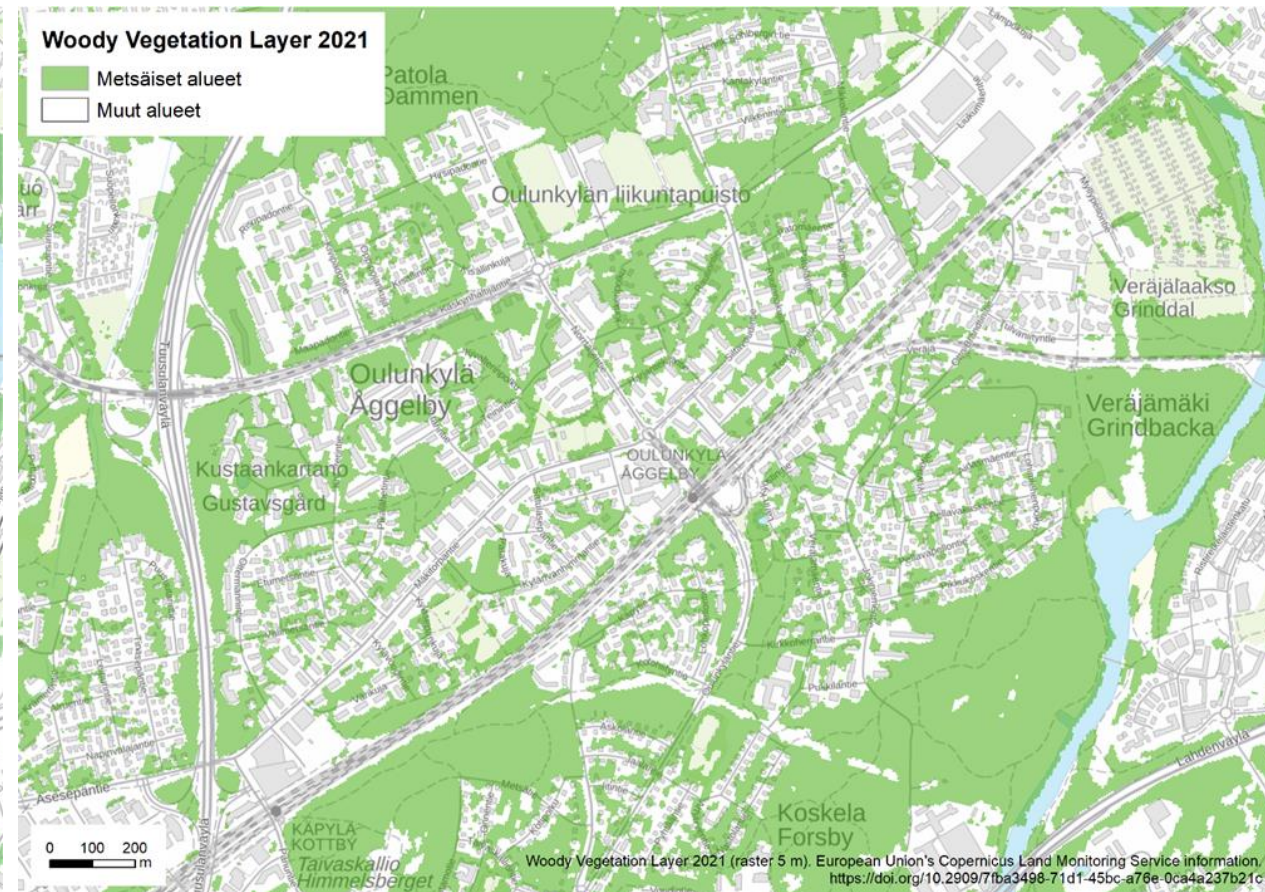
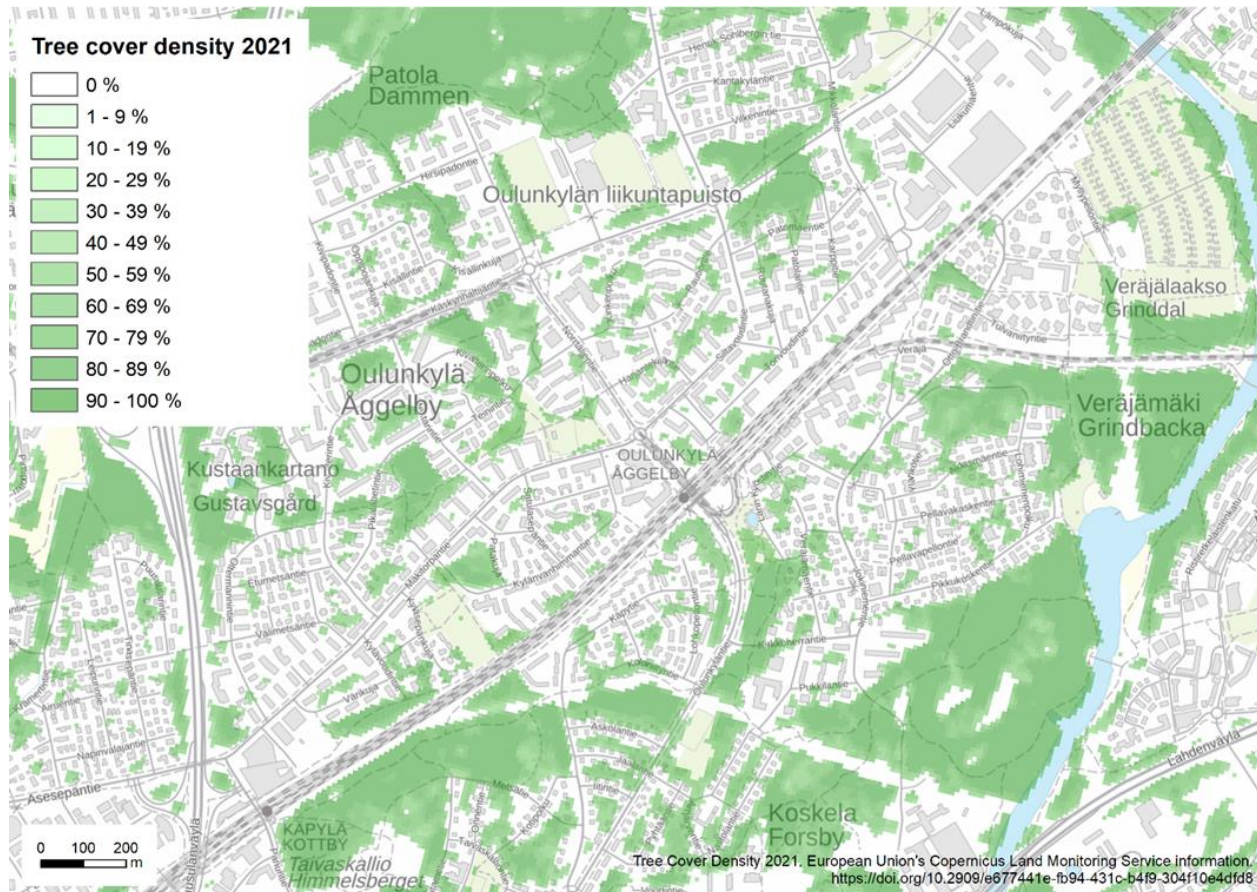
The CLCplus Backbone data provides a reasonable overview of land cover, but also contains shortcomings

- For sealed surfaces and forests, the accuracy is reasonable.
- The distinction between areas permanently and seasonally covered with vegetation, is not accurate
- There is uncertainty in the identification of areas with no vegetation cover and sparse vegetation cover.
- Smaller streets and roads are not classified as sealed surface, street greeneries are missing in larger streets



The calculation of urban tree canopy cover is based on Copernicus HRL Tree Cover Density (TCD) data (10 m)

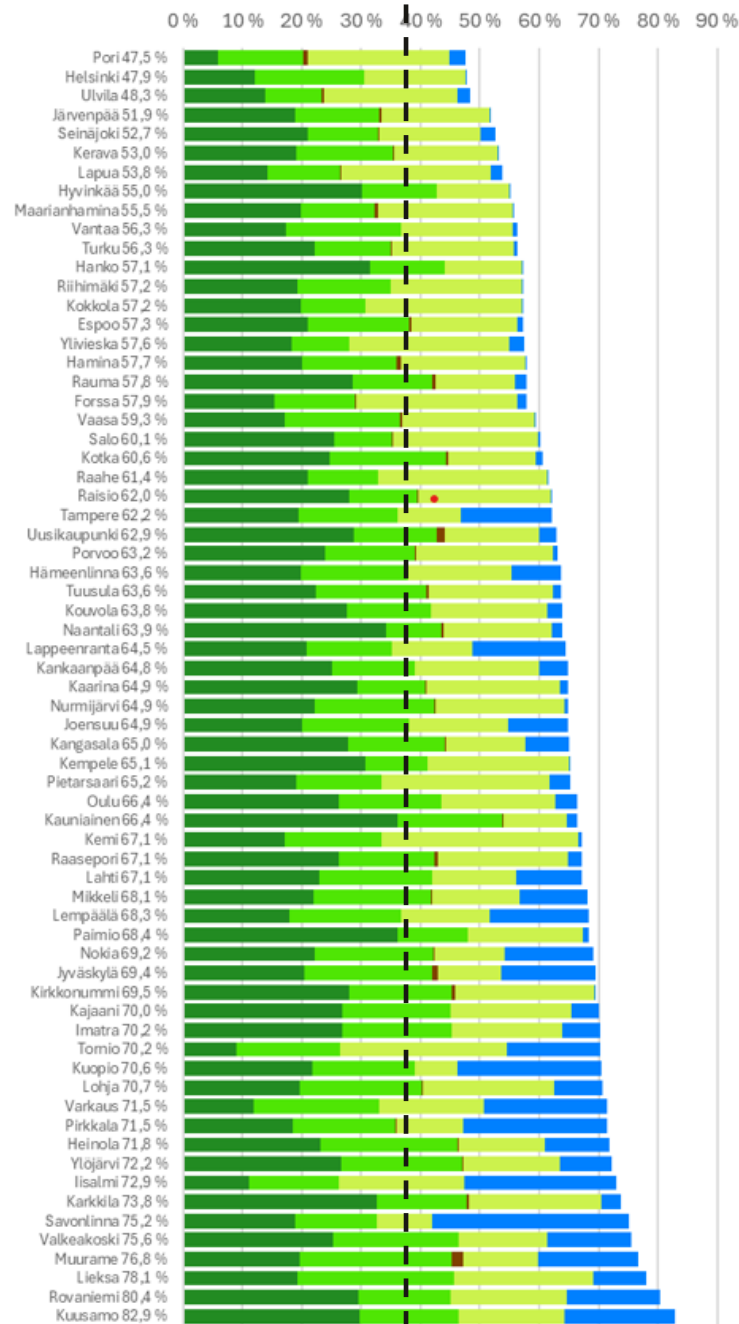
- Tree Cover Density data seems to lack some small scale green areas, such as trees along streets
- Copernicus dataset Woody Vegetation Layer exaggerates tree cover.
- National data based on aerial photos and laser scanning data provide more accurate data, but are not available as extensively and frequently.



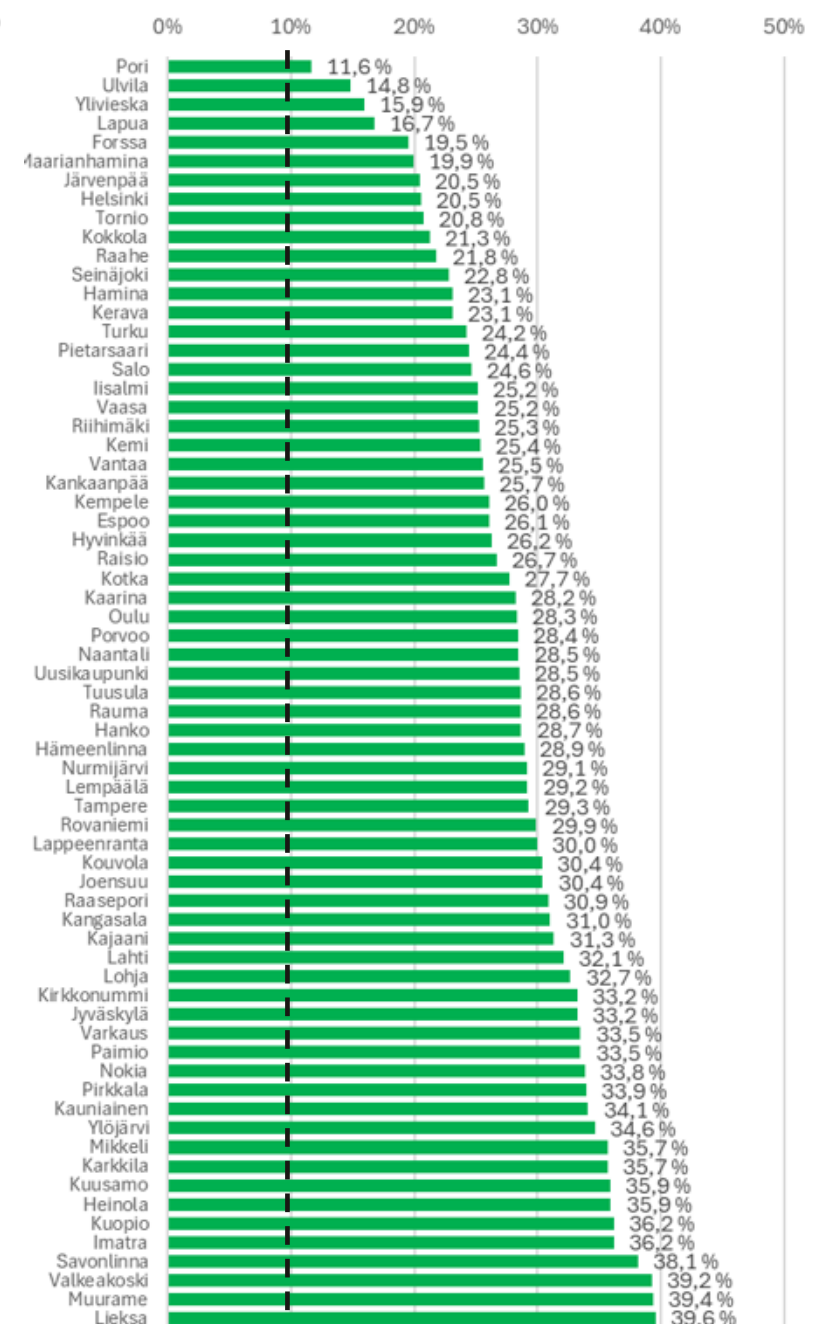
The level of urban green areas and tree cover density in Finnish cities

- Finnish cities are quite forested
- The share of agricultural land and inland water varies a lot
- No Net Loss Target Until 2030: the threshold is exceeded in all Finnish cities
- The challenge lies in the target of increasing urban green and canopy cover after 2031.

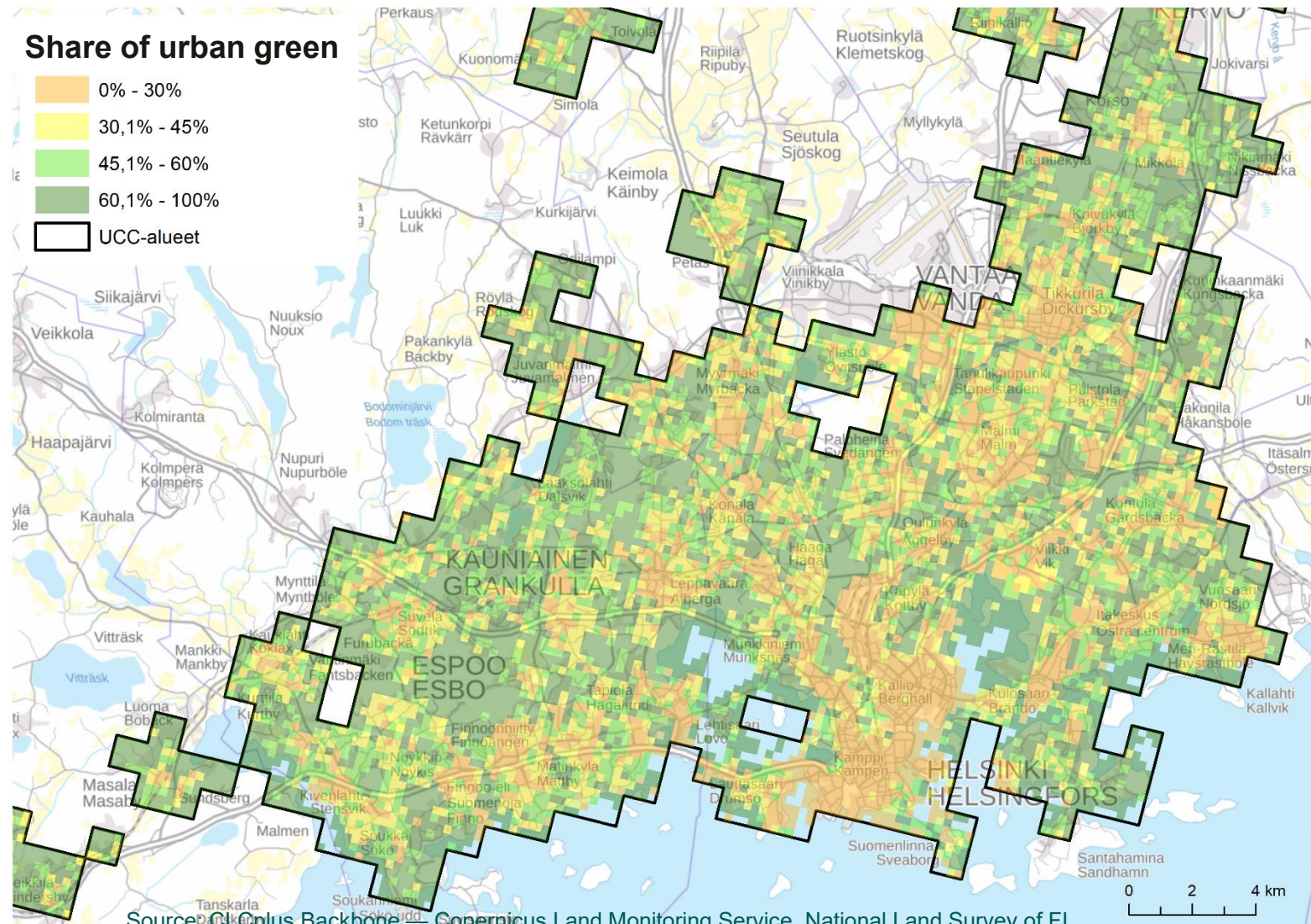
Share of urban green areas



Tree Cover Density percentage



The share of urban green and the canopy cover vary within the UCC areas. In many areas the share falls below the target/satisfactory values. Example from Helsinki Region.



What causes the decrease in urban green and tree canopy? Where to increase them?

Combining land cover data with land use and planning data and examining changes.

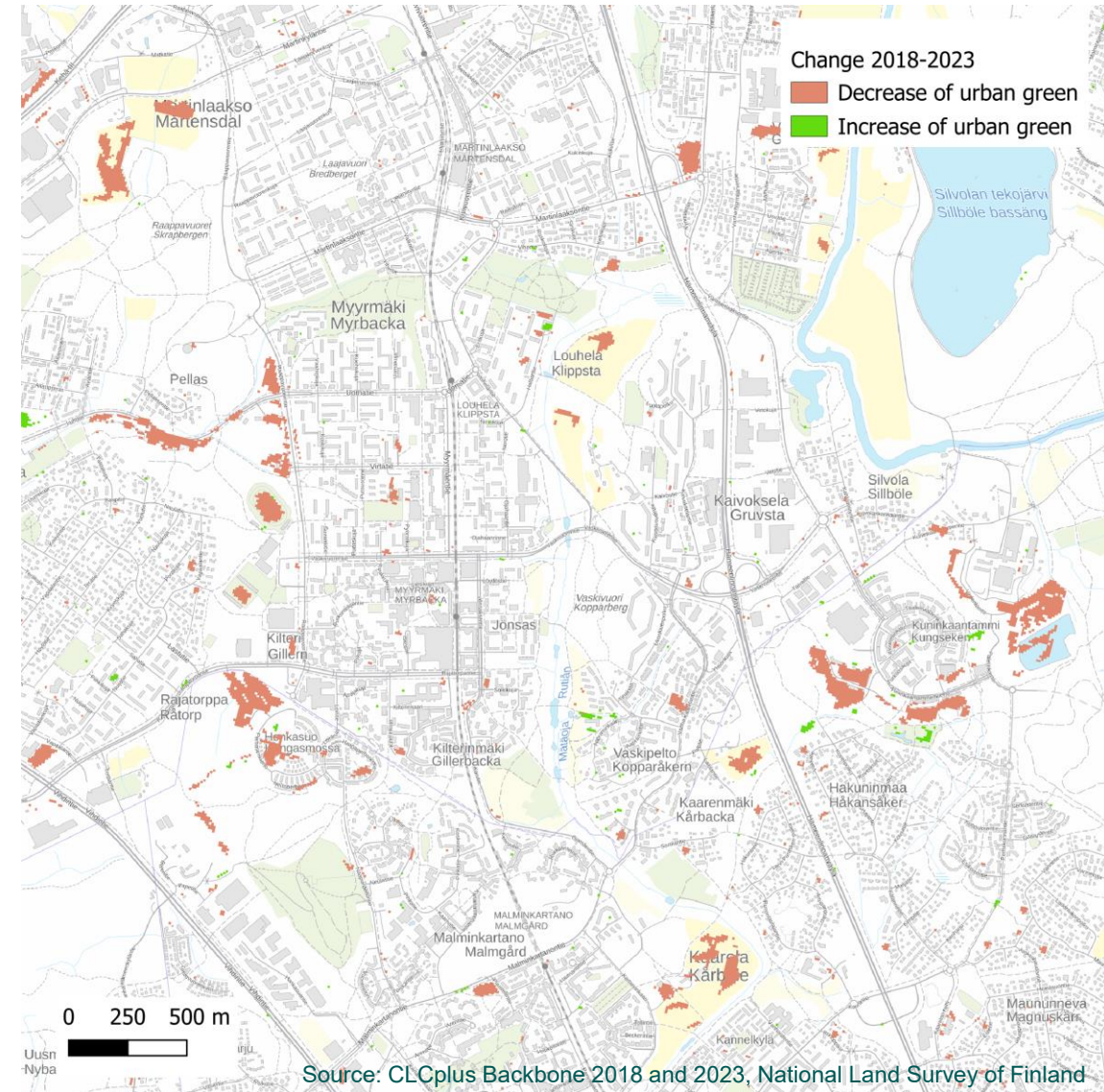
Most often loss in green areas is due to expansion of residential and transport areas, and industrial development on the fringe of urban areas.

Also changes in agricultural use or in the interpretation of satellite imagery

Re-greening opportunities in transport areas, residential and commercial areas and brownfields. The ownership of areas and responsible bodies vary.

How is it possible to distinguish small re-greening measures?

- Development, calibration and validation of European datasets from urban perspective!



We build hope through research.



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