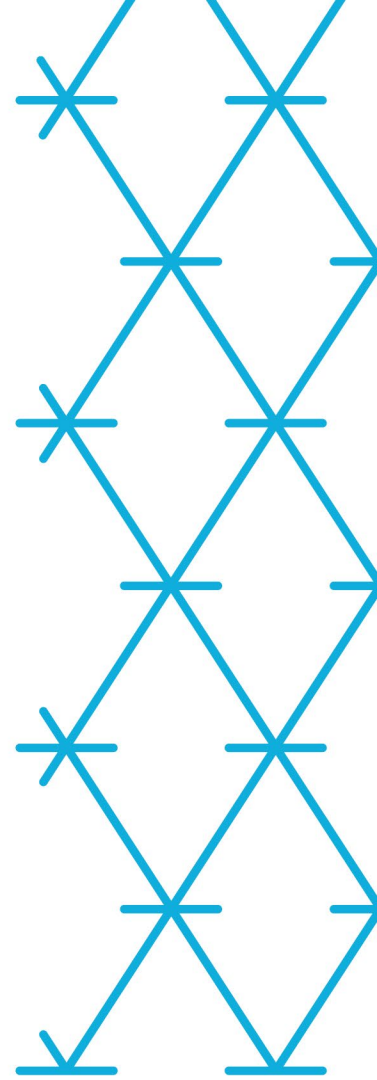


Blue-green infrastructure in the regional land use plan

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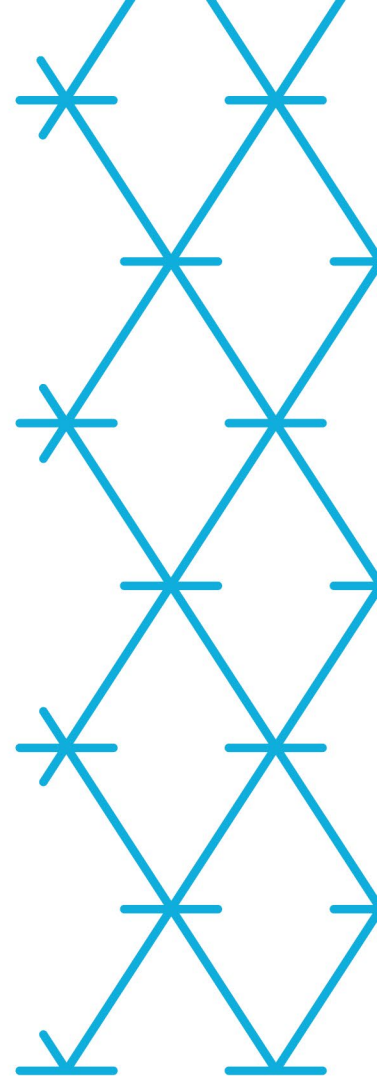
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LAAKSO

Outline of the presentation:

- Blue-green infrastructure in Kymenlaakso 2040 land use plan
- Review of the Kymenlaakso 2040 land use plan
- Report on endangered species and habitats in Kymenlaakso
- Conclusions

*“Green infrastructure is a **strategically planned network of natural and semi-natural areas** with other environmental features designed and managed **to deliver a wide range of ecosystem services** such as water purification, air quality, space for recreation and climate mitigation and adaptation. This network of green (land) and blue (water) spaces can improve environmental conditions and therefore citizens' health and quality of life. It also supports a green economy, creates job opportunities and enhances biodiversity. The Natura 2000 network constitutes the backbone of the EU green infrastructure.”*

Blue-green infrastructure in Kymenlaakso 2040 land use plan



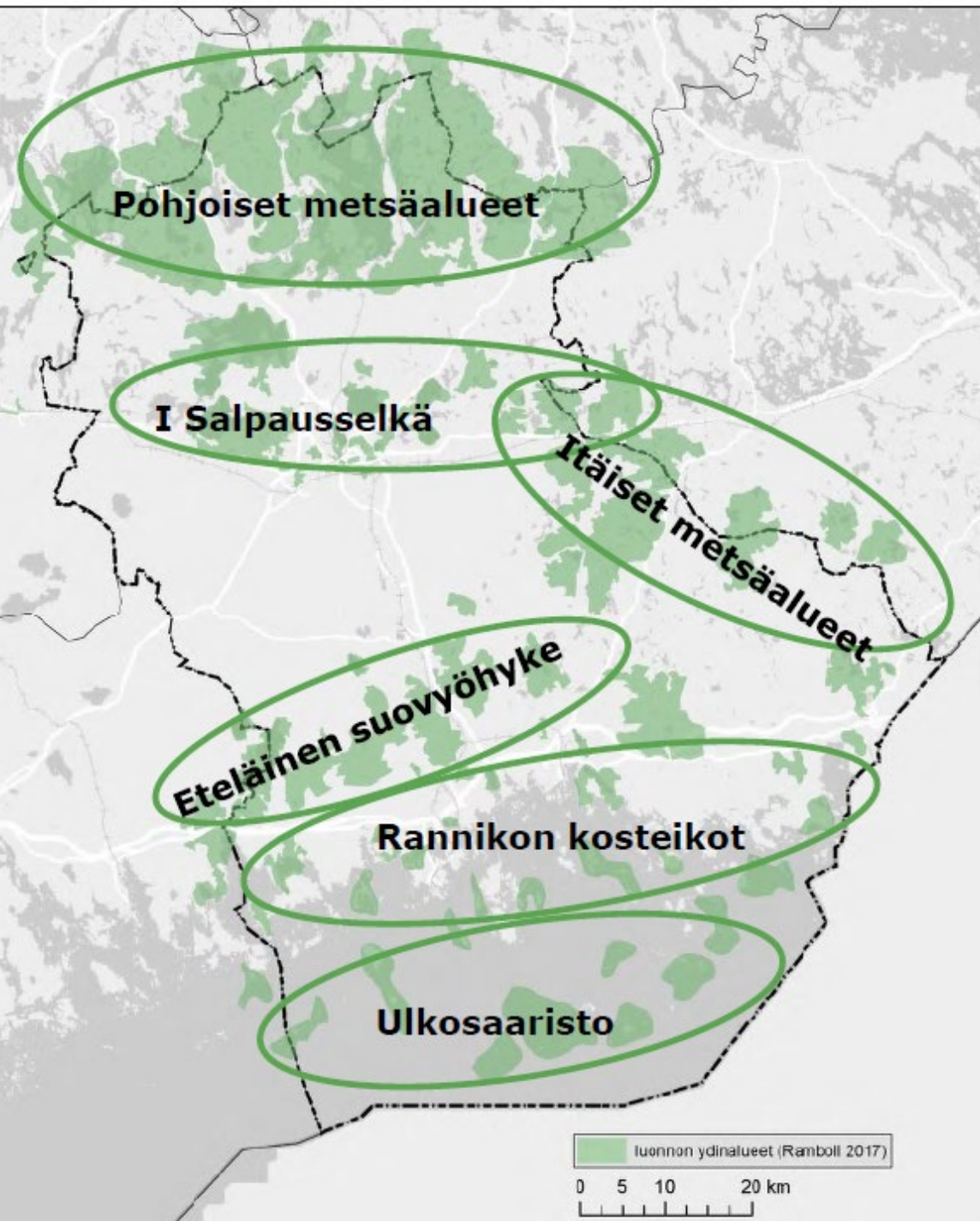
Blue-green infrastructure in Kymenlaakso 2040 land use plan: planning phase

- Aim of regional land use planning is to protect biological and geological diversity and to enhance the production of ecosystem services
- A Report on Blue-green infrastructure and ecosystem services (2017)
 - Identified the core areas, blue-green connections, and the areas/points most in need of improvement

Identifying core areas:

- Data used: CORINE Land Cover (CLC) 2012 (Finnish Environment Institute)
 - Resolution 20 x 20 m
- Methods used: Morphological spatial pattern analysis using Gidos-Toolbox software developed by the European Commission's Joint Research Centre (JRC)

Note: Different from biodiversity hotspots!



Nature core-areas:

Northern forestlands

1. terminal moreine

Eastern forestlands

Southern mires

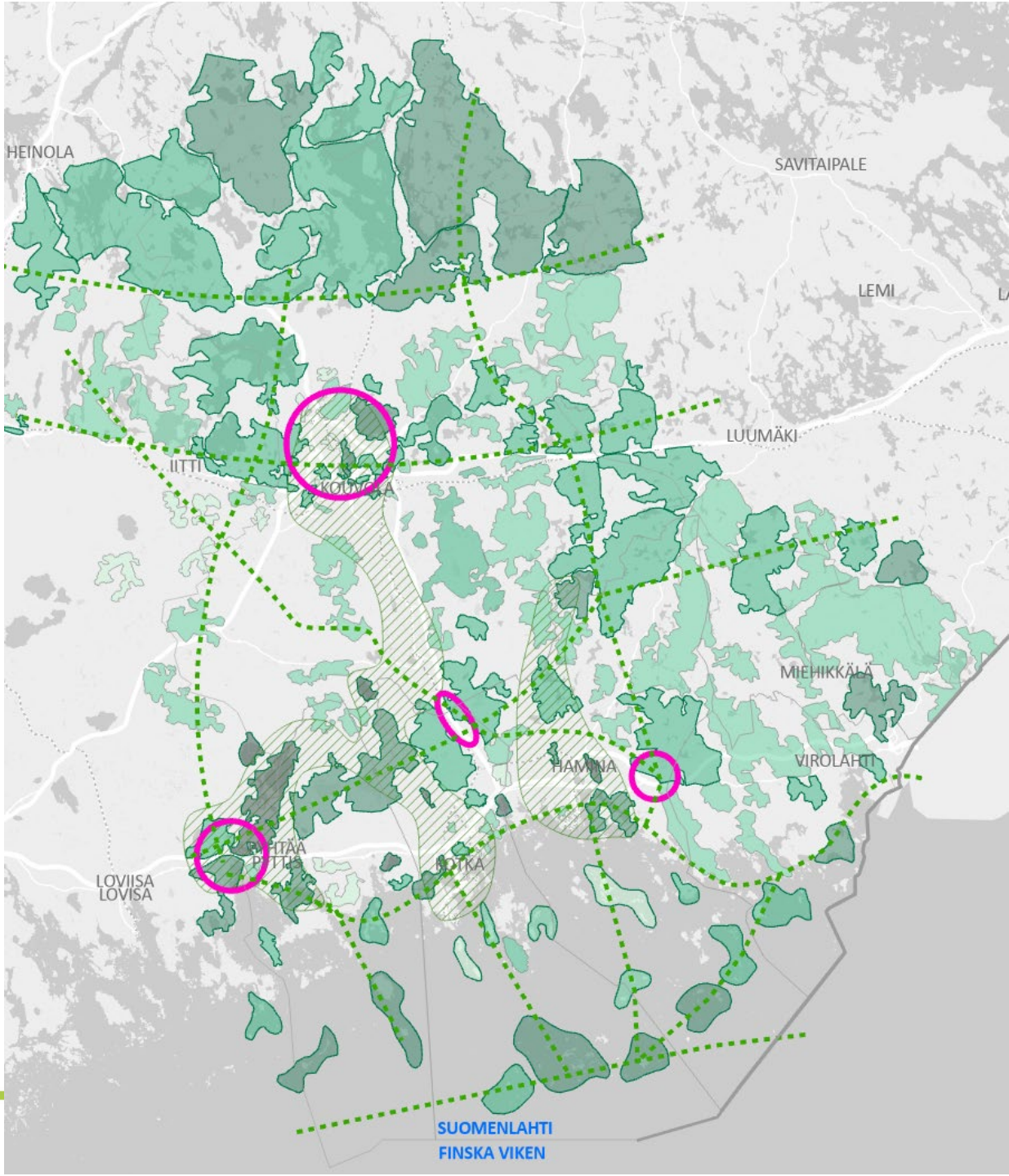
Coastal wetlands

Outer archipelago

Identifying blue-green connections:

- Methods used: Cost routing analysis where 'costs' were defined based on:
 - CORINE land cover classification: the more natural an area, the more suitable it is to serve as a green corridor for organisms
 - Built environment and infrastructure such as cities, roads, railways, dams etc. that disconnect the ecological connection
 - Workshops and interpretation of the analyses
- Minimum width 200 metres

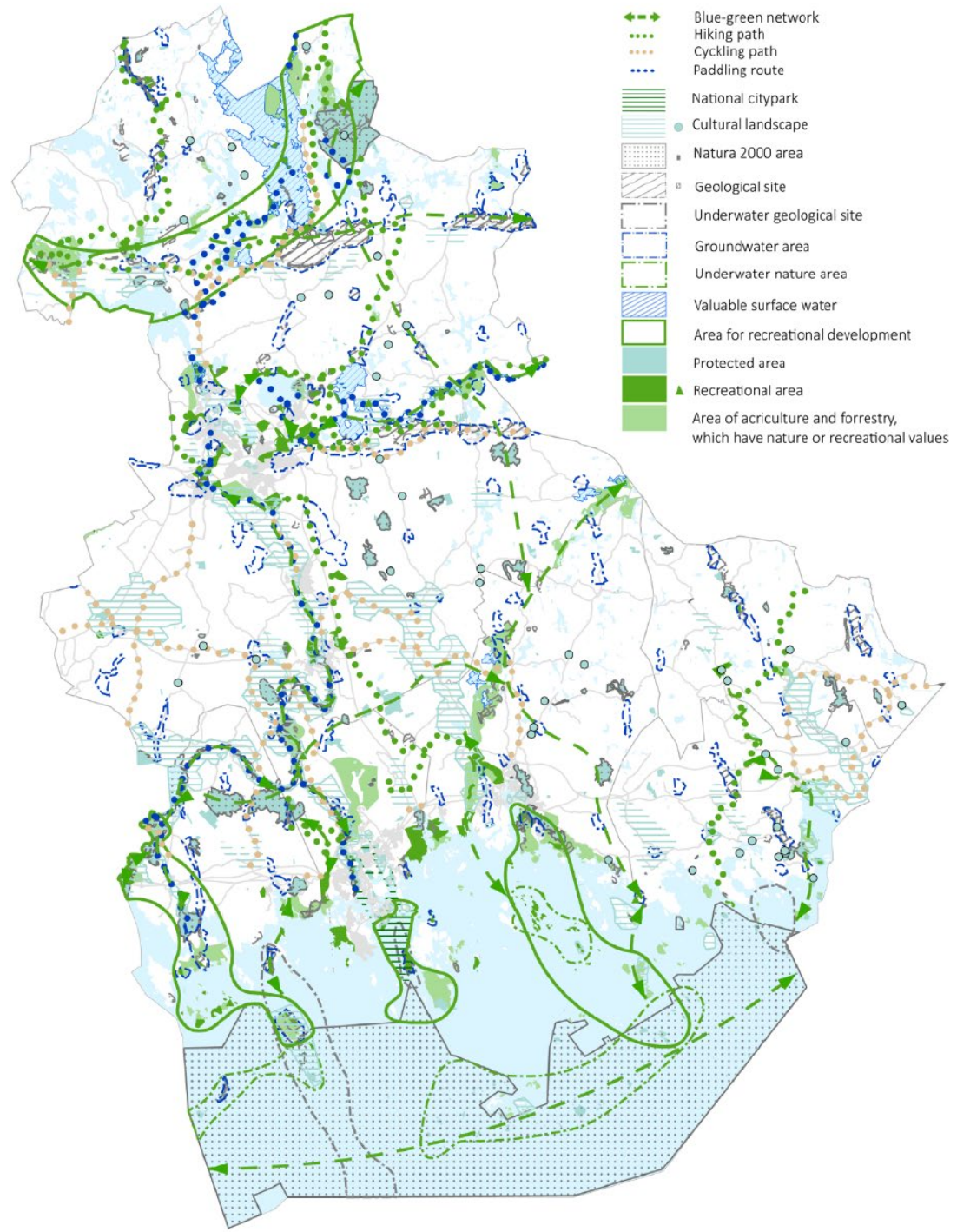
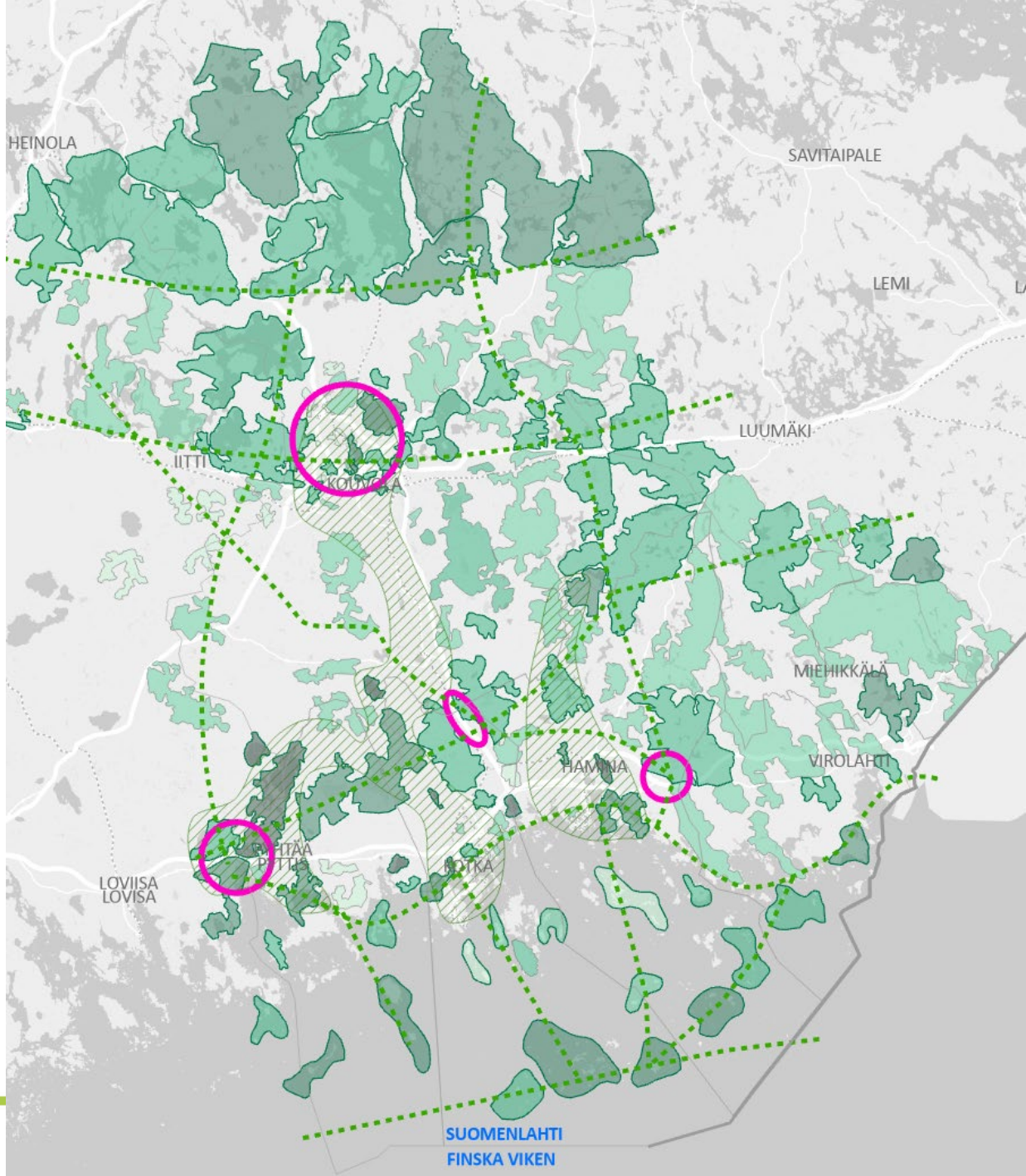
Note: This method *quantifies* connectivity → does not say anything about how suitable the connection is to different kinds of species.



Blue-green connections

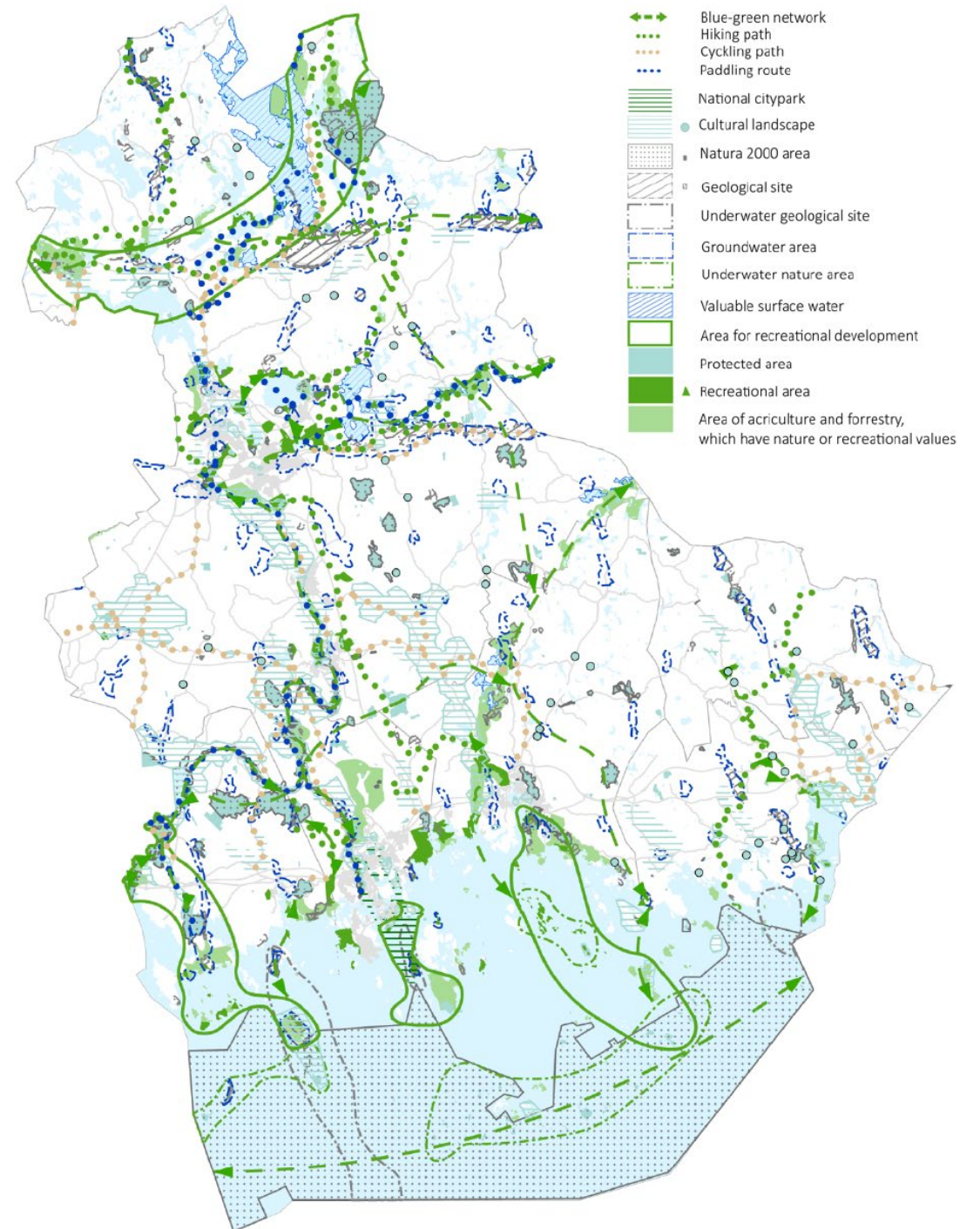
- Red spheres are points and areas most in need of improvement

After the report, further interpretation of the analyses to determine the right scope for regional scale



Blue-green infrastructure in the land use plan:

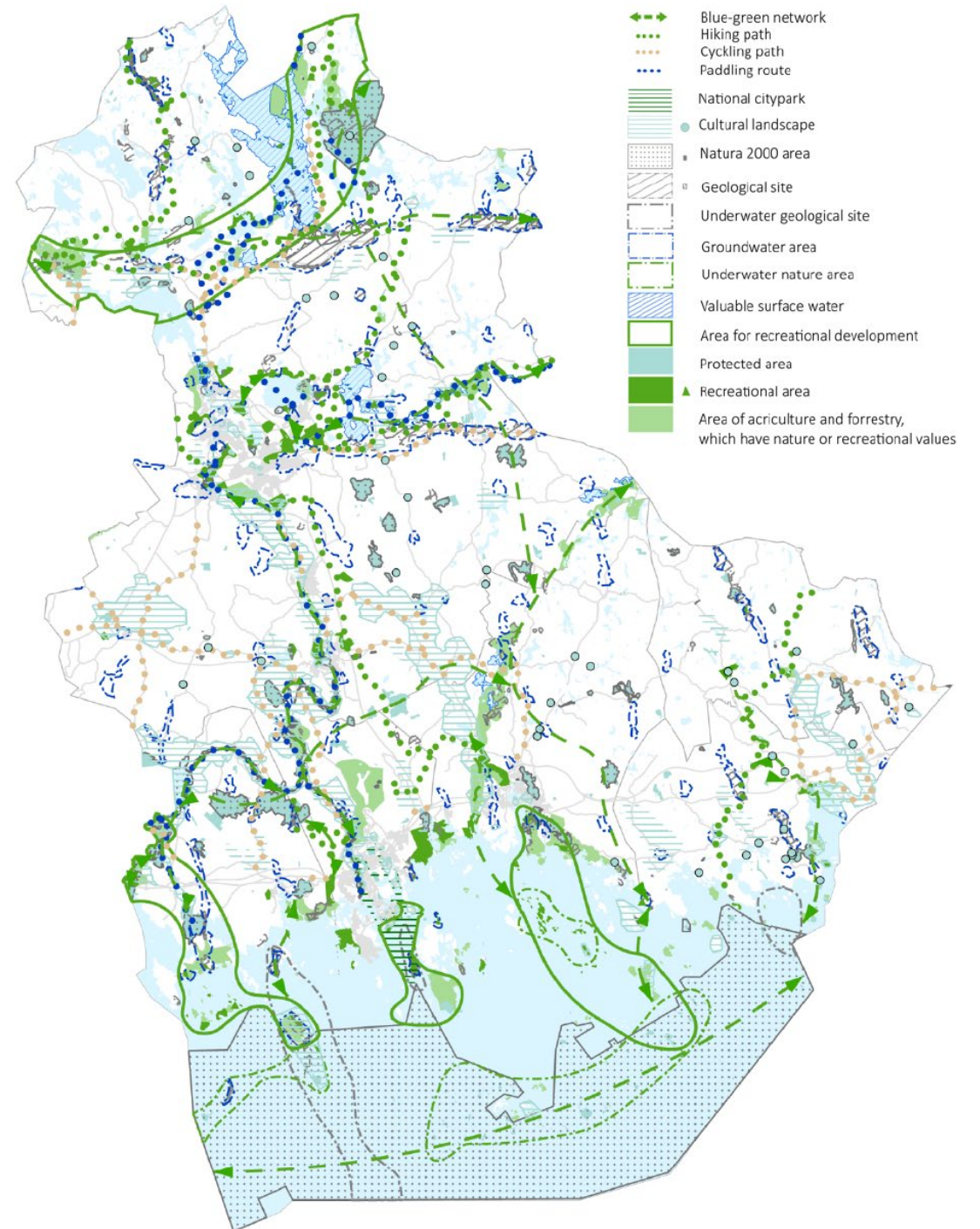
- Blue-green connection
- National City Park
- Cultural landscape
- Natura 2000 area
- Geological site
- Underwater nature area
- Valuable surface water
- Area for recreational development
- Protected area
- Recreational area
- Area of agriculture and forestry that have nature or recreational value



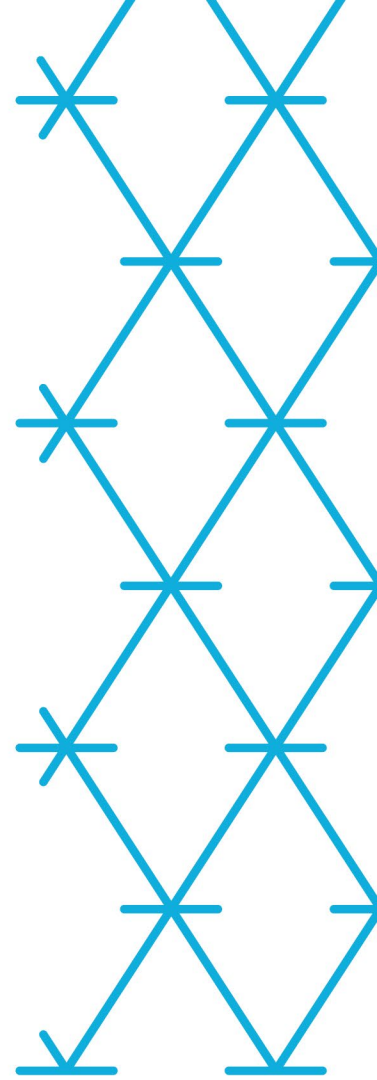
Blue-green infrastructure in the land use plan:

Preserving the blue-green corridors and take into account important landscapes, biodiverse nature areas and migration possibilities of species.

Yksityiskohtaisemmassa suunnittelussa on **turvattava sini-viheryhteyksien säilyminen** ja edistettävä niiden toteutumista tavalla, joka huomioi **alueen maisema-arvot, arvokkaiden luontokohteiden säilymisen ja lajiston liikkumismahdollisuudet**. Yksityiskohtaisemmassa suunnittelussa tulee luoda alueidenkäytöllisiä edellytyksiä merkittävien virkistyskäytön verkostojen muodostamiselle. Sini-viheryhteyden **mitoituksessa ja toteutuksessa on kiinnitettävä huomiota yhteyden merkitykseen ekologisen verkoston osana** sekä luontomatkailun ja virkistystarpeiden yhteensovittamiseen. Yksityiskohtaisemmassa suunnittelussa tulee turvata maa- ja metsätalouden sekä muiden maaseutuelinkeinojen toimintaedellytykset.



Review of the Kymenlaakso 2040 land use plan



Review of the Kymenlaakso 2040 land use plan

Review in light of:

- Green transition and its effects on land use
- Changes in biodiversity politics and its effects on land use
- The new Report on endangered species and habitats in Kymenlaakso Region

Green transition and its effects on land-use:

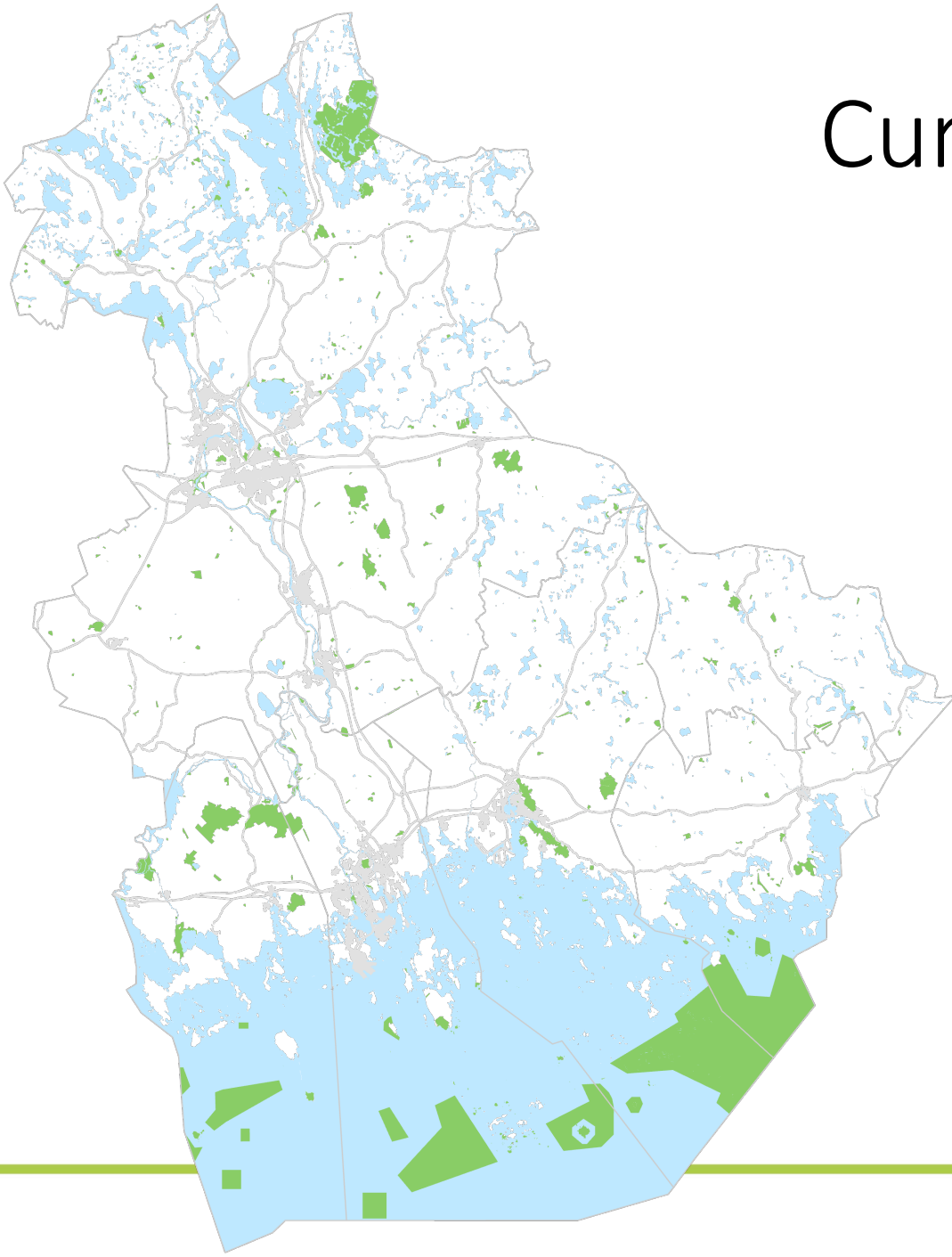
- End of peat extraction
 - In Kymenlaakso, some 2 000 ha of land on peat extraction
- Need to build more renewable energy sources
 - (Wind and) solar energy → green hydrogen
- Electrification of heavy industry and road traffic + other emerging industries (battery and hydrogen)
 - Need to expand electric grid
- Bio-based materials from forests form large part of regional (and national) economic system

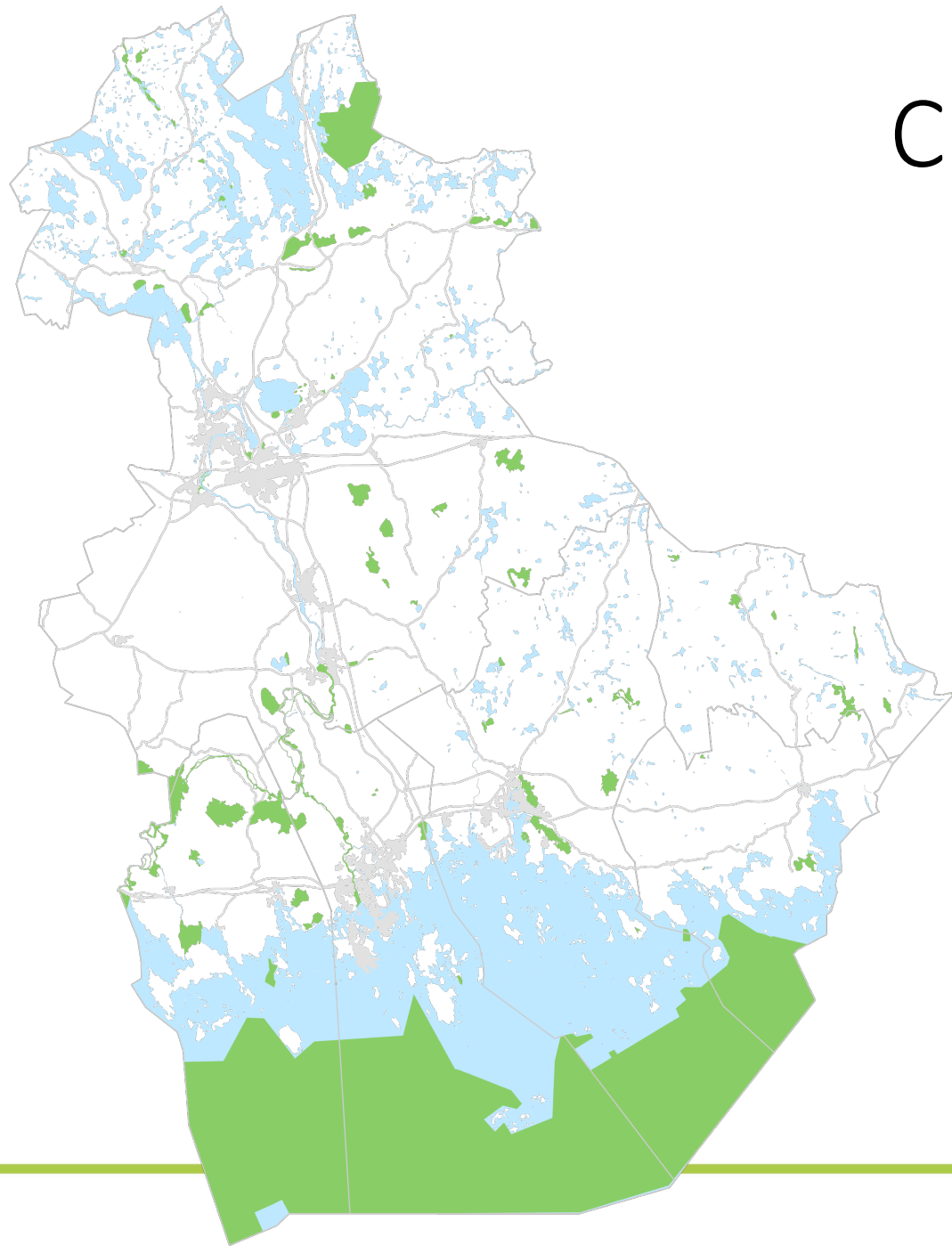
Changes in biodiversity politics and its effects on land use:

- UN and EU biodiversity targets:
 - UN and EU: Protect 30 % by 2030 (of which 10 % strictly protected)
 - EU: protect all old-grown and natural forests
 - How will the new protection areas be divided between Regions?
 - Defining old-grown forests and natural forests in the Finnish context
- EU Restoration Act
 - Restoring 20 % of degraded habitats by 2030
 - old peat extraction sites
 - The Restoration Act's effects on forestry was one of the main topics in Finland

Current protected areas

- Include national parks and other protected areas
- Cover 5,5 % of the total surface area
- 1,7 % of land area covered by protected areas



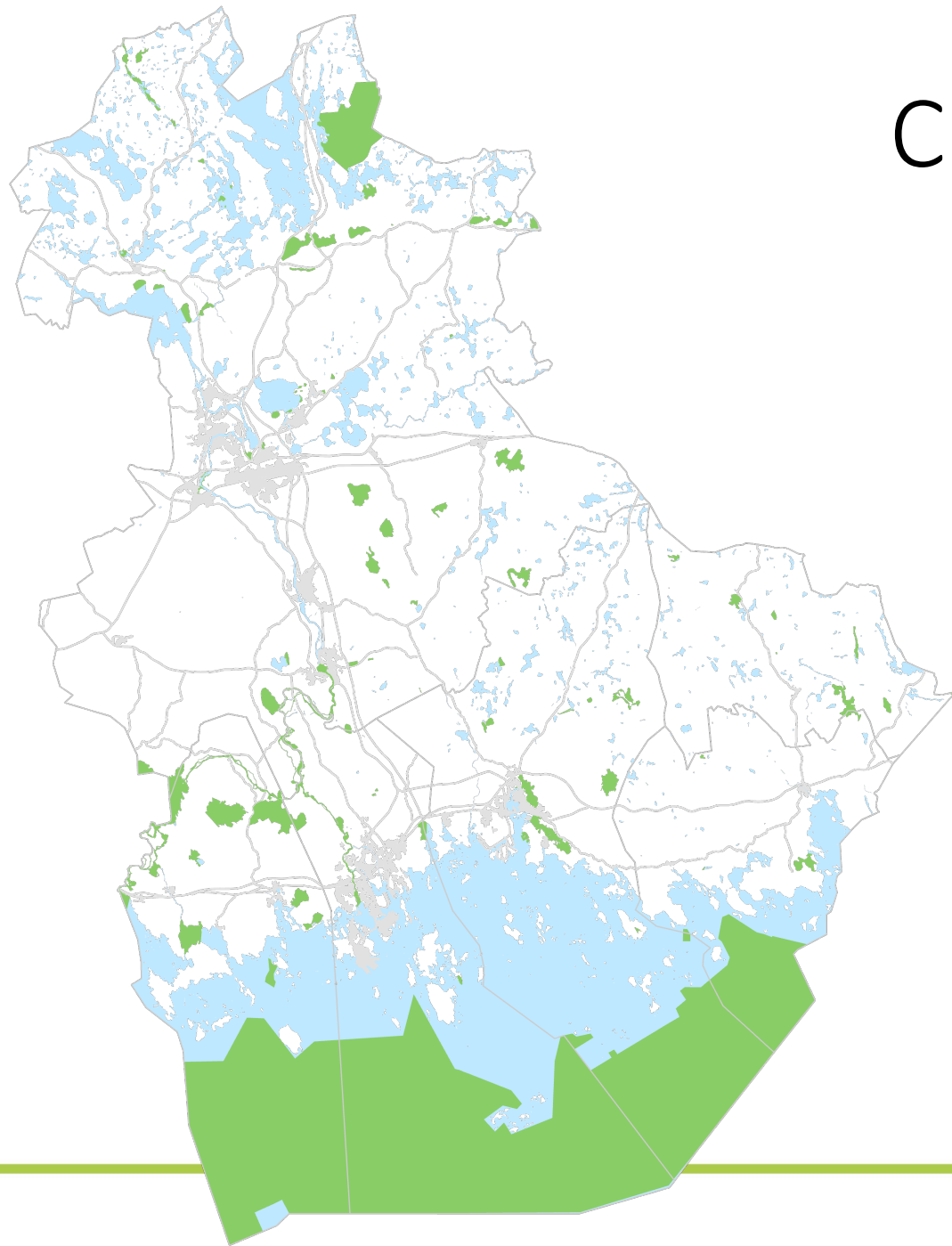


Current protected areas

+ Natura 2000 areas

=16,4 % of total area protected

→ Natura 2000 under the strictly protected 10 %??

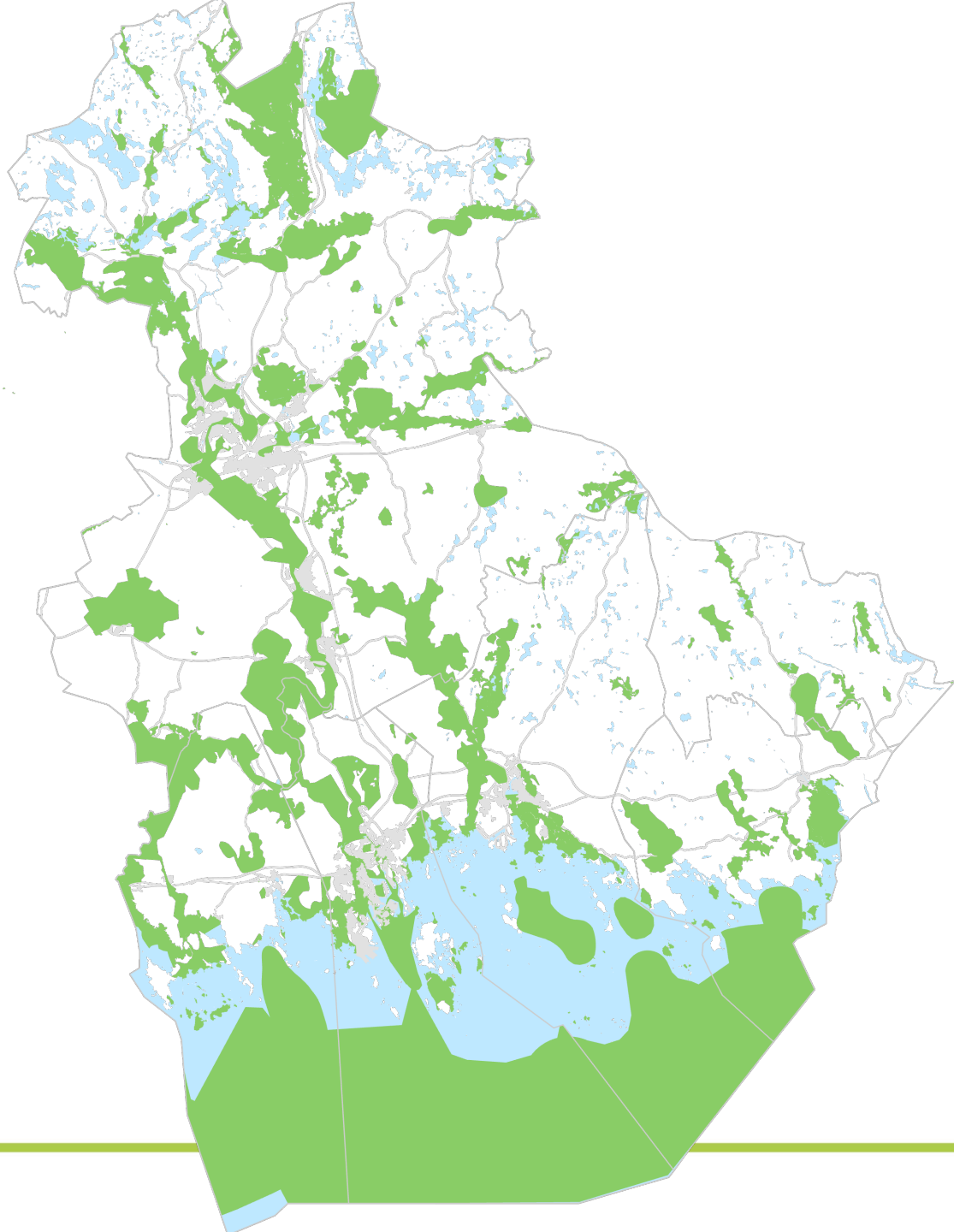


Current protected areas

+ Natura 2000 areas

=16,4 % of total area protected

→ Natura 2000 under the strictly protected 10 %??



OECCM areas

=Other effective area-based conservation measures

~ the 20 % of protected areas besides the strictly protected 10 %

→ 32,3 % of total area

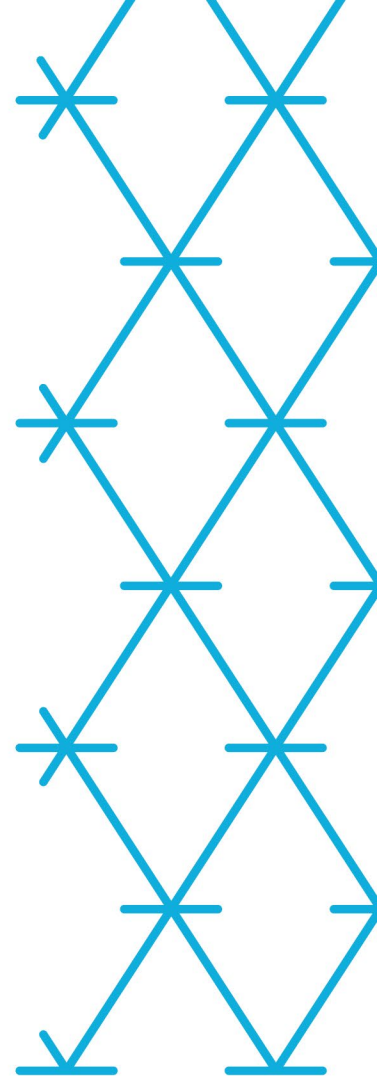
Of the Kymenlaakso 2040 land use plan, these include e.g.:

- recreational areas
- Protected landscapes

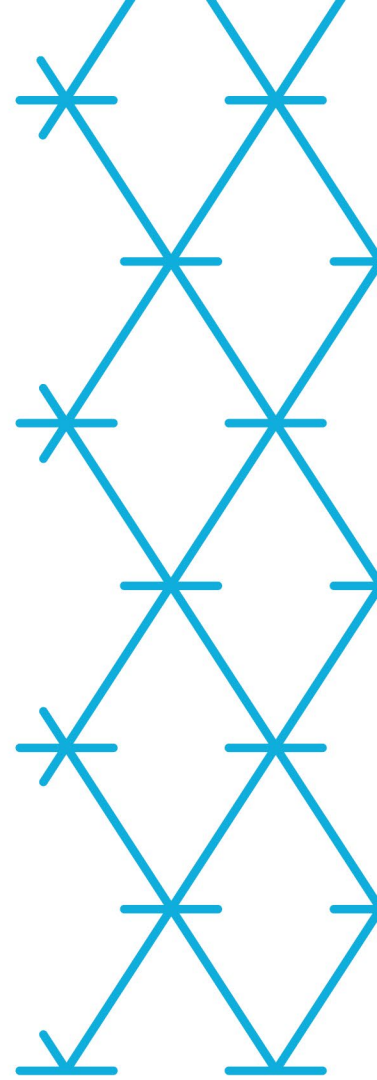
Other hot topics in relation to BD and land use planning

- Ecological compensation
 - The new Nature Protection Law
- Carbon offsetting
 - Rules still unclear, EU working on harmonised accounting system
- Adapting to climate change
 - Many northern species rely on winter conditions
 - Understanding where ecological connections need to be developed increasingly important as south-north migration a way to adapt

Report on endangered species and habitats in Kymenlaakso



Report on threatened species and habitats in Kymenlaakso



Data

- Kymenlaakso the 2nd Region in Finland to conduct such a report (and 1st one with a coastline)
 - Desk study, no field inventories
 - Existing data on species:
 - often out-dated
 - gathered for different purposes by different institutions and by amateurs and professionals
 - Spatially not representative
- > requires lots of expertise to make sense of the data

Determining species of regional responsibility

A species is considered to be a species of regional responsibility if:

- At least 15 % of the known occurrences of a critically endangered species
- At least 20 % of the known occurrences of an endangered species
- At least 25 % of the known occurrences of a vulnerable species
- At least 30 % of the known occurrences of a near threatened species
- If Kymenlaakso represents the outer-most occurrence of the species

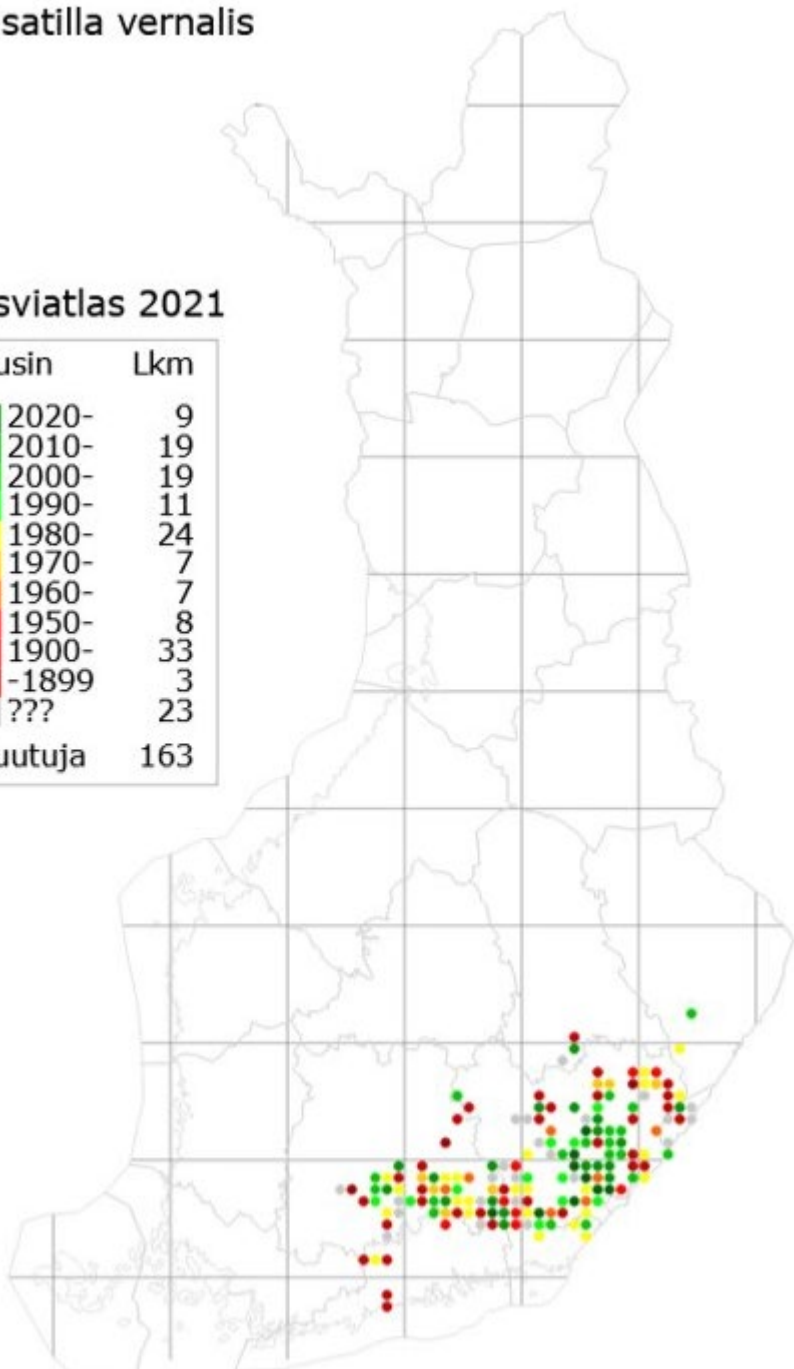
For birds, the method of calculating differs somewhat

Pulsatilla vernalis

Spring Basqueflower (kangasvuokko)

Kasviatlas 2021

Uusin	Lkm
2020-	9
2010-	19
2000-	19
1990-	11
1980-	24
1970-	7
1960-	7
1950-	8
1900-	33
-1899	3
???	23
Ruutuja	163

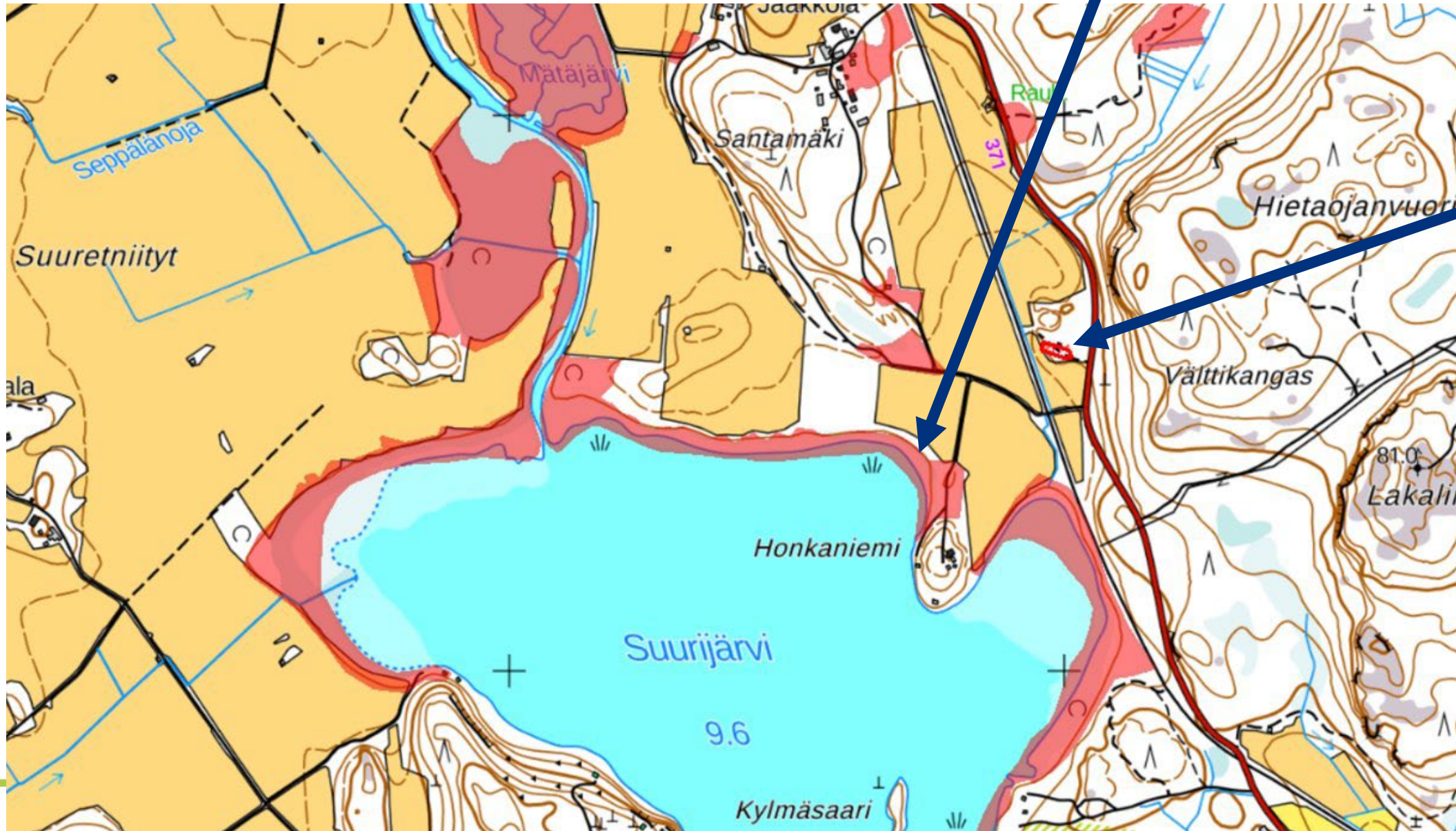


Habitats from old maps (this one's from 1885)



Meadows or
pasture land

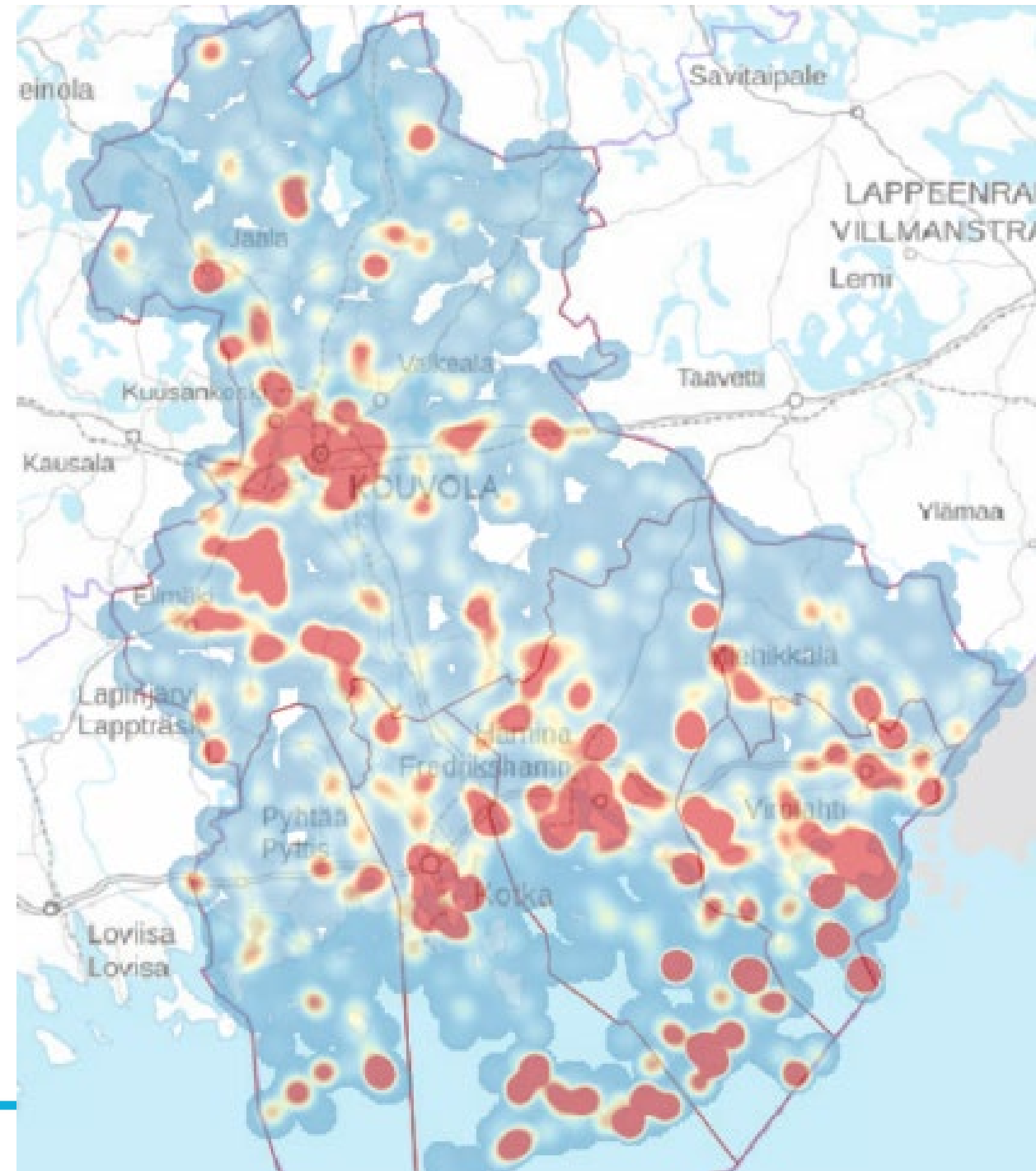
This is what's left in the 1960's (in red)

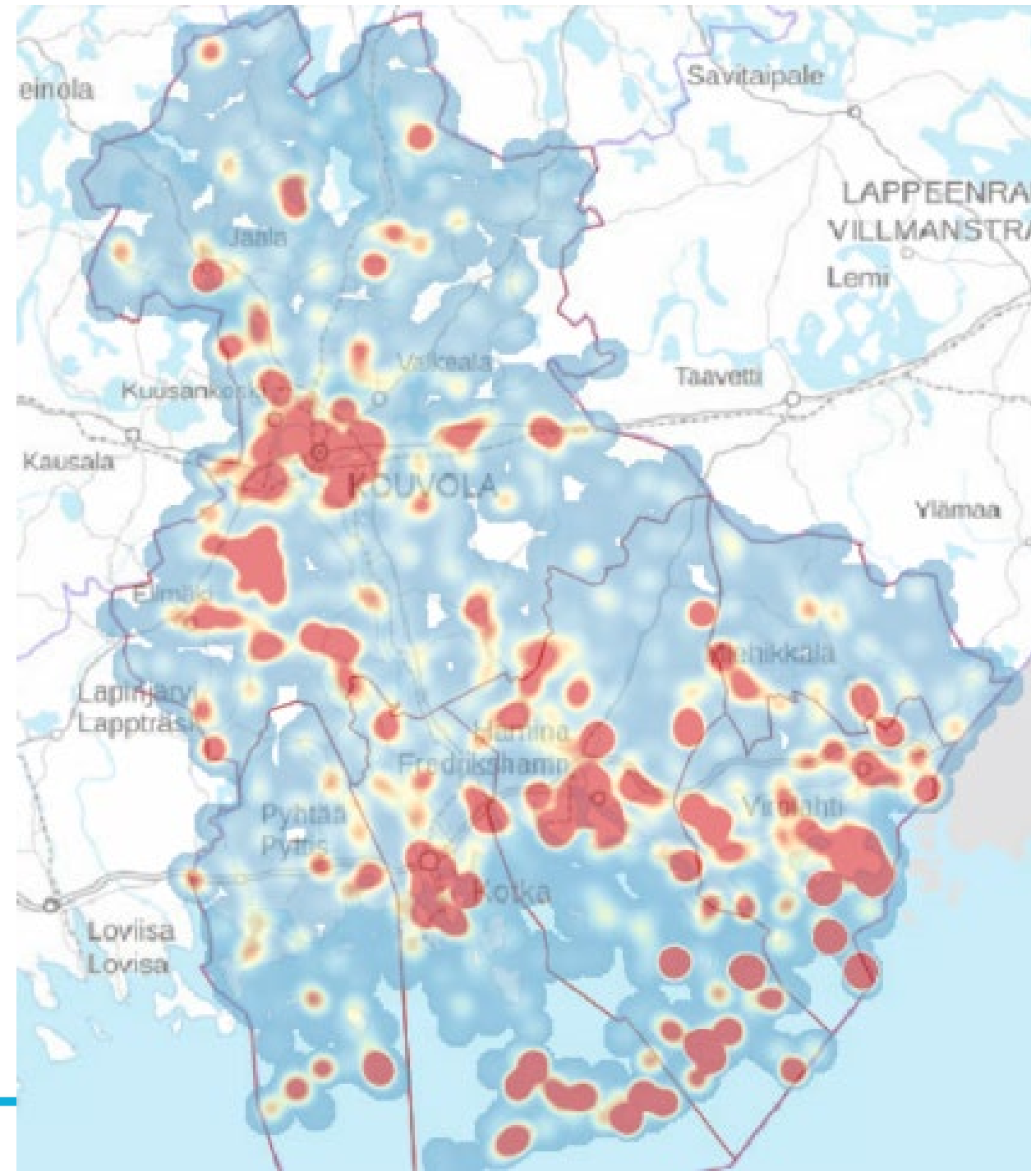
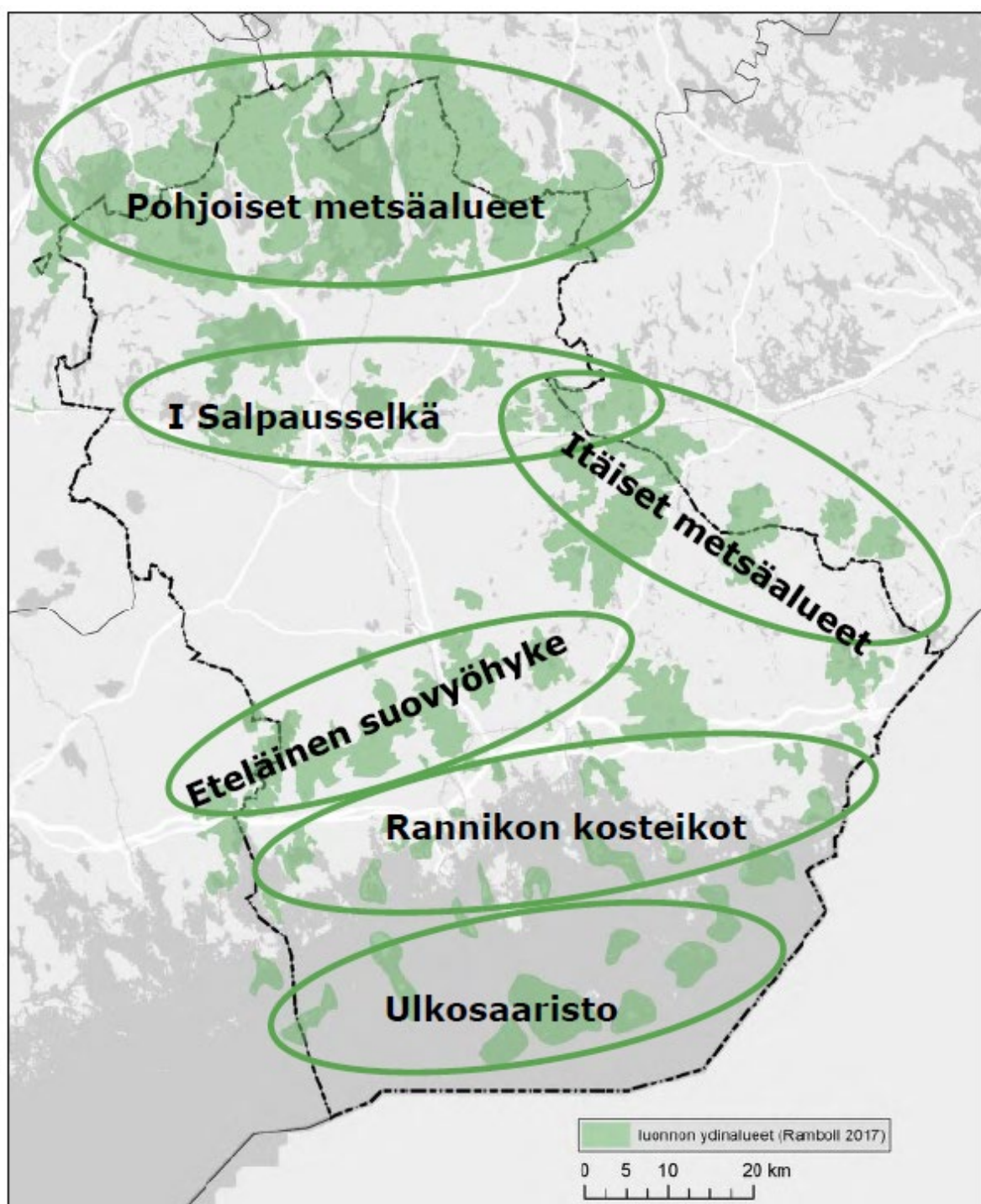


This is what's left today

Biodiversity hotspots

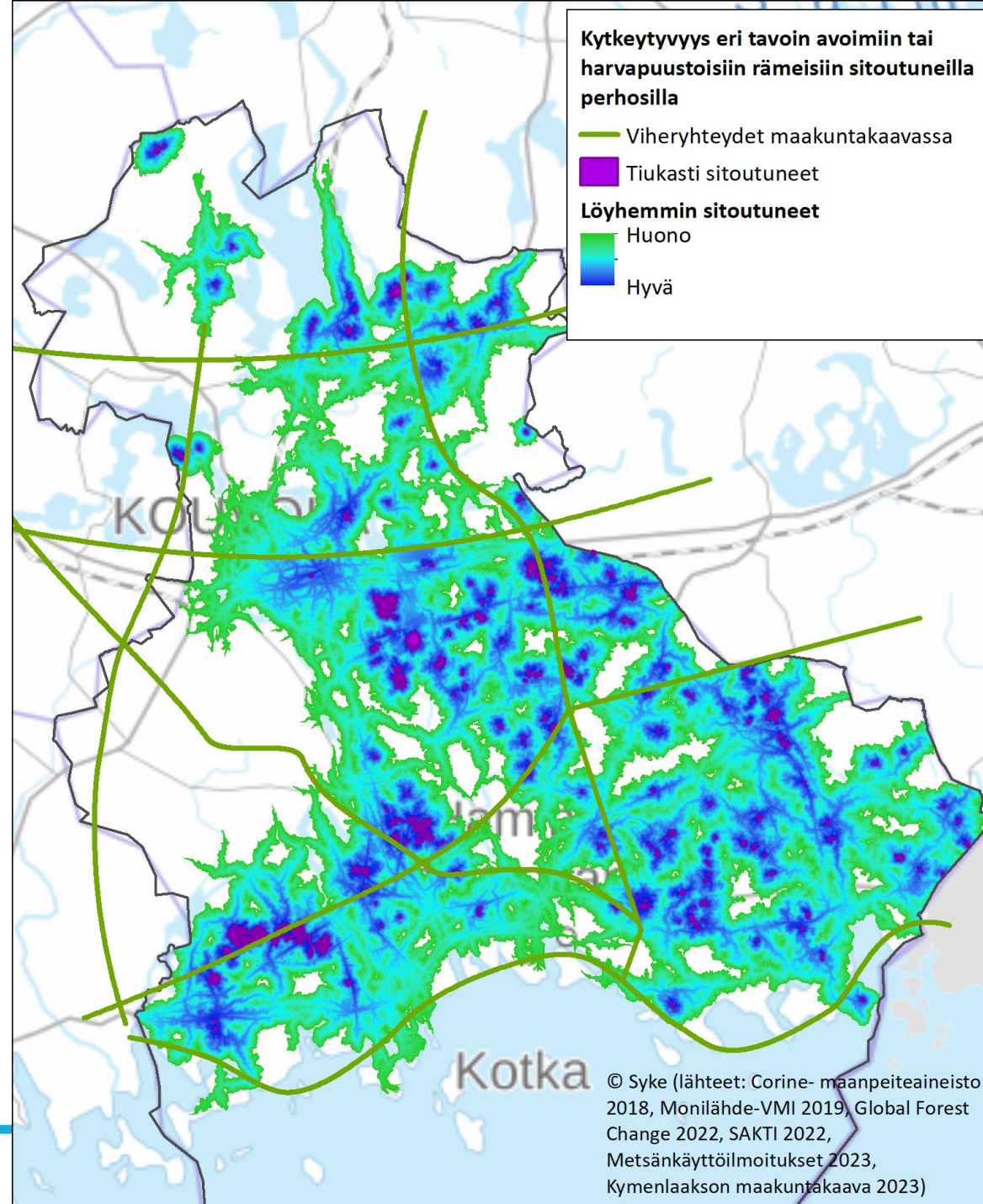
- Based on actual sightings
- Includes all threatened and vulnerable species





Connectivity of open mires

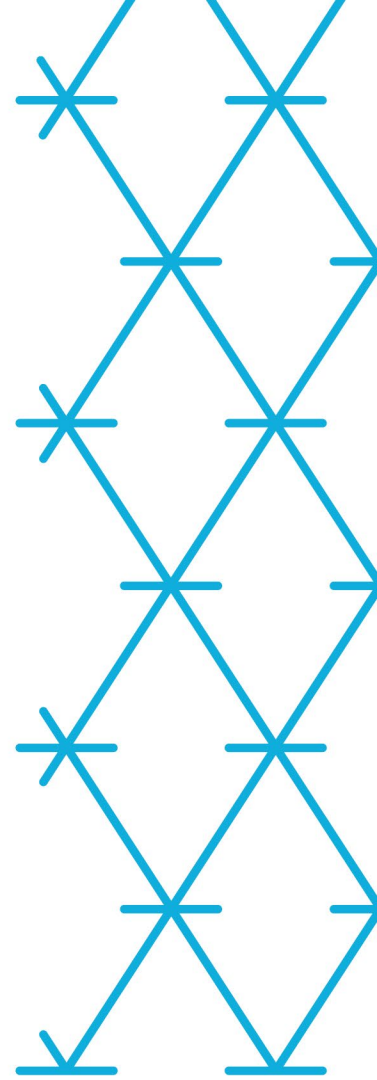
- Based on sightings of butterflies that live on open mires
- Purple: well connected mire habitats
- Blue: somewhat connected
- Green: loosely connected



Report and review of the land use plan

- New data and analyses allow us to better assess whether current planning solutions are up-to-date
 - Allows to better understand where new protected areas and restoration efforts should be placed
 - Will form the baseline report of the current state of the nature in the Region
- Biodiversity strategy

Conclusions



Biodiversity and land-use planning

- Growing understanding of the importance of the natural world for human well-being and economic growth
 - And yet, we are moving so fast that we're not getting a full grasp of the affects our decisions have on nature
- Land use planning at the core of the 'triple crisis' of biodiversity loss, warming climate and pollution
- Regional land use planning an important tool to alleviate the conflicting interests for land use
 - Temporal planning scope: decades long perspective allows to take into account the changes expected to come (e.g. climate change)
 - Spatial scope: regional level allows to look at the compound effects of different land uses



Thank
you!

Sources and additional info:

- Kymenlaakso 2040 land use plan:
<https://kymenlaakso.maps.arcgis.com/apps/webappviewer/index.html?id=e829cd7842d74698abfe79c8133c868a>
- Regional Council of Kymenlaakso: <https://www.kymenlaakso.fi/english>
- Report on Blue-green infrastructure and ecosystem services (2017):
<https://www.kymenlaakso.fi/aluesuunnittelu/maakuntakaava/maakuntakaava2040/selvitykset-mkk2040>

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