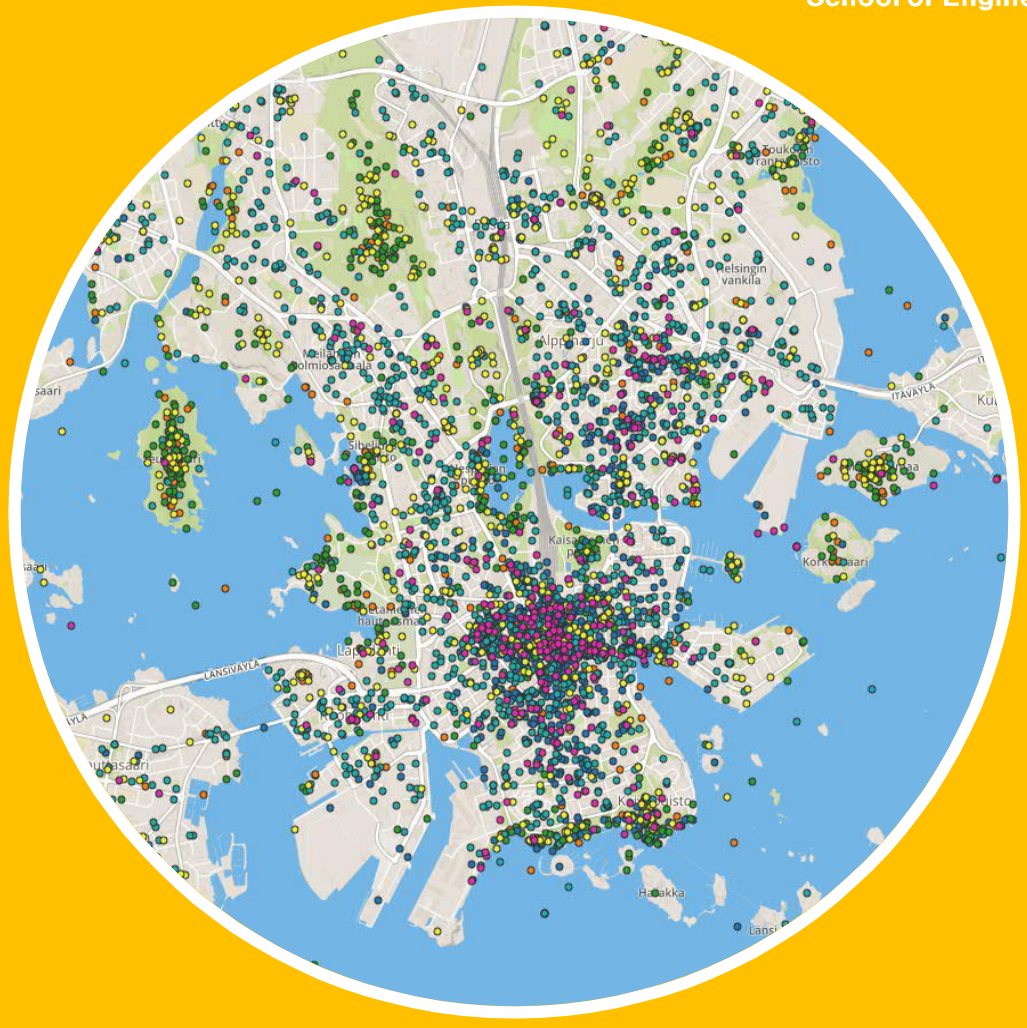
Anna Kajosaari

Department of Built EnvironmentAalto University, Finland

Dr. Tytti Pasanen

Faculty of Social Sciences, Tampere University

Aalto University
School of Engineering



Restorative benefits of everyday green exercise: A spatial approach

26.1.2021

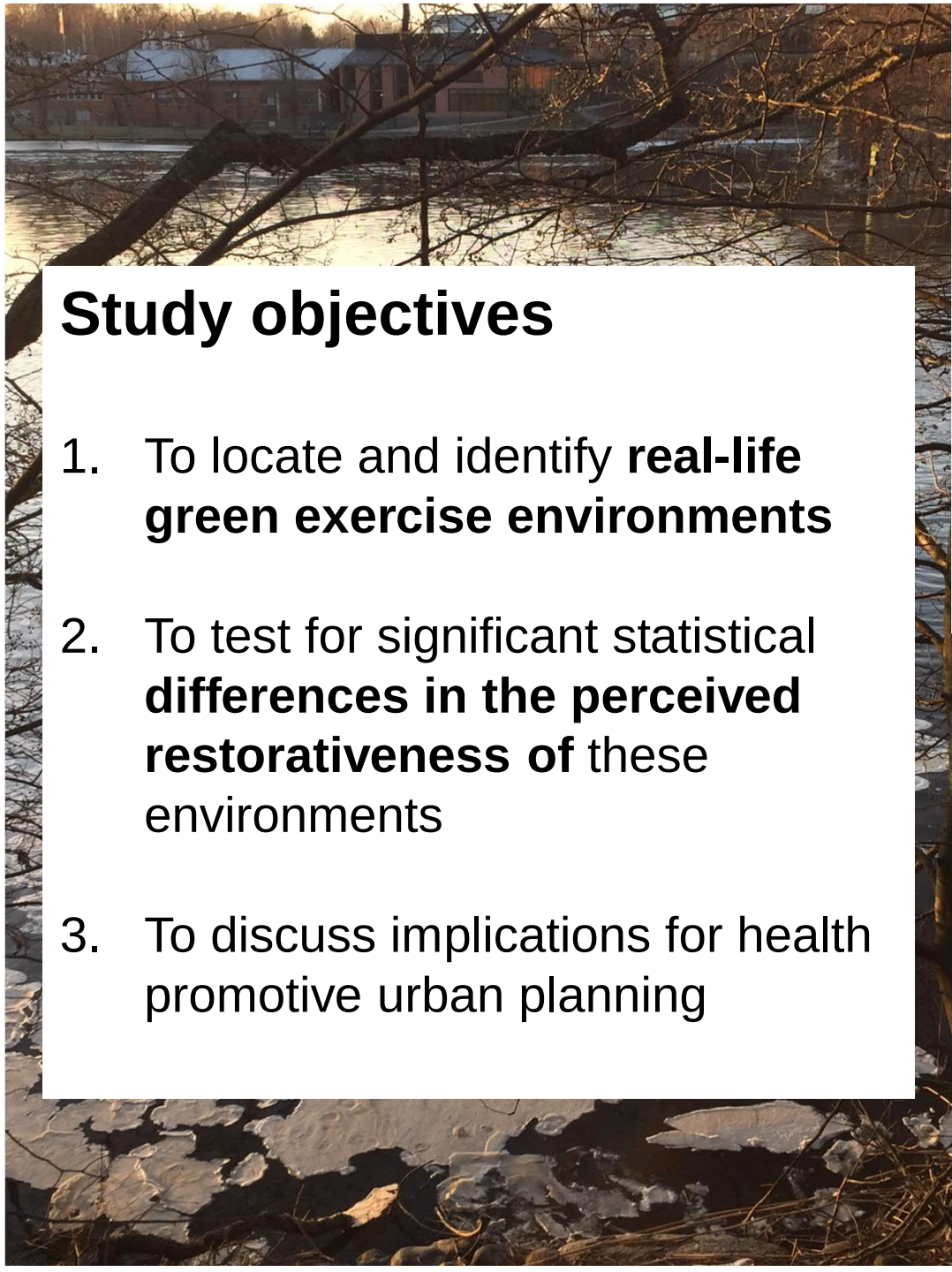
Green exercise

Do physical activities in green and natural environments provide more restorative benefits than physical activity in indoor or other outdoor settings?

Barton, J., & Pretty, J. (2010)

Green exercise

- Do results of field studies apply, when participants choose their physical activity environments freely?
- What kind of “green and natural environments”?
- Where does everyday green exercise take place?



Study objectives

1. To locate and identify **real-life green exercise environments**
2. To test for significant statistical **differences in the perceived restorativeness of** these environments
3. To discuss implications for health promotive urban planning

Restorative outcomes

→ **Three self-reported outcome variables, following Hartig et al. (2014)**

Decreased amount of stressors

- **Stress reduction –** ***Environments that help me to escape stress***

Restoring adaptive resources

- **Relaxation –** ***Environments that help me to relax***
- **Nature enjoyment –** ***Environments where I enjoy nature and the outdoors***

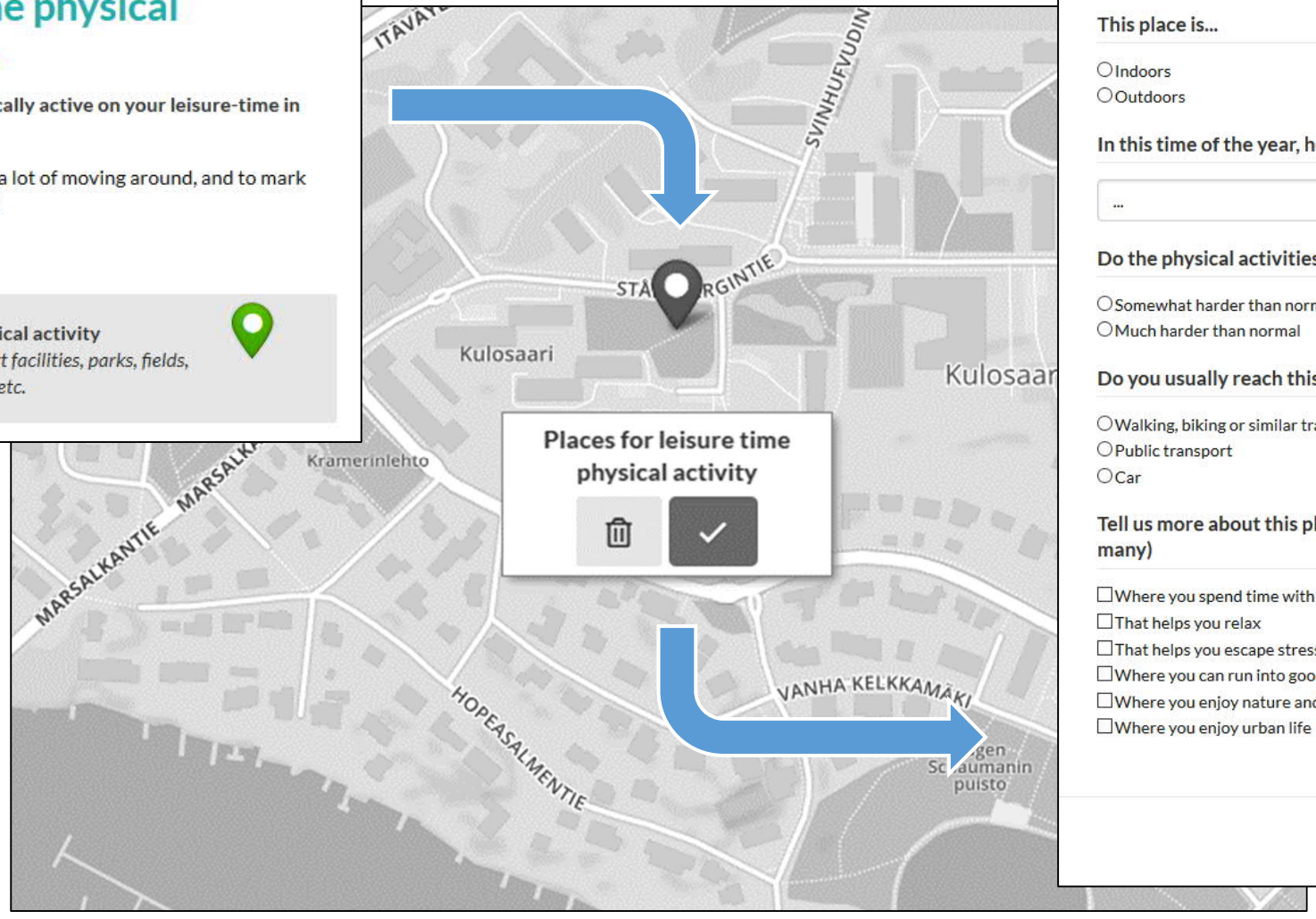
Research data

5/10 My leisure time physical activity on the map

Please mark all the places where you are physically active on your leisure-time in this time of the year.

You can also mark routes if the activity includes a lot of moving around, and to mark routes for travelling actively from place to place

Places for leisure time physical activity
Places for physical activities, such as sport facilities, parks, fields, courts, gyms, forests etc.



Places for leisure time physical activity

This place is...

- ○ Indoors
- ○ Outdoors

In this time of the year, how often are you physically active here?

...

Do the physical activities you do here make you breath...

- ○ Somewhat harder than normal
- ○ Much harder than normal

Do you usually reach this place by...

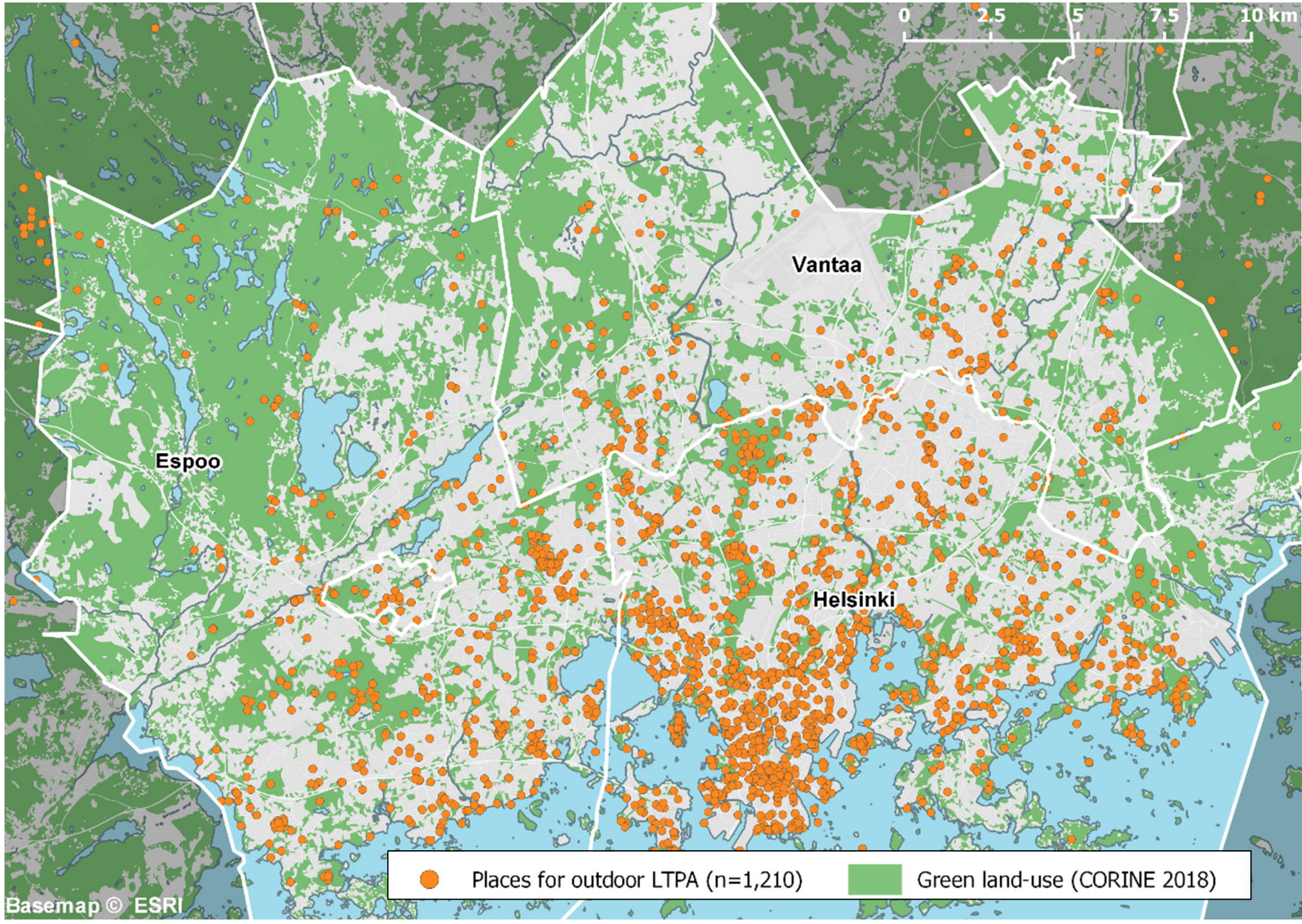
- ○ Walking, biking or similar travel mode
- ○ Public transport
- ○ Car

Tell us more about this place. Is this a place... (you may choose many)

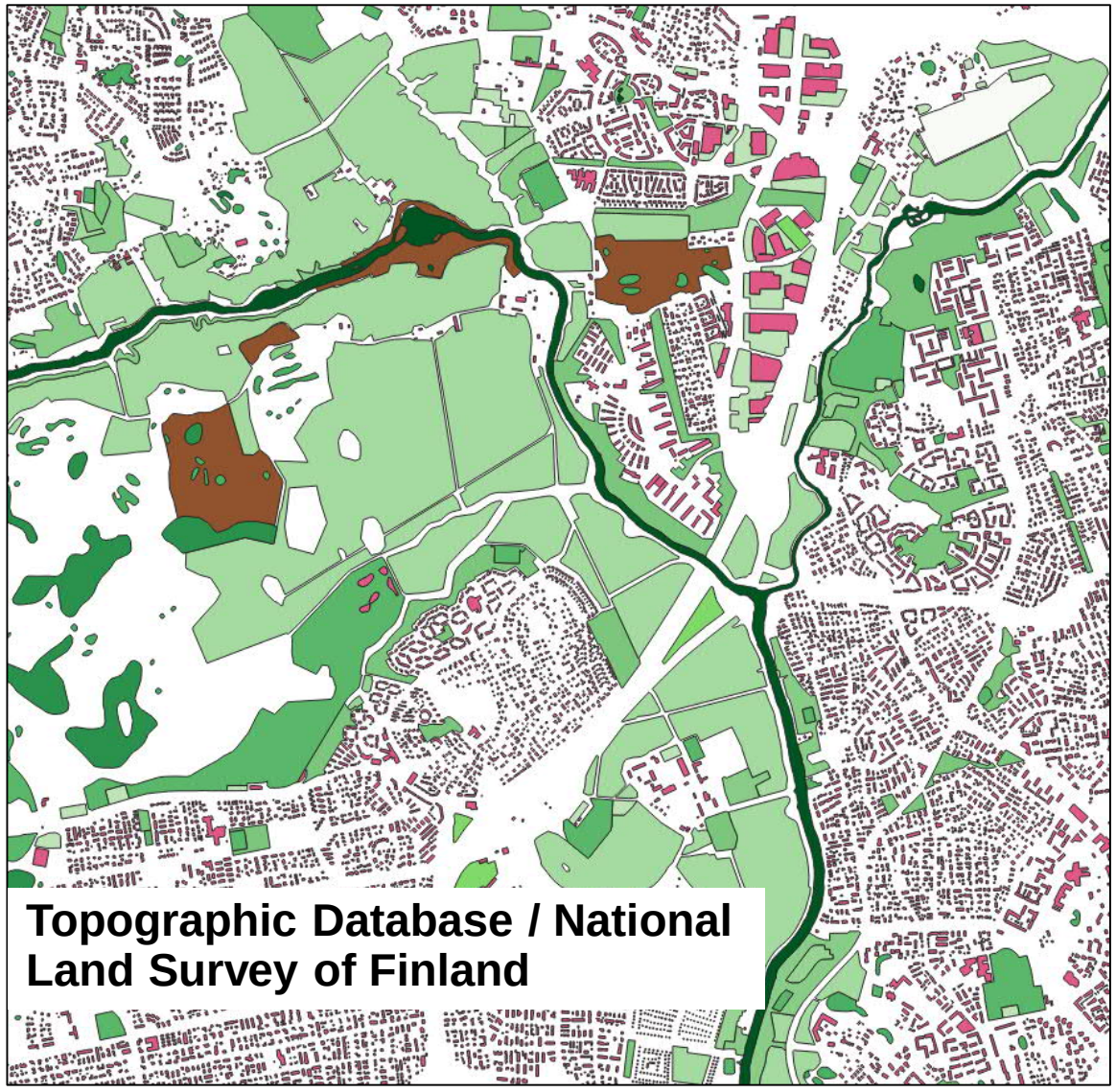
- ☐ Where you spend time with family or friends
- ☐ That helps you relax
- ☐ That helps you escape stress
- ☐ Where you can run into good people
- ☐ Where you enjoy nature and being outdoors
- ☐ Where you enjoy urban life

Save

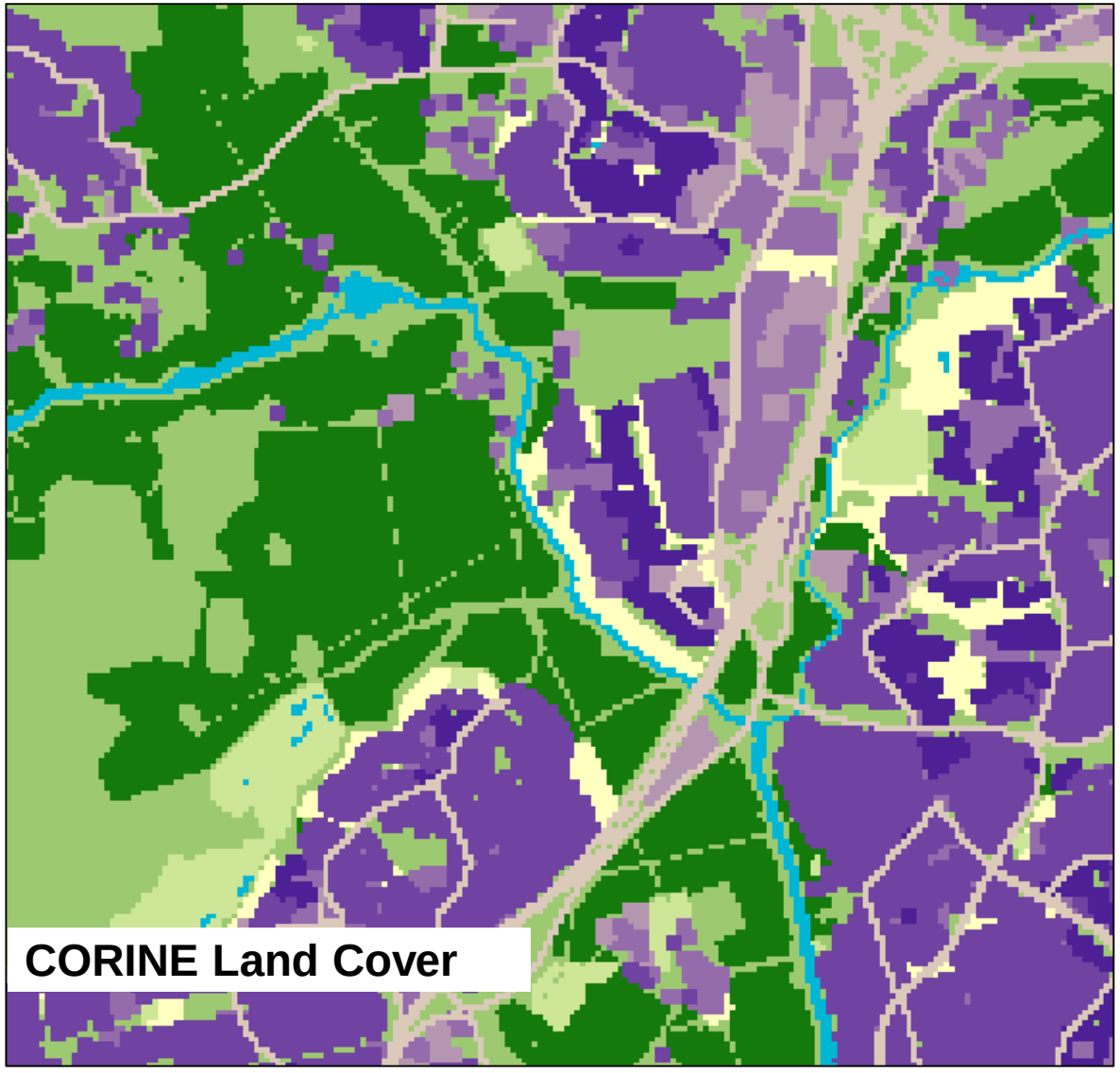
- PPGIS survey for adults aged 18 to 65
- Helsinki Metropolitan Area, August 2018
- N 1,531
- Mapping leisure-time physical activity



Secondary sources of land-use data



Topographic Database / National Land Survey of Finland



CORINE Land Cover

Identifying outdoor physical activity environments

Perceived restorative benefits

Blue spaces

Sports facilities

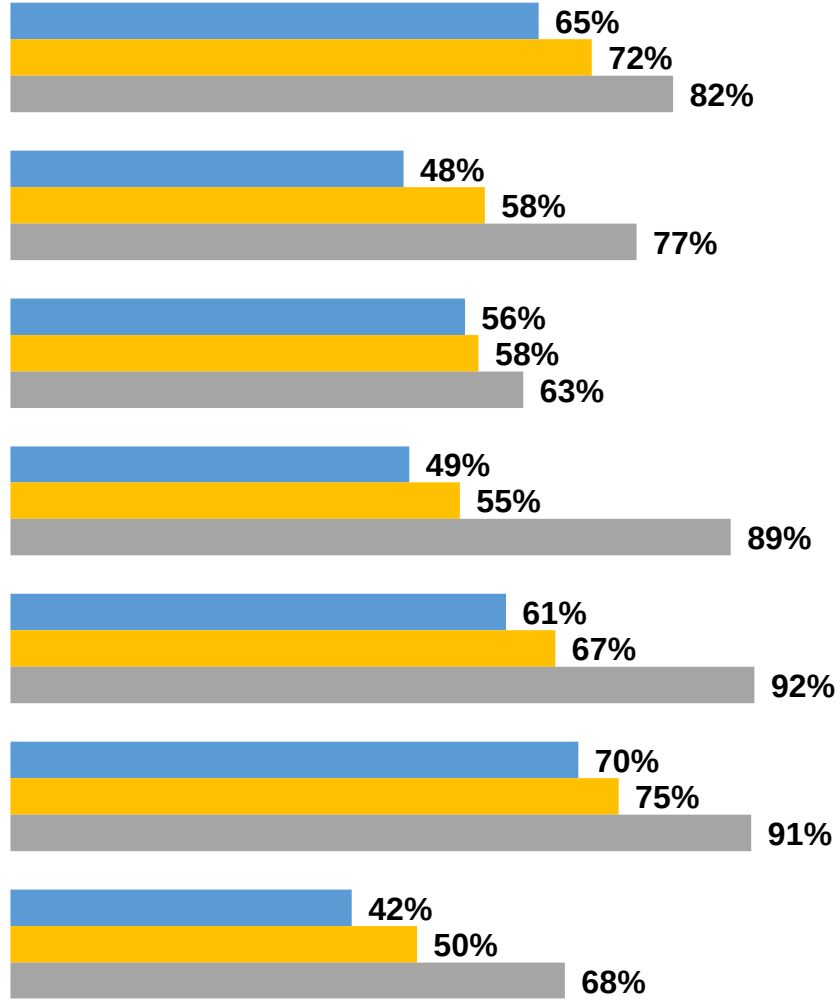
Parks and gardens

Small urban forests

Large urban forests

Large recreational forests

Other built areas



Perceived restorative benefits

Blue spaces

2,54*
2,83*
1,91*

Sport facilities

1,57
1,89*
1,07

Parks and gardens

1,43
1,08
1,52

Small urban forests

1,21
1,19
3,92*

Large urban forests

2,08*
2.12*
6.18*

Large recreational forests

3.04*
3.35*
6,78*

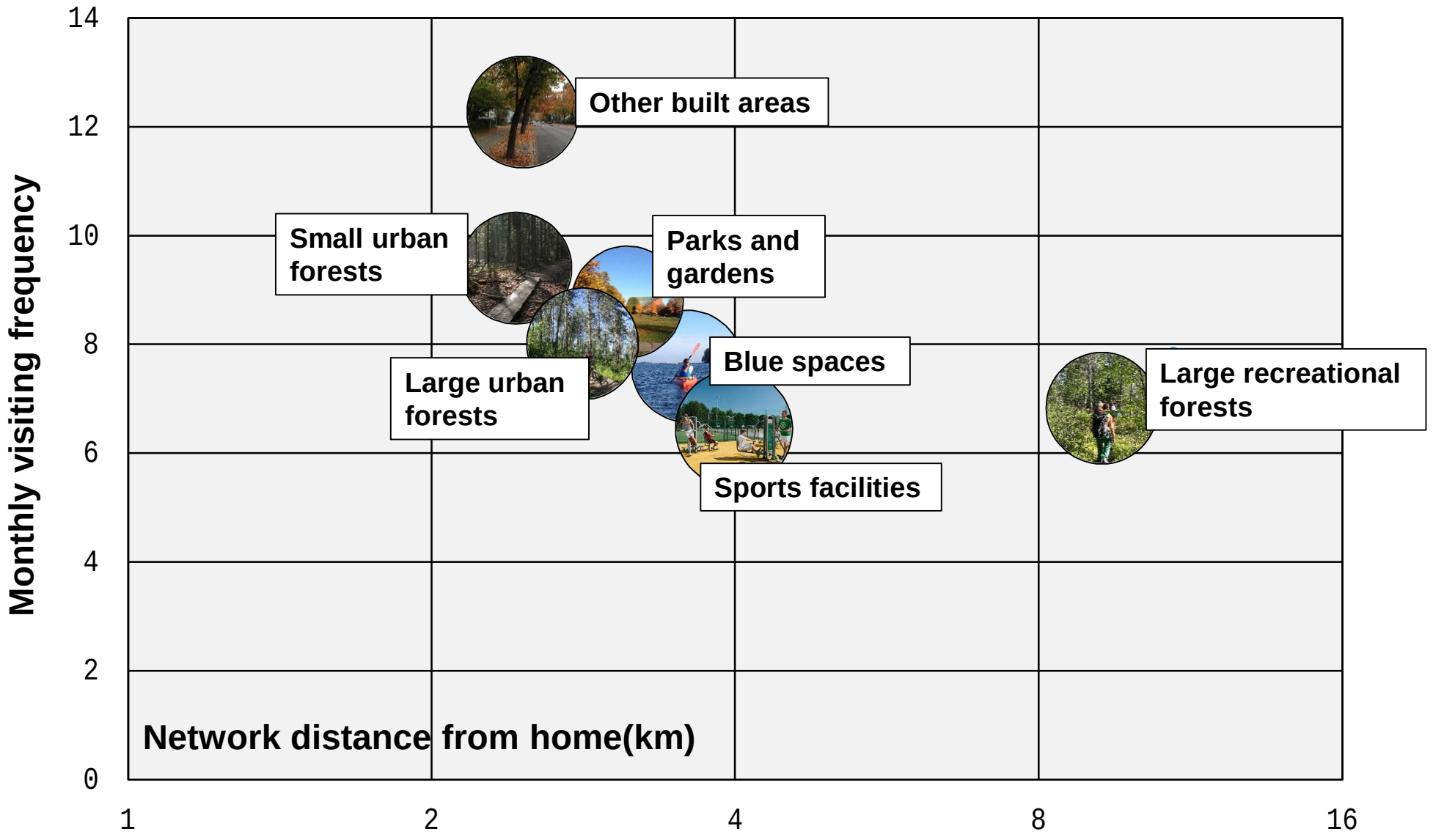
Other built areas

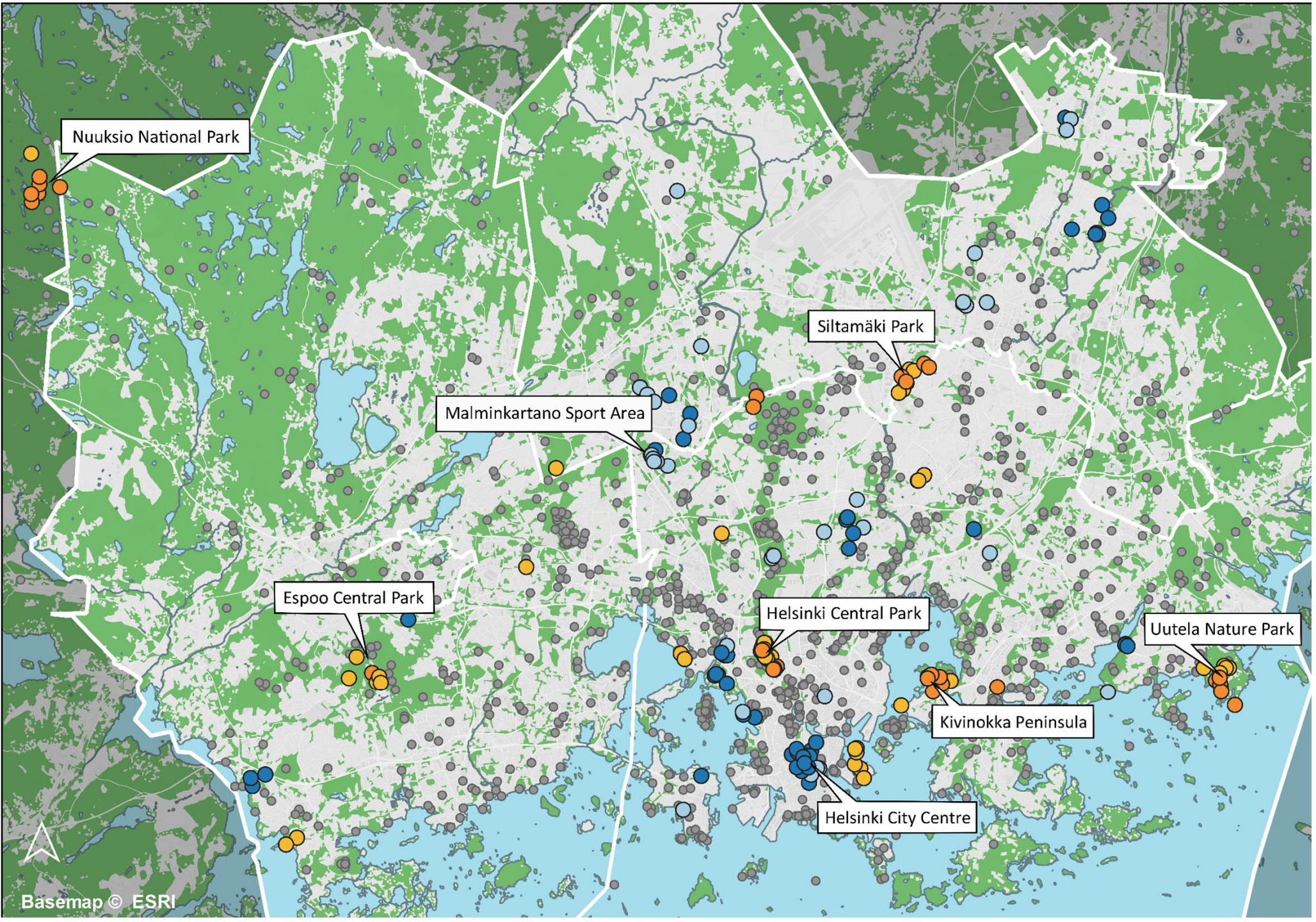
Reference category

- Stress reduction
- Relaxation
- Nature enjoyment

- Odds Ratio (adjusted)
- * $p < .05$

Distance from home and visiting frequency





Stress reduction, Hot spot -analysis

- Hot spot - 90% CI
- Hot spot - 95% CI
- Cold spot - 95% CI
- Cold spot - 90% CI

CI = Confidence Interval

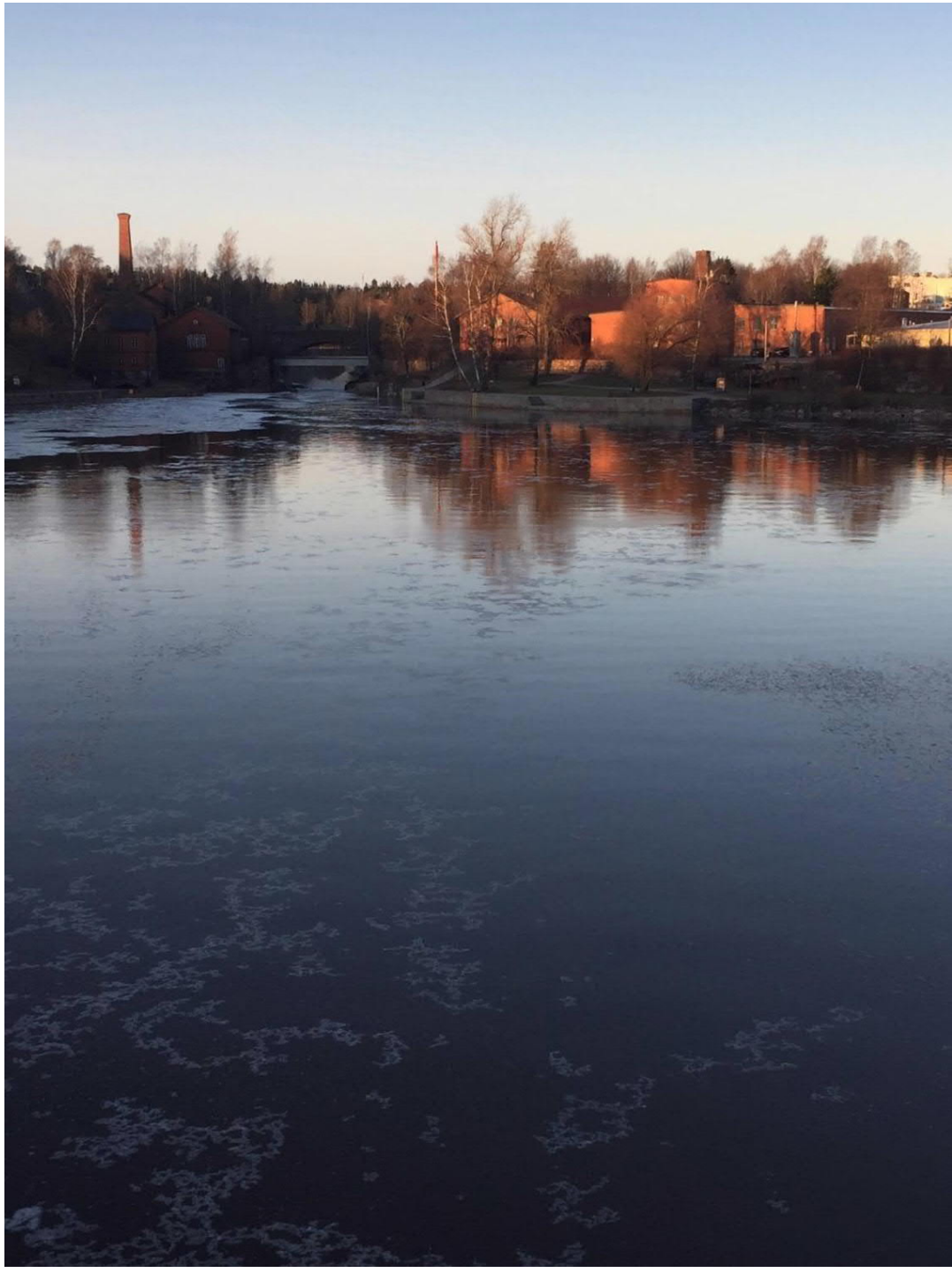
- Not significant

Conclusions

- Restorative benefits were associated particularly with exercising in **large natural areas and in blue spaces**

- From a public health perspective, small to large urban forests provide important **access to green exercise close to the residential location,** while improving the accessibility of larger recreational natural environment and forest areas has the potential to **increase the benefits of green exercise on a population level**.

- Promoting possibilities for physical activity in these environments with sensitivity to other users and ecosystem services offered by these areas



Thank you!

anna.kajosaari@aalto.fi

References

Barton, J., & Pretty, J. (2010). What is the best dose of nature and green exercise for improving mental health- A multi-study analysis. *Environmental Science and Technology*, *44*(10), 3947–3955.

Brown, G. & Kyttä, M. (2014) Key issues and research priorities for public participation GIS (PPGIS): A synthesis based on empirical research. *Applied Geography* 46, 122-136.

Hartig, T., Mitchell, R., de Vries, S., & Frumkin, H. (2014). Nature and Health. *Annu. Rev. Public Health*, *35*(207–228).

Kajosaari, A.,& Pasanen, T.P., (2021). Restorative benefits of everyday green exercise: A spatial approach. Landsc. Urban Plan. 206, 103978.

Mitchell, R. (2013). Is physical activity in natural environments better for mental health than physical activity in other environments? *Social Science and Medicine*, *91*, 130–134.

Pasanen, T. P., Ojala, A., Tyrväinen, L., & Korpela, K. M. (2018). Restoration, well-being, and everyday physical activity in indoor, built outdoor and natural outdoor settings. *Journal of Environmental Psychology*, *59*(April), 85–93.

Pasanen, T. P., Tyrväinen, L., & Korpela, K. M. (2014). The Relationship between Perceived Health and Physical Activity Indoors, Outdoors in Built Environments, and Outdoors in Nature. *Applied Psychology: Health and Well-Being*, *6*(3), 324–346.

Thompson Coon, J., Boddy, K., Stein, K., Whear, R., Barton, J., & Depledge, M. H. (2011). Does participating in physical activity in outdoor natural environments have a greater effect on physical and mental wellbeing than physical activity indoors? A systematic review. *Environmental Science and Technology*.