Wellbeing benefits of urban green infrastructure mapped through participation and 3D virtual landscapes (GreenPlace)

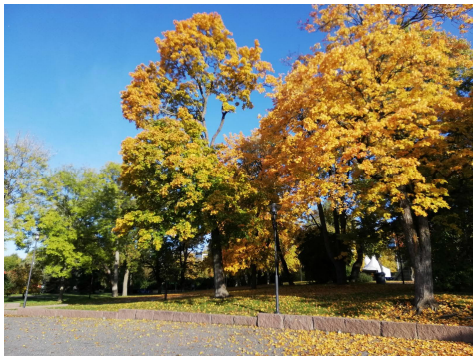
Context

Increasing urban population creates pressure to densify urban structure but at the same time to stay liveable by offering good quality green infrastructure. Thus, it is of outmost importance for urban planners to know in detail **what urban green infrastructures (UGI) are preferred by people offering ecosystem services and nature-based solutions contributing to human wellbeing**. We take advantage of the possibilities of three dimensional (3D) virtual landscapes to facilitate mapping place-based perceived knowledge through Public Participation GIS (PPGIS).

The main objective of this research is to **increase our knowledge of the potential of mapping perceived place-based wellbeing benefits related to green infrastructure among urban dwellers with the use of a 3D landscape platform**.

Innovation

The essential innovation of GreenPlace is to **apply modern 3D mapping technologies, such as digital photogrammetry and laser scanning, and demonstrate their advantages for capturing place-based physical activities and health benefits of urban dwellers** related to UGI in the context **of landscape sustainability science**.



Urban green infrastructure

UGI, such as public parks, forests, community gardens, and green roofs, provide a range of experiences for people, including opportunities for multiple types of physical activities (e.g. walking, jogging, and using playgrounds) and health benefits (e.g. relaxation, socializing with friends, and enjoying nature). These multiple **wellbeing benefits are conceptualized as ecosystem services, denoting the benefits that people derive from the structures and processes generated by nature.**

Relevance

Inclusion of the use and perception of UGI from the local stakeholders' perspective is crucial for planning sustainable livable green areas and elements. GreenPlace will have **genuine societal relevance in participatory spatial planning by promoting understanding and mapping the wellbeing benefits of ecosystem services in urban areas** and **developing practical approaches for UGI planning**. It is in in line with international policies safeguarding biodiversity, ecosystem services, and human wellbeing, such as the European Union Strategy on Green Infrastructure, Mapping and Assessment of Ecosystems and their Services, the UN-Aichi Biodiversity Targets.

GreenPlace project has a strong **transdisciplinary approach through integrating urban dwellers and multiple stakeholders** to urban landscape management. The relevance of such local level knowledge has been particularly emphasized by the Intergovernmental Platform on Biodiversity & Ecosystem Services (IPBES). Subjective perceptions of landscapes and participation are also among the key priorities in landscape assessment in Europe.

Methods

We **develop, test and apply 3D PPGIS** approaches with urban residents and planners in study areas in Finland and Denmark.

Integrated spatial methods are developed for 3D PPGIS data analysis. Furthermore, the research provides **an in-depth evaluation of the potential and challenges of 3D PPGIS approaches in planning future green cities**.

Interested?

GreenPlace project **welcomes motivated individuals passionate about people-landscape relationships**. Opportunities exists particularly for post docs and PhD candidates. Project topic can also be linked to Master's thesis.

Get in touch to know more about these possibilities!

3D model from Leppävaara (image: city of Espoo)

What is GreenPlace?

GreenPlace 2019-2024 is an Academy Research Fellow project funded by the Academy of Finland (grant number 321555). The project started in September 2019. Website is under development.

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