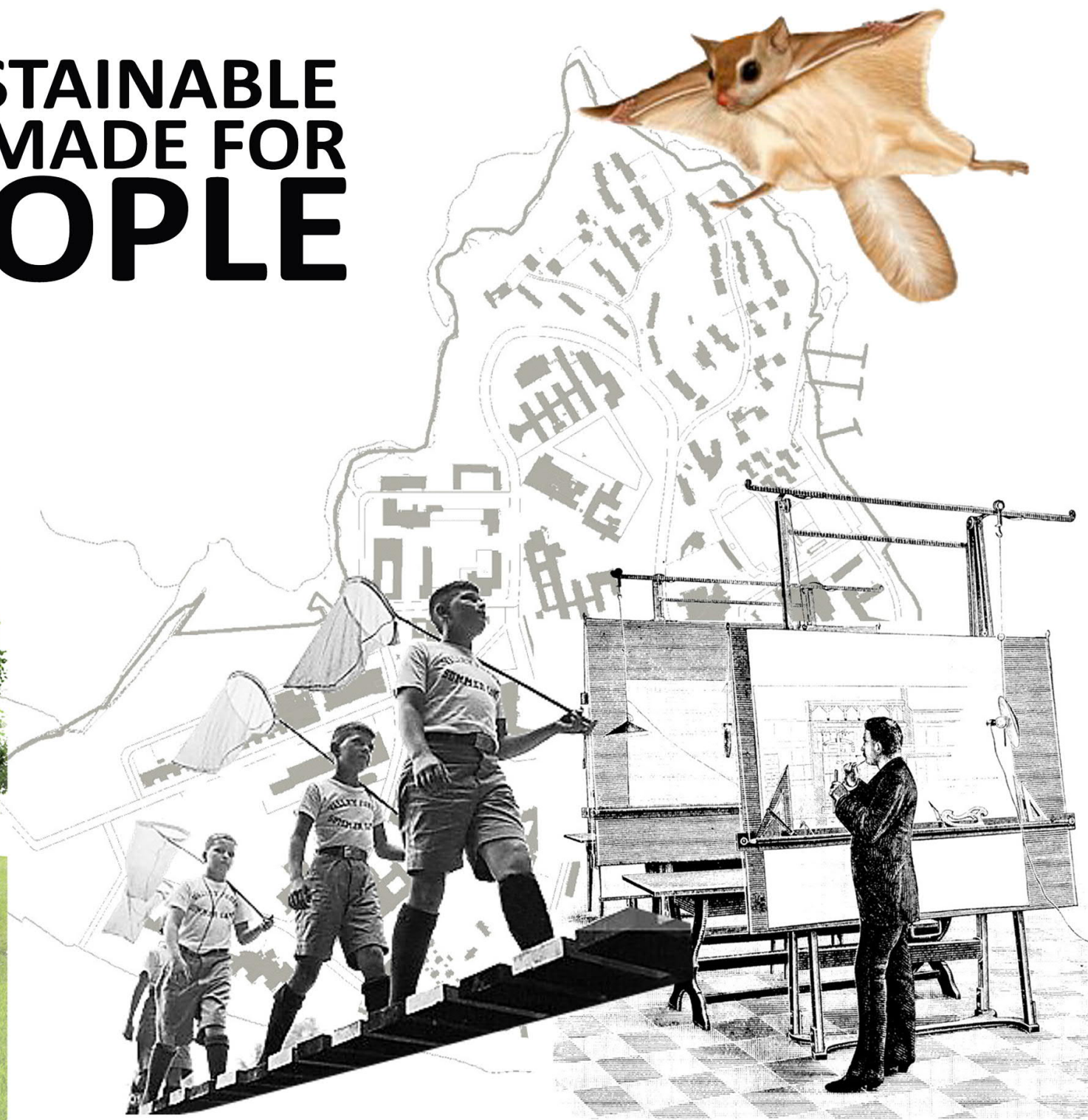


# BioTANIEMI DIVERSE LOGICAL

## A SUSTAINABLE CITY MADE FOR PEOPLE



Country / City ..... Helsinki, Finland  
University / School ..... Department of Architecture, AALTO UNIVERSITY School of ARTS  
Academic year ..... 2017-2018  
Title of the project ..... BIOTANIEMI, A SUSTAINABLE CITY MADE FOR PEOPLE  
Authors ..... Venessa Mok, Titouan Joulain & Elina Renkonen





# PERFORMATIVE NATURE

Barcelona International Landscape Architecture Biennial

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SCHOOL PRIZE

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Máster d'Arquitectura del Paisatge -DUOT - UPC  
ETSAB- Escola Tècnica Superior  
d'Arquitectura de Barcelona  
Avenida Diagonal, 649 piso 5  
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## TECHNICAL DOSSIER

Title of the project	BIOTANIEMI: A Sustainable Town made for People and Nature
Authors	Venessa Mok, Titouan Joulain & Elina Renkonen
Title of the course	URBAN BIOTOPES: OTANIMEMI 2017 > 2030
Academic year	2017-2018
Teaching Staff	Juanjo Galan, Johan Kotze
Department/Section/Program of belonging	MASTER OF LANDSCAPE ARCHITECTURE, Department of Architecture, School of ARTS
University/School	AALTO UNIVERSITY

Written statement, short description of the project in English, no more than 250 words

Our project advanced in the integration of Natural Sciences and Planning by combining scientific methods to analyse the abiotic and biotic conditions of the urban environment with planning methods to promote the integration of multi-functional green infrastructures in more sustainable urban fabrics. In particular, our work used the Biotopes of Otaniemi to develop strategic proposals, fieldwork, lab work and advanced plans in current and future Otaniemi, in which new Urban Biotopes might emerge as a consequence of densification, climate change and social transformations. Otaniemi is located in Southern Finland, in Helsinki metropolitan area, in the South-eastern part of city of Espoo. It's a peninsula of 1,68 km<sup>2</sup> reaching in the gulf of Laajalahti. Today Otaniemi is mainly home for students of Aalto University and has a population of 2.500 people, mainly students and researchers. By 2030, the population of Otaniemi will increase up to 10.000 people and new land uses will be incorporated (offices, services, commerce, etc). Our goal was to plan the evolution of Otaniemi from the existing mono-functional campus to a multifunctional, vibrant and sustainable town. In this endeavor, we used nature as an essential resource an asset. Firstly, we analysed the existing biotopes of Otaniemi and we assessed the current state and performance of its blue-green infrastructure. Then we developed a strategic vision for Otaniemi highly informed by landscape and ecological issues. The result is a project in which new synergic interactions between nature and people occur in a denser and more diverse, resilient and sustainable Otaniemi.

For further information

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Consult the web page <http://landscape.coac.net/>



# 1. GREEN CLASSIFICATION FOR PLANNING



Green conditions of Otaniemi in Summer and Winter

## From biotopes to Green Types

At first, we categorized the nature of Otaniemi into 21 different biotopes, based on their openness and differences in species.

A biotope is an area of uniform environmental conditions providing a living place for a specific assemblage of plants and animals. In a biotope, different species and abiotic conditions are in deep interaction. Biotopes happen in microscale but they function as networks. In Otaniemi they are impacted strongly by daily human life, and many of them are partially artificial.

Then we continued analyzing the different conditions inside each biotope: the species; non-native and native, and their interaction with the abiotic conditions; soil permeability, organic matter, pH of soil and the water, Human influence, noise and maintenance level. After dealing with 21 different biotopes, we realized that some of them have similarities, and therefore it would make sense to combine some of them in order to get more clear and logical picture of nature in Otaniemi. Biotopes were categorized into 9 Green types.

GREEN OF OTANIEMI

BIOTOPES

GREEN INFRASTRUCTURE

GREEN GRANDIENT NETWORK PROPOSAL



Areal view of Otaniemi



Biotope classification plan

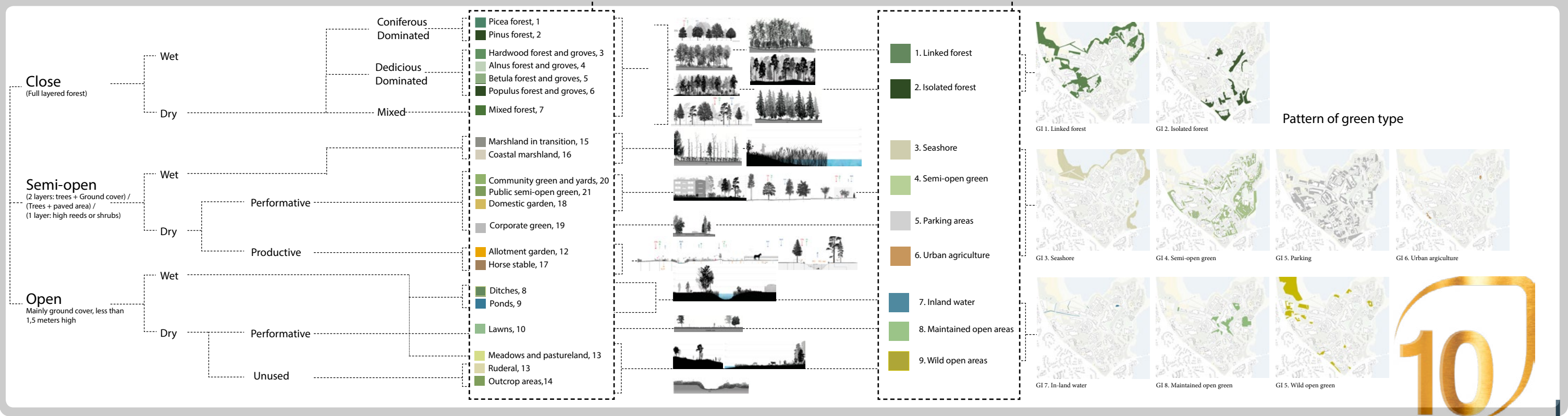


Green infrastructure classification plan



Concept proposal: Green grandient level 1-4 network

## CLASSIFICATION





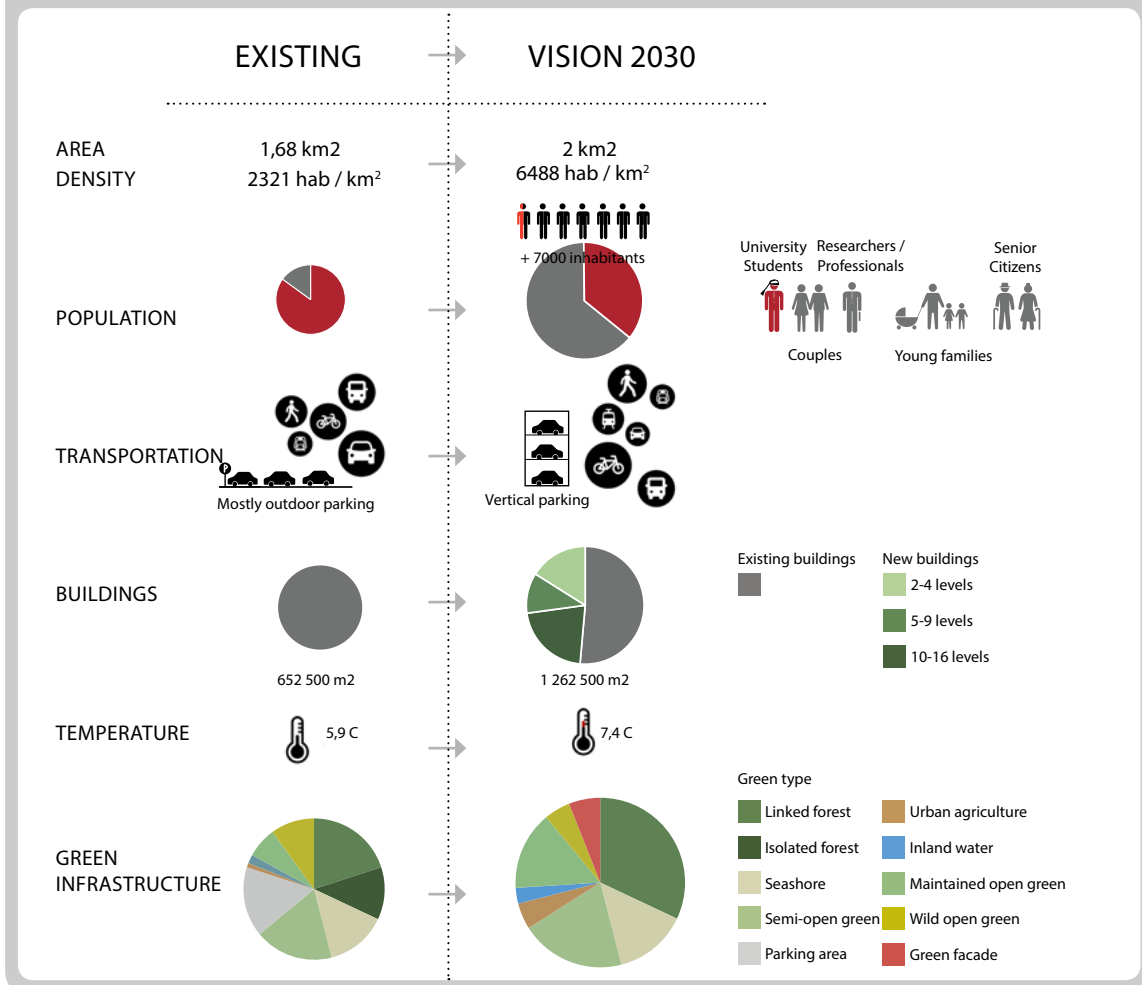
## 2. PROPOSAL FOR OTANIEMI IN 2030

### From monofunctional campus to sustainable town

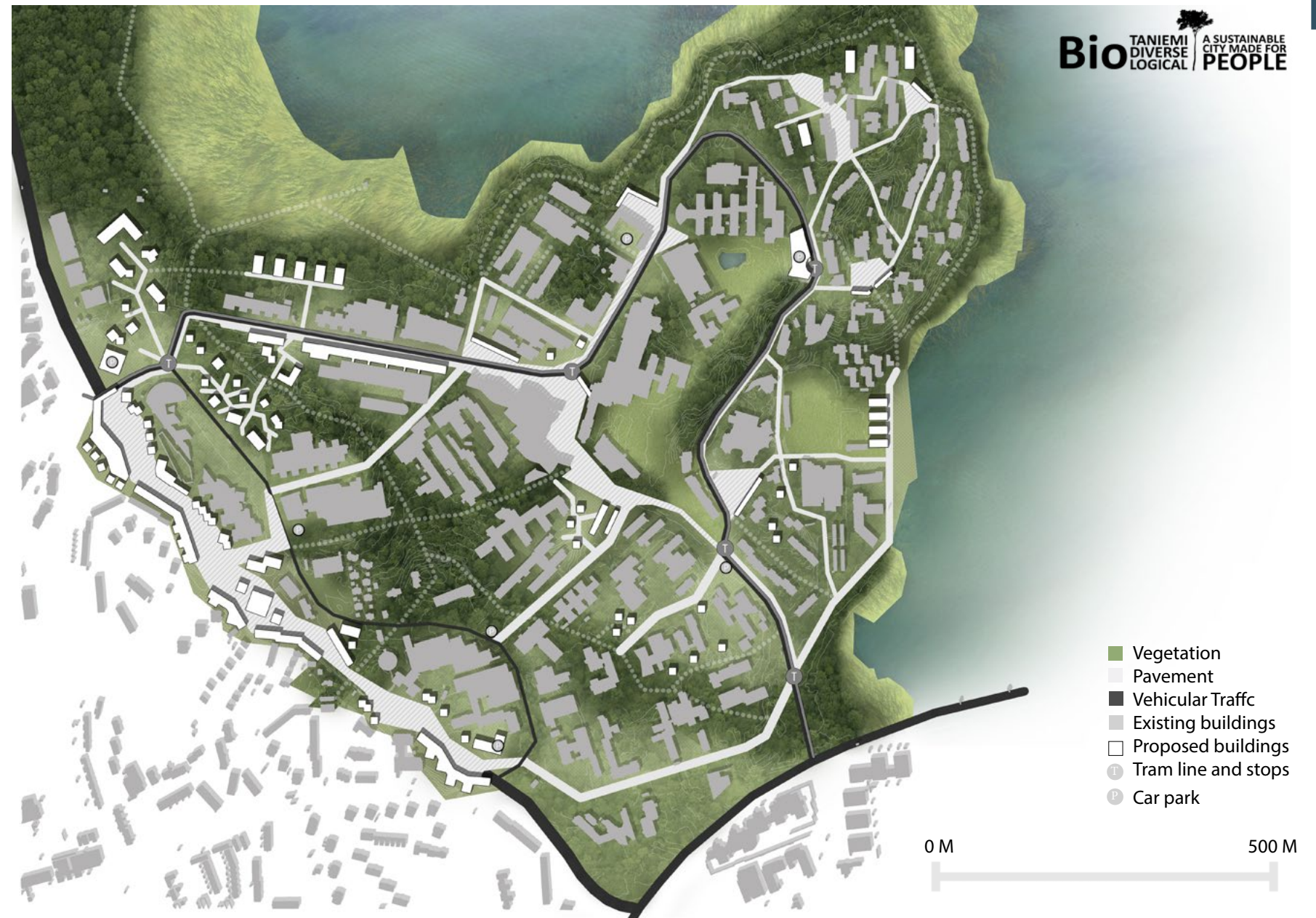
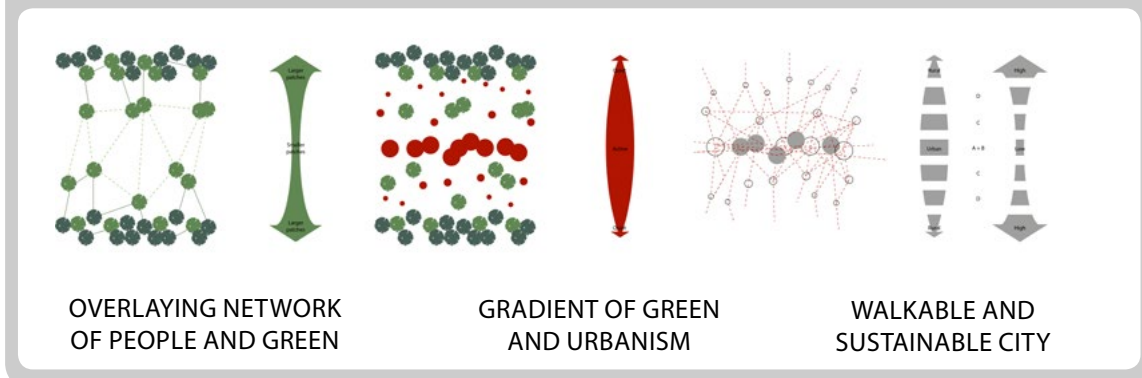
Otaniemi is located in Southern Finland, in Helsinki metropolitan area, in the South-Eastern part of city of Espoo. It's a peninsula of 1,68 km<sup>2</sup> reaching in the gulf of Laajalahti. Today Otaniemi is mainly home for students of Aalto University. By 2030, Otaniemi has turned into one of the flourishing and sustainable city centers of Espoo. The needed amount of squaremeters for new inhabitants was calculated so, that 40 m<sup>2</sup> was reserved for each new inhabitant. Estimated amount for offices, retail and services was 180 000 m<sup>2</sup>, but since the 6000 m<sup>2</sup> of shopping facilities in Väre was included, our number turned out to be 174 000 m<sup>2</sup>. Students, young professionals, couples, young families with children, visitors, and senior citizens are all new inhabitants to Otaniemi.

In the new phase of development, Otaniemi will face the challenge of climate change and social change from densification. The master plan proposal is an ecological urbanization plan build upon the response of the challenges. The vision is to create a sustainably city that the new dweller will enrich the social dynamic, while the campus is the core engine of creativity and collaborate with new offices and start-ups.

#### URBAN DATA



#### URBAN CONCEPT



Master planning proposal



Buildings proposal



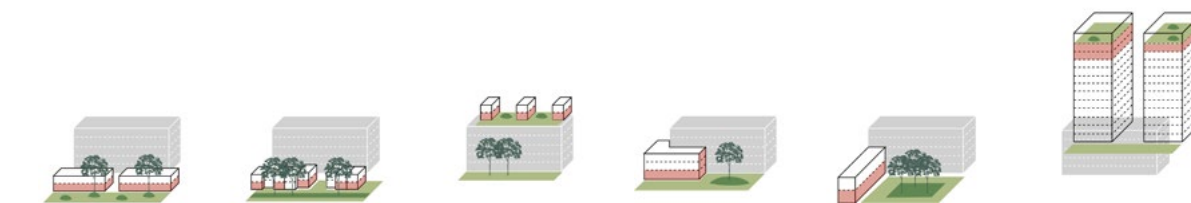
Walkability and transportation



Green gradient network



Green and materplanning detail



Denification massing and green





### 3. GREEN INFRASTRUCTURE RESEARCH & ENHANCEMENT

The green infrastructure is studied by the biotope conditions and ecosystem service that each provided. These data are critical in the process of decision making in enhancing the green infrastructure, considering the growth of population and balance with the quality of nature.

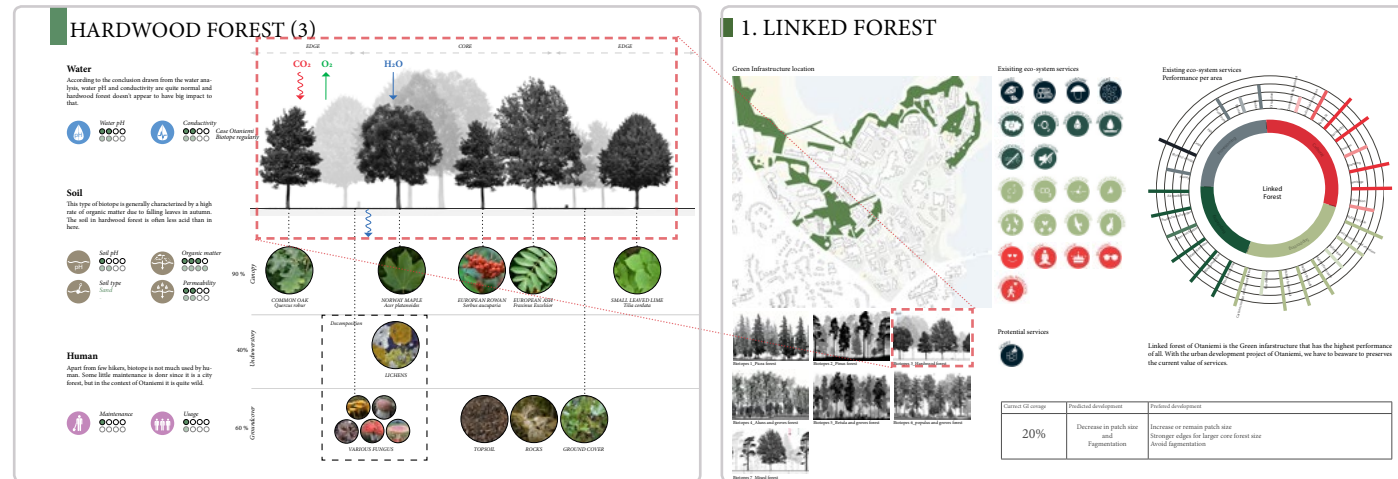
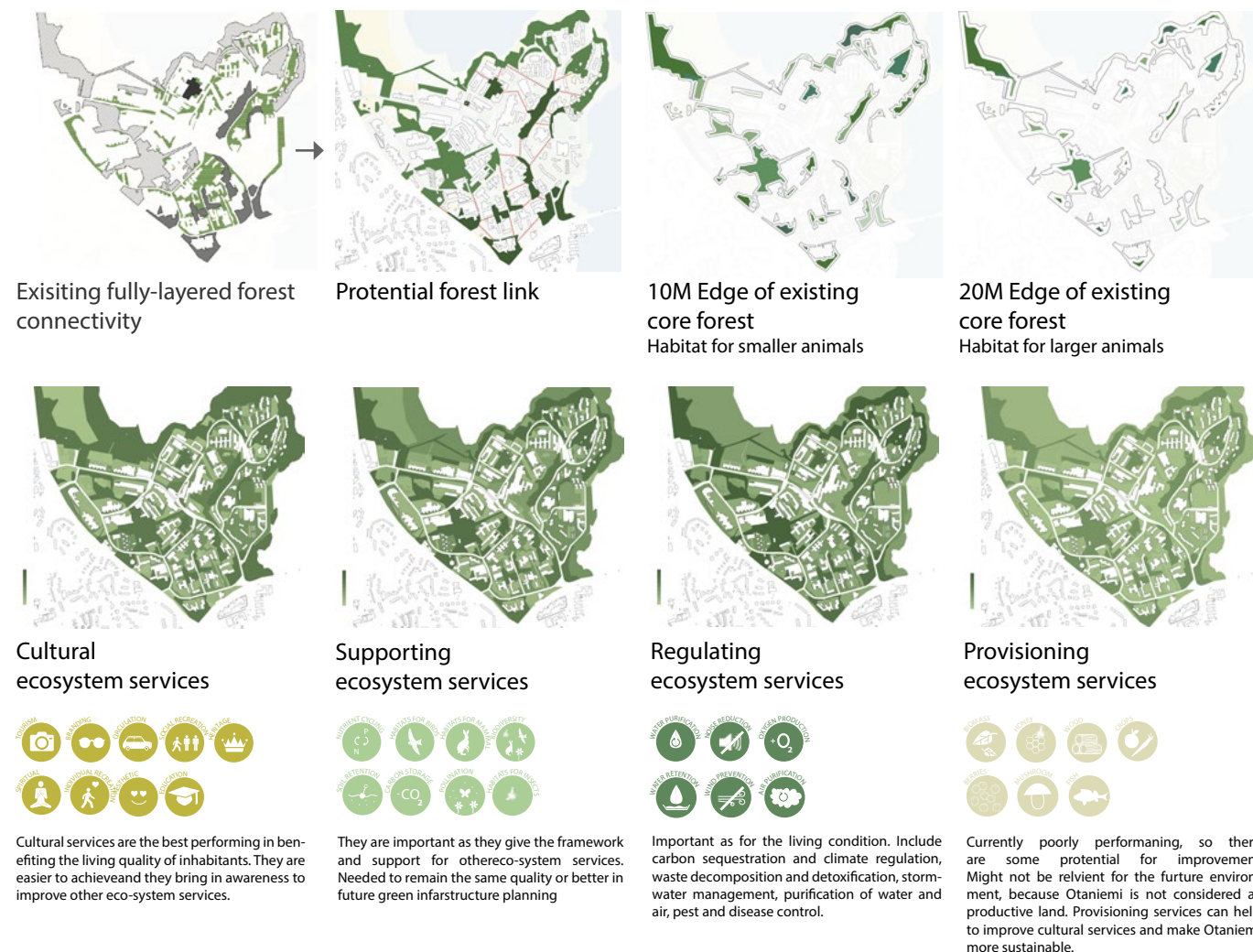


Chart from biotope research

Chart from eco-system services study for green infrastructure

#### EXISTING



### 4. LEVELS IN THE GREEN GRADIENT NETWORK

#### PROPOSAL

Green infrastructure is enhanced by regrouping into four level of green beside on the biological value and ecosystem services that they provide for human. Each level of green in Otaniemi are improved based on their needs.

