

Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences



Graduation Plan: All tracks

Personal information	
Name	Yael von Mengden
Student number	4552857

Studio		
Name / Theme	Design of the Urban Fabric	
Main mentor	Gerdy Verschuure-Stuip	Landscape Architecture
Second mentor	Alexander Wandl	Urbanism, Environmental Technology and Design
Argumentation of choice of the studio	I chose the lab <i>Design of the Urban Fabric</i> within the <i>Flowscales Studio</i> because it facilitates me to graduate on current challenges that occur in our landscape, in combination with the landscape biography approach. 1. Broad view on issues Within the lab <i>Design of the Urban Fabric</i>, there is a main focus on researching the transformation possibilities of current green, grey or blue structures and flows to make them resilient. This view as a starting point to shape my graduation project suited me very well. 2. Landscape biography The landscape biography approach – in which historical knowledge about past and current use, meaning, experience, stories and ideas are studied – seemed like an interesting basis to start designing from, because I believe that a lot can be learned from already existing systems in order to create new future proof systems.	

Graduation project	
Title of the graduation project	<i>Woodn't you like to grow a house?</i> Future production forests in the Netherlands
Goal	
Location:	Hattem, Gelderland. The area between the Hoge Veluwe and the more urbanised area towards the IJssel and Zwolle.
The posed problem,	Currently, the building industry is complicit in resource depletion, the excessive CO₂ emissions (38% globally (UN Environment Programme, 2020)) and the nitrogen crisis. This contributes to negative changes on a global scale, such as climate change and biodiversity loss. Using wood as a dominant building material would have a positive effect on these problems. Firstly, because wood is a fast-growing renewable material that can be used to set up a sustainable production chain. Secondly, because forests capture CO₂ and they could be created to be used as a buffer to protect vulnerable nature areas from depositing nitrogen. And finally, forests have a positive effect on the environment by providing a place for people and animals to make use of them. In the Netherlands, timber already gets produced. In 2020 around 800.000 m³ wood was harvested from Dutch forests, but not for the purpose of being used in construction (Stichting Probos, 2020). There is currently no sustainable chain from forest to average building, while there is a lot potential in the Netherlands and a large housing demand.

	This, combined with the expected buy-out of farmers who run intensive cattle farms around Natura 2000 areas, provides an opportunity to explore how sustainable and multifunctional production forests can be created. The link between the built environment and the forest is central to this; can development of housing go hand in hand with development of nature? And what could such a material-producing landscape look like? At the same time, this design challenge offers an opportunity to redefine the relationship between humans and nature; can a landscape be created where people are part of nature, rather than being separate from it? For this, Lovelock's Gaia Theory is used as my basic perspective and therefore as theoretical framework for this graduation project (Lovelock, 1972). These challenges and opportunities lead to the following research question for this graduation project:
research questions and	How can a sustainable and multifunctional production forest be designed in the Netherlands? 1. What is a production forest? 2. What design elements can lead to a sustainable forest and how do they work? 3. What functions can take place in a forest and what spatial requirements do they need?
design assignment in which these result.	In order to answer my research questions, I will: 1. Look at the (spatial) conditions for production forests to get planted/grow. 2. Design elements that improve the sustainability within forests and make them visual, in combination with flows of how they work. 3. Create an overview of different functions that can take place within forests and their spatial requirements. With these outcomes, one of my main deliverables will be an overview of design elements that can be used as a starting point to design a sustainable and multifunctional production forest. My second deliverable will be a design at my chosen design location, Hattem. This design will start from working in scenarios to experiment with different design variations. In the end I would like to visualise the design in: - Multiple bird's-eye perspectives, showing the development of the forest over time. - Sections, showing the relationship between the different functions that the forest offers. - A model, smaller scale, to show the spatiality and atmosphere of the forest.
Process	
Method description	
The method for this graduation plan will be a combination of different research methods and techniques: - To get a general idea of the historical context, a timeline is constructed to understand and describe forestation in the Netherlands through time, based on literature research and using the landscape biography method. - To get an overview of current ideas for future forest development in the Netherlands, visions and strategies have been reviewed. - Three case study forests, chosen based on soil types, will get analysed through mapping, fieldwork and interviews, supported by literature. - These forests will get analysed on five different aspects, being: production, multi-use, biodiversity, climate resilience and experience of landscape. - From these analyses, an overview of design elements will be created, along with a radar charts to be able to compare and score the three forests on the five analysed aspects. - Also the design location, Hattem, will get analysed by mapping and fieldwork.	

Later, when starting the design, 4 scenarios will be created by looking at the extremes of two key factors according to the method by Kosow & Gaßner (2008). These, in combination with the results of the research will be the starting point for my design (research).

In Figure 1 the overview of my research plan can be found.

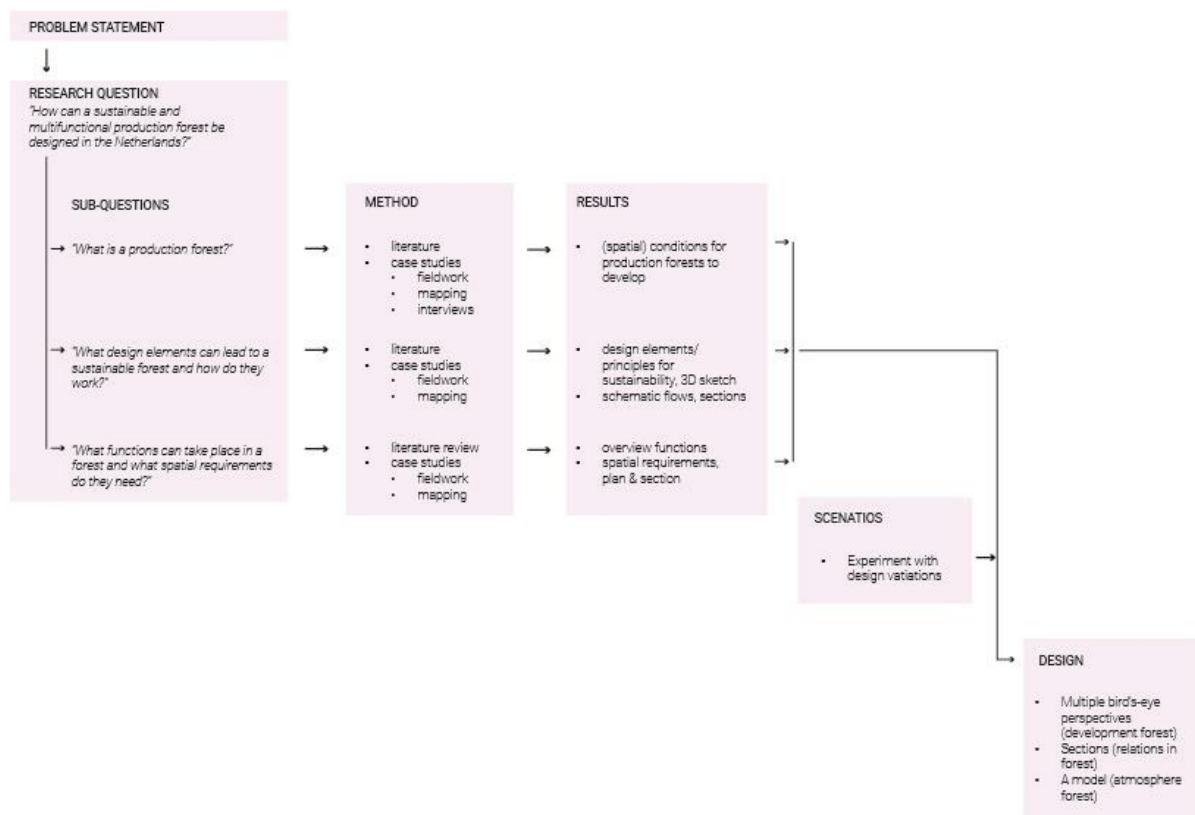


Figure 1: Overview research plan (made by author)

Literature and general practical preference

Literature:

College van Rijksadviseurs. (2020). *Landschap versterken met bomen en bos: Advies voor het ontwikkelen van een Bossenstrategie*. <https://www.collegevanrijksadviseurs.nl/actueel/nieuws/2020/08/27/bossenstrategie>

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Development, benefits, ecosystem services and perspectives for the future. *Global Ecology and Conservation*, 15, e00419. <https://doi.org/10.1016/j.gecco.2018.e00419>

Londo, G. (1991). Natuurtechnisch bosbeheer. In *Natuurbeheer in Nederland*. Pudoc Wageningen.

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Nielsen, A. B., & Jensen, R. B. (2007). Some visual aspects of planting design and silviculture across contemporary forest management paradigms – Perspectives for urban afforestation. *Urban Forestry & Urban Greening*, 6(3), 143–158. <https://doi.org/10.1016/j.ufug.2006.12.002>

Ouden, J., & Muys, B. (2010). *Bosecologie en bosbeheer*. Acco.

Rijksdienst voor het Cultureel Erfgoed & Staatsbosbeheer. (2021). *Historische schets van bossen en bosaanplant in Nederland*.

Stichting Probos. (2020). Houtproductie en -gebruik in Nederland in 2020. In *Stichting Probos*.

Studio Marco Vermeulen. (2019). *Bouwen met bomen*. <https://marcovermeulen.eu/nl/projecten/bouwen+met+bomen/>

Swaffield, S., & Deming, M. E. (2011). Research strategies in landscape architecture: mapping the terrain. *Journal of Landscape Architecture*, 6(1), 34–45. <https://doi.org/10.1080/18626033.2011.9723445>

UN Environment Programme. (2020). *2020 Global Status Report for Buildings and Construction: Towards a zero-emissions, efficient and resilient buildings and construction sector*.

Western Bay of Plenty District Council. (2009, February). *District Plan - Definitions*. <https://www.westernbay.govt.nz/property-rates-and-building/district-plan-and-resource-consents/district-plan>

Precedents + forester interviews:

- Randmeerbossen – V. Troost
- Speulderbos – M. Veldwijk
- De Deelden – M. van Wesel

Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?
The relation between my graduation project on sustainable production forestry in the Netherlands and Design of the Urban Fabric is about the core question how we can make current green structures resilient. By looking at current and past production forestry as a starting point to learn from the past and use this knowledge for the future.

Linking this topic to the master track Landscape Architecture, there is a strong connection between design and changing current flows/(eco)systems. In this lies an architectural challenge and opportunity, since this design can create interesting places for humans and animals.

Placing my graduation topic within this master programme, I think that there is a strong relation between finding solutions for relevant, nowadays problems constructively by analysis, interpreting and finding solutions by design and visualise them.
2. What is the relevance of your graduation work in the larger social, professional and scientific framework.
My graduation work can inspire because it will show an alternative way of foresting, while also creating local and renewable building materials and interesting recreational areas for animals and humans.

It can also start the discussion on how we want to live in and with our environment/nature by showing a different approach to harvesting building materials, by looking at ways to be a part of nature rather than being above it or separate from it.

Professional it can inspire the current conservative build industry or housing cooperatives by showing an alternative flow of materials that can be produced locally.

For the scientific field, my graduation work can be interesting because it will connect ecologists, foresters and landscape architects on which there is not yet much research.