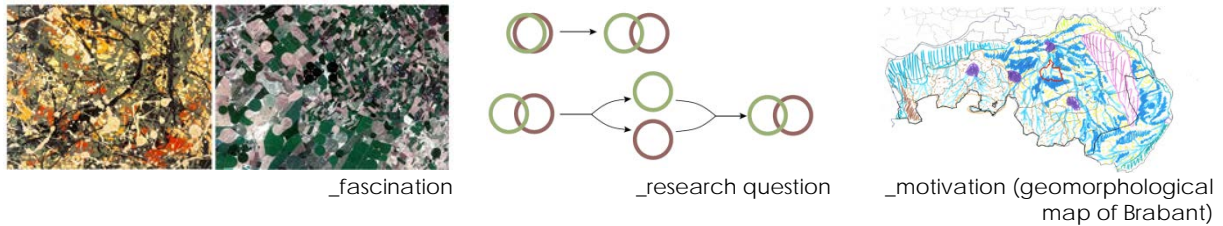


# Reflection essay

Improving the landscape qualities around Boxtel by introducing alternative types of agriculture.

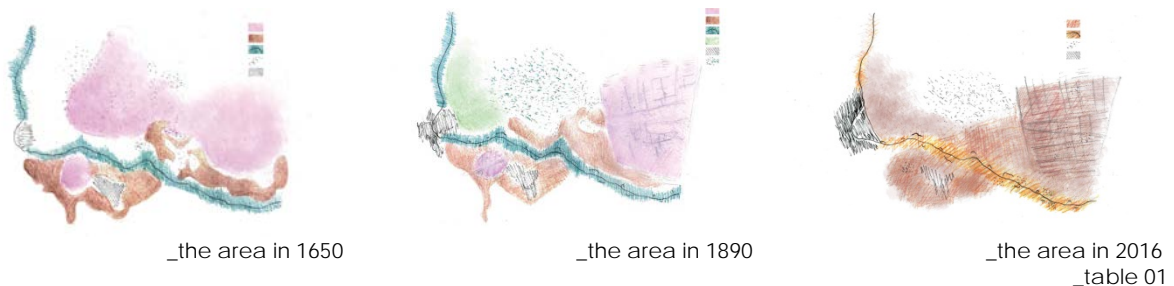
\_Eirini Trachana

## \_introduction



Starting with my fascination of form and agriculture as a formative power, I decided to work on a project about the relationship between landscape and agriculture (**\_fascination**). Early in the process of the graduation project I formed my problem statement and research question, "Agriculture is a dynamic formative power for the landscape which provides it with its identity through patterns, shapes and colors. In case landscape and agriculture are detached, landscape becomes monofunctional and loses sustainable principals and identity. How to develop a landscape based approach using the formative power of agriculture in order to create multifunctional landscapes which employ landscape principals and enforce the identity of the region" (**\_research question**). Agriculture forms landscape: but landscape forms agriculture as well. This interrelated relationship is valid for every place in the world and it is true through the years. I chose the area around Boxtel, in North Brabant, as a case study for three reasons. Firstly, it is an area where historical patterns are visible, with rich geomorphology. Secondly, it is a typical example of the whole region because lots of the typical characteristics of Brabant are visible on the spot, like soil types and stem canal patterns on the geomorphology. Lastly, the area is on an edge of a plateau with big industrial farming but next to the cities the traditional agricultural landscape of Brabant is still kept (**\_motivation**).

## \_The relationship between research and design



Working on this project I realized that the nature of this study is that knowledge that is derived through research is already a trigger for design. Design and research have a strong interrelated relationship. For example, during the research process on the first semester I learnt about the development of this landscape through time. The large heather areas were used for breeding sheep and the manure of the sheep was used to fertilize the cropland around the settlements. Getting influenced by the strong connections between functions and landscape qualities, as well as the agricultural processes of the past (table\_01), the design of my P2 ended up being quite utopic (image\_01). The goal of this design was to strengthen the relationship between the landscape qualities (vegetation, shapes, hydrological conditions) and agricultural functions, to prevent the upscaling of agriculture and overuse of this landscape and to create recreational opportunities related to the agriculture of the area. Realizing that reproducing large heather areas is difficult and non profitable I focused on researching deeper the spatial qualities of the area and the potentials for future development on the different landscape types.



image\_01\_design for the P2

The design goals are strongly related to the research. Learning from former agricultural practices, using reference projects ("hub farms", Paridon X de Groot, "mechtenberg fields", studio Burgi) and getting a deeper understanding on the formative powers of the agricultural landscape I suggest wild boar and deer farming in the forest patches of the area between Boxtel and Liempe. This design introduces a more diverse landscape with new agricultural functions as well as recreational potentials, strong identity for the area, economic and ecological sustainability, since the boars will be able to find most of their food on the spot, their meat is valuable and the plowing that they are doing on the ground renews the forest.

\_the relationship between the theme of the graduation lab and the subject/case study chosen by the student within this framework (location/object)

The graduation studio Flowscapes is about landscape infrastructure, flows, natural processes and social aspects related to the landscape. Due to the fact that agriculture shares an interrelated relationship with landscape, the subject is relevant to the studio. The close relationship of the subject to the physical elements of the landscape makes this relevance even stronger. The elements and patterns related to agricultural functions are infrastructural elements on the landscape which influence flows and address principals like economy, human and animal flows, natural processes, nutrient circles.

\_the relationship between the methodical line of approach of the graduation lab and the method chosen by the student in this framework

According to Steffen Nijhuis, *the nature of landscape architecture as a discipline, and particularly landscape design as an important activity, can be characterized by the interplay of four principles of study and practice, understanding landscape as three-dimensional construction, history, scale-continuum and process*<sup>1</sup>. Those principals are the basis of the methodology for the graduation studio of flowscapes. Based on this theory during the first semester of the graduation studio, I analyzed agricultural landscapes through the lenses of landscape architecture, as four main principals, farms and crop production as an operative landscape structure, historical development of agricultural landscapes, interaction of the agricultural elements through the scales and agricultural processes. This analysis was relevant to the objectives of the studio on a research basis.



Image\_02\_sections with interventions in the forest



Image\_03\_atmospheric collage with the recreational paths in the forest

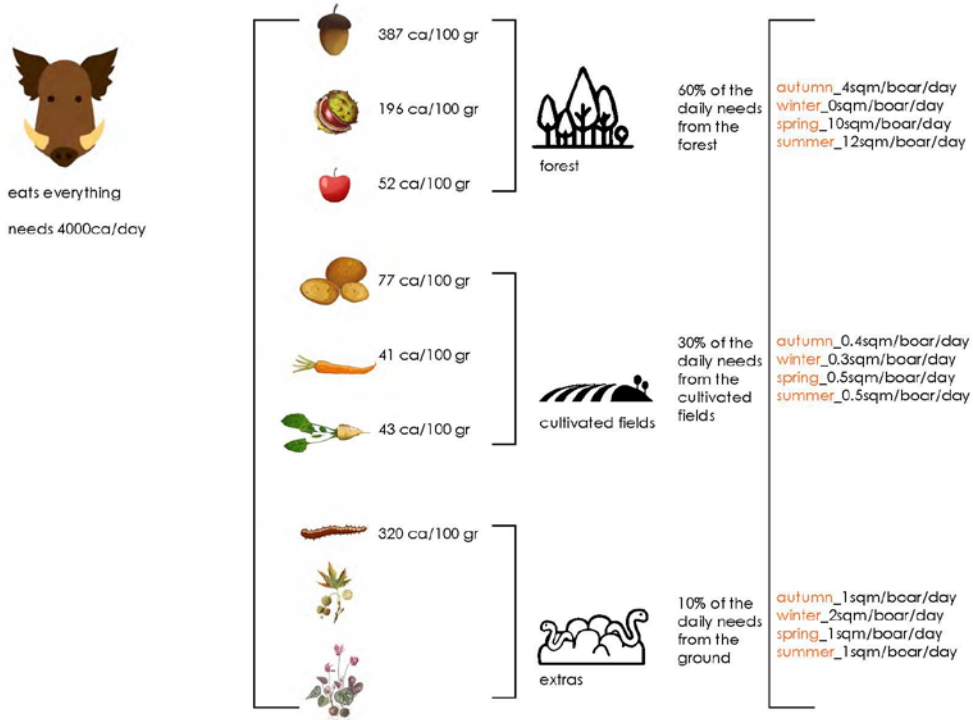
About the design, the focus of the studio is both on ecological and social aspects. On my design I focus on the agricultural processes and their relationship to the landscape. With the suggestion of wild animal farming in the forest I aim to increase biodiversity, renew the forest vegetation and reduce the animal food import from other countries. The drawings for this aspects are mostly diagrams which address the problem and sections with the interventions in the forest. From a social point of view, I focus on the identity of the area and the recreational paths. To support this point I used some atmospheric collages. Those collages helped me

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<sup>1</sup>Steffen Nijhuis, (2013), principals of landscape architecture, from the book\_ Flowscapes, exploring landscape infrastructures, Francisco de Vitoria University, Spain

decide which part of the design I would like to elaborate further. They were also valuable communication tools. Collages and human scale drawings are useful to communicate about the atmosphere of the area but at the same time they are tools to elaborate on the materiality of the spots. A landscape architect should be aware of how this design can be done in reality. Human scale drawings are valuable in this case.

In parallel with the human scale drawings the design was developed through the scales and there is a focus on the development of the landscape during the different seasons of the year. Those two aspects are also related to the objectives of the studio. Both techniques (working through the scales and seasonal drawings) are valuable in landscape architecture. The large scale design (scale 1:25.000) helped me realize the relationships between the farms and the different landscape conditions (water, geomorphology, soil) which was an essential finding for my research on the relationship landscape and agriculture. What is more, through the large scale planning I developed knowledge on the landscape types of the area which was important for my findings on the potential functions. On the medium scale planning, I developed the spatial design of the suggested wild life farming. This was valuable to elaborate my design in a reality base. In my case, the idea of the design through the seasons was valuable because of the pig feeding. Different plants produce food in different seasons. In my design I suggest that the wild boars find the food by themselves. In order to calculate how much food input they need and which amount of space is needed for this production I came up with a diagram where I calculated the amount of space every pig needs per day in order to be fed in every season. This diagram is a product of a series of calculations related to crop production in relation to space but at the same time forest production in relation to type of trees and tree size. The result was very helpful because I have a basis of the amount of space needed for the animals and the production I suggest in my design. With this diagram I learned that landscape architects need to do this in order to put their designs on realistic basis.



Image\_04\_calculation of the amount of space/wild boar/day/season

## \_the relationship between the project and the wider social context

*"we design in order to support life", Peter Bosselmann*

Since population of the earth is growing so fast, open space and agricultural productivity are becoming more and more valuable. *In order to support life*, this research is an attempt to develop landscapes which will accommodate all kinds of life at the same time. Wild animals which live in the forest are fed from the plants there, with their waste they fertilize the soil that the plants live on, humans are fed from the animals and are able to enjoy a recreational walk around the landscape that animals are forming.

*Natural landscapes have been transformed into urban, logistic, industrial and waste landscapes*<sup>2</sup>. The role of the landscape architect is to make sure that the relationship of the natural landscape to the manmade is in balance. The aim of the project is to create a multifunctional system in this agricultural area, with sustainable values and strong identity. The goals of this experimental design address both social and ecological issues. The principals introduced in this research can be used as a basis for other designs. Further development of this experiment could introduce more alternative kinds of agriculture with a strong connection with the landscape basis. The application of these designs could lead to high quality, easy food production (animals find the food by themselves and live in their natural environment) with economical benefits for the farmers (they don't have to buy extra food for the animals), but also create awareness to the people who will consume the products (since they can visit the farms and interact with the animals) and use the area for recreational reasons (create a diverse landscape with recreational paths and activities like restaurants or picnic tables).

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<sup>2</sup>Steffen Nijhuis, Daniel Jauslin, Frank van der Hoeven, (2015), *Flowscales\_ designing infrastructure as landscape*, Research in urbanism series vol. 3, Delft University of Technology, Delft

# landscape and agriculture

first question

## How can we shape the landscape with agriculture?

research goals

- support the landscape **diversity**
- enhance **sustainable** principals
- create a strong **identity**

research

- analysis of the **historical maps**, with a focus on the sustainable principals of the old functions and the identity-beauty of the area
- analysis of the **development** of the site
- former agricultural practices** on the site

the **focus** of the research was on the history and on the old practices which lead to the development of the site

### P2

research

- analysis of historical maps and site characteristics
- analysis of the three types of farms (small, medium, large)
- goal\_** develop the landscape in a beneficial way for all the types of farming with an emphasis to the medium farms

utopic first design based on past techniques

- expansion of the **forest**
- transformation of the brook system into **meadows**
- bring back the **heather** area

### Rethinking the first design

parallel analysis and design

- deep analysis of **landscape characteristics** (soil, water, geomorphology, reliefs)
- creation **landscape types map**
- analysis of the **existing agriculture** and vegetation
- discovery of potential **new functions** in the agricultural landscape
- discovery of **potential location** of the new functions in the map

### P3

design for the existing functions

- small scale farming\_ **flower road\_ identity**
- medium scale farming\_ **hub farm use\_ identity\_ sustainability**
- large scale farming\_ **production zoning\_ diversity**

ideas for the new functions

- recreation\_atmospheric collages in the forest\_ **identity**
- wild animal farming (wild boar, deer) in the forest\_ **diversity\_ identity\_ sustainability**
- water filtration ponts around the brook system\_ **sustainability**
- energy production\_ wind turbines on the existing heather-forest area\_ **bio-gas next to the city\_ sustainability**

diversity

### Design for the dominant idea\_ wild animal farming

because it was the one satisfying all the research goals (diversity, sustainability, identity)

research

- how much **space** do those animals need
- what do they **eat** and how much
- how do they **shape** the forest landscape

design goals in relation to research goals

- crop production\_ **productive forest\_ animal farming\_ diversity**
- animals will find their food on the spot\_ **sustainability**
- wild animal farms in a system with visitor points\_ **identity**

design

- a farming system with fenced animal areas in the forest, bike routes, farms, crop fields and recreational opportunities like horse riding paths

### P4