Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences

Graduation Plan: All tracks

Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

The graduation plan consists of at least the following data/segments:

Personal information	
Name	Jan Houweling
Student number	5056454

Studio		
Name / Theme	Urban Forestry	
Main mentor	Saskia de Wit	Landscape Architecture
Second mentor	Suzana Milinovic	Urbanism
Argumentation of choice of the studio	The studio is focused on the art, science and technology of managing tree and forest resources in and around urban community ecosystems (Konijnendijk et. al., 2006) The main concern when it comes to forest management, are the (physiological, sociological, economic and aesthetic) benefits that trees provide for people. I am interested in the ways that trees can be beneficial to the natural environment and urban ecosystem, too. I have a fascination for natural processes and post-industrial landscape development. Through my topic, feralization, I believe we can gain a wider public acceptance and ultimately strengthen the connection between man and nature through spatial design and 'guidance' of natural processes.	

Graduation project	
Title of the graduation project	Provisional title: Fourth to Sixth Nature: Feralizing Post-Industrial Landscapes
Goal	
Location:	Schie-oevers, Delft
The posed problem,	Social, cultural and technological developments have always gone hand-in-hand with the domestication of the natural world. In order to grow as a species, we feel that we need the control over our environment. As modern society emerged, and the human population condensed into urban areas, industrialisation freed many people from reliance on direct consumptive interactions with nature. (Keniger et al., 2013) However, in this process of modernisation, economic growth and technological development, we tend to overlook what we lose to these developments. It seems we are losing our connection to the natural world, and slowly we gain an idea of the consequences of that loss. Many of the climatal problems we now face, can be seen as the consequence of domestication. Because it appeared for a long time that we had achieved control over the natural world, mankind perceived itself to be above nature, instead of being part of it. It is this belief that allows us to think that we don't need nature to thrive, and offers an excuse to deplete

resources and conquer territory, and by doing so damaging the fragile balance within the natural world.

Biodiversity is at an all time low. Currently about 15% of the natural amount of species remain in the Netherlands. This percentage is much lower than anywhere else in Europe. The main reason for this is habitat loss is due to urbanization and intensive agriculture. The urgency for adressing this problem is evident. Our ecosystem, formed by millions of years of evolution, is what makes life on earth managable, creates stability, resources and allows us to produce food from crops. At this rate, it is very likely that we will lose species that we are dependant on in order to maintain our food production industry.

The climate agreement states that we have to reduce 49% of our carbon emmissions by 2030. The Dutch government is now looking into forestation as a possible solution for capturing and storing carbon, which would mean planting 37000 ha of forest in the Netherlands in order to capture and store carbon.

Hence we are realizing that the limits of our domestication have been reached, and that we are subject to the same laws of nature as are all organisms. Our antropocentric reign has to come to an end in order to shift towards the ecocentric approach that is needed in order for our own species to survive.

The key to achieving this, is re-connecting to nature. As many people know, an encounter with nature can be a humbling experience. We feel it when we are eye-to-eye with a wild animal, when we take a dive in the cold water, or when we get lost in the woods. When our instincts kick in, we can experience a deeper understanding of our primal connection to nature. That connection strengthens us, keeps us healthy and gives us a sense of fulfillment. But it also makes us understand that we are part of nature, and that we are dependant on it.

Feralisation, the understudied counterpoint to domestication, might very well offer a pathway to re-connecting with nature. As Henry Thoreau (1908) once stated: “We need the tonic of wildness.”. By allowing natural processes to occur in our landscapes instead of trying to fix and maintain the image that is to our liking, we promote biodiversity and create a resilient landscape (Müller et al., 2015) that can improve our mental and physical health. (Keniger et al., 2013) “This new nature has the potential to “sharpen our senses and reconcile us with our environments” (Girot, 2005)

Now, in the Netherlands, there are a few examples of landscapes like the Hollandse Duinen, Oostvaardersplassen and parts of the Hoge Veluwe that allow natural processes to occur and so are dynamic, intervention is kept to a bare minimum to make recreational use possible. These national parks are a very popular destination for hiking and excursion. In fact, these types of landscape gain the highest appreciation compared to other landscape types. (CBS, 2009)

However, when it comes to our direct living environment, we seem to fail to appreciate any form of unplanned nature or sign of natural process. Here it is associated with neglection, it’s unfamiliar to the image of the city and so it doesn’t belong there. (Nassauer, 1995) Apparently, we can only appreciate this kind of nature when it is outside the boundaries of our day-to-day environment. This conception too derives from the many centuries of Western domestication and is best explained as the NIMBY (Not In My Back Yard) phenomenon, which is the psychological resistance against change in an individual’s direct living environment. This phenomenon is responsible for slowing down urban developments projects worldwide. (Devine-Wright, 2009)

And this is problematic, since the world’s population is growing at a fast pace, and will continue to do so for the coming decades. A growing percentage of these people will live in the city. And in order to keep up with this growth, city expansion is needed, claiming more and more natural habitats. (UNDESA, 2019)

This puts pressure on urban development projects. Planners and developers are tempted to opt for short-term and cost-efficient strategies, in order to meet the demand in time.

In Western Europe we are looking into transforming former industrial sites to residential

	areas. Many of these sites have lost their industrial function and are suitable for building, gaining the interest of many developers. We've seen many succesful landscape architectural researches and projects on developing feral nature on former industrial sites. The research on developing feral nature in the transformation of industrial site to residential area however, is scarce. Over the last few years, many municipalities are envisioning transforming industrial sites to residential areas as a way to cope with the housing shortage. This research could prove to be a valuable input for the planning processes that will follow these visions. At the core of this thesis is the discipline of Urban Forestry. This field of studies is focussed on the "art, science and technology of managing trees and forest resources in and around urban community ecosystems for the physiological, sociological, economic, and aesthetic benefits trees provide society." (Konijnendijk et. al., 2006) The governmental task to plant 37 000 ha of forest is a complex one, and a multidisciplinary approach is needed in order to find solutions that benefit both the natural environment and society. Therefore the character of the research is dualistic. On the one hand there is the question how feralization and succession can play a role in the spatial transformation of a post-industrial landscape to an urban forest. The goal here is not to design a fixed end result, but to set a dynamic framework that allows movement, natural processes and stimulates man-nature co-existence. However, in order to find how feralization can promote this co-existence, human needs in terms of physiology, sociology, economy and aesthetics need to be taken into account as well. Accordingly, the second main question this research is focussed on is: How can we gain public acceptance for feral nature in the city through spatial design strategies?
research questions and	How can feralization play a role in the spatial transformation of an industrial site to an urban forest? How can we gain public acceptance for feral nature in the city through spatial design?
design assignment in which these result.	Creating a dynamic spatial framework of different settings and scenario's that allow movement, natural processes and man-nature co-existence in the development of Schie-oevers, Delft.

Process

Method description

Answers to the research question are sought-after through the case study of Schie-oevers, Delft. The city of Delft lies in Zuid-Holland, the most densily built province of the Netherlands, facing imminent urban expansion in the coming decades. Plans are being made for the Schie-oevers to transform the industrial site to a 'new city centre', with housing and offices. The area is now in post-
industrial state. *Terrain vagues* define the spatial layout, shaping a suitable case for studying how feralization can play a role in this development.

In the process, the interaction between research and design is essential. At the core of the thesis is the shaping of conditions for and the guidance of natural processes in different scenario's, with respect to the sites' palimpsest. Future developments of the landscape will build on to historic qualities and spatial qualities of the Schie-oevers. In order to uncover these often hidden qualities, patterns and structures, a compositoric analysis will be performed. The results lead to a framework, a main structure for different scenario's for the long-term development.

Precedent and reference studies
A study towards the spontaneous development of forest will set the baseline for the possibilities of the transformation. The site analysis will expose the current different conditions of the Schie-oevers area that will

determine the course of development of the different scenario's for feralization. The dynamics of each scenario are researched through ecologic succession and ruderal ecology theory and simulations run in the programme Synbiosis.

A matrix will show how the site could develop over time through natural processes, and the requirements for cohesive vegetational classes and their successional stages. This should give an idea about how natural processes could be guided and stimulated.Also it show give insight on the difference between pre-settlement first nature and the expected fourth nature. Finally, for each type and succesional stage, the different spatial effects of the vegetation will be appointed.

So in the first instance, the scenario's assume an ecocentric approach, in order to ensure the needs of the natural world are at the core of the scenario. The temporal aspect of planning is crucial, because by allowing natural process to occur in the urban fabric, we agree to let go control of our comfortable, static environment and change it for a more unpredictable, dynamic one.

Accordingly, this is followed by a desktop study in Environmental Psychology, of which the results should, together with the spatial framework, form the input for the different maintenance strategies.

Then, the scenario's are evaluated, again by criteria derived from two perspectives; the antropocentric evaluation will be studied through environmental psychology theory and survey, the ecocentric perspective will be studied through ecology studies and consultation from an expert in the field of ecology. The results provide further input for the design.

Furthermore this research should answer the subquestion on how feralisation can gain public acceptance. A Management Matrix will give an overview of possible long-term routes that can be taken towards the transformation of the post-industrial landscape.

The results of the evaluation from the antropocentric perspective provide input for designing the earlier mentioned *Orderly Frames*, enriched by the research of publications in the field of Environmental Psychology and reference studies. A set of design principles for making natural processes experiental and explicit will be produced. The principles range from large scale to small scale interventions. This research should contribute to the understanding on how to gain public acceptance for feralisation.

Literature and general practical preference

Theories from the fields of Urban Forestry, Urbanism (Post-Industrial Landscape) Environmental Psychology (Gaining public acceptance) , Landscape Architecture, (Ruderal) Ecology and Edaphology,

Theoretic Framework

As we're moving towards nature-inclusive design strategies, the natural world seems to be adapting to our urban areas too. For example, birds in more heavily populated urban areas are much more tolerant of humans than birds in rural areas. (Samia et. al., 2015) Or the dandelion, Taraxacum officinale, of which of a population has evolved to be more succesfull in growing and spreading in the urban climate. (Arathi et. al., 2012)

This implies that it might be possible for our several interests to ultimately intersect. If we shift our attention to the natural world and start moving towards a multispecies built environment while simoultaneously the natural world adapts to the man-made environment, we may be able to reach a point of mutualistic co-existion.

An interesting approach is raised by Nassauer in *Messy Ecosystems, Orderly Frames*, which states that in order to infiltrate ecological notions into the urban fabric, we have to translate ecological patterns to cultural language. In other words, how do we place these unfamiliar forms into familiar packages? (Nassauer, 1995) Accordingly, through design we can raise awareness to the dynamics of natural process and strengthen our connection to nature.

When we explore the possibilities of integrating natural processes and urban development, it is crucial to address the time-scale. Natural processes occur in a wide range of periods, from the yearly seasonal changes to the successional cycle that can take up to hundreds of years to come full circle.

Ideas of guiding the natural processes are elaborated by Julian Raxworthy in *Overgrown*. There he states that the field of landscape architecture has strayed from gardening over the years, and underlines the loss that disconnection caused. In gardening, the garden is treated as a process, for the main concern is *growth*. Gardeners are much more connected to nature as they witness this growth first hand, and can intervene in real

time. Landscape architects on the other hand, try to imagine the future state of the landscape before anything is even built. And eventually they carry out their vision to others to be built and maintained by others, only hoping that it will be carried out as they envisioned. (Raxworthy, 2019)

Growth is not the only aspect of natural processes that should be emphasized in our natural environment. By cutting down ill trees and removing dead plant material, we deny the process of decay. in order to reconnect to nature and reflect an honest image of it's dynamics,
we should reconsider allowing decay to occur in our natural environment.

The idea of feralizing nature resonate with Raxworthy's idea of the *viridic*. The viridic is the landscape architectural equivalent to tectonic in architecture. This theory is largely influenced by Frampton's *Studies in Tectonic Culture*, which "seeks to mediate and enrich the priority given to space by a reconsideration of the constructional and structural modes by which, of necessity, it has to be achieved." Tectonic architecture, allows insight in how it's made and how it functions, by revealing parts of the construction. (Frampton, 1995) Percieving plants as the construction material of landscape, Raxworthy's *viridic* opts for a similar approach, in order to attach meaning to landscape architectural design we are to reveal the natural processes that shape the landscape.
It underlines that the only way of dealing with growth is *maintenance*, and states that this should be an important aspect of the design. For example, the simple act of pruning will affect the spatial perception of a tree and the space that surrounds the tree. When executed correctly, we can guide the tree towards a branch configuration that is more ideal for the structural integrity of the tree. Also it gives a 'cue for care', a sign of human interference, which often has a reassuring or comforting effect on people. (Kaplan & Kaplan, 2012) Through maintenance, we can either *fixate* a certain image that is to our liking or *guide* natural processes in a way that is beneficial for both the natural world and life in the city. In this thesis, the latter is explored.

Literature

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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 project explores new ways of urban forestry development in order to enhance urban ecosystems and city life conditions, by going deeper into one of the four perspectives taught in the Landscape Architecture programme, Process. The remaining perspectives will also play a roll in the process, with Perception as an important second and Palimpsest and Scale continuum serve as supporting perspectives. Besides the ecological implications of feralization, the spatial aspects of trees and other vegetation will be studied. This is one of the core focusses of the Urban Forestry lab.

2. What is the relevance of your graduation work in the larger social, professional and scientific framework.

- Domestication of the natural world is and has been an important topic of study in many fields. Now we're discovering the negative impact this domestication has brought to the environment and the relation between humans and the natural world. Feralization, the counterpoint to domestication, is understudied and might offer a change in discourse.

  This graduation work explores new pathways in transforming post-industrial landscape to an Urban Forest by the process of feralization, that is inclusive to nature and could strengthen the relation between humans and the natural world. There are a few theoretical studies on this subject, however the studies towards practical implementation are lacking.