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	Lea Johanna Hartmeyer
Student number	4651243

Studio		
Name / Theme	Urban Forestry	
Main mentor	René van der Velde	Landscape Architecture
Second mentor	Leo van den Brug	Urbanism
Argumentation of choice of the studio	Trees are a species which have a strong present in the urban environment, in the landscape, as well as our conception of landscape or 'nature' (Konijnendijk, 2019). I am fascinated by this threefold manifestation of trees and the ensuing ubiquity of them in our living environment. While there is a rising awareness for the socio-cultural as well environmental and ecological benefits of trees both in and outside the urban fabric (Pearlmutter et al., 2018) I believe due to their strong physical as well as mental presence they can also play a key role in reflecting on and even reimagining the relationship between human and non-humans ('nature'), city and landscape at large, which is needed in this time of planetary crisis and instability. In my graduation project I want to explore the interwovenness of trees with society, city and landscape. I want to shine light on concepts of care and reciprocity in human-tree relationships.	

Graduation project	
Title of the graduation project	The forest formerly known as – Reimagining forest infrastructure as an agent of care
Goal	
Location:	Parkstad, Limburg, The Netherlands
The posed problem,	It has become widely accepted now that we in fact live in the Anthropocene (Zalasiewicz et al., 2010, Hamilton, 2017). Humankind has become a *geological power* (Hamilton, 2017). Its influence over this planet has caused a rupture in functioning of the Earth System and while the extent of this rupture is still to be determined by our future actions, we can already feel and measure its destructive impact today: loss of biodiversity, global warming, extreme weather, habitat destruction and fragmentation among many other factors are characterizing this geological epoch. (Zalasiewicz et al., 2010, Hamilton, 2017). The Anthropocene thus necessitates us to rethink the way in which care for the world we are part of. To acknowledge our entanglement

	with biotic and abiotic beings, but also our dominance over them and with that our responsibility for them (Sijmons, 2020). To acknowledge our entanglement means to question the dualistic differentiation between nature on one side and humans on the other (Prominski, 2014; Sijmons, 2020). Specifically in relation to landscape architecture Prominski introduces the concept of "Andscapes" (2014) that draws on and gives a more graspable translation of the two Japanese concepts of *fudo* and *seibutsu no sekei.* Both emphasize unitary perspectives on the human-nature relationship. Perspectives in which individual distinctions are not eradicated, but their differences are not as important as their connections. Natural and cultural elements are all situated in a "intricate web of elements in dynamic relationships" and landscape architects should strive to work with these complex relationships through synthetic and integrative designs, in which other than humans benefit from human care and vice versa. In continuation of a non-dualistic view on nature and culture, one can also declare the differences between landscape and city obsolete. Landscape, on one hand, is a cultural and artificial concept and place (Prominski, 2014), that often serves the city (Newman et al., 2017), while cities hand are not wholly artificial, but made up of landscape elements and processes (Spirn, 1985). This interwovenness also increasingly manifests itself spatially through the growth of so called dispersed territories (Sieverts, 1997; Wandl, 2020). These places are neither landscape nor city, but rather both. They are characterized by decentrality, heterarchy and the in-between (Sieverts, 1997; Wandl, 2020). Albeit from a human centric perspective, the notion of integration and synthesis become crucial in the design of these dispersed territories. When discussing his concept of dispersed territories – the "Zwischenstadt" Sieverts urges designers to develop this territory through the lens of the landscape as connector and carrier of identity for the territory (Sieverts, 1997). To acknowledge our dominance and responsibility on the other hand, urges us to limit anthropogenic pressures as much possible (Sijmons, 2022). It is becoming increasingly clear, that sustainability strategies around efficiency are not equipped in addressing the climate crisis (Sijmons, 2022). Degrowth scholars thus reject the ecomodernist narrative of the ability of the (capitalist) system to decouple anthropogenic destruction from market growth (Hickel & Kallis, 2019) and call for far-reaching change towards a system that embraces economic scaling back through narratives of sufficiency and autonomy (Savini, 2021). Landscape architecture cannot stimulate this degrowth it can however help develop and transform degrowing territories by providing alternatives to growth-centric urban development (Waldheim, 2022). At the same time humans need to take an active lead in repairing the ecosystem they have damaged (Sijmons, 2020; Sijmons, 2022). By reversing anthropogenic modifications in the landscape and working with natural dynamics, certain anthropogenic pressures on biosphere and atmosphere can be lessened and mitigated: reforestation can lessen floods and promote carbon sequestration for example (Pearlmutter et al., 2018, p. 3-5). Healthy ecosystems with natural succession are furthermore detrimental for biodiversity, even more so biodiversity promotes the working of "ecosystem services" (Pearlmutter et al., 2018, p. 67-78). Landscape architecture can take a central role in caring for these ecosystems through the design of maintenance and repair strategies. Within this graduation thesis reforestation is examined as a means to engage with these threefold (relate, reduce and repair) challenges of the

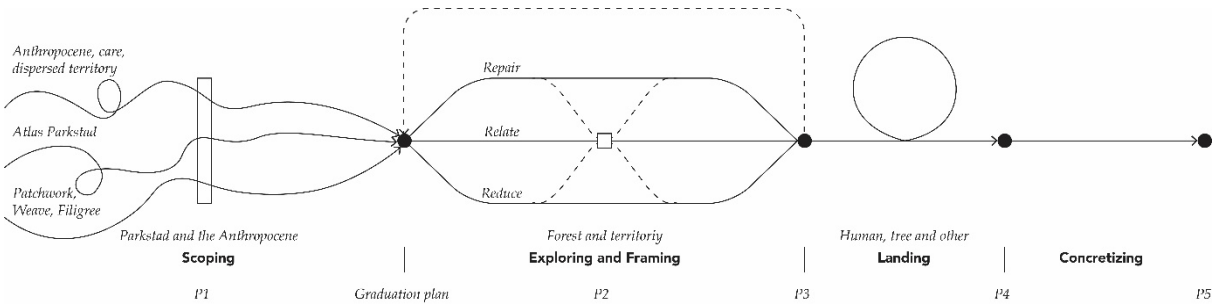
	Anthropocene through designing and uncovering relationships of reciprocal care between human, forest and other (than human). For this the project draws on the notion of forest urbanism – the forest as the guiding entity in the development of the urban – as well as on the multi-dimensionality of the forest and its inherent capability to address environmental, ecological, social-cultural, spatial, and (economic) concerns (Research Fellowship Urban Forestry TU Delft, 2019). Moreover the forest is explored not solely as a utility or commodity, but rather a living thing with inherent agency (Konijnendijk van den Bosch, 2016), that on one hand provides for, but also needs to be cared for by humans and other than humans alike. For this Parkstad in Limburg (NL) is chosen as a design site. Often described as a Zwischenstadt (Hermans, 2022; Sieverts & Reverda, 2014), Parkstad today grapples with fragmentation and a loss of spatial identity due to the rapid urban expansion associated with the rise, fall and subsequent erasure of its 20th century mining industry. By strengthening the relationship between landscape and urbanized territory, forest infrastructure can act as a connector and carrier of identity between people and their surrounding in the dispersed territory *(relate)*. Due to its turbulent 20th century history, Parkstad is furthermore a shrinking territory with an ageing population, which also makes it a relevant case study in exploring how forest infrastructure can help provide alternative modes of urban development in the name of degrowth *(reduce)*. Lastly, Parkstad is need of environmental and ecological restoration measures. While reforestation is generally encouraged in the Netherlands (Ministerie van Landbouw, Natuur en Voedselkwaliteit, 2020), Parkstad can particularly benefit from it due to its particular problems with water erosion and flooding, as well ecosystem degradation of large-scale farming areas (*Repair*).
research questions and	How can forest infrastructure revitalize the Zwischenstadt through becoming an agent of care? Sub-questions: - How can forest infrastructure strengthen spatial integrity and relationships within the Zwischenstadt? (relate) - How can forest infrastructure aid in making degrowth operational in the Zwischenstadt? (reduce) - How can forest infrastructure aid in repairing damaged ecosystems in the Zwischenstadt? (repair) - How can forest infrastructure be maintained and designed in a way that honours the needs and agency of the forest? (relate, reduce, repair) - What does forest infrastructure mean in the context of this project? (reflect)
design assignment in which these result.	The aim of this project is to design a site-specific reforestation strategy that re-envisions the territory through the forest as an agent of care equipped to tackle the challenges of relating, reducing and repairing within Parkstad. The project is elaborated on two scales- the territorial and the local scale.

	On the territorial scale the relationship between forest, landscape and urbanized territory is explored through the design of a strategic vision, as well as a masterplan. Both are aimed at exploring how forestry can alleviate (specifically water related) environmental and ecological issues *(repair)*, reconnect landscape and urbanized territory and strengthen the overall spatial quality and readability of the territory *(relate)* through transforming (vacant) land *(reduce)*. While the strategic vision sets out a general framework of important forestry spaces and relationships in relation to the challenges at hand, the masterplan illustrates possible spatiality and pattern language of this forest. A supplementary forest catalogue further details the spatial, ecological and functional characteristics of these forest patterns. On a local scale relationships between humans, trees and other than humans are worked out through the designing and visualization of maintenance strategies and moments of care. The aim is to detail how a strengthened relationship between landscape and urbanized territory manifests on an interindividual scale *(relate)*, as well as how environmental and ecological restoration *(repair)* and degrowth/shrinkage *(reduce)* influence maintenance regimes and experiential qualities.

Process

Method description

(Overview methodology diagram in Appendix of Graduation plan)



Phasing Graduation process

Scoping
The first part of this graduation thesis was aimed at exploring my own fascination, as well the site. An initial site analysis through mapping, literature research and design projection revealed a complex network of challenges and stakeholders. In an iterative process this preliminary analysis was then combined with a reflective literature research about the condition of the Anthropocene and its challenges, my fascination, through which three challenges were chosen as particularly relevant and promising: relate, repair and reduce.

Exploring
In a subsequent step these three challenges are then explored separately both conceptually/theoretically and in relation to the site and to forestry. For this each challenge will be explored through four components:

- Literature research aimed at understanding relevant design concepts in relation to the challenge, as well as forestry
- Reference study aimed at exploring relevant forestry projects that tackled similar challenges
- Site analysis through descriptive (GIS, photography) and interpretive mapping (combining descriptive maps, using mapping techniques such as the Kevin Lynch map), mostly done through plan and section, as well as diagram and sketch
- Design projection to understand spatial implications and manifestation of each challenge in relation to forestry, done in plan and section, as well diagram and sketch

The design projections for each challenge are then overlayed and compared to understand in which ways they can support one and other and in which ways they contradict each other. This then triggers an iterative and synthetic process in which each challenge or perspective is sharpened individually and in relation to each other.

Aim of this phase is to understand the following facets of these challenges:

- Repair: mapping and description of environmental and ecological challenges in relation to landscape typologies of Parkstad (especially drought, flood, water erosion), design strategies in which forestry can help alleviate those challenges (Natuurkennis.nl, n.d.)
- Relate: mapping of spatial and historical composition of landscape and urbanized territory in the Zwischenstad of Parkstad, design strategies to enhance spatial quality and readability of the Zwischenstadt, design strategy to formalize/legitimize/interweave landscape typologies and space for other than humans in dispersed territories (internal images of territory, coherence, complexity, contour, own vs special places (Schröder & Bund Deutscher LandschaftsArchitekten, 2001; Vicenzotti, 2019)
- Reduce: mapping of current and supposed future patterns of vacancy, design strategies to transform vacant land through forestry (working with context, time and scale, creating gradience of maintenance (Desimini, 2014))

Framing
The result of this exploration and synthesis is a stratetig vision, as well as masterplan on the scale of the territory, which is supplemented with a forest typology catalogue that concretizes environment, species, system/arrangement, use (human, other than human, shared) and interaction with surroundings.

Landing
In a last design step management and care strategies, as well as the spatial experience on eye height are then worked out for parts of this masterplan/forest typology catalogue and visualized through sections/collages/other interpretative drawings. The aim is to elaborate how humans can take care of the forest and use and interact with it in a way that honours the needs of the forest as well as its agency. For this findings of the *Exploring* step will be utilized, if needed additional research on forest maintenance will be conducted.

Concretizing
The last weeks of the graduation are used to reflect on this process, align findings and improve visualizations.

Literature and general practical preference

Theories central to thesis:
- Anthropocene
- Care
- Zwischenstadt/ Dispersed Territory/ "Andscape"
- Degrowth/ Urban Shrinkage
- Heuvellandschap

Preliminary Precedent list: *See methodology diagram*

Literature list:

Bellacasa, M. P. de la, & de la Bellacasa, M. P. (2017). *Matters of Care: Speculative Ethics in More Than Human Worlds*. Amsterdam University Press.

Braidotti, R., & Hlavajova, M. (2018). *Posthuman Glossary (Theory)*. Bloomsbury Academic.
de la Bellacasa, M. P. (2012). 'Nothing Comes Without Its World': Thinking with Care. *The Sociological Review*, *60*(2), 197–216. https://doi.org/10.1111/j.1467-954x.2012.02070.x

Crutzen, P. & Stoermer, E. (2000, May). The Anthropocene. *Global Change News Latter,* The International Geosphere–Biosphere Programme (IGBP) (41st edition), 17-18

Desimini, J. (2014). From Planned Shrinkage to Formerly Urban: Staking Landscape Architecture's Claim in the Shrinking City Debate. *Landscape Journal*, *33*(1), 17–35. https://doi.org/10.3368/lj.33.1.17

Diedrich, L., Friesen, M., Hendriks, M., Lindgren, C., & Moll, C. (Eds.). (2018). *Landscape Architecture Europe 5: Care / Create / Act*. Blauwdruk.

Hamilton, C. (2017). *Defiant Earth: The Fate of Humans in the Anthropocene* (1st ed.). Polity.

Haraway, D. (2016, September). Tentacular Thinking: Anthropocene, Capitalocene, Chthulucene. *E-Flux Journal*. https://www.e-flux.com/journal/75/67125/tentacular-thinking-anthropocene-capitalocene-chthulucene/

Hermans, M. (2022). *Patchwork IBA Parkstad*. Nai010 Uitgevers.'

Hickel, J., & Kallis, G. (2019). Is Green Growth Possible? *New Political Economy*, *25*(4), 469–486. https://doi.org/10.1080/13563467.2019.1598964

Konijnendijk, C. C. (2019). *The Forest and the City: The Cultural Landscape of Urban Woodland (Future City, 9)* (Softcover reprint of the original 2nd ed. 2018). Springer.

Konijnendijk van den Bosch, C. C. (2016). Tree agency and urban forest governance. *Smart and Sustainable Built Environment*, *5*(2), 176–188. https://doi.org/10.1108/sasbe-07-2015-0017

Miller, R. (1997). *Urban Forestry: Planning and Managing Urban Green Spaces. second ed.* New Jersey: Prentice Hall.

Ministerie van Landbouw, Natuur en Voedselkwaliteit. (2020, November 18). *Afspraak Rijk en provincies: in 2030 37.000 hectare bos aangeplant*. Nieuwsbericht | Rijksoverheid.nl. https://www.rijksoverheid.nl/actueel/nieuws/2020/11/18/afspraak-rijk-en-provincies-bijna-vier-keer-ter-grootte-van-stad-utrecht-aan-extra-bos

Morris, W., & Wilmer, C. (1994). *News from Nowhere and Other Writings*. Van Haren Publishing.

Natuurkennis.nl. (n.d.). *Heuvellandschap - Het Kennisnetwerk Ontwikkeling en Beheer Natuurkwaliteit (OBN)*. Retrieved January 22, 2023, from https://www.natuurkennis.nl/landschappen/heuvellandschap/heuvellandschap/algemeen-heuvel/

Newman, P., Beatley, T., & Boyer, H. (2017). *Resilient Cities, Second Edition: Overcoming Fossil Fuel Dependence* (Second Edition, Revised, Second Edition, Revised). Island Press.

Pearlmutter, D., Calfapietra, C., Samson, R., O'Brien, L., Ostoić, K. S., Sanesi, G., & Amo, A. R. del. (2018). *The Urban Forest: Cultivating Green Infrastructure for People and the Environment (Future City, 7)* (Softcover reprint of the original 1st ed. 2017). Springer.

Prominski, M. (2014, March 14). *Andscapes: Concepts of nature and culture for landscape architecture in the 'Anthropocene.'* https://doi.org/10.1080/18626033.2014.898819

Savini, F. (2021). Towards an urban degrowth: Habitability, finity and polycentric autonomism. *Environment and Planning A: Economy and Space*, *53*(5), 1076–1095. https://doi.org/10.1177/0308518x20981391

Sieverts, T. (2000). *Zwischenstadt: Zwischen Ort und Welt, Raum und Zeit, Stadt und Land (Bauwelt Fundamente) (German Edition)* (3rd ed.). Birkhauser.

Research Fellowship Urban Forestry TU Delft. (2019). *Urban Forestry TU Delft - Scope and Focus*. Urban Forestry. https://www.urbanforestry.nl/about/scope-focus/

Schröder, T. & Bund Deutscher LandschaftsArchitekten. (2001). Neu verorten : zeitgenössische deutsche Landschaftsarchitektur = Making spaces : contemporary German landscape architecture. Birkhäuser.

Sieverts, T. & Reverda, N. (2014). ZWISCHENSTADT PARKSTAD. In *Neimed*. Sociaal-economisch kenniscentrum Neimed. https://www.neimed.nl/nl/publicatie/neimed-krimplezing-2014-zwischenstadt-parkstad

Sijmons, D. (2020). In the Anthropocene, Site Matters in Four Ways. *Site Matters*, 110–130. https://doi.org/10.4324/9780429202384-8

Sijmons, D. (2022, March 28). Het debatklimaat in de ontwerpwereld. *Archined.Nl*. https://www.archined.nl/2022/03/het-debatklimaat-in-de-ontwerpwereld/

Spirn, A. W. (1985). *The Granite Garden: Urban Nature And Human Design*. Basic Books.

Tozzi, A. (2021). Reimagining climate-informed development: From "matters of fact" to "matters of care." *The Geographical Journal*, *187*(2), 155–166. https://doi.org/10.1111/geoj.12390

Tsing, A. L., Mathews, A. S., & Bubandt, N. (2019). Patchy Anthropocene: Landscape Structure, Multispecies History, and the Retooling of Anthropology. *Current Anthropology*, *60*(S20), S186–S197. https://doi.org/10.1086/703391

Vicenzotti, V. (2019). Die Landschaft der Zwischenstadt. *RaumFragen: Stadt – Region – Landschaft*, 743–753. https://doi.org/10.1007/978-3-658-25746-0_60

Waldheim, C. (2022). *Landscape as Urbanism: A General Theory*. Princeton University Press.

Wandl, A. (2020). *Territories-in-between* [PhD dissertation]. TU Delft.
Zalasiewicz, J., Williams, M., Steffen, W., & Crutzen, P. (2010). The New World of the Anthropocene. *Environmental Science &Amp; Technology*, *44*(7), 2228–2231. https://doi.org/10.1021/es903118j

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)?

In my projects trees are considered the principle building blocks of the human-nature and city-landscape relationship and as agents of change in the life of humans and non-humans alike. Through them I attempt to build an integrative and multifunctional *landscape infrastructure*, which on one hand mirrors the central design brief for the landscape architecture graduation, but also tries to critically reflect on implicit notions of said infrastructure (economic viability, human utility etc.)

I further incorporate and reflect on my previous and current education by incorporating central themes of landscape architecture into the design projections. Especially *perception* and *scale continuum* are important aspects of the design process. *Process* will gain importance throughout the design, while *palimpsest* will be considered in the analysis, but features less importantly.

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

While this graduation project certainly belongs to a more speculative realm of landscape architecture I believe it can offer more practical insights within two realms of landscape architecture. It can firstly contribute to the discourse around shrinking cities and how deurbanization or decay as a chance and design possibility. While there is a growing theoretical body of knowledge around the notions of degrowth or shrinkage, there are little practical examples of forestry as an answer to degrowth/shrinkage on a regional scale. Secondly, I think my thesis can contribute to new ways of looking at landscape development in dispersed territories. Especially in relation to Parkstad a comprehensive landscape vision on the territory lacks, while other landscape visions for dispersed territories often omit urbanized spaces.