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# How to Make the Novel Familiar

The Potential of Cues to Care to Improve Urban  
Ecological Quality

Kristian Solgård

Landscape architecture for Global Sustainability

# How to Make the Novel Familiar



Figure 1. 2024

***Title***

How to make the Novel Familiar

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## Preface

This master thesis is my final project as a student. I have greatly enjoyed my role as a student both in Bergen and here at Ås. This thesis is worth 30 ECTS and is written as part of the master's program in Landscape Architecture for Global Sustainability, under the Institute of Landscape Architecture at the Norwegian University of Life Sciences.

## Abstract

Anthropogenic influenced problems have caused significant challenges for the ecological assemblages of cities. At the same time, current maintenance, horticulture, and landscape care regimes are based on systems that have room for improvement. Utilizing various theories and literature, this master's thesis aims to address how to improve ecological quality in urban landscapes, particularly in Oslo, with a test location at Østre Parkdrag meant to exemplify how. The goal is to improve ecological quality using Joan Iverson Nassauer's theory of Cues to Care, which aims to frame more complex vegetation systems to match a locations landscape care language or the preferences of its people.

This thesis uses different methods to answer research questions, including a semistructured interview with NMBU's park manager and former park manager in Oslo. This method revealed that maintenance work in Oslo focuses more on public health than on diversity and ecological function, that there has been a shift in what is seen acceptable in maintenance practice outcomes with more diversity, and that the NMBU campus has its own identity that the park manager must consider when using environmentally friendly maintenance techniques and potentially CTCs. A literature review was done to examine which types of vegetation hold the highest ecological quality in cities, with adaptive and spontaneous species assemblages in cities showing the most potential. The literature review also examines alternative landscape care regimes, focusing on Parker Sutton's "A New Aesthetics of Care" as a possible way forward, which fits well with Nassauer's theories. An other subsection of the literature review focuses on Oslo's landscape care language, and reveals that neatness and order may be a more universal indicator of attractive landscapes and therefore something CTC interventions should strive to meet. Various forms of CTC are then presented. An document analysis of an Operation and Maintenance Performance Description document suggests that Nassauer's landscape care language theories may be relevant in Oslo. Observations of the test location identified more complex vegetation systems and existing CTCs using photogrammetry. Modeling and action research allowed for testing potential CTCs digitally and physically, showing that small interventions can effectively "frame" the novel.

## Acknowledgements

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<b>1.INTRODUCTION CHAPTER</b>	p.7
Intro text and problem formulation	p.7
Goal	p.7
My background	p.8
Research Question	p.10
<b>2.THEORY AND BACKGROUND CHAPTER</b>	p.12
Terms	p.14
An anthropogenic problem	p.16
The anthromes of the world	p.19
Nassauer's "Messy ecosystems, orderly frames"	p.19
Defining ecological quality	p.22
Snippets of historical preferences on gardens and landscapes	p.23
<b>3.CTC PROPOSAL AREA</b>	p.32
Østre Parkdrag	p.35
History	p.37
Visiting Østre Parkdrag, seeing its topography and landscape disjoints	p.38
Cartographic information	p.40
Features	p.43
<b>4.METHODOLOGY CHAPTER</b>	p.46
Literature review	p.48
Document analysis	p.49
Semistructured interview	p.49
Observation	p.50
Action research	p.51
<b>5.LITERATURE REVIEW</b>	p.52
Where can one find ecological quality in cities?	p.54
What should possible future landscape care systems look like?	p.58
What do the people of Oslo prefer? What is the current landscape care language of Oslo?	p.61
The Cues to Care	p.62
<b>6.RESULT CHAPTER</b>	p.76
Document analysis	p.78
Semistructured Interview	p.79
Observation	p.81
<b>7.CTC PROPOSAL CHAPTER</b>	p.92
Intro	p.94
What kind of CTC fits in Oslo?	p.94
Proposal	p.95
<b>8.ACTION RESEARCH</b>	p.104
CTC INTERVENTION – 1	p.108
CTC INTERVENTION – 2	p.110
<b>9.DISCUSSION AND CONCLUSION CHAPTER</b>	p.112
Discussion and reflection	p.114
Conclusion	p.118
<b>Appendix</b>	p.127



Figure 1.1. Fenced vegetation, 2023

# 1. INTRODUCTION CHAPTER

*This chapter introduces the introduction, problem formulation, goals, my background and research question*

## Intro text and problem formulation

Human preferences have significantly altered the world's natural and seminatural systems. The urban landscape is dominantly a human creation, characterized by the distribution of seminatural and nonnatural vegetation assemblages found within its sphere's. James Hitchmough critically describes mowed lawns as "green deserts," and he states that "it seems a little bit perverse to cover 25 per cent of cities with something virtually nothing lives on" (Hitchmough, 2022, p.217)." This reflects a broader trend where maintenance and design regimes currently may be seen as Fordist, and may have a standardization ideal at core. Jorg Sieweke points out the limitations of current urban forestry practices, where "the default practice of transplanting cloned saplings from nurseries into the city holds little promise of adding up to more than the sum of its distressed trees" (Sieweke, 2023, p.62). This approach is criticized, as it is unsustainable economically and environmentally, and leads to a less robust, and resilient urban biotope. When human preferences grow wild, without thinking about what may be good for local ecosystems, ecological quality tends to worsen, and then nature starts to look neat, almost manufactured (Nassauer, 1995). Preferences, nature and culture have mixed, resulting in the shaping of these "green deserts", or "green abstractions" (Sieweke, 2023, p.62). "We know only how to see ecological quality through our cultural lenses, and through those lenses it may or may not look like nature" (Nassauer, 1995, p.161). These preferences are aided and withheld by what Joan Iverson Nassauer calls the "domination" method of maintenance or landscape care (Sutton, 2022, p.139), or what Parker Sutton refers to as the "mow, blow and go" regime of landscape maintenance (Sutton, 2022, p.139). Joan Iverson Nassauer's concept of "cues to care" offers a promising solution, and a contrast to the standardized human systems real nature can't inhabit. As these are landscape elements and maintenance methods that signal a well maintained space, and may encourage ecological richness and diversity (Li and Nassauer, 2020). By integrating the cues into urban landscapes, we can mix human preferences with ecological needs, enhancing biodiversity and open up for a messier aesthetic that reflects true ecological function. The topic studied in this thesis is regarding how to improve ecological quality in Oslo, and with what kind of vegetation. This is studied because of faltering ecological quality in cityscapes. This research is done by several qualitative methods meant to answer posed research questions, and a test locale of Østre Parkdrag is chosen to exemplify how theories may be applied to increase richness on site, but also in wider Oslo.

## Goal:

This thesis aims to enhance the understanding of ecological quality enhancement through the strategic use of urban vegetation specifically within the context of the city of Oslo, Norway. Using Nassauer's frameworks and theories from "Messy ecosystems, orderly frames," and the concept of cues to care, this research seeks to make spontaneous, "messy" vegetation more acceptable for the public. This approach is relevant as Nassauer and Jiayang Li stated the need for culturally specific research into cues to care, saying that fitting these elements into local contexts is essential for the continuous ecological quality of particular areas (Nassauer and Li, 2020). Because of this, research will be done to find fitting CTC in Norway, Oslo which may improve ecological quality through greater acceptance and alternative design through maintenance. Landscape maintenance has an important role regarding this, as the maintenance of landscapes can be used to create fitting CTC and move away from other unsustainable "domination" regimes.

## My background

My interest in this subject was sparked by my experience working within a municipal department in Oslo during the summer of 2023. This department were responsible for managing buildings, properties, and their surrounding green spaces. My role involved mapping these green areas, as well as assessing them against internal standards of aesthetics, safety, and maintenance plans. Some important background information is that previous to this I had the pleasure of going to the course GLA304 at NMBU. The course GLA304 was led by professor Jorg Sieweke, where he guided students' to look at some alternative landscape practices and perspectives. I became interested by the concept of "third landscapes", which are neglected yet biodiverse spaces overlooked by traditional planning systems, introduced in Gilles Clement's "Third Landscape Manifesto". These new perspectives, with my professional experiences within the municipality, turned my focus towards the potential of these overlooked urban natural spaces and the management of green infrastructure.

I remember a day from when I was working. Like usual, I started off mapping green infrastructure at the office, then I had to head out to some properties to make sure that the landscape maintenance matched the department's performance specifications. Different companies handle the maintenance of properties and areas, and they're supposed to stick strictly to the performance description, nothing more, nothing less. When I got to the area I was supposed to check, I noticed it had been recently maintained. The grass was cut perfectly, meeting the exact centimeter specifications, with almost no weeds, giving it a very uniform and homogeneous look. There were also some newly planted trees in the area, but unfortunately, quite a few had died. I wondered why and noted it down. Next, I checked the paving stones. The document I was using as a reference said there shouldn't be any weeds between them, but there were, which reminded me of Sieweke and his talks about the numerous "third landscapes" that exist in urban areas. I reported this. At the end of the inspection, I looked over the boundary zones of the property. Here, I found some maintenance issues. The lawnmower hadn't reached the edges along the fence, and since the area wasn't used in the summer, the workers probably figured they didn't need to trim it perfectly, or maybe they just forgot about it. The grass height wasn't up to the standard, and along the fence, I spotted several types of plants, some possibly invasive, others maybe just weeds. But there was a diversity and a certain uniqueness that I thought added value to the urban environment. So, did i report it? During my first meeting with Sieweke, I brought up my summer job and shared how I wanted focus on third landscapes and use these overlooked areas to enhance ecological quality in cities. But enhancement cant be done correctly in an vacuum. He asked me to take a stance on the shoulders of giants.



Figure 1.2. Photogrammetry portrait, (Johansen, 2024)

### RESEARCH QUESTION:

How can Cues to Care, tailored to specific locations, be applied to improve urban ecological quality and to gain public acceptance?

- What is the current landscape care language in Oslo, Norway, or the landscape care outcome preference?
- What Cues to Care of Østre Parkdrag fits its locality, and how can it visually be represented or manifested in the landscape?

## 2.THEORY AND BACKGROUND CHAPTER

*This chapter is meant to show important theoretical background information, terms, why a change is needed, concepts and snippets of history.*

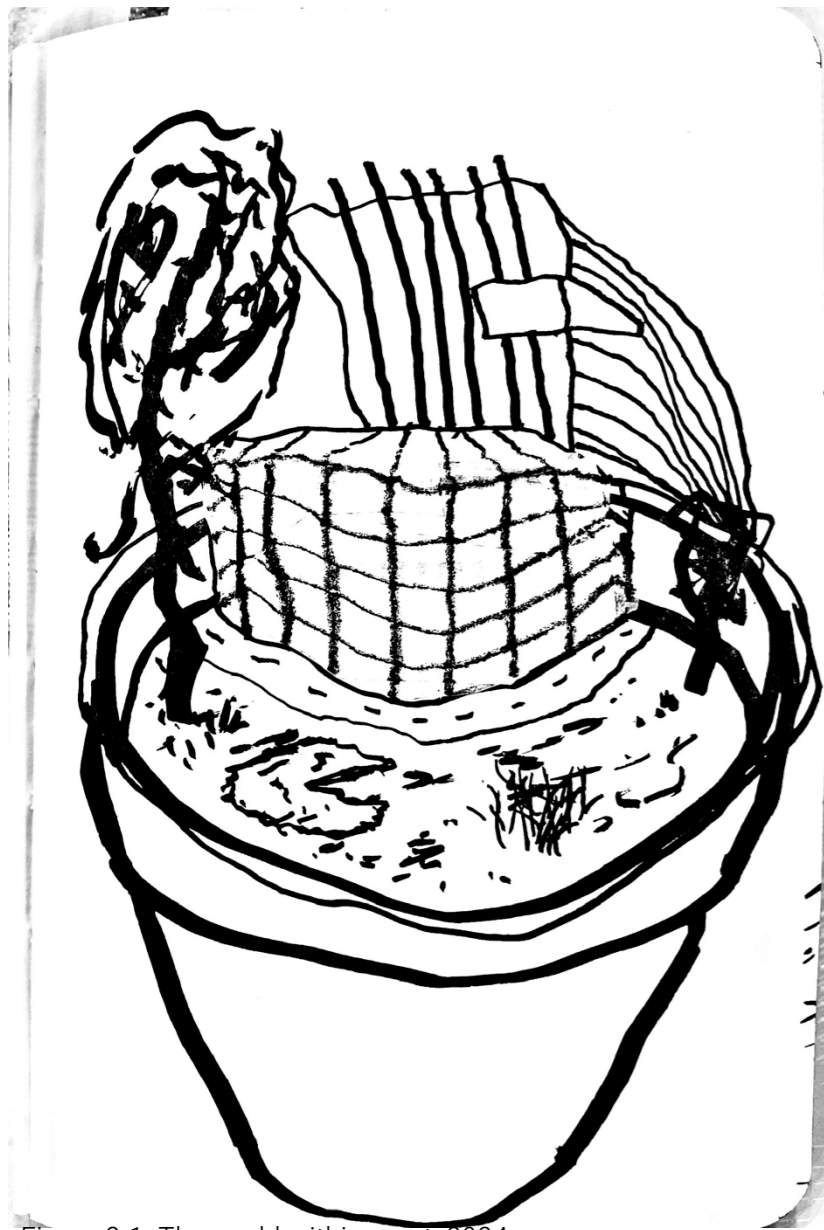


Figure 2.1. The world within a pot, 2024



Figure 2.2. Sketch based on Munch, 2024

### Subchapters

Terms

An anthropogenic problem

The anthromes of the world

Nassauer's "Messy ecosystems, orderly frames"

Defining ecological quality

Snippets of historical preferences on gardens and landscape

## Terms:

### **Abiotic:**

"Nonliving physical and chemical aspects of an environment, such as sunlight levels, soil chemistry, and climate" (National Geographic Society, 2023)

### **Anthropocene**

"The Anthropocene Epoch is an unofficial unit of geologic time, used to describe the most recent period in Earth's history when human activity started to have a significant impact on the planet's climate and ecosystems" (National Geographic Society, 2023)

### **Biosphere**

"The biosphere is a global ecosystem composed of living organisms (biota) and the abiotic (nonliving) factors from which they derive energy and nutrients." (Thompson, Gates and Thompson, 2024)

### **Biotic**

"A biotic factor is a living organism that shapes its environment". (National Geographic, n.d)

### **Biotope**

"Biotope is a place where living organisms live, and actually means living area" (Ratikainen, 2023)

### **Disjointed landscape**

Disjoint being: "not well connected or well ordered" (Cambridge Dictionary, n.d). And landscape being: "A landscape is part of Earth's surface that can be viewed at one time from one place" (Hunt et al, 2023)

### **Dynamic vegetation**

Dynamic being: "continuous and productive activity or change" (Merriam Webster, n.d) Vegetation being: "plants in general, or plants that are found in a particular area" (Cambridge Dictionary, n.d)

### **Ecosystem**

"An ecosystem is a geographic area where plants, animals, and other organisms, as well as weather and landscapes, work together to form a bubble of life." (Rutledge et al, 2024)

### **Forest Patch**

Where the urban forest patch is caused by: "natural processes have caused a tree to grow spontaneously; the tree has not been cultivated or schooled by humans. Natural processes include wind, animals and/or insects dispersing seeds, mykorrhiza fungi assisting in allocating nutrients, and plants competing for sunlight and space above ground." (Øxnevad, Wolf and Ringdal, 2020, p.2)

### **Habitat**

"A habitat is a place where an organism makes its home." (Rutledge et al, 2023)

### **Homogeneous**

"consisting of parts or people that are similar to each other or are of the same type" (Cambridge Dictionary, n.d)

### **Landscape care Language**

What the public want a kept or maintained landscape to look like, based on peoples preferences. Where one landscape care language can be Neatness and Order, which results in a neat and orderly landscape. The preference of attractiveness in landscapes.

### **Monoculture**

Being: "the practice of growing only one crop or keeping only one type of animal on an area of farm land" (Cambridge Dictionary, n.d)

### **Natural**

"As found in nature and not involving anything made or done by people" (Cambridge Dictionary, n.d)

### **Non-native species**

Species who isn't native to its current living area.

### **Novel**

"New and original, not like anything seen before" (Cambridge Dictionary, n.d)

### **Seminatural**

"Modified by human influence but retaining many natural features" (Merriam Webster, n.d)

### **Spontaneous vegetation**

"A cosmopolitan mix of species that grows and reproduces without human care or intent" (Del Tredici, 2010)

### **Urban**

"Urban means something that has to do with cities and urban culture; that is typical or peculiar to the city and its culture; or that is urban. Conversely: rural." (Nilsun, 2021)



## An anthropogenic problem

The “anthropause” or the covid 19 pandemic helped to signal a fundamental failure in the way we care for landscapes (Sutton, 2022, p.137). Spontaneous vegetation was quick to spire in the urban biosphere, with a reprioritization from urban landscape maintenance to the handling of the covid 19 pandemic (Sutton, 2022, p.137). It may feel contradictory, but ecological quality and health of urban environments improved, illustrated by the many Instagram posts depicting this phenomenon (Sutton, 2022, p.137). As Sutton writes «Absent human intervention, nature quickly asserted its autonomy and confirmed what we already know: there is an inverse relationship between the degree of human involvement in the landscape and ecological health» (Sutton, 2022, p.137). From the inception of the human calendar, the formation of villages and eventually cities have continuously gotten bigger. The urban phenomenon, has only recently seen its populace rise to that of rural areas, a development highlighted by the United Nations in 2024 (Ritchie, Samborska and Roser, 2024). “By the year 2007, the distribution between urban and rural residents had equalized, representing a balanced share of the population” (Ritchie, Samborska and Roser, 2024). Projections further indicate that by 2050, urban dwellers are expected to inhabit two thirds of the global population (Ritchie, Samborska and Roser, 2024). Growing cities can mean more buildings, more concrete and more compact city development. The city can be understood as a human experiment and urbanization as a geological feature of the new proposed age of the Anthropocene. In their book “The shock of the Anthropocene” Christophe Bonneuil and Jean-Baptiste Fressoz write about the era, and Joshua Howe refers to them and write the following, “beginning with the Industrial Revolution, humans of the past two centuries have modified the composition of the Earth’s atmosphere; disrupted local and global cycles of water, carbon, nitrogen, and phosphorus; transformed landscapes and ecosystems; and massively reduced the planet’s biodiversity, all at a scale and insufficient scope to be discernible to and measurable by scientists studying the Earth’s systems. Moreover, in the period since 1945 known as the Great Acceleration, the suite of physical, chemical, environmental, and social indicators that define humanity’s impact on the Earth have spiked dramatically, revealing a burgeoning global crisis.” (Howe, 2017, p.501). With this understanding about humanity and our effects on the earths systems, reveals a global crisis in several aspects, and regarding the theme of this thesis an ecological crisis. Sutton asks us to reflect and act what can be learned from the time when humans were forced into a break, and landscapes got their autonomy back, coined the “anthropause”?

A large quantity of research has been dedicated to understanding how urbanization impacts the ecological health and function of spontaneously emerging habitats and vegetation within the city. The ecosystems and vegetation within urban territory frequently suffer from having limited habitats sizes, fragmentation, exposure to pollution, that areas are overlooked, or neglected. Problems often arise, like fragmentation which “is the physical disintegration of continuous ecosystems into smaller units, which is most often caused by urban or transport network expansion” (EEA, 2022). Other problems also arise and many mean that “urbanization poses one of the greatest threats to global biodiversity” (Aronson et al, 2017). The specific emphasis this thesis is meant to show, and aid to provide an alternative to is regarding the current regimes landscape care regimes of the “green deserts” or the “mow, blow and go” (MBG) style of maintenance that Michael Van Valkenburgh coined (Sutton, 2022, p.139), or the “domination approach” coined by Joan Iverson Nassauer which considering Howe’s writings regarding the Anthropocene can show an example of human domination over earths landscapes, and systems.

These regimes are the current landscape care and maintenance systems of Northern America, and results in “clarity, simplicity, and the clear establishment of boundaries” (Sutton, 2022, p.139). In other words, design and maintenance practices currently used on landscapes has led to landscapes which “have morphed into monotonous green expanses” (Stappmanns, Kuijpers and Heinrich, 2023, p.15), “neatness and order” (Nassauer, 1995), and still functions “as green objects of abstraction” (Sieweke, 2023). This philosophy of landscape care results in a “suppression of unwanted plant species” and “enables landscape maintenance to be performed with reflective ease” (Sutton, 2022, p.139).

Nassauer argues that this kind of domination leads to less ecological quality and biodiversity, whilst Sutton argues that this kind of approach is environmentally calamitous (Sutton, 2022). As the anthropogenic feature of urbanization continues to grow, the MBG usage trend may worsen. Sutton and Kris Kozlowoski Moore exemplifies what the standardization of landscape care can lead to:

- *Gasoline powered landscape maintenance equipment can generate more ozone pollution than all the cars in the state of California, a two-stroke engine leaf blower emits 299 times the hydrocarbons of a pickup truck, 30 to 60 percent the US water supply is being used on America’s “largest crop”, the lawn. Turf grass like other agricultural fields uses fertilizers, which is “extremely energy intensive to manufacture”, and leads to soil erosion and soil runoff. With an excess of use, “soil microbes convert nitrogen into nitrous oxide gas, which is 300 times more potent than CO2 gas. And the use of fertilizer poses a threat to human health.* (Sutton, 2022, p.138-139).

- *That sustaining such a irrational system requires a bewildering volume of recourses. That one third of all residential water is used to maintain this system, and that only the mowers of the US use 800 million gallons of fuel each year.* (Moore, 2023, p.96)

## Sustainable development goals

The UN knows about the problems written by the various sources referred to in this section. To cope with current worldwide problems, action must be set forth and has been set forth. The UN Sustainable Development goals are meant to aid in an overall goal to make the world a better place for man and nature. Of all the 17 different sub-goals, I will argue that this master’s thesis can help achieve Goal 3 (Good Health and Well-being), Goal 11 (Sustainable Cities and Communities), Goal 13 (Climate Action), and Goal 15 (Life on Land). These goals were established in 2015 and are intended to be pursued up to and beyond 2030 (THE GLOBAL GOALS, n.d). Improving ecological quality in urban environments could potentially have several positive effects on the progression of these goals.

Goal 3 aims to ensure healthy lives and promote well-being, where sub goal 3.9 (REDUCE ILLNESSES AND DEATH FROM HAZARDOUS CHEMICALS AND POLLUTION) could be relevant for the objectives of this thesis.

Goal 11 focuses on creating equitable and sustainable cities for all, where sub-goals 11.3 (INCLUSIVE AND SUSTAINABLE URBANIZATION), 11.4 (PROTECT THE WORLD’S CULTURAL AND NATURAL HERITAGE), 11.6 (REDUCE THE ENVIRONMENTAL IMPACT OF CITIES), and 11.7 (PROVIDE ACCESS TO SAFE AND INCLUSIVE GREEN AND PUBLIC SPACES) are areas where the theme of the thesis can make a difference.

Goal 13 deals with taking immediate actions to combat climate change and its impacts, where sub-goal 13.3 (BUILD KNOWLEDGE AND CAPACITY TO MEET CLIMATE CHANGE) could be addressed through the thesis.

Lastly, Goal 15 involves protecting, restoring, and promoting sustainable use of ecosystems to halt biodiversity loss. Here, sub-goals 15.3 (END DESERTIFICATION AND RESTORE DEGRADED LAND), 15.5 (PROTECT BIODIVERSITY AND NATURAL HABITATS), and 15.8 (PREVENT INVASIVE ALIEN SPECIES ON LAND AND IN WATER ECOSYSTEMS) could be examined in relation to the theme of the thesis.

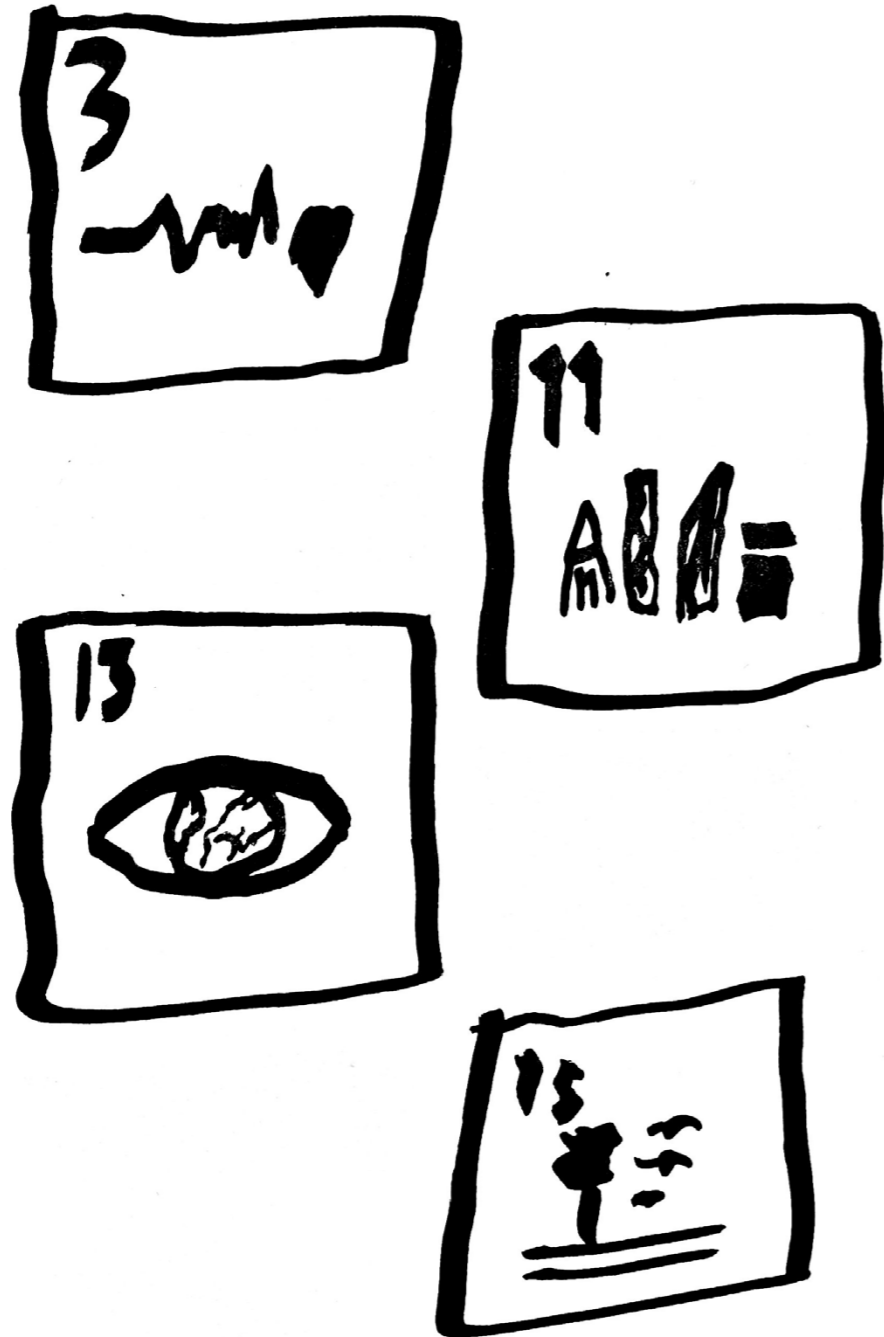


Figure 2.3. The relevant goals, 2024

## The anthromes of the world

In his essay "(Anthropogenic Taxonomies) A Taxonomy of the Human Biosphere", Erle C. Ellis writes about how landscapes and especially biomes have been altered by man for more than 10,000 years (Ellis, 2020, p.173). With this perspective one can understand that alterations on landscapes have long been a staple of humanity, not always based on preferred cultural aesthetics, but rather the preference to live. Ellis writes that the biggest alteration on the terrestrial biosphere happened "with the emergence of agricultural systems" (Ellis, 2020, p.173). And that since prehistory, human effects on landscape through the hunting, foraging and fire have produced "long-term cascading effects across most continents" (Ellis, 2020, p.173). A biom or an ecoregion is defined as a regional system that "along with the abiotic factors in the area, forms an ecosystem where the organisms in the community are adapted to their environment. The type of ecosystem is mainly determined by climatic factors such as temperature and precipitation, including the seasonal variations in temperature and rainfall" (Ratikainen, 2021). The anthromes is a new term to characterize the world's ecological features that were made with human alterations (Ellis, 2020, p.174). Ellis found that wildlands could only be mapped to extend one quarter of the world's ice-free land (Ellis, 2020, p.175). Furthermore, the mapping made it clear "that large extents of Wildlands remain only in the cold and dry biomes (Ellis, 2020, p.175). The history of change is also important in Ellis's essay where it is stated that the human alterations of ecosystems and landscapes were long understood by ecologists and other researchers to have happened relatively recently (Ellis, 2020, p.177). Recent analyzed data "confirms that vast areas of the terrestrial biosphere were first transformed for intensive agricultural use many thousands of years ago" (Ellis, 2020, p.178). The native state that a lot of environmentalists, landscape architects, botanists and ecologists want to restore can therefore be understood to be "best characterized as anthropogenic" (Ellis, 2020, p.178). When the Anthropocene started is a matter of definition, and Ellis writes that it all comes down to the "terrestrial biosphere transition from mostly wild to mostly used" landscapes, and it depends on how "historical land use is assessed and reconstructed" (Ellis, 2020, p.178). If seminatural levels of use are sufficient to have been the altering factor from a wild biosphere Ellis writes that the anthropogenic transition happened around 1000 B.C (Ellis, 2020, p.178). "If intensive use" are sufficient to use as an indicator of transformation then the "transition has occurred fairly recently" (Ellis, 2020, p.178). Ellis continues and writes that "even areas without measurable human populations or agriculture, considered wild" may have still been transformed by anthropogenic influences (Ellis, 2020, p.178). This is an important concept in this thesis, as it contextualizes the debate around native and non native within a largely anthropogenic biosphere where almost all is altered by the hands of man.

### Nassauer's "Messy ecosystems, orderly frames".

#### What it means and what role does human preferences have in landscapes?

Joan Iverson Nassauer's texts regarding ecological quality, messiness, and "cues to care" form the foundation of this thesis. In her recent work, co-authored with Jiayang Li, she facilitates further research on site specific cues to care or signs of human intention (Nassauer and Li, 2020). Therefore, in this subchapter, it becomes essential to look into her ideas concerning "messy ecosystems, orderly frames." These ideas, shaped and written in the early to late 90s, have proven to be highly inspiring over the years, as they have become part of the landscape architecture canon. One can argue that Nassauer, through her ideas, wishes to enhance ecological quality in urban, rural, and general environments by facilitating or altering management practices and having landscape design elements so that the messy ecological flora can thrive and be accepted by humans. Nassauer starts by stating, "Ecological quality tends to look messy, and this poses problems for those who imagine and construct new landscapes to enhance ecological quality" (Nassauer, 1995, p.161).

In general, Nassauer refers to ecological quality as areas and flora with high biodiversity. Furthermore, Nassauer emphasizes that what is often understood by people as ecological quality may not necessarily possess ecological quality (Nassauer, 1995, p.161). She writes, "people do not know how to see ecological quality directly. We know how to see ecological quality only through our cultural lenses, and through those lenses, it may or may not look like nature" (Nassauer, 1995, p.161). Her point is that what may appear as pure nature and possess ecological quality is an impression based on culture and preferences. The mess or the messy can then also be understood to be a kind of catchphrase used by Nassauer to mean two things. The messy can be understood in ecological terms as complex systems, which inhabits diversity and possibly richness. Furthermore, it also refers to the human outlook on these complex ecological systems, where unfortunately, it may look messy for spectators. Nassauer sees the romantic narratives surrounding cultural nature, a nature that may never have existed. She explains that the picturesque has become such a significant part of landscape perceptions that we are no longer able to accept its cultural origins (Nassauer, 1995, p.161). This differentiation between ecological quality and the cultural concept surrounding nature and ecological quality indicates that the shaping and problems of enabling or "making" healthy landscapes with functional ecosystems may largely be a design problem (Nassauer, 1995, p.161). Our preferred nature and the nature we choose to have in cities are mainly social, and these "social conventions keep the same people who dress in green slogans dressing their homes and cities in homogenous plant communities where enormous species diversity once existed (Nassauer, 1995, p.161). Nassauer refers to Aldo Leopold who says, "the landscape of any farm is the owner's portrait of himself" (Nassauer, 1995, p.162). People use landscape as a means to signal who they are, what their values are to themselves and others, and Nassauer understands the landscape not just as an environment, but also as a communication system (Nassauer, 1995, p.162). In USA the dominant culture of landscapes is a "a neat, orderly landscape as a sign of neighborliness, hard work, and pride", but this "orderly landscape seldom enhances the ecological function of the landscape" (Nassauer, 1995, p.162). Individuals may want to create better environments for ecological function, but not if "people won't like it" (Nassauer, 1995, p.162). One can argue that the Northern America's preferred landscape care language or landscape preference is based on neatness and order, as it communicates and matches the ideals people see in themselves.

Therefore the orderly frames comes in handy, where "we must design to frame ecological function within a recognizable system of form" (Nassauer, 1995, p.162). These frames must fit in northern America with neatness and order, and may be understood as "signs of sociable human intention" in landscapes (Nassauer, 1995, p.162). Which means that it's under the care of a human. This makes it hard for the complex ecosystems Nassauer advocates for, as these are diversity rich and healthy, but may not be orderly nor neat. Where landscapes illustrate and communicate well regarding habitats and gardens, "those same plant communities or habitats exist without obvious signs of human intention, may be mistaken for neglected land or be readily compromised as land awaiting development" (Nassauer, 1995, p.162). Cues of human intention are here needed to make people recognize "beauty", and to maintain landscapes ecological quality properly (Nassauer, 1995). These cues must represent "invisible ecological functions", should be perceived as natural, fit in with landscape care language (neatness and order), and communicate care (Nassauer, 1995). Nassauer writes "Cues to human care, expressions of neatness and tended nature, are inclusive symbols by which ecologically rich landscapes can be presented to people and can enter vernacular culture" (Nassauer, 1995, p.163). Nassauer also provides important examples that can be used in this thesis for what these cues may be. Nassauer lists 6 cues where 1) is flowering plants and trees, 2) wildlife feeders and houses, 3) bold patterns, 4) trimmed shrubs, plants in rows, linear planting designs, 5) fences, architectural details, lawn ornaments, painting, and 6) foundation planting (Nassauer, 1995). As an endnote I would like to highlight that "using cues to care in design is not a means of maintaining traditional landscape forms but rather a means of adapting cultural expectations to recognize new landscape forms that include greater biodiversity. Cues to care make the novel familiar" (Nassauer, 1995).

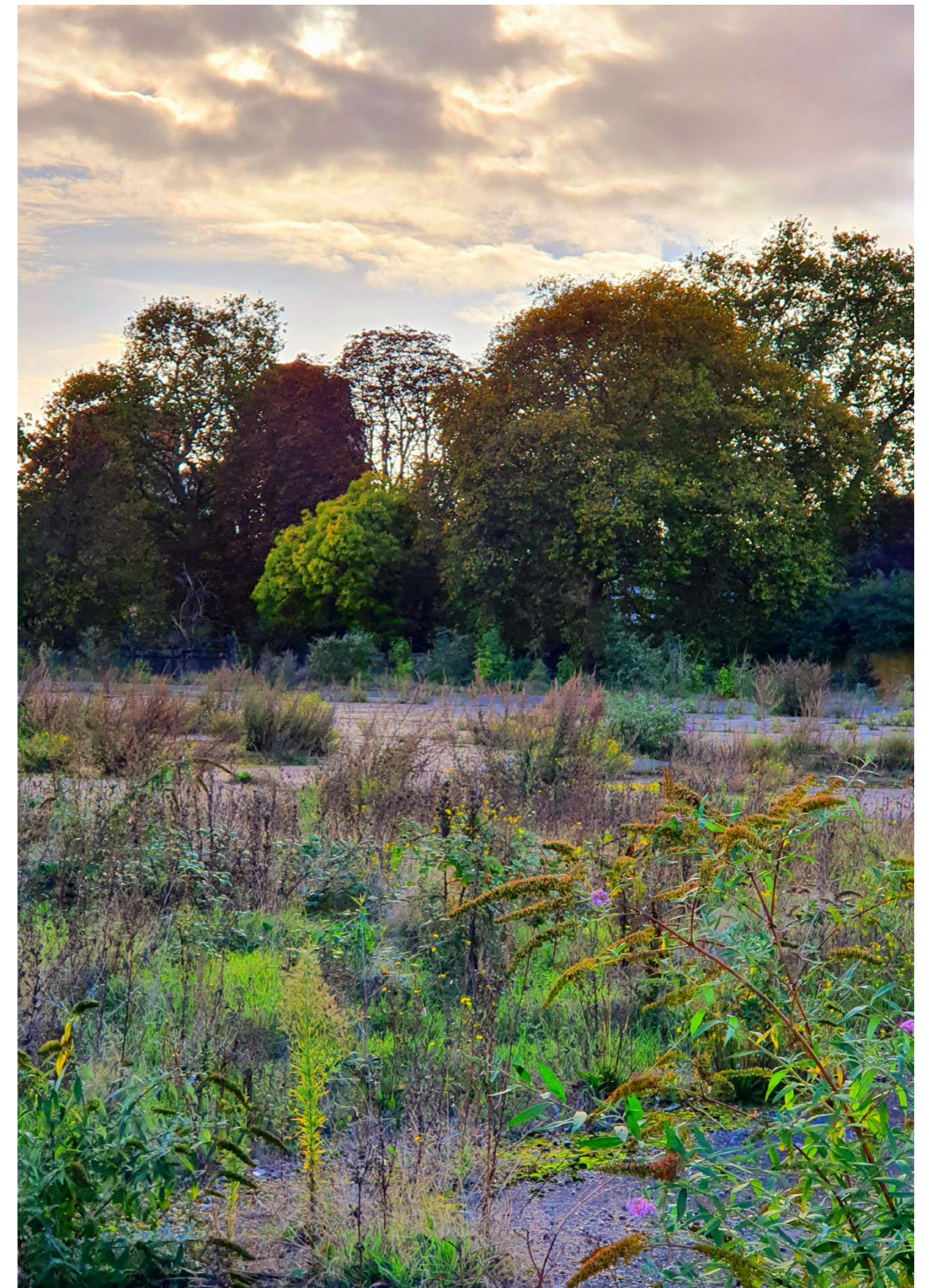


Figure 2.4. The many species residing in vacant plots in London, 2023

## Defining ecological quality

The goal of this thesis is to show how to better ecological quality using chosen theories, and its therefore essential to understand what ecological quality refers to. Nassauer writes about ways to increase ecological quality in cities and rural areas. In her texts she also writes loosely about what ecological quality is. In her article "Messy ecosystems, orderly frames" she starts off as seen before, "ecological quality tends to look messy" (Nassauer, 1995, p.161). She also uses terms like «ecological function», «biodiversity», «ecological rich» and "ecological correct". She doesn't define ecological quality but based on other terms related to the ecological quality, one can understand that she sees ecological quality as something that tends to look messy for humans, and that healthy ecosystems have biodiversity or high degrees of species richness, which in a degree may better ecosystems ecological functions. Biodiversity and species richness is important because it "gives all kinds of life the ability to better cope with changes and stress in the world around them", and that "It's no secret that biodiversity helps support and sustain healthy ecosystems of all sizes" (Williams, 2023)

As seen diversity can indicate healthy ecosystems. Ecosystems here can "consist of all the living organisms found in a place and the environment they live in. An ecosystem can be small - like a puddle, larger - like a forest, or can be said to encompass the entire biosphere, that is, the part of the Earth (soil, water, air) where living organisms can exist" (Ratikainen and Johansen, 2020). As of Nassauer and other landscape architects the scope of ecosystems will always be hard to define, because of its varied and overlapping geographical, biotic, and abiotic factors. Others are seeing ecosystems as "shifting steady state mosaics", which makes ecosystems even more difficult define physically, as they never really stop evolving, nor is it a constant "phenomena that defines a whole system at any point in time or space" (Reed and Lister, 2020, p.30).

One may think that a definition of ecological quality is easily available, but as seen in the book "Projective Ecologies" Chris Reed and Nina-Marie Lister writes, "today "ecology" has been co-opted to refer to almost any set of generalized ideas about environment or process, rendering the term essentially meaningless" (Reed and Lister, 2020, p.27). Therefore, to specify it; "Ecology is, by definition, a transdisciplinary science focused on the relationship between living organisms and their environments" (Reeds and Lister, 2020, p.27). One must specify the term to activate it, else ecology and thereby ecological quality can mean anything. And as seen in the last quote by Reed and Lister one can understand that the scope to be broad, but the science has a focus on the relationships between living organisms and their environments, landscapes, habitats, and earth. Its quality can therefore be seen as the quality between the living relationship and its relationship with its environment. "Ecological quality refers to the status or conditions of natural ecosystem and the living environment." (Ding et al, 2020). The status that was quoted regarding ecosystems and the living environment is a prolonging of the ecological definition, the relationships between organisms and their environment. The quality of ecology can therefore be understood as the robustness of the abiotic and biotic relationships. And this can be monitored. Biodiversity is often used as an indicator of ecological health and function and is therefore important to understand when trying to define ecological quality. What Nassauer may mean with messy but diverse ecologies are that "species diversity is a major determinant of ecosystem productivity, stability, invasibility, and nutrient dynamics. Hundreds of studies spanning terrestrial, aquatic, and marine ecosystems show that high-diversity mixtures are approximately twice as productive as monocultures of the same species and that this difference increases through time" (Cowles et al, 2014) Diversity is therefore essential for the well-being of ecosystems, as diversity tend to exhibit greater stability and resilience to changes

## Why care about ecology?

But why care about faltering ecological richness and its biospheric reach? Feedback mechanisms are crucial in environmental geography, bridging meteorology and oceanography, and are central to understanding how climatic processes shapes the Earth's landscapes. This field is called geomorphology, and within in this field the climatic situation of earth is vital. Bennoul and Frezzos refers to how humans have pumped historical levels of GHG gases since the 1750, which has led to an increase in the atmospheric Co2 holding from 280 part per million to 400 PPM in 2013 (Bonneuil and Fresoz, 2017, p.3). This leads to an increased warming effect of the atmosphere and the earth, called global warming, because more energy is trapped within the atmosphere. This is an example of a feedback mechanism and is probably the most crucial or catastrophically one. Nupi defines environmental feedback mechanisms as "a kind of domino effect where natural or human-induced climate changes have consequences that, in turn, affect the climate. They can either amplify or dampen the effect of" the environmental changing climate (Nupi, n.d) Ecological decline is here relevant as the ecosystems and its vegetation of earth have an important feedback mechanism. Andrew D. Richardson et al, write about phenology, vegetation and its feedback mechanisms on the environment where "albedo, surface roughness length, canopy conductance, and fluxes of water, energy, CO2 and biogenic volatile organic compounds" are vegetation features which effects the global environment (Richardson et al, 2013). Looking closer at one of these mechanisms like the albedo effect of vegetation and leaves, which helps mitigate and absorbs energy from solar beams that dampens the effect of the increased heating helps the understanding of why vegetation cover is important for the global environmental system (Richardson et al, 2013). Furthermore, vegetation is important for other reasons than for stabilizing environmental conditions. The reasons for why we prefer certain ecological pallets and assemblages is because we enjoy and benefit from vegetation. Alexandra R. Toland write in her essay "Dandelions at work: a street corner tale of ecosystem services", about how she and her four year old daughter went around in the city of Kreuzberg (Toland, 2020). They found dandelions to be beautiful, and further explained that not only are they aesthetically pleasing, but such urban vegetation "also help reduce harmful residues of city life" (Toland, 2020, p.131). Toland mentioned accumulation of particulate matter and anthropogenic vehicle pollution, and that these matters cause risks to human health (Toland, 2020, p.131). "Especially in cities where there is relatively more pollution and less vegetation to filter it" (Toland, 2020, p.131). Toland further argues that this is an example of an ecosystem service, "or a special service provided by non-human entities such as plants, soil and water for the benefit of humans, and effectively other creatures as well" (Toland, 2020, p.131). Vegetation is needed to have these kinds of services.

### A snippet of historical preferences on gardens and landscape

To exemplify how human preferences can shape landscapes through relevant cultural ideals a snippet of history is shown in this sub section. In the book "Garden Futures" there is a quote which I find interesting and relevant. And before the making of the landscape architect, the garden architect was the maker of these visions and ideals. Stappmanns, Kuijpers and Heinrich write "gardens present the world in miniature" (Stappmanns, Kuijpers and Heinrich, p.15). They explain that gardens always have been places made for the future, and not just for the growth of vegetation, but also for the growth of ideals, "hopes and aspirations" (Stappmanns, Kuijpers and Heinrich, 2023, p.15). "Gardens reflect identities, dreams and visions" (Stappmanns, Kuijpers and Heinrich, 2023, p.15), which is a fitting quote that rings similar to Nassau's thoughts of landscapes as communication systems.



Figure 2.5. Garden of Eden, (Laboureur, 1902-1903)

This first snippet of how human preferences has affected historical landscapes is not based in reality, but in religion. In Christianity, the first human was a gardener (Giesecke and Jacobs, 2023, p.31). The garden of Eden was paradise. And if we are to believe the atheist movement, and see Christianity not as a truth, but as a fictional religion, then Christianity's preferred paradise is to live in harmony and joy with nature. A symbiosis of man and nature.



Figure 2.6. The enclosure, (Anonymous, 1450-1465)

“Monasteries and abbeys are symbols of the cosmic order, complete worlds in miniature. The hortus conclusus has been described as the Ur-form of landscape architecture” (Wit and Aben, 2023, p.35). The hortus conclusus translates to the enclosed garden, and were enclosed to perhaps frame it as an CTC, and to serve as a protection to robberies and raids (Maddè, 2023, p.35).



Figure 2.7. An example of a Persian rug, (Bugti, 1972)

I found it interesting to read about traditional Persian rugs in “Garden Futures”. Stappmanns, Kuijpers and Heinrich write “traditionally, Persian rugs were treated as portable gardens that could be laid out indoors and on which people could gather” (Maddè, 2023, p.29). The movable garden was meant to represent an “enclosed garden with streams of water dividing the area into four sections” (Maddè, 2023, p.29), a CTC in itself, framing vegetation within four religious beds. The religious preference of the paradise garden is key here, as the layout of rugs and actual Persian gardens from the 6th century BC were expressions to symbol the garden of Eden (Maddè, 2023, p.29), (UNESCO, n.d).



Figure 2.8. Kagamiyama, (Hiroshige, 1843-1847)

The Karesansui garden or the Japanese dry garden has long existed in Japan. These gardens “philosophy hinges on the principles of balance, simplicity, and minimalism” (Kennedy, n.d). The preference causing the design of these gardens is individuals and society to approach enlightenment, through the meditation of doing mundane tasks (Kennedy, n.d). Aesthetically it’s also a strong representation of the culture of Japan through the “meticulous craft and patient” crafting of landscapes (Kennedy, n.d).



Figure 2.9. A Renaissance setting, (Vries, 1557)

The renaissance garden of western Europe from the mid 15 century, had often a layout which reflected “confidence in humankind’s capacity to impose order on the external world” (Clifford, n.d). If the garden can be seen as a self-portrait, the gardens of Florence would in relationship to the preference theory of Nassauer symbolize the human genius of architecture, engineering, control and seminatural vegetation. Furthermore, one can see a CTC found in Nassauer's writings in this illustration representing trees in row formations. The preference seen in renaissance gardens can be found in Villa d’Este, an Italian high renaissance garden from the 1550, which is meant to symbolize “man’s sovereignty over plant life”, and “over nature as a whole” (Maddè, 2023, p.36).

## The french baroque garden

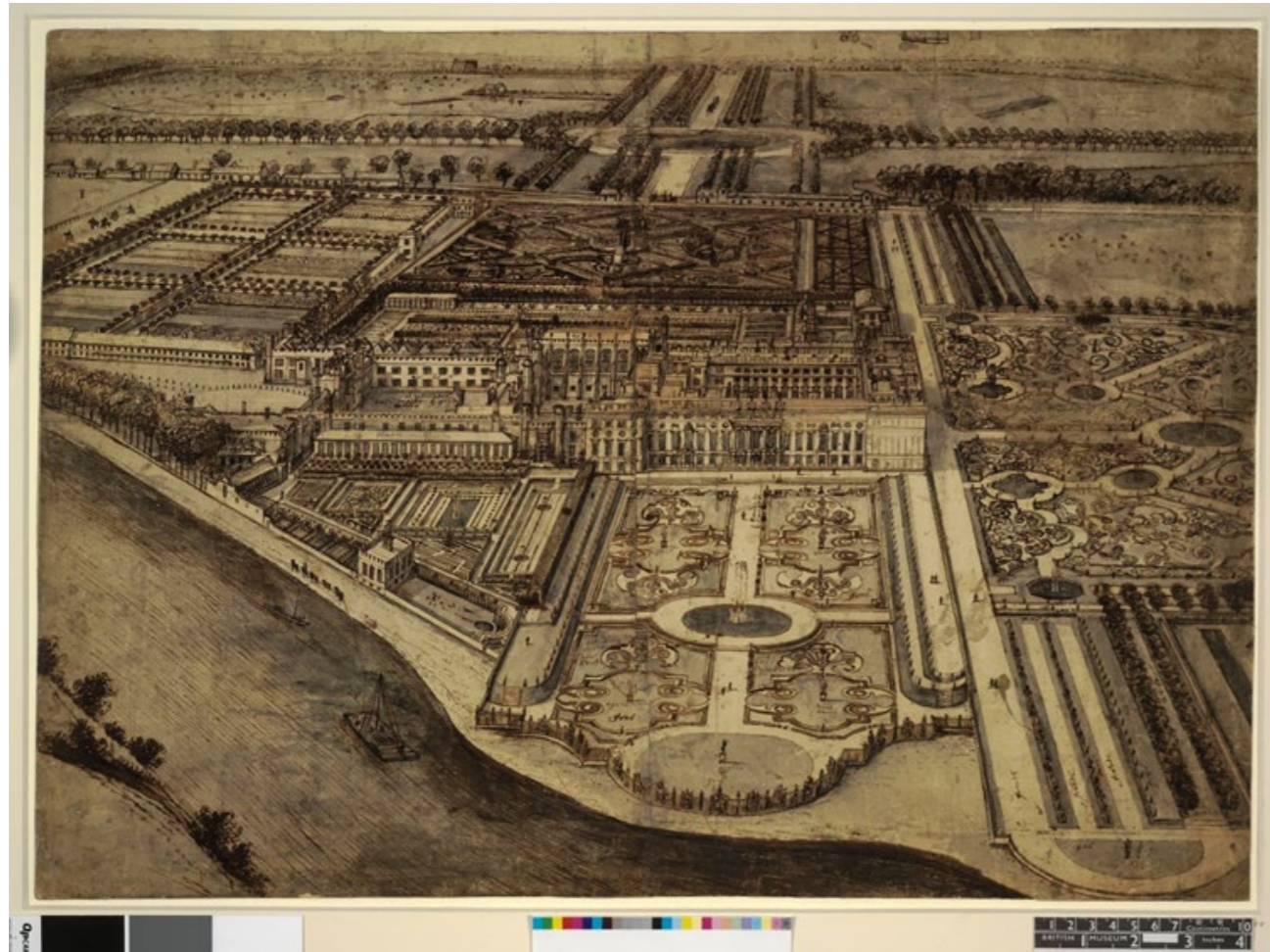


Figure 2.10. The French Baroque garden, (Knyff, 1702)

When France was introduced to the Italian garden in the start of the 17th century, it travelled and got morphed within the sphere of the baroque movement (Clifford, n.d). Barbara Stauffacher Solomon write in "Garden Futures", "the Western formal garden came from the paradise garden of Persia, to be perfected in France. From there, it became a symbol of aristocracy and authority, to many people an anathema. The rich man owns a garden; the poor works in it" (Solomon, 2023, p.39) The Persian influences of dividing can often be found in these gardens, but where it in Persia was divided because of religious reasons, the French baroque gardens were probably divided of aristotical preferences. Still, the CTC found on the persian rug can be seen in this illustration.

## The modern lawn



Figure 2.11. An example of the modern lawn, 2024

"Our need to belong still outweighs our ecological morality, and future buyers of any property with a garden will still look for a well-kept lawn as a signifier of care" (Moore, 2023, p.97). Our modern signifier of care and overall preference is the well-maintained lawn of green stuff. As lawns "demonstrate our belief that nature can be moulded at will" (Moore, 2023, p.96).



## 3. CTC PROPOSAL AREA

*This chapter presents facts about the CTC proposal area, Østre Parkdrag, its plans, history and many features.*



Figure 3.1. Østre Parkdrag representation, 2024

### Subchapters

Østre Parkdrag

History

Visiting Østre Parkdrag, seeing its topography and landscape disjoints

Cartographic information

Features

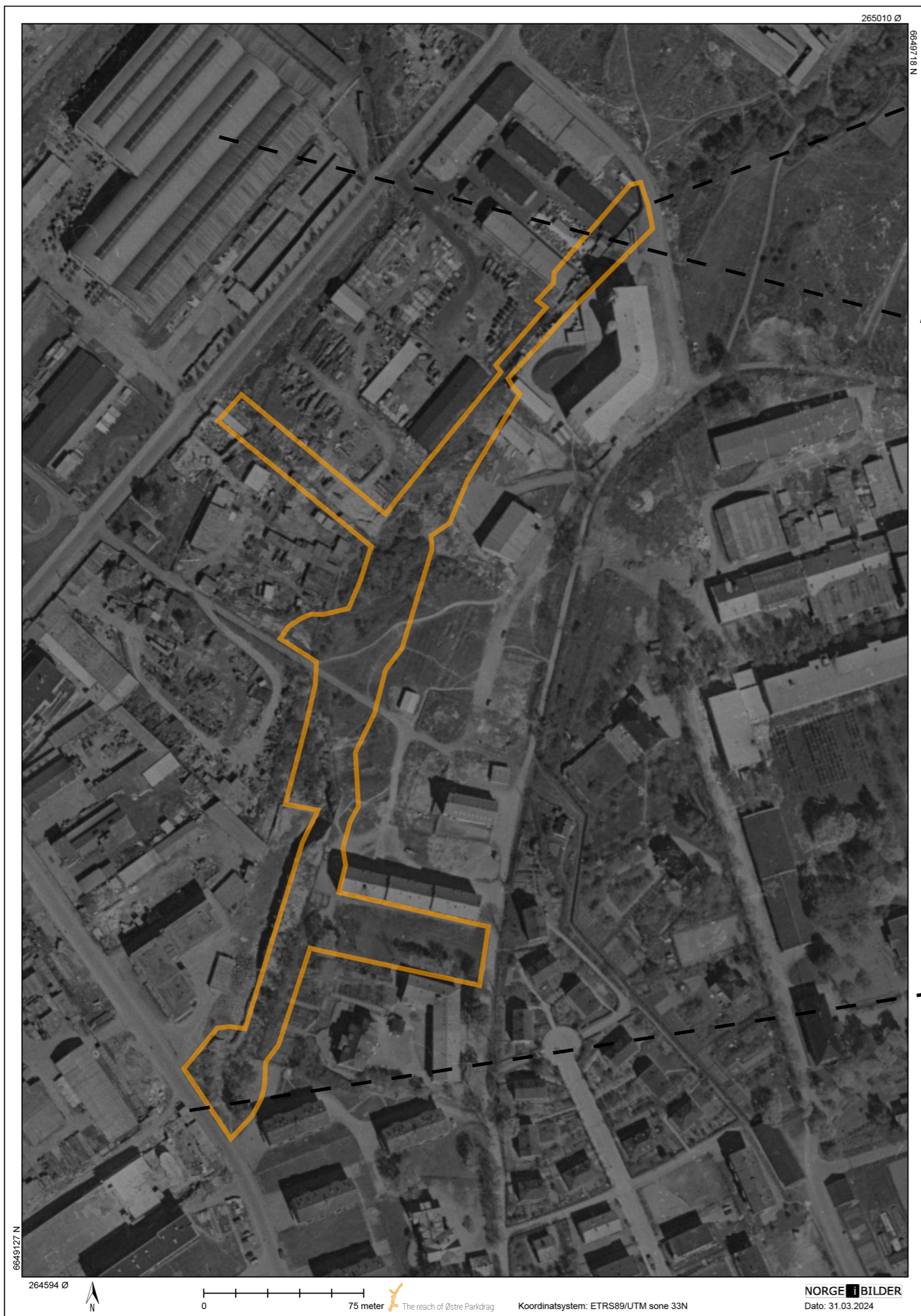


### ØSTRE PARKDRAG

Østre Parkdrag serves as the CTC test location in this thesis, where there now are intentions to make a natural park within Ensjøbyen, Oslo. In her 2020 thesis, Linn Egeland explored the concept of a dynamic vegetation design for this planned park. She highlighted that the proposed park is in a key development zone in Oslo (Egeland, 2020). The city's goal is to transform Ensjø from an area dominated by cars into one that is more welcoming for residents (Oslo kommune, n.d). As part of this transition from car centric planning, Østre Parkdrag was included in the 2004 municipal approval for the new Ensjøbyen development (Egeland, 2020). The plans incorporated new green infrastructure networks, leading to the creation of the Ensjø guiding principle plan in 2006 (Egeland, 2020). Here it is made clear that Østre Parkdrag is planned to be more naturalistic, and the Plan og bygnings agency writes that "Østre Parkdrag upon completion, should appear as a wide and continuous green forest belt. The deciduous forest and large trees are to be preserved. New trees will be planted where vegetation is lacking according to the principles outlined in the tree planting plan. The area should be designed and maintained in a way that makes it accessible for play and recreation" (Plan og bygninsetaten, 2006, p.34). And that the park is planned "to be used as a natural playground for children, with opportunities for play and activities in steep terrain with exciting wild vegetation" (Plan og bygninsetaten, 2006, p.34). Ensjøbyen and Østre Parkdrag can be seen as a piece in a larger game, or a puzzle on a grander scale. Ensjø serves as a part of Oslo's commitment to sustainable development through its proximity to Hovin. Hovin's green ring is a focus point that perhaps aims to signal a new and greener development in Oslo. The municipality of Oslo states that the ring is designed to facilitate pedestrian and cycling infrastructure, urban nature, and to increase the attractiveness of the district (Nilsen, 2019). Østre Parkdrag is not physically connected to the ring, but its proximity may indicate that it shares the same objectives, which also can be seen through the municipality's wish to create a "natural" park.

The municipal website states that the project's development and execution are planned in two phases, with the first phase initially set for 2023. However, delays have arisen due to adjacent property owners' reluctance to sell their land to the city, which now is awaiting legal resolution (Oslo kommune, n.d). Egeland's work suggests that this location is particularly suitable for testing various theories aimed at enhancing ecological functions, given the municipality's desire for Østre Parkdrag to be an area with "natural" and "wild" elements. Not all parts of the park needs to be designed or altered in this thesis, but areas which fits in with found CTC's can later be focused on.

Figure 3.2. Location of Østre Parkdrag, 2024



Stålverksveien going into Malerhaugsveien. The Stålverksveien got its name after the closeness to Christiania staalverk in 1952, exemplifying the areas industrial tie (Lokalwikhistorie, n.d).

The old Christiania staalverk factory were producing steel elements from 1916 - 1920. After this industrial use elements were used as warehouses at Ensjø. (Lokalwikhistorie.no, n.d)

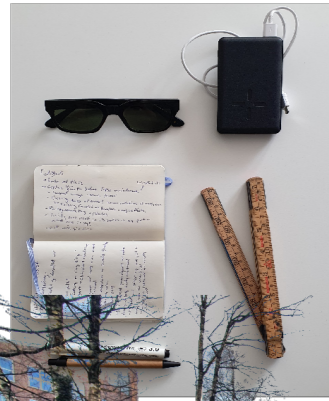
Road called Ensjøveien, named in 1947 (Lokalwikhistorie.no, n.d)

### The history of Østre Parkdrag

It's crucial to explore the historical context of the area and to understand previous developments, to see how the land became the park or area seen today. As previously mentioned, Ensjø was once known to Oslo residents as "car city". Egeland further notes that Ensjø's past was marked by commercial land use, a point that the Oslo municipality have looked closer at by mentioning industrial developments in the 1960s (Egeland, 2020), (Oslo kommune, n.d). Before 1948, Ensjø was part of Aker municipality, with its land predominantly used for agricultural and industrial purposes (Stokland, 2018). Following the Second World War, satellite cities began to emerge in Oslo's outskirts, positioning Ensjø between the city center and these outer areas, giving it a somewhat industrial look (Stokland, 2018). Evidence of this industrial and commercial past remains visible, with car dealerships still located near Østre Parkdrag. Up to the present, Ensjø has experienced considerable and large development, likely accompanied by heavy traffic and pollution, contributing to its current state of landscape. Furthermore, as shown in the map analysis of old streets and buildings there was a large scale steel factory close to the proposed park.

Figure 3.3. Østre Parkdrag in 1956, (Norgebilder, 2024)

Visiting Østre Parkdrag, seeing its topography and landscape disjoints.



At the beginning of Østre Parkdrag, near Stålverkveien, a visit was made in early March. The starting area of the park was quite flat and the park itself was narrow, bordered by fences and buildings.



Some spontaneous vegetation was spotted, especially around the fences and boundary areas.



The starting area ends with a fence that restricts further movement. At the end of this section, there is a slope leading down to a nearby residential road and mentioned fence. This area feels quite disjointed, as the fence acts as a barrier further into the park.



Figure 3.4. Collage, 2024.

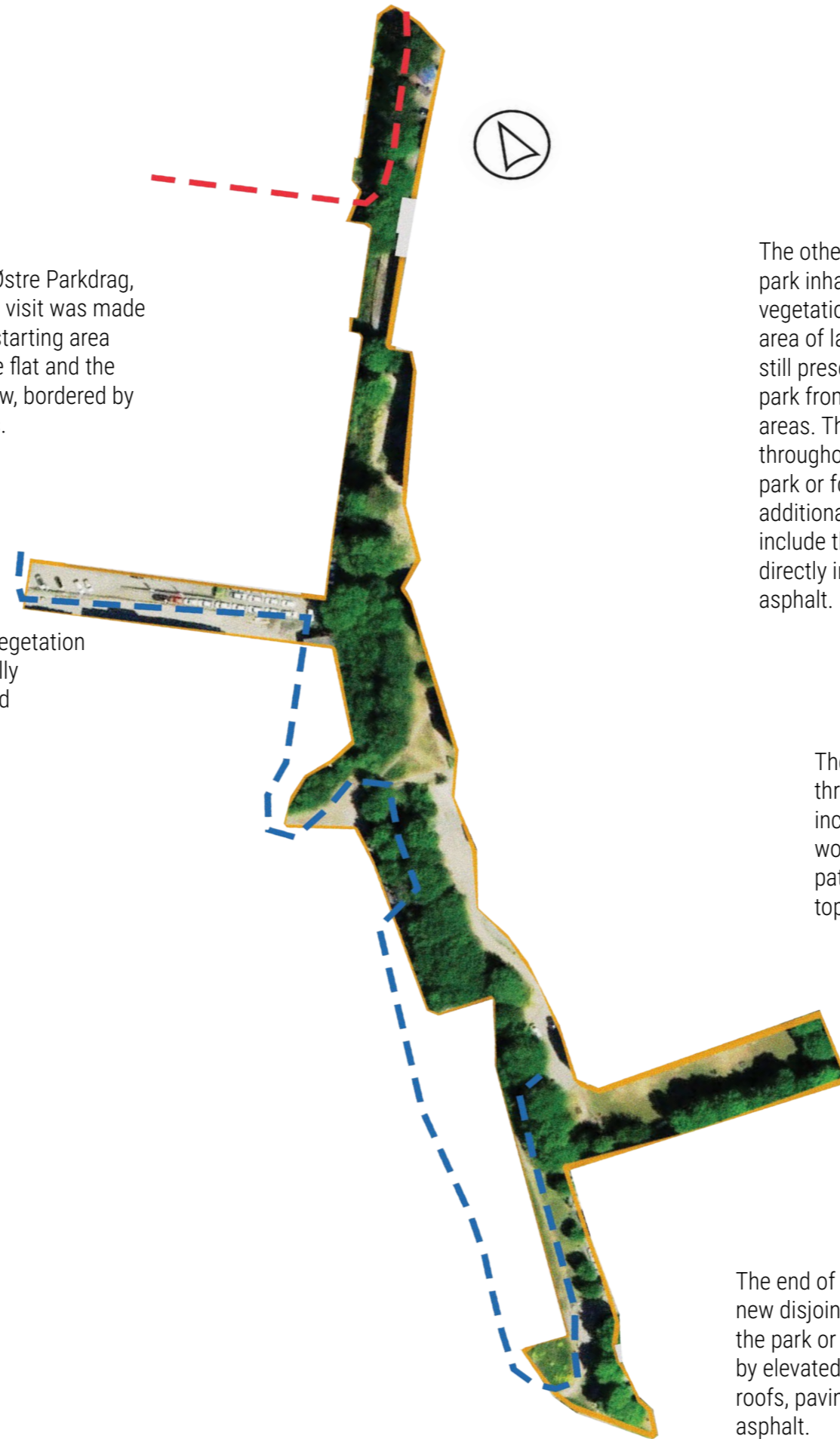


Figure 3.5. Trailmap, 2024.

The other part of the park inhabit more forest vegetation and a broader area of land. Fences are still present, separating the park from nearby parking areas. The slope continues throughout the entire park or forest patch, and additional disjointed areas include the slope leading directly into buildings and asphalt.

The ground varies throughout the park, including open lawns, wooded areas, grass patches, gravel, and topsoil.

The end of this section has new disjoint features, where the park or its land is met by elevated roads, building roofs, paving stones and asphalt.



Figure 3.6. Collage, 2024



# Cartographic information

Figure 3.7. Slope map, (USGS, n.d)

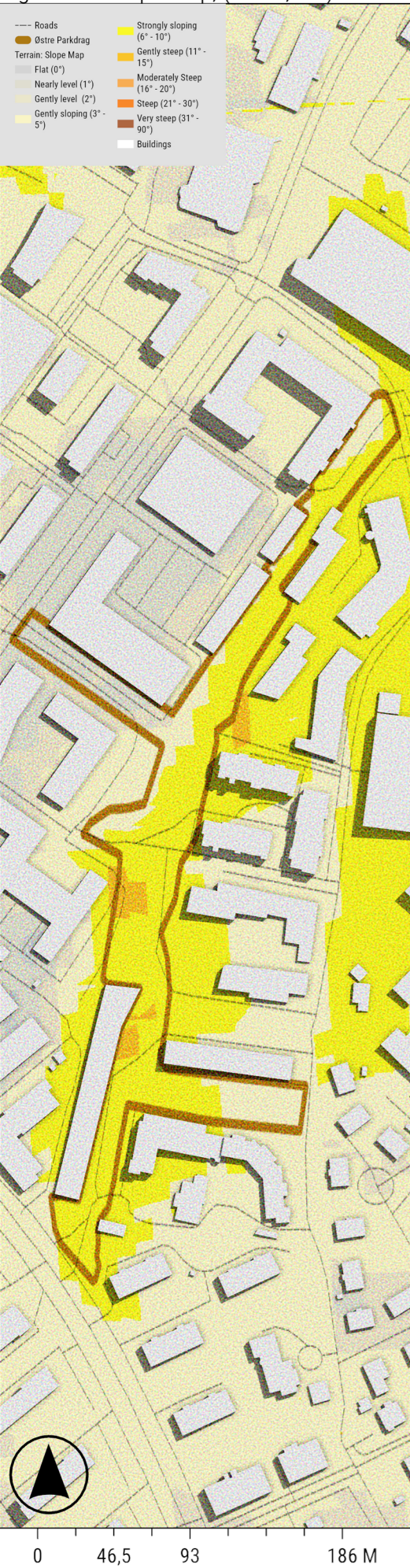


Figure 3.8. Østre Parkdrag, 2024



Figure 3.9. Østre Parkdrag, 2024

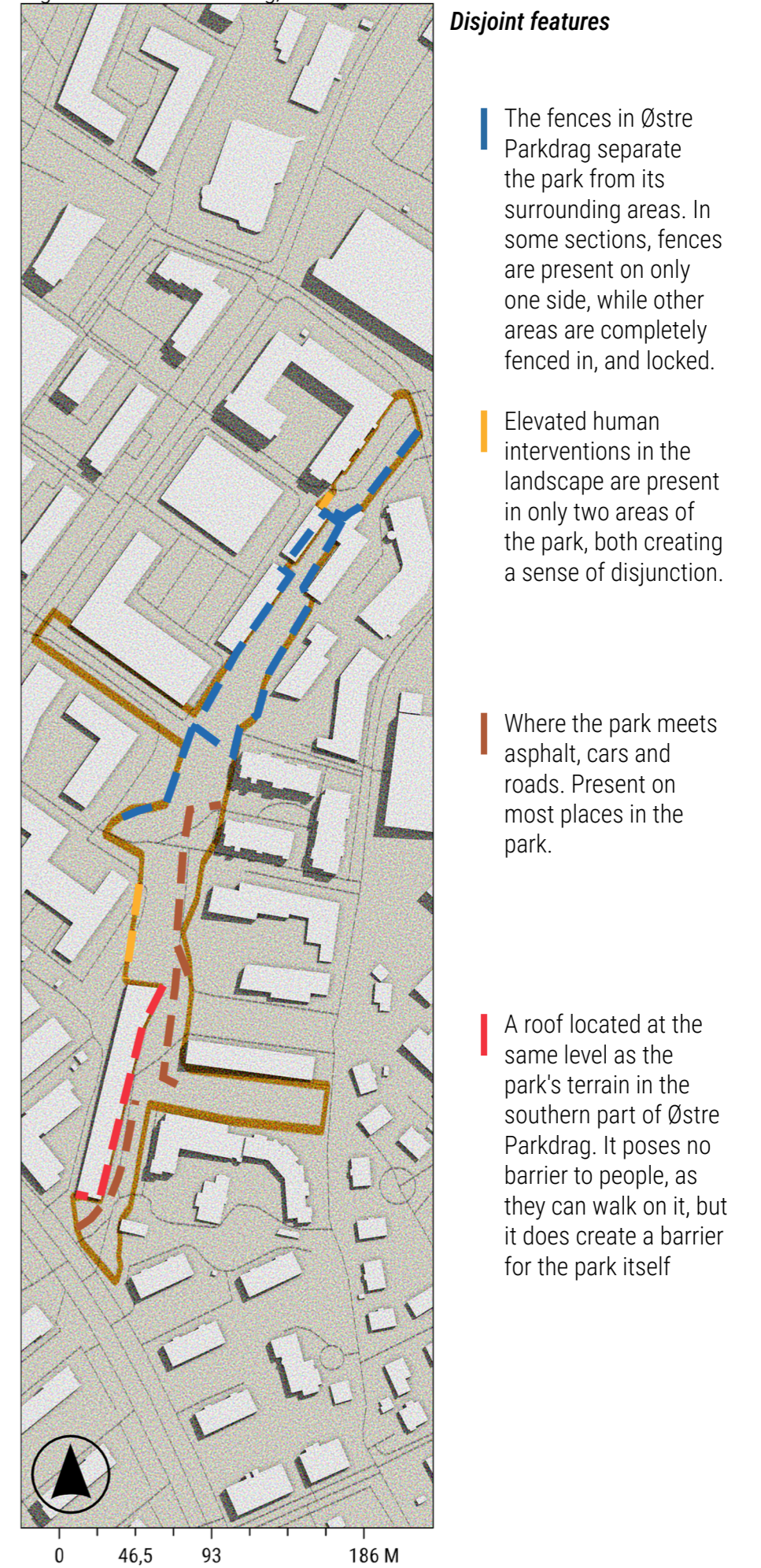




Figure 3.10. Vegetation found on site represented with Lumion, 2024

## Features

### Soil

Egeland's research indicates that the site mostly consists of thick marine sediments, supplemented by weathered sediments from bedrock (Egeland, 2020). She further identifies the bedrock as Cambrosilurian, having layers of shale, limestone, and sandstone (Egeland, 2020). The soil at the site is described as likely nutrient-rich, with high nitrogen levels and a moderate amount of chalk (Egeland, 2020). However, the historical altercations and original purposes of the park's land are not well documented, which is important for understanding the site's soil conditions. An analysis of historical maps suggests that some areas of the park may still reflect soil characteristics from its agricultural and industrial uses prior to 1948, while other soil possibly located close to Stålverksveien have been significantly altered by asphalt, buildings, and new vegetation. Additionally, there has been a noticeable rise in the use of road salts during winter in the wider Oslo area, a trend documented by Gabrielsen and Tønset (Gabrielsen and Tønset, 2023), which could potentially impact soil and plant health at Østre Parkdrag.

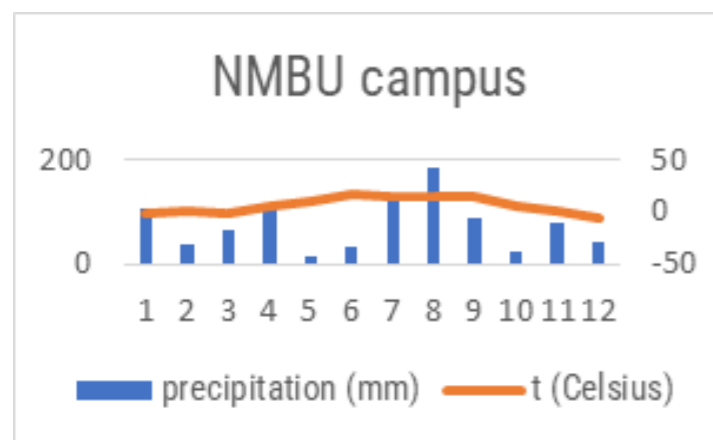
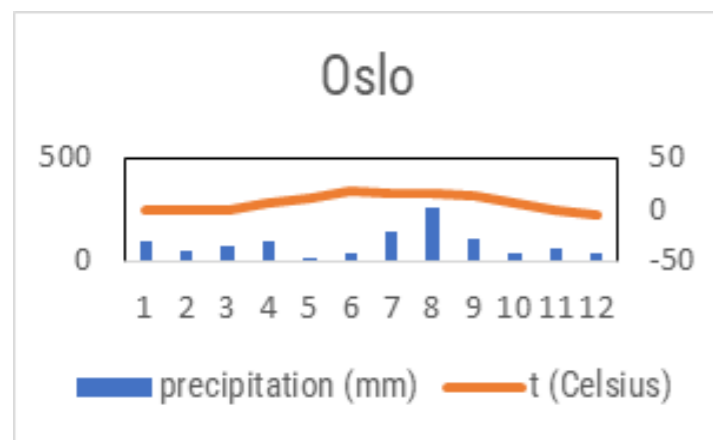
### Vegetation types

This subsection draws on personal observations and the work of Egeland. Egeland describes the park as having areas that appear fallow, giving it a distinct character (Egeland, 2020, p. 24). She notes the presence of patches of old deciduous trees in the northern parts of the park (Egeland, 2020, p. 24). To the south, the trees are mostly younger deciduous types (Egeland, 2020). Additionally, Egeland mentions the existence of freely growing flower meadows with some invasive species growing with it. During my initial field trip, where I wanted to understand the site's physical attributes, I was greeted by neatly maintained lawns in both the northern and southern area of the park. More spontaneously growing vegetation was observed along the peripheries, or disjoint features mapped at last page. My visit also revealed that younger trees in the southern areas had been pruned, as evidenced by marks and cuts on the trunks near the ground. However, natural succession had allowed new saplings from the same trunks to grow.

The park is largely characterized by forest patches that has a mixture of native and non native species, which leads to a diverse landscape. Prominent among these are Maples, Horse Chestnuts, and Common Ash, which are examples of species residing in the parks wooded areas. Furthermore, the park includes well maintained lawn areas that present a more homogeneous appearance but are mixed with some spontaneous vegetation, especially in border areas. This spontaneous flora includes species such as Canadian Goldenrod, roses, mugworts, and dandelions. These elements together show some of the park's nature which consists of managed and natural growth.

### Climatic situation of Oslo

Like all terrestrial areas, Oslo has undergone significant geomorphological changes due to external and internal factors, with the sun's energy also playing a role in shaping not only the landscape, but its ecologies as well. Therefore, it may be useful to quickly compare certain climatic features of Oslo with another close place to establish a reference point. The NMBU campus and Østre Parkdrag are approximately 34 km apart, with the NMBU campus being more rurally located compared to the urban Østre Parkdrag. In later chapters, I will discuss novel and emergent ecosystems, arguing that urban environments represent a relatively new niche for vegetation, characterized by specific abiotic elements that challenge current plant growth. The city of Oslo has become "increasingly dense", as shown in Adam Null and Lucie Cherel's 2021 Landsat analysis. Their findings indicate a 19% increase in low vegetation cover from 1985 to 2020, primarily due to "deforestation on the outskirts of the city" (Null and Cherel, 2021). Urban heat islands are a common phenomenon in cities, where metropolitan areas are significantly warmer than their rural surroundings due to heat generated by energy from all the people, cars, buses, and trains, as well as the sun's infrared rays absorbed by asphalt and other built materials (Rutledge et al, 2023). Last year's temperature measurements show minimal differences between Oslo and Ås, with Oslo having an average temperature of 6.9 degrees Celsius and Ås 6.5 degrees Celsius. However, a closer look at the summer months from May to August reveals a notable difference. Oslo had an average temperature of 15.8 degrees Celsius, compared to 14.9 degrees Celsius at the NMBU campus. Although these differences may not be completely due to the urban heat island effect, it is interesting to see that such nearby areas can have significant temperature variations. The winter of 2023 to 2024 was particularly challenging in Oslo, requiring 40,000 tons of salt to help with the dangerous effects of heavy snowfall (Gabrielsen and Tønset, 2023). Additionally, with a long history of development projects and infrastructure work, there is ongoing mitigation from vehicle emissions and other chemicals in the soil all across Oslo.



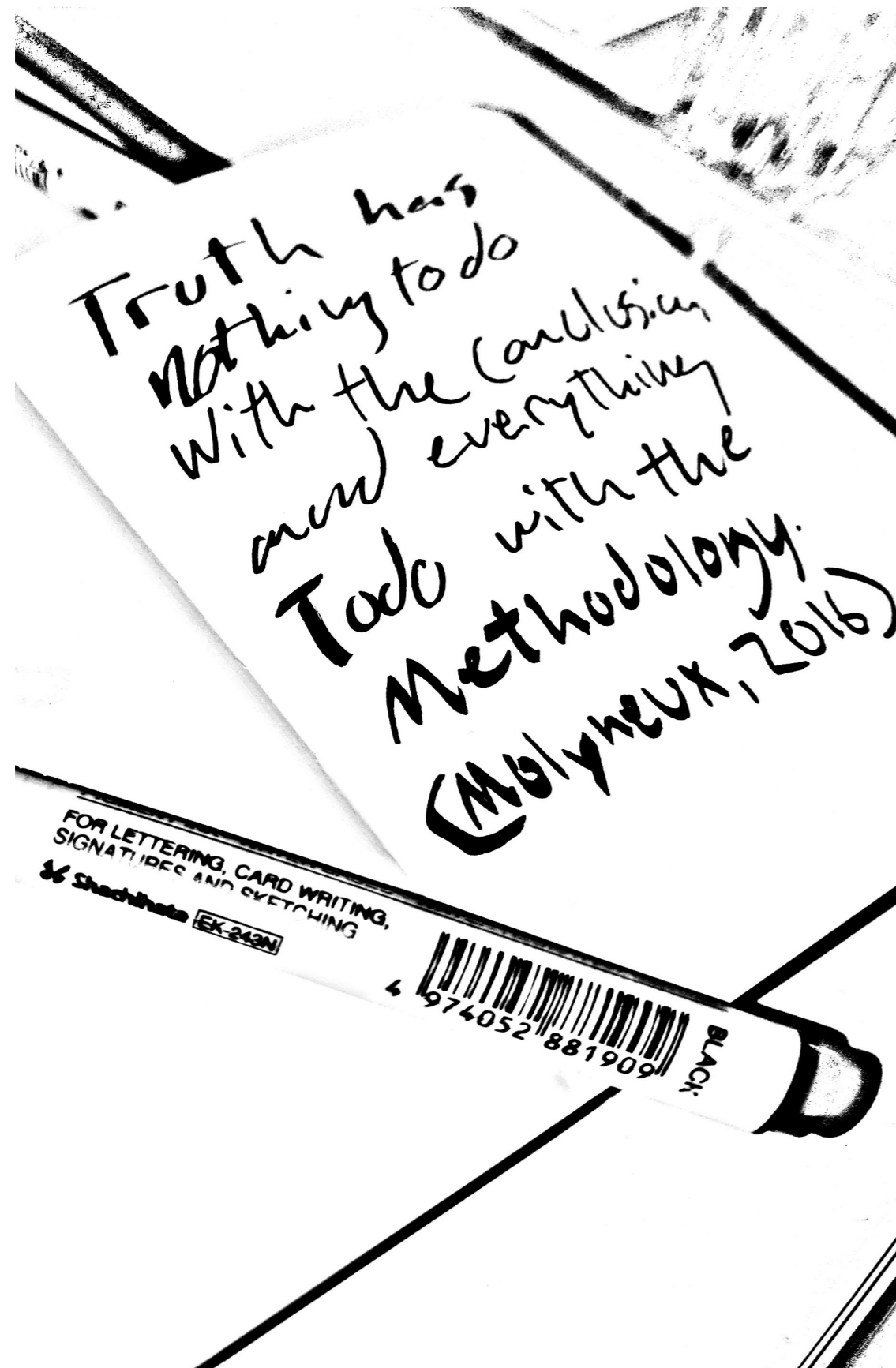
Figures 3.11 and 12. Temperature and precipitation of the last year, 2024



Figure 3.13. Collage from Østre Parkdrag, 2024

## 4.METHODOLOGY CHAPTER

*This chapter presents the different types of methodologies utilized to answer research questions and how these are methods are done.*



Figur 4.1. Quote by Molyneux, 2016

### Subchapters

Literature review

Document analysis

Semistructured interview

Observation

Action research



The main goal of this thesis is to investigate how CTC can enhance urban ecological quality through the utilization and potential of spontaneous vegetation. There are various methods for data collection and given the natural and social themes of this thesis, I have chosen qualitative methods designed to gather relevant data. It's also essential to define the scope of this thesis. This research project aims to identify suitable CTC for Oslo, Norway, illustrated through the CTC test area of Østre Parkdrag, by conducting a literature review, observations and observations. Through document analysis, expert interviews, and literature review, the thesis seeks to understand the Norwegian landscape care language to determine what is expected of Norwegian management of landscape and what kinds of interventions fit in with Oslo's landscape. This can be done through CTC ornaments or CTC maintenance methods. This latter part is crucial because alternative maintenance and appropriate use of CTCs are interlinked.

I aim to combine qualitative methods relevant to global landscape architecture with methodologies learned through landscape and environmental geography studies at UiB. Generally, qualitative research and methodology involve studies concerning human environments and experiences within specific conceptual frameworks (Hay, 2016, p.5), which is relevant as urban ecological quality is based on human preferences. The objective of this chapter is to introduce these methods and explain their implementation in a way that allows for replication. The thesis is structured such that the methods interconnect and can be used together to get a more comprehensive discussion and result.

#### *Litteratur review*

Ian Hay defines literature review in the book "Qualitative Research Methods" as a "comprehensive critical summary and interpretation of resources (publications, reports) and their relation to a specific area of research" (Hay, 2016, p.447). In this thesis, theory and literature review on specific relevant topics are crucial. The literature review in this study will provide theoretical background and review relevant literature on how to enhance ecological quality in urban environments linked to Nassauer's theories regarding CTC, the role of human preferences in landscapes, the role of remnant, constructed, and adaptive vegetation in increasing urban ecological quality, and the type and role of management regimes needed in this context. The aim of using this method is to find existing revelations and contextualize a significant reference point before presenting the before-and-after results of other methods. This review is not strictly based on a systematic search to gather literature and are probably more like an nonsystematic reviews, where "purposive reviews offer flexibility to address more far-reaching questions and pursue novel insights" (Cook, 2019). The review is meant to answer important questions about where ecological quality can be found in cities and what vegetation to use to enhance ecological quality, what the Anthopause opened up for in regard to use of spontaneous vegetation, indicate what the landscape care language of Oslo is, and lastly exemplify CTC as it can be used in Østre Parkdrag.

In a later subchapter, a more graphical and detailed exploration on CTC will be presented. Elen Deming, in her book "Landscape Architecture Research," defines a literature review as "summarizing the current state of understanding" (Deming and Swaffield, 2011, p.57). In this thesis, one other aim is to find and show the current and relevant applications of CTCs in landscapes to enhance understanding of contemporary CTC practices. Additionally, this work can assist in further research into the vernacular integration of CTCs in Oslo by showcasing relevant examples which can be implemented in the CTC Proposal chapter. The scope of literature and data included related to the definition of a CTC, are landscape elements that are either clearly designed or has signs of human intent through maintenance, indicating ongoing human engagement with the eventual landscapes or ecosystems. For a landscape element to be relevant to this thesis, it should also exist within complex or perceived messy ecological habitat, as this forms the foundational concept of the study. It is crucial to note that the primary goal of implementing CTCs, is not beautification but to enhance the ecological quality and appreciation of complex ecosystems within human dominated landscapes.

Given the constrained scope of this review, its purpose is not only to represent and list CTCs but also to research into Norwegian preferences regarding landscape management. CTCs can be categorized into two types: physical elements or ornaments, and other CTC resulting from alternative maintenance practices.

#### *Document analysis*

Kjetil Sander refers to a definition which describes document analysis as "an analysis of documents (secondary data), where we attempt to answer the research question (problem statement) by collecting and analyzing others' words, sentences, and narratives about a topic" (Sander, 2023) The document analysis and literature review are interconnected. The literature review aims to summarize written texts about landscape care language and look at the current state of landscape care, and with this knowledge, the document analysis is intended to enhance the understanding of the Norwegian landscape care language. This analysis involves examining a document which controls maintenance work in Oslo, also known as Operation and Maintenance Performance Description. This document comes from my previous summer job and includes guidelines for the maintenance of municipal areas, through rules and expectations of maintenance work done at their locales. The document analysis would perhaps benefit from having a larger pool of documents to analyze, as a larger pool could create a more objective result. Still the document analyzed controls the landscape maintenance of a large enough area to make it relevant.

The intent of the document analysis is to help find fitting CTC of Oslo, which can be showcased in the CTC Proposal chapter. To do this eventual CTC has to fit in with the Oslo landscape care language which will be debated in the literature review. The Document analysis can further be applied in the research as its result can more greatly indicate, disprove or prove presented results in the literature review. This is why this method is relevant, and hopefully it will provide relevant data to address the main research question, as well as the first sub question.

#### *Semistructured interview with park manager*

Semi structured interviews is a qualitative method with "some degree of predetermined order but maintains flexibility in the way issues are addressed by the informant" (Dunn, 2016, p.150). In this thesis the interview with the NMBU park manager were held to "collect a diversity of meaning, opinion and experience" relevant to the research question (Dunn, 2016, p.150). Furthermore "interviews are an excellent method of gaining access to information about events, opinions and experiences" (Dunn, 2016, p.150). To further answer the research question, the method of semi structured interview was held to look into the park manager of NMBUs opinions about the Norwegian landscape care system, language, and preferences, what maintenance can mean to ecological quality, the NMBU parks CTC, and opinions regarding spontaneous vegetation. The interview participant was chosen because of relevancy to the theme of this thesis.

The interview was held on the 20.03.24, and through this interview new information were put forth by the interview participant that can aid to better understand the Norwegian landscape care system and language. This semi structured interview was held in the KA building in my writing office, and my college Sebastian Skjulhaug Guha were present to transcribe the interview. An interview guide was made which defined the "rules of the interview", where the main were 1) you don't do research on participants, but with, 2) Present yourself and your research to increase comfort and trust, 3) Information goes both ways, participants should always get something out of an interview 4) don't ask RQ!

The semistructured interview also fits in with the literature review and document analysis and are meant to be discussed together to answer what the dominant landscape care language and maybe if the maintenance system Norway has similarities with the Northern American. These methods work together and results in aiding in the thesis's other dilemma regarding CTCs. With the identification of the Norwegian landscape care language, one can propose fitting CTCs onto Østre Parkdrag. The other reason for why this interview were held is regarding CTCs, and to specify NMBUs CTCs. Found CTCs from this interview can broaden the understanding of what a fitting CTC in Norway looks like. Together with the literature review on found CTC and the field visit or observation method one may have created a large enough pool and one can choose fitting CTC which may improve urban ecological quality and acceptance in Oslo.

### Observation

Robin A. Kearns explains that the observation method is a way to take part in the culture of interest, or the research are of interest (Kearns, 2016, p.314). The observation method utilized in this thesis has more in common with what Kearns defines to be a controlled observation as it has more clear goals and has defined what and how to observe phenomenon's (Kearns, 2016, p.315). In this thesis the goal of the usage of observation is to identify existing CTCs in Østre Parkdrag, and to find the demonstration area's more complex ecosystems.

Found CTCs in Østre Parkdrag will be more subjective than other data. This is because the found CTC are based on my own subjective landscape care language, and therefore my own understanding of cues of human intentions in Østre Parkdrag. These are meant to be captured by the usage of Polycam, an application that can capture photogrammetry models in real life terrain. These are meant to be broaden the understanding before the CTC Proposal chapter, among other CTC found by different methods.

The other goal of the observation method is to capture or find the complex ecosystems or habitats in Østre Parkdrag, as these can be seen as the area's most relevant to test alternative maintenance systems and CTC. The messy ecosystems will then be represented at a map and used further in the CTC proposal chapter.

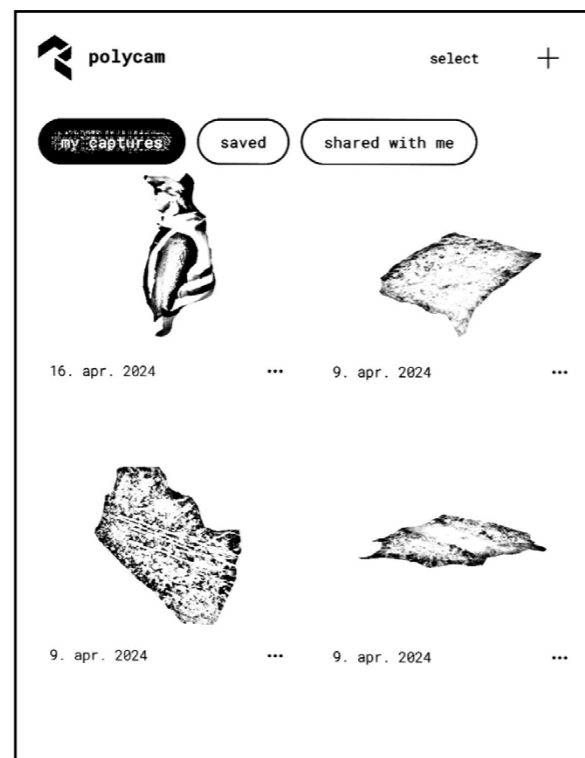


Figure 4.2. Screenshot, 2024

### Action research

Elen Deming writes in her book "Landscape architecture research methods" that "action research produces new knowledge based on processes of direct engagement, cognition, and social change" (Deming and Swaffield, 2011, p.192). Action research can be described as a method which initiates research on conditions and the results of various forms of action (Deming and Swaffield, 2011, p.192). In this thesis I wish to utilize this as the last method in a later chapter after the CTC proposal chapter as it can test found fitting CTCs in the landscape, and through this lead to a better understanding of how chosen CTCs can be put into action. This research was conducted on two separate occasions with my close friend, Magnus Simonsen. By implementing and testing interventions found in literature and other methods in physical settings, we were able to gather data that traditional design regimes do not provide. Physical testing of proposals allows for direct observation and engagement, creating insights that digital design implementations cannot achieve. Through this method, we can articulate the emotional responses and physical sensations facilitated by the tested interventions, providing a deeper understanding of their impact. If they can be seen as functioning CTC, if they provide neatness and order and, if they fit into the rest of the test landscape.

Action research should be done responsibly and should be safe for all participants conducting the method. It was therefore important to provide background information for participants of the method and provide gear which makes it safe and as comfortable as possible when conducting it.



Figure 4.3. Picture of gear, 2024

Yellow west for visibility and to possibly make the action research less risky.

Garden gloves for safety reasons and to get better grip of wooded elements.



Figure 4.4. Gear representation on participants, 2024

# 5. LITERATURE REVIEW

This chapter takes forth the literature review to get a quantity of meaning, and gathers literature relevant for answering research questions.



Figure 5.1. Some of the literature, 2024

## Subchapters

Where can one find ecological quality in cities?

What should possible future landscape care systems look like?

What do the people of Oslo prefer? What is the current landscape care language of Oslo?

The Cues to Care

## Where can one find ecological quality in cities?

As of before, ecological quality can be seen as the strength of relationships between biotic and abiotic elements and in return or as a result their functions via ecosystem services and stability. In cities however, quality is hard to come by. In his essay "Urban granaries, planetary thresholds" Nigel Clark, writes about the Anthropocene, the urban and what new emergent systems may signal. "The urban is on the frontline of the transition", and "even if earth system change remains gradual, cities can expect rising temperatures, inundation, accelerating rural-urban migration, and significant food security problems" (Clark, 2022, p.32). The relatively new urban ecosystems are as said before, mainly a human project. Urban vegetation exists, but "relative to adjacent non-urban areas, cities are characterized by 1) Increased levels of atmospheric nitrogen deposition and carbon dioxide, 2) Increased growing season length and temperature, 3) Shorter, warmer winters, 4) Increased levels of impervious surface and storm water runoff, 5) increased soil compaction and reduced moisture retention, and 6) Increased salt applications and elevated soil pHs" (Del Tredici, 2020, p.275). The urban experiment which is only expected to grow in both population, density, and size, creates new opportunities and barriers to existing and new climatic adapted ecological systems, and niches. Going back to Toland and her four year old daughter she explains "many street trees have a hard time in the city because of water stress and pollution", but "other plants find comfy home in such tiny forgotten spaces and seem to do just fine" (Toland, 2020, p.131). Toland understands these plants usage of these spaces to be the finding of ecological niches (Toland, 2020, p.131). Which is an important factor in the ecosystem, as a niche may be the place you thrive, while others don't, giving you a competitive advantage over other species found within the area of the niche.

### *Distinctions*

To help prune the messy and make urban botany more feasible, Matthew Gandy and Sandra Jasper write that when encountering "plants in cities it is helpful to differentiate between remnant, constructed and adaptive kinds of ecological assemblages" (Gandy and Jasper, 2020, p.7). Gandy and Jasper refer to remnant vegetation as the vegetation and communities that predated anthropogenic changes of regional landscapes, and "might include areas of woodland that have become integrated into park systems" (Gandy and Jasper, 2022, p.7). Constructed ecological assemblages is seen as the opposite to the remnant, and "emphasize the range of plants that have been specifically selected for gardens, parks, streets and other intricately modified spaces" (Gandy and Jasper, 2020, p.7-8). Gandy and Jasper write that the adaptive assemblages "include the many species that have simply arrived, and in some cases flourished, within urban environments" (Gandy and Jasper, 2020, p.8). Further on they also state that in practice, these different distinctions tend to become blurry, as many historical plant assemblages have been used as a staple of preference, to be left or abandoned when they became out of fashion (Gandy and Jasper, 2020). Some of the plant species in these assemblages has been renamed "weeds", and others has been redefined as invasive species (Gandy and Jasper, 2020, p.8). A distinction of species assemblages is relevant, but the ruling question still linger, what are and where can urban ecological quality be found?

### *Remnant vegetation*

In his essay named "Taxonomy of Urban Landscapes", Del Tredici writes about these different urban ecological assemblages. About remnant assemblages he writes "given consistent level of maintenance, they can be preserved as features within urban context, without maintenance, they are often overwhelmed by non-native species" (Del Tredici, 2014). Given the context of where these species grow, I think it's important to look closer at the concept of allelopathy. Allelopathy is defined "as a phenomenon that encompasses both the positive and negative effects of plants on other

organisms through chemical substances, described as allelochemicals (secondary metabolites), that plants produce to obtain a competitive advantage over other plants, animals, and microbes" (Schandry and Becker, 2020). Based on the anthropogenic effects on urban landscapes I would argue that anthropogenic influenced allelopathy is a defining characteristic of urban landscapes. Human actions have caused a shift in urban environments by altering local climatic conditions. Where allelopathy, a phenomenon where plants are using allelochemicals to obtain competitive advantages over other plants, I argue that anthropogenic influenced allelopathy can be seen as the human effects on the abiotic areas or landscapes which effects vegetation assemblages positively or negatively, intentionally, and unintentionally. Impervious surfaces, disturbances and fragmentation alter "soil and drainage conditions, which in turn destabilize existing plant communities" (Del Tredici, 2014). The urban heat island effect "is a function of the abundance of concrete buildings and asphalt paving" (Del Tredici, 2014). Because of the altered surface area "the annual mean temperature of large urban areas can be up to 3 degrees higher than the surrounding non-urban areas" (Del Tredici, 2014). This can understandably make it harder for remnant vegetation to thrive in cities. And regarding the soil quality of urban areas which may be the most relevant perspective regarding allelopathy, chemical disturbances and physical is most important. Del Tredici writes "pockets of native soil will support a remnant native ecosystem, but in many cities, large areas of non-native soil have brought in as fill" (Del Tredici, 2014). Non native soil will have different types of qualities and will differ, "urban soil quality is thus highly variable and dependent on the history of the site" (Del Tredici, 2014). Compaction is problematic as some areas may be "compacted to a density approaching that of concrete, precluding the growth of all but the toughest plants" (Del Tredici, 2014). Further on soil may have a precense of "heavy metals, petroleum byproducts and industrial solvents – the legacy of past land uses. When severe, such contamination has the capacity to inhibit plant growth, limit vegetation succession and damage human health" (Del Tredici, 2014). And not forgetting the usage of salts in winter which can "have a number of negative impacts on both soil and vegetation, including the degradation of soil aggregates, the increase in the osmotic potential of soil (making it harder for plants to get water), and the alteration of basic soil chemistry by elevating its pH. The abundant use of road salt along our highways selectively favors the growth of plants adapted to alkaline soil conditions" (Del Tredici, 2014). These effects makes it difficult for remnant vegetation to grow and be preserved in the urban biotype, but as seen if they are given a consistent level of maintenance they will live. Anthropogenic influenced allelopathy has caused a shift in the native environment which remnant species is specialized to thrive in, the proposed term is interesting, and I would love to encourage other researchers to look closer at this phenomenon.

### *Constructed*

Del Tredici also mentions constructed vegetation assemblages, instead of what Gandy and Jasper calls it, he calls them the "managed" vegetation assemblages or landscapes, and states that "these are dominated by cultivated plants, with rich manufactured soils, and they have medium-to-high maintenance requirements" (Del Tredici, 2014). To understand these species assemblages fit or non-fit onto urban settings Jorg Sieweke's "Deliberate and less intentional urban forests" provide necessary information. Constructed species assemblages is made up of native, non-native and invasive plant species all picked intentionally by man to make preferred landscapes. In his writings Sieweke has a focus on urban forests, but there exist overlaps regarding urban plant assemblages in general here, and the urban forest patch is relevant through its reach at Østre Parkdrag. Sieweke writes that "the default practice of transplanting cloned saplings from nurseries into the city holds little promise of adding up to the sum of its distressed trees" (Sieweke, 2023, p.62). This comes from a tradition where "trees needed to be carefully produced in a nursery before being transplanted in the city" (Sieweke, 2023, p.62). This tradition can also be viewed on lawns where "every blade of grass was meticulously planned as a part of an orchestrated whole" (Stappmanns, Kuijpers and Heinrich, 2023, p.15). Today we call these homogeneous green abstractions "green deserts", because of the lack of biodiversity and

lacking ecological quality. Sieweke refers to other research which “reports suggests that 30 to 68 percent of newly planted urban trees die within the first few years of life”, which “clearly signals an approach that leaves a lot to be desired concerning the needs of trees as complex ecological systems” (Sieweke, 2023 p.63). This regime is choosing preferred cloned tree saplings and vegetation which reveals a “Fordist production mentality of standardization”, which leads to the “repetition and abstraction of genetically identical and symmetrical clones, multiplying a singular model species” (Sieweke, 2023, p.63). This leads to the making of monocultural expanses and what Nassauer stated as “cultural nature” (Nassauer, 1995). One could argue that it is this vegetation Nassauer has in mind when writing “we know how to see ecological quality only through our cultural lenses, and through those lenses, it may or may not look like nature” (Nassauer, 1995, p.161), and that “picturesque conventions seem so intrinsic to nature that they are mistaken for ecological quality” (Nassauer, 1995, p.161). The constructed landscape and its vegetation assemblage is also as seen the costliest to maintain, as they often “must be maintained in reproductive limbo, between adolescence and adulthood – neither allowed to die nor propagate” (Moore, 2023, p.96). And only the lawn as one of these constructed assemblages “requires a bewildering volume of resources” (Moore, 2023, p.96). The constructed might look like quality, but as the illusion of environmental stability it is still an illusion. Marion Ernwein understands the dominant horticultural approach and sees “urban greenery” as dominantly designed as “still life” (Ernwein, 2020, p.237). This dominant approach is the regime of implementation and maintenance of the artificial constructed landscapes Del Tredici writes about. She goes over the basics of how designed landscapes and its features are being implemented and writes, “purchased from horticultural firms by green space services at various stages of their life (from seedling to adult plant), these are watered, fed, repotted, re-repotted, and trimmed, until they reach their adult stage” (Ernwein, 2020, p.237). After this, plants are referred as “finished” plants, and are to be transferred outside the polytunnel, known as a hoop greenhouse, and into their final location (Ernwein, 2020, p.237). Ernwein then remarks about the design of plants and states that “gardeners leave enough room around each individual plant for a final spur of growth, after which the design is considered complete” (Ernwein, 2020, p.238). Plants and vegetation is then “expected to stay in the same stable state the whole season through, before being uprooted, composted, and replaced with new, and just as still, flowers, at start of the next season” (Ernwein, 2020, p.238). Green space managers uses grids and lines to create beds with structures, volume and depths, but the usage of this kind of design leads to “little room for agency, spontaneity and dynamism” (Ernwein, 2020, p.238). Moving forward, Ernwein writes that these practices results in the application of plants as paint strokes in an “pictorial composition” (Ernwein, 2020, p.238), which again reminds me of Nassauer’s picturesque landscape conventions.

### **Adaptive**

An answer can be found in adaptive and spontaneous vegetation, preadaptation and novel ecosystems. Del Tredici admires the adaptive and spontaneous vegetation found in cities, and looks for third landscapes in urban areas that are neglected (Del Tredici, 2020, p.274). He notes that plants as part of these systems must “be adaptable in all aspects of their life history, from germination through to seed production and dispersal” (Del Tredici, 2020, p.274). They need to be opportunistic regarding nutrients, water, and light, and tolerant of not the best of growing habitats (Del Tredici, 2020, p.274). This fits in the urban experiment and environment that we have created. Some of the spontaneous and adaptable species has evolutionary quirks from native habitats “that pre-adapt them to flourish in cities”, and that “many urban plants are native to exposed limestone cliffs and rocky outcrops, or to grasslands with sandy, alkaline soils” (Del Tredici, 2020, p.274). These quirks are important to understand why some types of vegetation thrives in cities, and others don’t. Del Tredici refers to other researchers arguing that “tall brick or granite-faces buildings and concrete foundations of cities are geologically equivalent to the mountainous environments where these species originated”, and the de-icing salts has made “pH microhabitats which are also colonized by limestone-loving species”, and species from “coastal habitats” (Del Tredici, 2020, p.274). Furthermore, Del Tredici refers to other research which found that

up to 40 percent of vegetation growing in Europe are non-native to their living area (Del Tredici, 2020, p.275). These are part of the spontaneous vegetation found in cities. This is important for two reasons, “firstly, it helps to answer questions about why some species are common in cities, and, secondly, it replaces a static, native definition of nature based on history and geography with dynamic, “cosmopolitan” definition based on fitness and flux” (Del Tredici, 2020, p.274). In his other work “The flora of the future”, Del Tredici comments about the distinction between native and non-native flora, looks at how non-native species are being underappreciated, and how the concept of ecological restoration is probably at best, naive. Here he suggests the term “cosmopolitan urban vegetation to celebrate urban botanical diversity” (Del Tredici, 2014). This cosmopolitan urban vegetation consists of what Gandy and Jaspar wrote “the many species that have simply arrived, and in some cases flourished, within urban environments” (Gandy and Jasper, 2020, p.8). Which consists of offsprings of fitting remnant vegetation, forgotten and dynamic constructed species and other adaptable native and non-native species. Furthermore, the global environment is changing along the climatic changes. The preadaptation and resilience of spontaneous vegetation can therefore be a needed contribution to future urban biodiversity and healthy ecosystems. Mark Lindquist together with Daniel Phillips investigated the spontaneous flora of Detroit, USA in 2019 (Hocking, 2020). In an interview with Jared Hocking, Lindquist states that “weeds attract more wildlife – more birds, more bees, everything that people like”, and that “due to climate change, there’s a chance to re-evaluate both the biodiversity contribution of spontaneous vegetation” (Lindquist, 2020). As Del Tredici mentions, plant and vegetation as well assemblages’ growth places and succession should be held off to the best adapted. Lindquist further argues that the ecological need can be seen as a different need than human needs in urban environments, where the spontaneous vegetation can offer a bettering of biodiversity, habitat creation, microclimate regulation and other things important in ecological systems, versus human needs of safety and hygiene (Lindquist, 2020). This dilemma is real, and hopefully an intervention based of the theories of Nassauer, can help spontaneous vegetation to be more fittingly implemented in eventual designproposals. The admiration of the new species can also be found in Gandy and Jaspars essay where they state that “comparative studies of urban vegetation have drawn attention to the high levels of species diversity to be found in cities, comprising not just the persistence of previously existing plants but also a range of new arrivals. This leads to a distinctive pattern of elevated levels of overall biodiversity” (Gandy and Jasper, 2020, p.7). The urban ecology is diverse with its remnant and adaptive species assemblages, some maintained, others neglected, some planted, other characterized as “weeds”.

Weeds are also what many would call this spontaneous vegetation, a term I, and many dislike. Del Tredici writes about the weed, “a term with no biological meaning. “Weed” is simply a word used to describe a plant that a person does not like or does not want in the yard” (Del Tredici, 2014). David Gissen writes similarly in “Subnature” and states, “plants become weeds when they are out of place in agricultural settings, but they also become weeds in other non-natural settings when they disrupt an inherent order. For example, weeds are those plants that get in the way of the programs, agendas, or desires that we project into spatial constructs. Ivy quickly becomes an invasive species when it disrupts the functions of windows or walls.” (Gissen, 2009, p.150). And they are often “out of place”. Gilles Clement writes in his “Manifesto of Third landscape” that a third landscape is a “undecided fragment of the planetary garden”, and that it hosts “refuges for diversity, made up of the sum of neglected lands, reserves and primary sets” (Clement, 2004, p.4). The “planetary garden” is a term that resembles Del Tredici’s “cosmopolitan urban vegetation”. Del Tredici sees urban vegetation to be cosmopolitan because it inhabits plants originating from all parts of the world. While Clement sees the world as a large all connected garden, where “its guiding philosophy is based on the principle of the garden in motion (Clement, 2023, p.166). And as Del Tredici and Gissen, Clement admires the weeds or the unpreferred vegetation, as he states that “garden books don’t mention wild creatures, except to how to restrict them” (Clement, 2023, p.166). Clement understands that ecology’s main concern is “nature in its entirety”, and that the “enclosure was always an illusion; a garden is bound to be a planetary index” (Clement, 2023, p.166).

## *The illusion*

Regarding ecological restoration, Del Tredici states that it “rests on the mistaken assumption that we can somehow bring back past ecosystems by removing invasive species and replanting native species. This overly simplistic view of the world ignores two basic tenets of modern ecology – that environmental stability is an illusion, and that an unpredictable future belongs to the best adapted” (Del Tredici, 2014). Many landscape architects, botanists and ecologists hold the native over non-native species, and for good reasons. But this can’t be true in a completely different environment, a completely new environment. Every landscape is cultural, but not all landscapes are cultural landscapes with remnant species from lost agricultural and historical times. Urban landscapes are as seen on the forefront of the emerging human environment, and thoughts of restoration of past ecosystems in urban areas are based on illusions as Del Tredici puts it. One can’t cast all “invasive” species as bad, which is relevant for the urban environment, and also other. The geographer Ole Reidar Vetaas has mapped and explored the effects on alien species in native environments, some of which it was proven that alien species had negative effects on alpha diversity. A study by Vetaas et al, examined the species diversity differences between two islands in the North Atlantic, where one island had alien species and the other had native species. The results showed that the island with an alien tree species developed a richer pallet of vascular plants, while the other island was more homogeneous (Vetaas et al, 2012, p.213). This was because the introduced species created diverse microhabitats for plants, as the alien trees often falls during strong winds in the autumn. Due to this natural felling, successional effects occur, which do not happen on the other island where trees remain in a late succession stage (Vetaas et al, 2012, p.213).

Some adaptive species may be hostile to other plant assemblages like the cultural landscapes and other native systems and can lead to an outcompeting of the native flora. But we now know where quality is found in the city. The many species which has arrived, preadapted and are resilient to cope with already existing problems of local environmental conditions are where you find sustainable, healthy and patches of ecological quality. This fits in perfectly with Nassauers concept of CTC as the spontaneous vegetation often can be seen quite messy, but put under orderly frames one can increase the ecological quality of cities. Nassauers theories themselves are not specifically about spontaneous vegetation, nor alien species, but through this review one can see that the spontaneous and adaptive vegetation has more potential than other forms of assemblages. I have not succeeded to find other literature that mentions CTC when implementing spontaneous vegetation, but other research and examples found may be characterized as CTC without using the term.

## **What did the Anthropause open, regarding increased usage of spontaneous vegetation? And what should possible future landscape care systems look like?**

Parker Sutton has in this thesis been introduced with his essay “A new aesthetic of care”. The Anthropause were used as an example for what happens when human activity and maintenance decreases in urban landscapes (Sutton, 2022). The goal of the essay was to “call for a shift in the way that we maintain landscapes, grade their appearance, and define productivity” (Sutton, 2022, 138). Under the time of the anthropause Sutton and others found that although “mowing hours in park spaces were slashed by as much as 70 percent” and that the pandemic “affected spending on public landscapes”, the “spontaneous vegetation flowered in uncharacteristic urban and suburban contexts” (Sutton, 2022, p.137). With this “NASA’s Terra Moderate Resolution Imaging Spectroradiometer (MODIS) Vegetation Indices, whose Normalized Difference Vegetation Index (NDVI)—which shows the existence and the health of vegetation globally—approached maximum historic levels in July” (Sutton, 2022, p.138). Other studies also shows what a pause of human mobility causes where “nature’s opportunity to regenerate were among the positive aspects of the pandemic identified by survey respondents in the US and New

Zealand (Kolandai et al, 2023). Sutton argues that these ecological anomalies shown during the Covid 19 pandemic “signal a fundamental failure in the way we care for the landscapes” (Sutton, 2022, 138). Because of this Sutton looked for alternative maintenance and theories of landscape care, which cares for total nature and possibly ecological quality. Nassauers ideas of aesthetics of care were here discussed and brought forth as a way where “radical new systems of care that reduce carbon inputs, enhance biodiversity, and, importantly, shift public expectations for the way landscapes should look and perform” (Sutton, 2022, p.138). Sutton further states that landscape architects needs to have “strategies for “undesigned” landscapes—beyond parks and yards to include roadside verges, utility corridors, and highway clovers—expanding the scope of the landscape architectural project and its ability to effect macro-scale environmental corrections” (Sutton, 2022, p.138). These “undesigned” landscapes can be seen as Clement’s third landscapes, or the plethora of weeds or adaptive species residing in urban areas. Here the care of the third landscape is to aid in its neglect as “the neglect of the Third Landscape by the institution guarantees the maintenance and deployment of diversity” (Clement, 2004, p.29). What is meant by this is the self seeding properties and resilience of spontaneously blossoming vegetation are properties which comes by or are activated by human neglect. As Clement, Nassauer and Sutton sees the richness and potential of spontaneous vegetation, but as Nassauer, Sutton wishes to utilize these “undesigned” landscapes as its essential to “develop design strategies to make it palatable to a reluctant public” (Sutton, 2022, p.138). The background chapter also presented Suttons thoughts about the dominant landscape care system of the United States which is based on subordination. The MBG regime and Nassauers “domination” approach which “promotes clarity, simplicity, and the clear establishment of boundaries” and “the suppression of unwanted plant species, the eradication of interloping animals, the pruning and shaping of shrubs to maintain a constant form.” (Sutton, 2022, p.139). Which “enables landscape maintenance to be performed with reflexive ease—mowing, spraying, and waste removal become repetitive and mundane” (Sutton, 2022, p.139). Suttons point being that the mundane landscape care methods lead to an reflective ease, which is uncreative, makes standardized landscapes and reminds me about the term path dependency, maybe an ecological path dependency. Path dependency “explains the continued use of a product or practice based on historical preference or use” (Banton, 2021). Path dependency is commonly discussed in human geography where one can be trapped in one unsustainable path, leading to an outdated means of production, and increased risks for being outcompeted. The risk of not taking the new road of better production means, leads to an increased risk of failure in the future. In Suttons case the path is the monotone landscape practices which leads to an reflective ease of both planners, designers, architects and maintenance workers, their moral is at ease, but at the possible cost of future ecological decline.

This as seen, results in non-sustainability. And like Nassauer, Sutton sees a landscape care regime that leads to penalties for those individuals that want more ecological quality, and that wants change. Based on this, Sutton calls for a new aesthetic of care, which “means relinquishing control of landscape designs with fixed compositions in favor of what Julian Raxworthy refers to as “novelty” (Sutton, 2022, p.139). Sutton Understands novelty in a landscape to be the “vegetal growth and change acquired with time. A landscape that embraces novelty, so defined, is ever evolving and constantly renewed” (Sutton, 2022, p.139). This statement can also be viewed in light of Del Tredici’s “Urban plants: a window on how ecology becomes evolution”, where Del Tredici states that “the plants that grow spontaneously in abandoned or unmanaged urban landscapes deserve to be admired for their ability to grow under extremely harsh conditions” (Del Tredici, 2020, p.274). And that “in light of their unique environmental conditions and the cosmopolitan nature of their flora, cities clearly fit the definition of a “novel ecosystem” that has been irrevocably altered by human activity” (Del Tredici, 2020, p.275). This novelty of the urban flora is argued to be a “window on how ecology becomes evolution”, and like Tredici, Sutton argues for a changed system that embraces change and that is adaptable, and have adaptive vegetation assemblages in them. This embracement of novelty leads to “adaptive learning”, and this “built-in flexibility, wherein landscapes may transition alongside shifting climatic norms, will be critical in a future where the defining feature of the weather will be its unpredictability” (Sutton, 2022, p.142).

Care systems should therefore enable spontaneity and novelty within them. Sutton further asks how to model a design that has this flexibility, where he states that “design proposals cannot rely on conventional representational modes, as they were not developed to communicate systems” (Sutton, 2022, p.142). Which also resonates with the theme of this thesis as Nassauer’s CTC wishes to communicate hidden ecological functions to the public. A new aesthetic of care system should have 1) a care ethic, 2) a care ordinance, and 3) a calendar of care (Sutton, 2022).

This framework can be implemented as a framework for the CTC implementation at fitting localities and sound like this:

- “A moral framework for maintaining the landscape. This exercise asks designers to define the terms of human-land relations that will guide future engagement with their site” (Sutton, 2022, p.142)
- The goal of this moral framework should be to increase ecological quality through the utilization of the theories presented. Because of this, the framework should also strive to better the acceptance of messiness, and the acceptance of adaptive vegetation assemblages in urban landscapes. If the moral framework is supposed to be a set of principles, values, or beliefs that guide individuals and in this case caretakers of landscapes in making decisions about what is right or wrong. The moral framework for defining the terms of “human-land relations that will guide future engagement with their site”, (Sutton, 2022, p.142) of this thesis could therefore be defined easily as: embrace novelty through the acceptance of adaptive vegetation, and use CTC to enable and better the novelty of cities.
- The care ordinance being:
  - “The maintenance practices that lead to a desired site performance and appearance” (Sutton, 2022, P.142).
  - The care ordinance can be understood as the maintenance practices or ornaments that leads to urban ecological quality. The practice’s should be based on found and fitting CTC.
- The calendar of care being:
  - “charts a collection of moments made possible by alternative regimes of care” (Sutton, 2022, p.142).
  - The calendar of care can possibly be made with the implementation of fitting CTC where new maintenance methods and elements produce new moments for both human and nonhuman beings made possible by novelty.

This paradigm shift of care “requires the reallocation of funds from wasteful MBG practices to sowing, weeding, and growing. It demands that municipal laws that permit lawns to be regulated to an arbitrary standard of beauty be challenged” (Sutton, 2022, p.142). This shift requires the making of a new path, which seen before often doesn’t happen.

But say that this is happening. The focus of this thesis has been regarding CTC implementations on

Østre Parkdrag, but can these interventions be upscaled in any fashion? The anthropause opened for more usage of spontaneous vegetation, as it showed that the dynamic succession of adaptive species made more ecological quality in the urban environments. If fitting CTC can be designed properly, large areas of Oslo’s green areas may be changed for the better, because if the new aesthetic of care is being accepted through the usage of fitting CTC, its reasonable to think that they will fit inside the whole area of Oslo. Meanwhile places could be an interesting testing ground for this. Ankitha Gattupalli writes that “Vacant space and land are often perceived as “failed”, reflecting urban decline and economic blight. Emptiness, however, holds hope for possibilities and change” (Gattupalli, 2023). Regarding the current thesis focus urban meanwhile places can be just the place needed to test fitting CTC, to activate unused and neglected spaces with the potentially already existing third landscapes of adaptive vegetation assemblages. To be clear “meanwhile spaces refer to disused sites leased or loaned for a certain period of time by the public sector or developers to local community groups, art organizations, start-ups, and charities” (Gattupalli, 2023). This thesis can hopefully lay a foundation for what CTC are fitting in urban Oslo, and with a plethora of vernacular correct CTC elements and maintenance, one can hopefully transform urban Oslo. Parts of Østre Parkdrag is an example of a meanwhile place, where parts of the park are laid vacant, waiting for the implementation of planned landscape changes, and its existing greenspaces are mapped as “grey” areas, and not as green spaces.

### What do the people of Oslo prefer? What is the current landscape care language of Oslo?

I'd like to begin this subchapter with a question. What are your landscape care language? What do you prefer, and what do you not prefer? An fitting example of how human preferences in nature and landscapes are shaped by human intentions can be found in 1982 when Werner Herzog visited the Peruvian jungle. During his visit, Herzog described the jungle as "prehistorical" and reflected on the harmony he observed, "taking a close look at what's around us, there is some sort of a harmony. It is the harmony of overwhelming and collective murder. And we, in comparison to the articulate vileness and baseness and obscenity of all this jungle, we in comparison to that enormous articulation, we only sound and look like badly pronounced and half-finished sentences out of a stupid suburban novel, a cheap novel. And we have to become humble in front of this overwhelming misery and overwhelming fornication and overwhelming growth and overwhelming lack of order" (Herzog, 1982). Without human controlled elements in landscapes, a kind of prehistorical fear reminds us of our fragile nature. An overwhelming lack of order is natural, and for Herzog, this was the feeling he got when experiencing the Peruvian jungle. However, it's important to note that Herzog's perspective is that of a single individual, a Western man from Germany. Therefore, it would be reasonable to argue that the people of the Peruvian jungle may have a different outlook on the landscape.

One of Nassauer's objects to securing the goal of CTC is that the CTC in question matches with a site's language or identity, ideals or individuals. To make CTCs to work in the Norwegian city of Oslo, where the test area is, it is therefore crucial to understand what this language is. What does the Oslo residents expect to see in “their” landscape? In Northern America Nassauer as previously stated found that the dominant landscape care language is neatness and order. Is this the same for Norway, and is this the same for Oslo? In her earlier work “The Aesthetics of Horticulture: Neatness as a Form of Care”, Nassauer asks the question of what role landscape care has on perceived attractiveness of landscapes. In this paper, Nassauer conducts a survey across multiple countries and areas, and finds that landscape care is a significant factor in determining attractiveness across different groups of individuals (Nassauer, 1988, p.974). As a finding she puts forth her investigation of a coastal landscape in the Gulf of Mexico. Here she expected to find that natural looking areas were most attractive, but rather she found that “the most important predictors of perceived attractiveness were factors related to care as neatness” (Nassauer, 1988, p.974). Furthermore, in two more separate landscapes Nassauer tested her ideas, and found similarly that “care as neatness was a dominant

factor in landscape attractiveness" (Nassauer, 1988, p.974). Nassauer also analyzed 706 landscape views on attractiveness and found that the most common ways to term a landscape as attractive was with terms as "clean, neat, no junk, things put away, new, mown, no weeds, white, messy, weedy" (Nassauer, 1988, p.975). Do these results from Nassauer suggest that the overall standard of what is understood as attractiveness is linked to landscape care and neatness? It is somewhat uncertain in a general worldview, but it provides a indication as it demonstrates that these concepts holds up among multiple demographic groups situated in quite diverse landscapes and cultures. This can also in this case be relevant to Oslo.

A question in Clement's "The planetary garden" also caught my attention, as it stated something maybe relevant in the urban context of Oslo. Clement asks, "why do we live in the same type of tower built in San Francisco as in Shanghai?" (Clement, 2023, p.167). For me, I understand Clement's question to be regarding how modern cities often look quite similar, whether I am in Oslo or London, Amsterdam or Sydney. Given this, I wonder if cities have a kind of interconnected globalized culture which manifests itself as similar urban landscapes. Clement further writes that the standardization of urban and rural areas is a result of lobbying efforts around the world (Clement, 2023, p.167). If this is the case, it is easier to argue for Nassauer's view on a more general human preference for attractiveness.

However, to look more closely into Oslo, it may be wise to consider "Messy ecosystems, orderly frames," where Nassauer writes that "we need to acknowledge that the city dwellers homes, neighborhoods, parks, roadsides, and businesses are public portraits of themselves" (Nassauer, 1995, p.162). Taking Nassauer's thoughts into account, that individuals and communities shape landscapes based on their values, cultural identity, and possibly dreams, which leads to the formation of a self-portrait or a collective self-portrait. With this interpretation, one may find the answer not in the landscape itself, but in landscape design plans. This works in Norway due to democracy, where people elect representatives who advocate for and work towards their ideals. For Østre Parkdrag, the most relevant document for this purpose is the "VPOR" document, which is the guiding principle plan for public spaces at Ensjø. In the program, it is generally stated that "Ensjø's public spaces should have an urban nature, where qualities in the interaction between green, blue (water), and gray (streets and squares) are a fundamental concept" (Plan og bygningsetaten, 2006, p.8). The main vision in the document is that Ensjø should be "nature-urban and lively – accessible and attractive" (Plan og bygningsetaten, 2006, p.14). Nature-urban, lively, accessible, and attractive are the main vision of the city council and what Ensjø and Østre Parkdrag are wished to be, and through Nassauer's ideas, this design could be a kind of extension of the people in the form of a self-portrait. Neatness then, have maybe shifted from monocultural landscape design to inhabit more natural growth. Through this, one can argue that the main vision is Ensjø's vernacular language reflected by its residents and the landscape. Whether the landscape is truly maintained in accordance with Ensjø's vernacular language is uncertain, but management plans in general Norway and Oslo can provide a better answer to this. Furthermore, If VPOR's attractive urban nature have same characteristics as the MBG system found in Northern America one could argue that neatness and order could be seen as the dominant landscape care in Ensjø.

## The Cues of Care

### *Nassauer and Lie's literature review on CTC*

In 2020 Nassauer and Li published a paper which they "investigate what landscape elements have been described as CTC in scholarly literature, and, importantly, how this literature has recognized the perceptual, social, and cultural mechanisms by which CTC can operate to achieve environmental benefits" (Nassauer and Lie, 2020, p.1). Nassauer had from earlier work found some CTCs presented in her 1995 "Messy ecosystems, orderly frames".

Going forward, the researches argue that CTC are only fully effective "when they: 1) achieve a reassuring "orderly frame" for environmentally friendly landscape design, and 2) do so in a way that is culturally sustainable" (Nassauer and Li, 2020). Meaning that 1) the "orderly frame" or cue of human intention is reassuring and works to indicate human presence in the landscape. And 2) that the CTC in use fits in the landscape of specified area. In their methodology chapter Nassauer and Li explains how they used Google Scholar resulting in an analysis of 212 papers (Nassauer and Li, 2020). Nassauer and Li found that "CTC are used by scholars in many disciplines to study varied topics ranging from aesthetics and ethics to conservation and restoration" (Nassauer and Li, 2020, p.11). In the result section the authors saw a rise in CTC scholarship from 2008, with a growth of usage in other continents as well as north America (Nassauer and Li, 2020, p.5). The results and analysis of found research papers led to the creating of an CTC matrix where CTCs "were employed as landscape elements in different" landscape contexts (Nassauer and Li, 2020, p.10). This makes an important basis for this thesis as this list can help to choose fitting CTCs for Østre Parkdrag. The relevant landscape contexts which this thesis has its focus is on 1) residential, as Østre Parkdrag is located in a residential landscape context. And 2) Urban vacant land, as parts of the park is waiting to be built and is not used by the public, nor does it have infrastructure on it. The matrix makes it clear that there were 16.1% of CTC papers which focused on the residential context, while only 7.4 % focused on urban vacant land. In the residential CTC the most popular consisted of mown lawns, mown strips, fences, pruning, colorful flowers, trees, conventional layouts and wildlife feeders (Nassauer and Li, 2020, p.10). Regarding urban vacant land they found that mowing, fences, trimming, colorful flowers, trees, planters, no litter, pathways and plant removal were most used CTC (Nassauer and Li, 2020, p.11). Nassauer and Li ends the paper with, "We conclude that, to realize the potential for employing CTC to advance ecosystem services, underlying mechanisms of CTC must be more fully explored when CTC are identified and developed as landscape elements" (Nassauer and Li, 2020, p.11). This because some landscape elements may be obscure if it does not fit within the cultural context and that "without a stronger theoretical basis, CTC can devolve to being used as a slogan or stamp" (Nassauer and Li, 2020, p.11).

Furthermore, I have not succeeded in finding lots of literature regarding Norwegian CTC, but in Sweden a paper from 2016 written by then student Lina Fackel wrote about cues to care in the Swedish context of Mariebergskogen, Karlstad. This area is in a shore context, and located in Sweden, a Scandinavian country which share some cultural phenomena with Norway. In her thesis Fackel made it clear that she wanted to find CTCs in Mariebergskogen, and how well these CTC were showed and used to indicate human intention in the landscape (Fackel, 2016, p.9). Fackel writes that she found CTC other than what Nassauer had proposed in her writings (Fackel, 2016, p.11). On her field visit to Mariebergskogen she found relevant CTCs in the forms of physical signs, benches, trashcans, well-trimmed hedges in shapes, sharp edges, fallen but placed trees, birdhouses, information boards and human presence (Fackel, 2016, p.14-16).

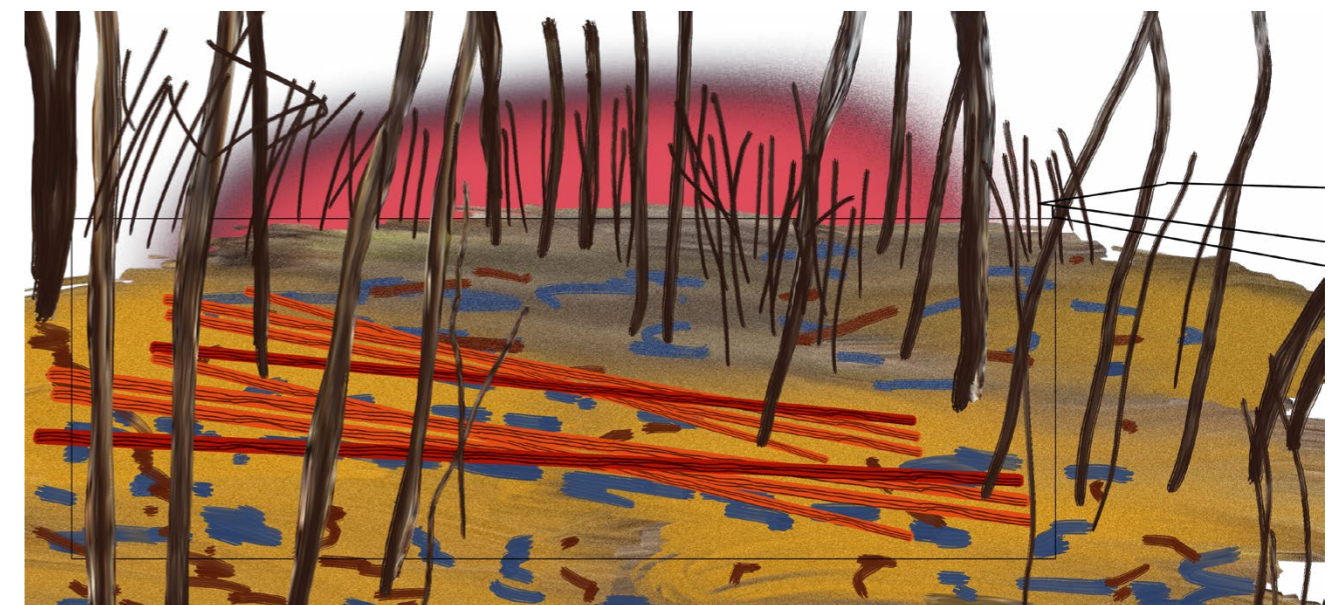


Figure 5.2. Digital painting, forest patch, 2024

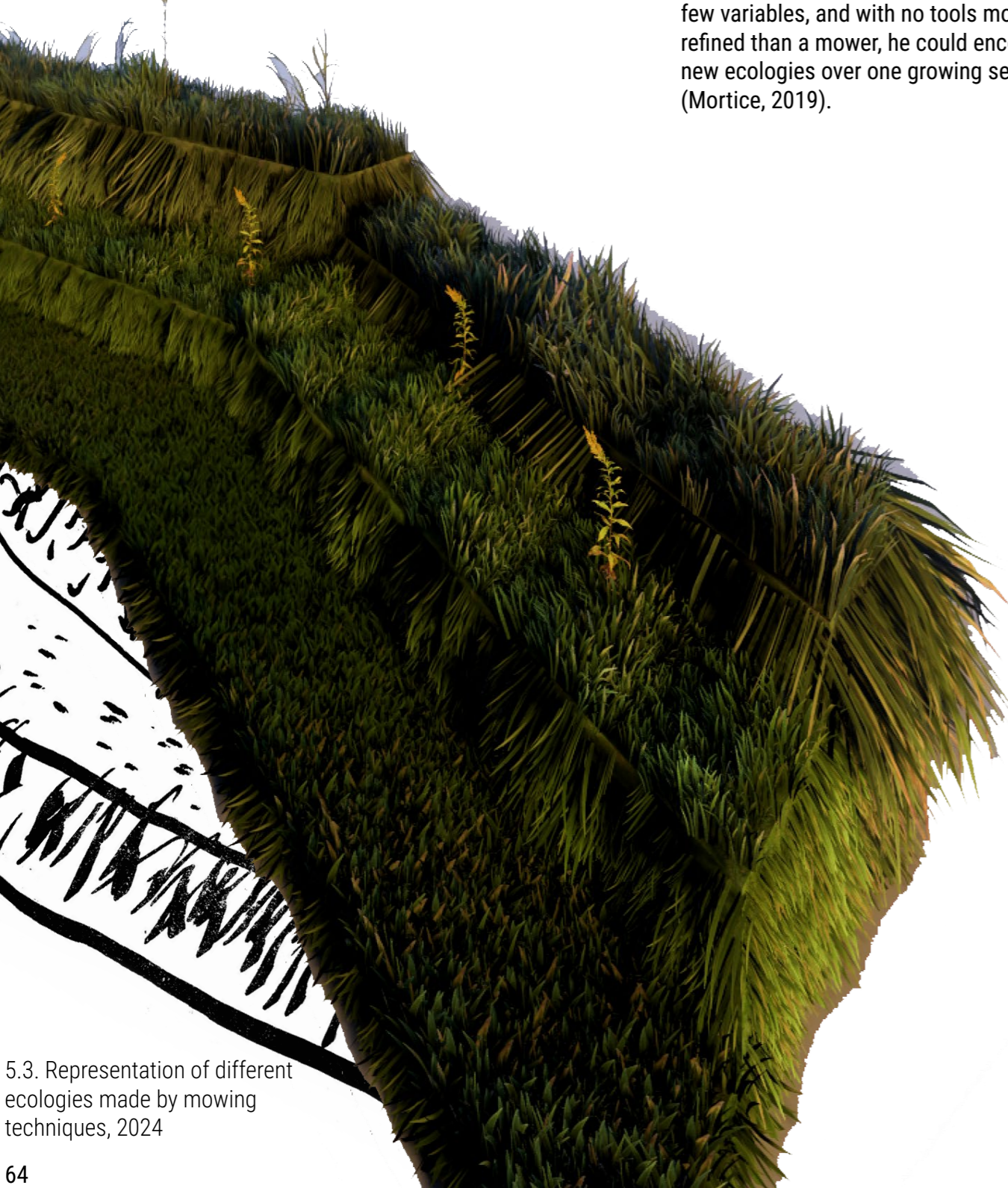


## CTC 1

### Mowing or mowed strips

Mowing or mowing strips are mentioned in Nassauer and Li's review and shows human intent onto landscapes through the maintenance of lawn areas. A well mowed lawn is as seen before the most common found care sign of current modern landscapes. Its ecological quality will vary, where the most common way to mow lawns results in the green deserts this thesis is critiquing. There are however alternative maintenance methods to create a species richer and more sustainable mowing regimes.

A distinct CTC which I find fascinating is regarding what Nassauer calls mown strips. To exemplify this my supervisor sent me an article called "Lawnmower Man", which was written in 2019. Here one can see pictures of Michael Geffel designing landscapes with his lawnmower, and how he with the utilization of his lawnmower makes complex ecosystems in lawn areas. Geffel "discovered that by alternating a few variables, and with no tools more refined than a mower, he could encourage new ecologies over one growing season" (Mortice, 2019).



5.3. Representation of different ecologies made by mowing techniques, 2024

Geffel found that different mowers resulted in different ecological outcomes, meaning that a greater diversity of species and microsystems could be made by using different maintenance tools on the same land (Mortice, 2019). And that different variables through the usage of height settings on mowers will provide growing areas for different habitats. Morice further writes that Geffels maintenance regimes are based on simple rules like, "mow in shaded areas, turn when you encounter specific species, mow in a Zamboni pattern" (Mortice, 2019).

The Zamboni pattern refers to a method of lawn mowing where you ride in a circular pattern, shifting the circle one mower width inwards with each pass until you cover the entire area, and are commonly used to level ice hockey fields (Guru, 2023). The Zamboni pattern that Geffel uses can be created in different styles, resulting in different rectangular or circular landscape designs. What is interesting here is that the maintenance of distinct landscapes will lead to the design of them, a design through maintenance. This can be a dynamic design, where maintenance outcomes can fail and be changed for better accessibility, ecological quality, and novelty while maintaining and signaling human care.

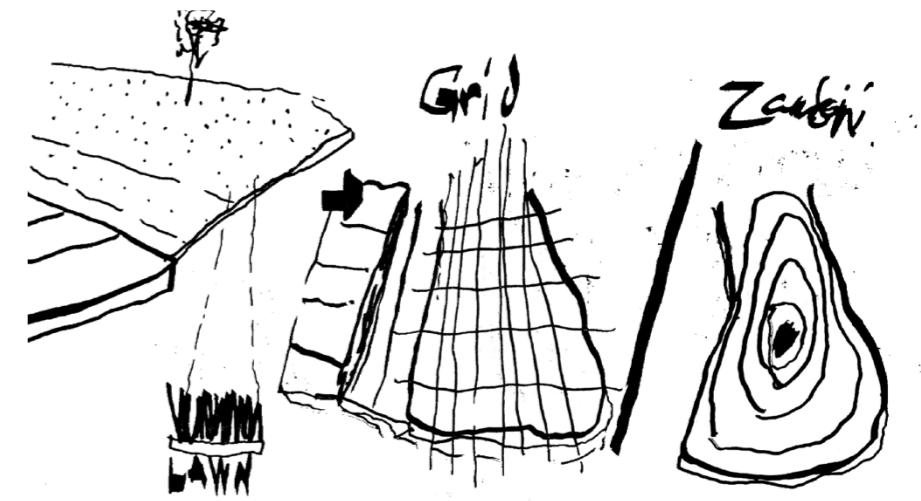
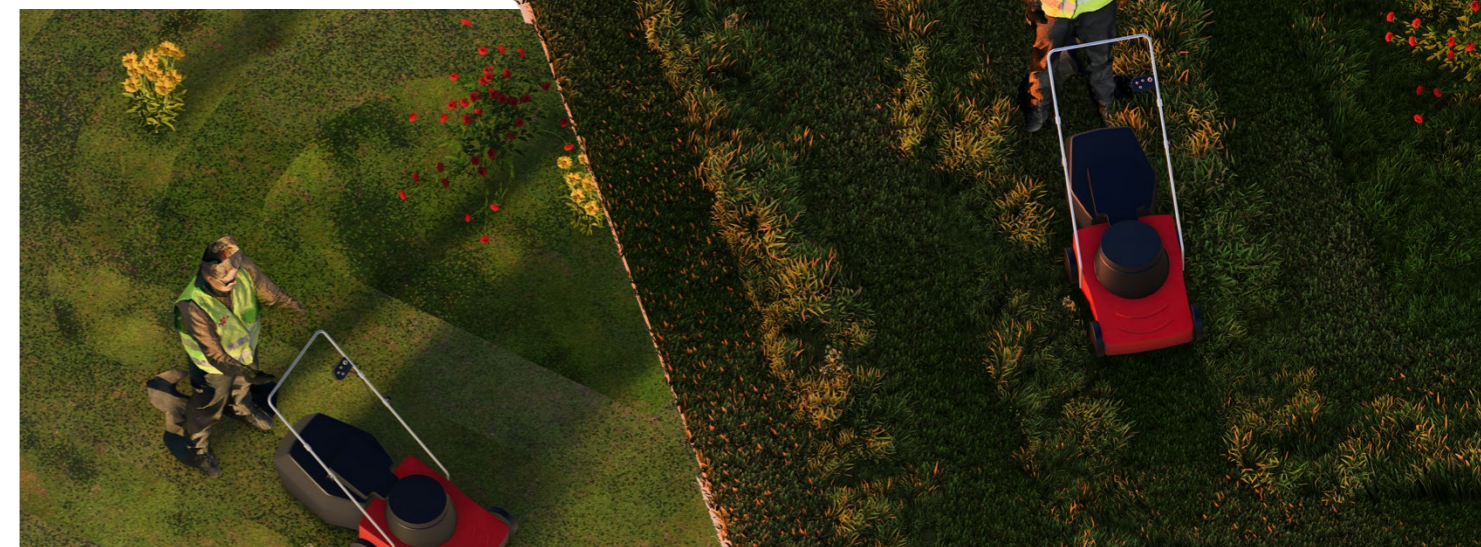


Figure 5.4. How to illustration, 2024

Figure 5.5. (Geffel, n.d)



Figure 5.6. Lumion representation, 2024

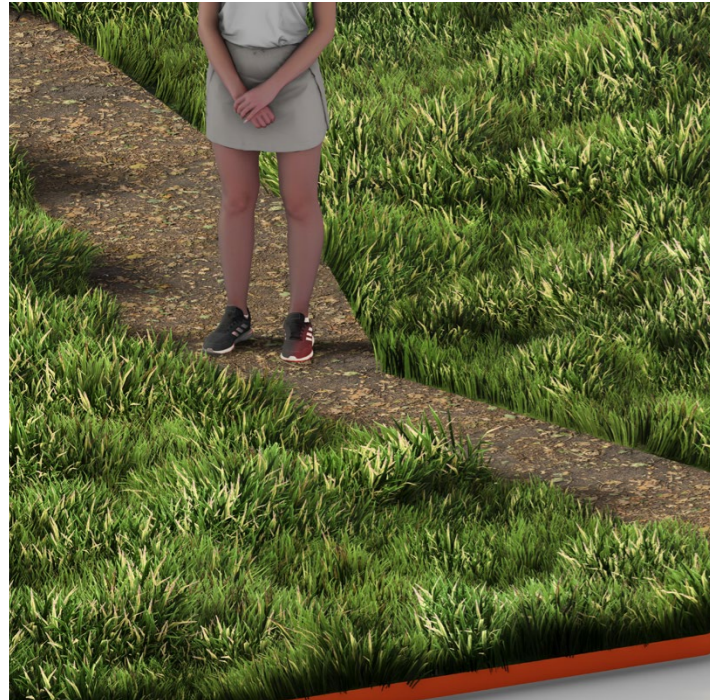


Figure 5.7. Pathway, 2024

Fences in landscapes are put there by humans to separate, guide and help, and is a clear signal of human presence in landscapes and may indicate human care. With its line design a straight fence stands in contrast to surrounding dynamic vegetation. The fence is a CTC element, not a maintenance method such as the mowing of lawns and other habitats. But the fence can also be made by low-cost maintenance interventions in eventual habitats.

In their report "Its time we embrace spontaneous tree growth in the city" Henrik Øxnevad, Helena Wolf and Sofie Ringdal does exactly what is written in the title. They write about forests patches in urban settings, and they assembled "a toolbox of methods for visual storytelling and physical experimentation" (Øxnevad, Wolf and Ringdal, 2020, p.3). Their forest experimentation is prolonged CTCs which fits into Nassauer definition. In a spontaneous and perceived messy forest patch in Oslo they made "an exhibition of the trash located in the area and the creation of a pathway" (Øxnevad, Wolf and Ringdal, 2020, p.3).

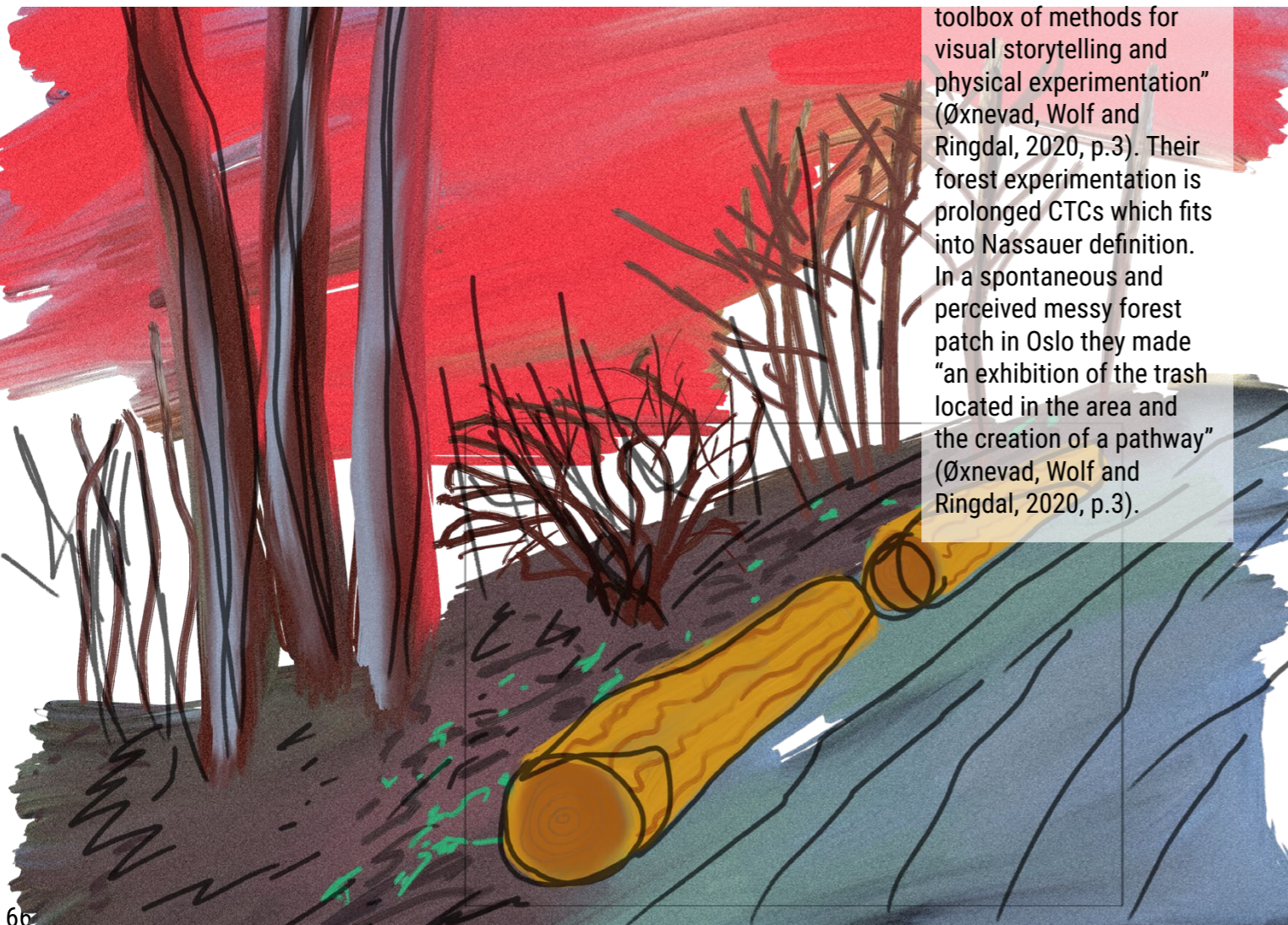


Figure 5.8. Wooden fence, 2024

With this they made an area which may have been perceived by many inhabitants as messy as orderly, as the untidy trash were exhibited in an orderly fashion and the pathway with wooden fences made a clear human sign in the landscape. Furthermore, as Sieweke they saw problems with the current tree planting scheme. Where they stated that it is an unhealthy focus on profit, aesthetics and schooling (Øxnevad, Wolf and Ringdal, 2020, p.5). The fence made by this group is made up of fallen trees and branches, these are assembled to "frame" the pathway and the forest patch. Although natural, by tidying the forest patch and making a quite straight fence one can clearly see a landscape with intent and care. Furthermore, instead of removing branches and fallen trees the dead trees are activated as dead habitats. In Mathilda Rosengren's "There's life in dead wood", she exemplifies the benefits of having dead wood as an part of ecosystems. She states that "dead trees pave the way for different expressions of living and foster new life for the future" (Rosengren, 2020, p.232). Where "many insects, fungi, mosses, and lichens depend on old dying or dead trees for their survival" (Rosengren, 2020, p.235).

Figure 5.9. Intervention (Øxnevad, Wolf and Ringdal, 2020)



Figure 5.10. How to illustration, 2024

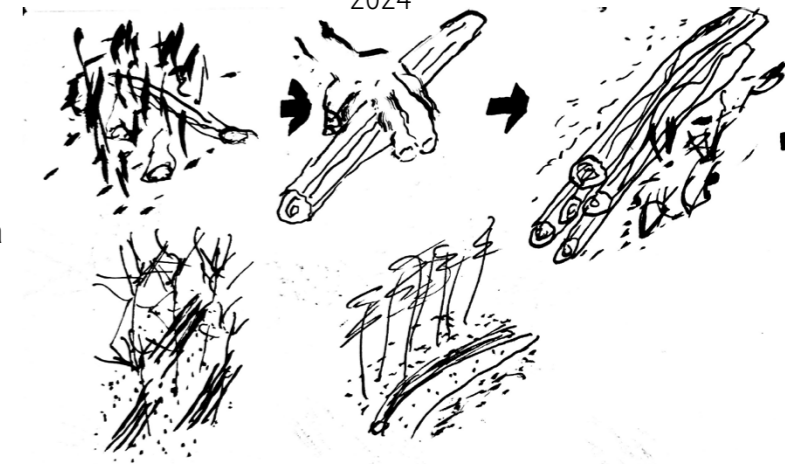


Figure 5.11. Lumion representation, 2024



### CTC 3

#### *Straightness, trimming, sharp edges*

Straight lines in a landscape often signify human intervention, bringing a sense of order on to the natural world. This is true in the straight fences we construct, but also in the maintenance practices that produce sharp edges along trails or within vegetation with the help of pruning. Some of these sharp edges are among the less environmentally friendly methods used to signal human presence in landscapes. Using powered edge clippers, one can create tidy habitats with straight lines that can encapsulate more disordered habitats within their borders. My dislike for such interventions stems from their impact on the "edge effect." The "edge effects are the changes in biodiversity that occur inside the space surrounding the shared edge of two or more distinct ecosystems" (Mora, 2022). These zones are often rich in species, as they inhabit species from both ecosystems. Found along fences and overlapping habitats within urban settings, these edges can hold greater diversity than other areas. By maintaining landscapes, we may overlook these effects and the potential richness of these areas. However, it is undeniable that such maintenance also results in the presence of humanity in landscapes.



Figure 5.12. Lumion representation, 2024

**CTC 5**  
**Art**

Art installations and ornaments can create signs directly or indirectly in urban landscapes of human intention and care. Here the skogfleck example as discussed before can aid in the understanding of the implementation of art as a CTC. One of the installations in the urban forest patch the skogfleck reports writes about were the "string installation". The skogfleck report doesn't go in depth surrounding the meaning, nor the actual implementation of the installation. But it is part of a series of installations which "informs and prompts action", and "highlight functions and hidden aspects of the forest patch" (Øxnevad, Wolf and Ringdal, 2020, p.9). An idea for the meaning behind the string installation is to represent the root and mycorrhizal networks underground, in the soil, to represent it for human beings on the topsoil. Art installations can be different in form and meaning, but they can provide valuable signs of human intention and care in otherwise messy landscapes.

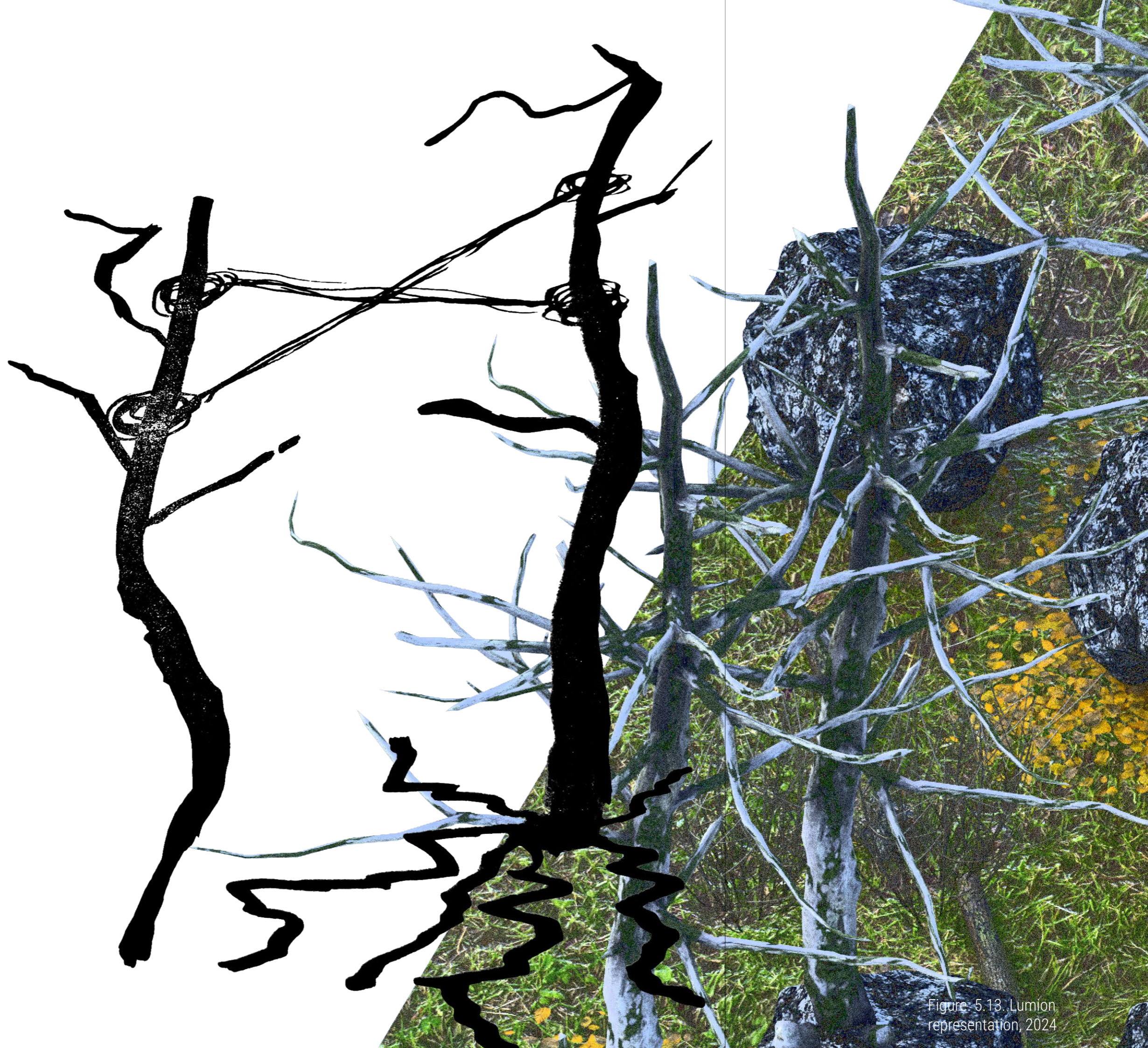


Figure 5.13. Lumion representation, 2024

#### CTC 4

#### Wildlife ornaments and physical signs

Wildlife feeders, bee hotels or bird houses are landscape elements or ornaments which signal care of live ecosystems through its presence in landscapes. Man will see a messy landscape, but with a construction of intent, man can understand that there is meaning in the landscape. These ornaments in particular are sometimes easy to make, or available to buy at local stores. The nature of these products and ornaments is to create habitats available for local wildlife, which can be important in an expanding and denser city environment.

Some of Nassauers relevant ques have now been presented and with them how one can make CTCs through maintenance. As an endnote of this illustrative section, I would like to look at a sign made by the urbexer or trainsurfer known under the pseudonym GIFGAS or Poison. In his film «Trainhopping across Georgia» GIFGAS encounters a neglected building used as shelter by individuals without fixed residence. When leaving this building GIFGAS leaves a package of food for the individuals residing there. But as he stated, "people will think its trash", so he made and left a sign saying, "FREE CHEESE" (GIFGAS, 2024, m.34). Whilst it is maybe not relevant to hidden ecological quality, I do believe that this sign can be viewed as a sign of human care amongst all the neglect, and with this sign people may understand more easily that there is quality behind it, or simply food available. This is a reminder for making CTCs, that it should be read easily, that human care should be in the midst of it and that quality has to be represented.

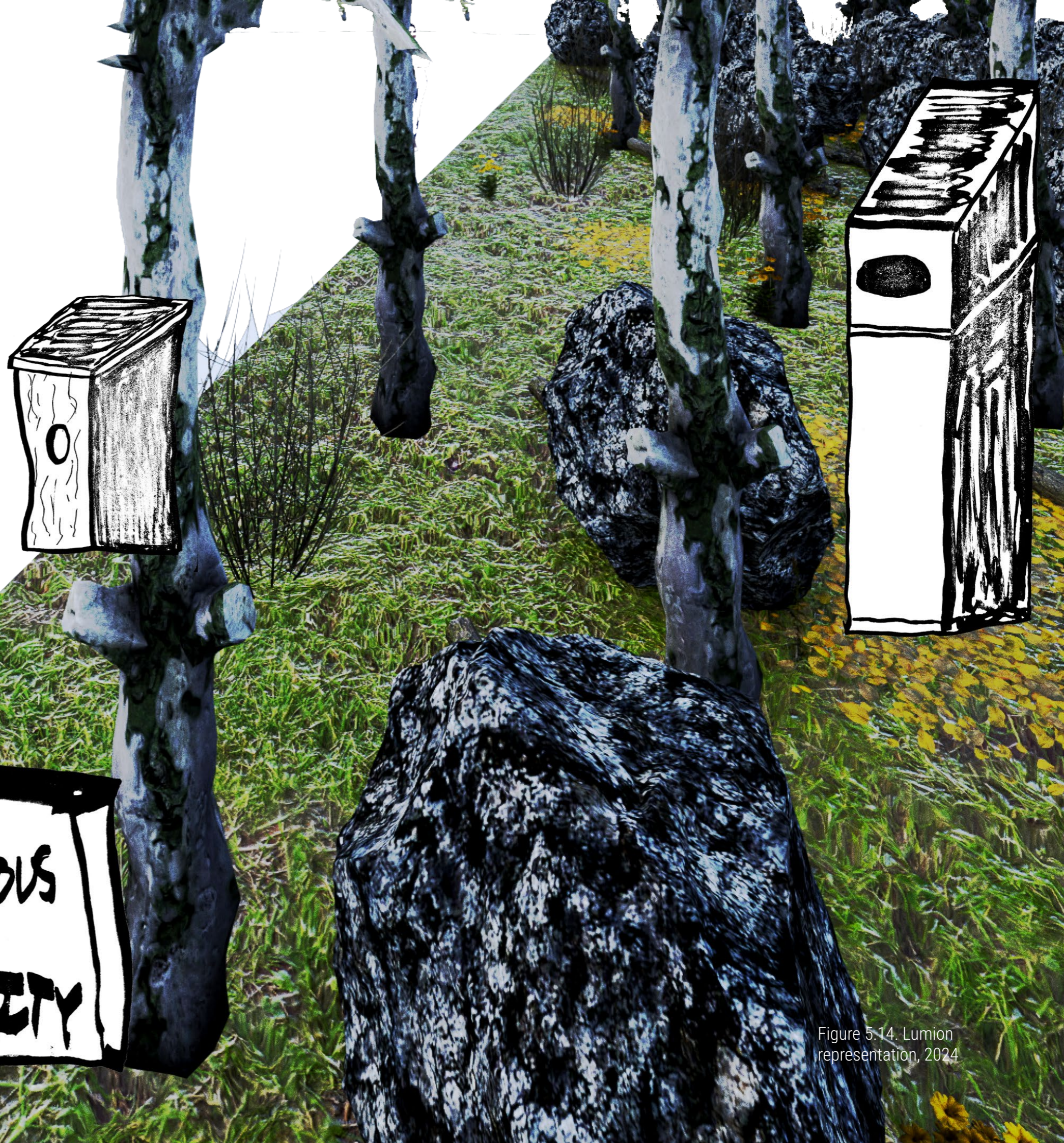


Figure 5.14. Lumion representation, 2024

## Found CTCs

The intention of this subchapter was to show and represent some relevant CTC from found literature. I wanted to show some of these interventions illustrated, but this wont be possible to do it with all found CTC. Therefore I wish to summarize found CTC in a list made in Excel, where authors of different CTC are referred to. This list has it origin based on Nassauers and Lis review from 2020, with other authors implemented in it:

Nassauer's and Li's found CTC
Michael Geffel
Fackel's found CTC
Skogfleck report

<b>Mowing/ mown turf</b>	Mown strips
	Mown lawn
	Mowing
	Mown pathway
	Zamboni mowing
<b>Structures</b>	Fences
	seating, play ground, and other recreational facilities
	buildings and infrastructure
	Trashcans
	structures in general
<b>Straightness</b>	Trimming / Pruning
	Straight rows of plants
	straight lines, rectangular shapes
	Straightened streams
<b>Vegetation type</b>	Colorful flowers
	Trees
	Horticulture species
	Native species
<b>Planting style</b>	Conventional layouts
	Bold patterns
	Plant masses, group or blocks
	planters or planting beds
	simple plant structure

Figure 5.15. Author Lists, 2024

<b>Neatness and order</b>	Weeding or absence of weeds
	No litter/trash
	Fallen but placed trees
	General neatness
<b>Non-mown pathways or pathways in general</b>	Non-mown pathways or pathways in general
<b>Signs</b>	Signs
	Information boards
<b>Patch delineation</b>	Crisp edges
	Borders or buffers
<b>Management practice</b>	Plants removal (invasive plants)
	Human presence
	Special treatment (Soil management, flood control)
<b>Wildlife accommodation</b>	Wildlife feeders
	Bird boxes
<b>Land form</b>	Landform
<b>Lawn ornaments</b>	Lawn ornaments
<b>Other</b>	Aesthetic techniques
	Vegetation coverage/greenness
	Art installation which informs and prompts action
	Artwork

# 6.RESULT CHAPTER

This chapter presents the findings from used methodologies: document analysis, semistructured interview and observation to answer RQ's.

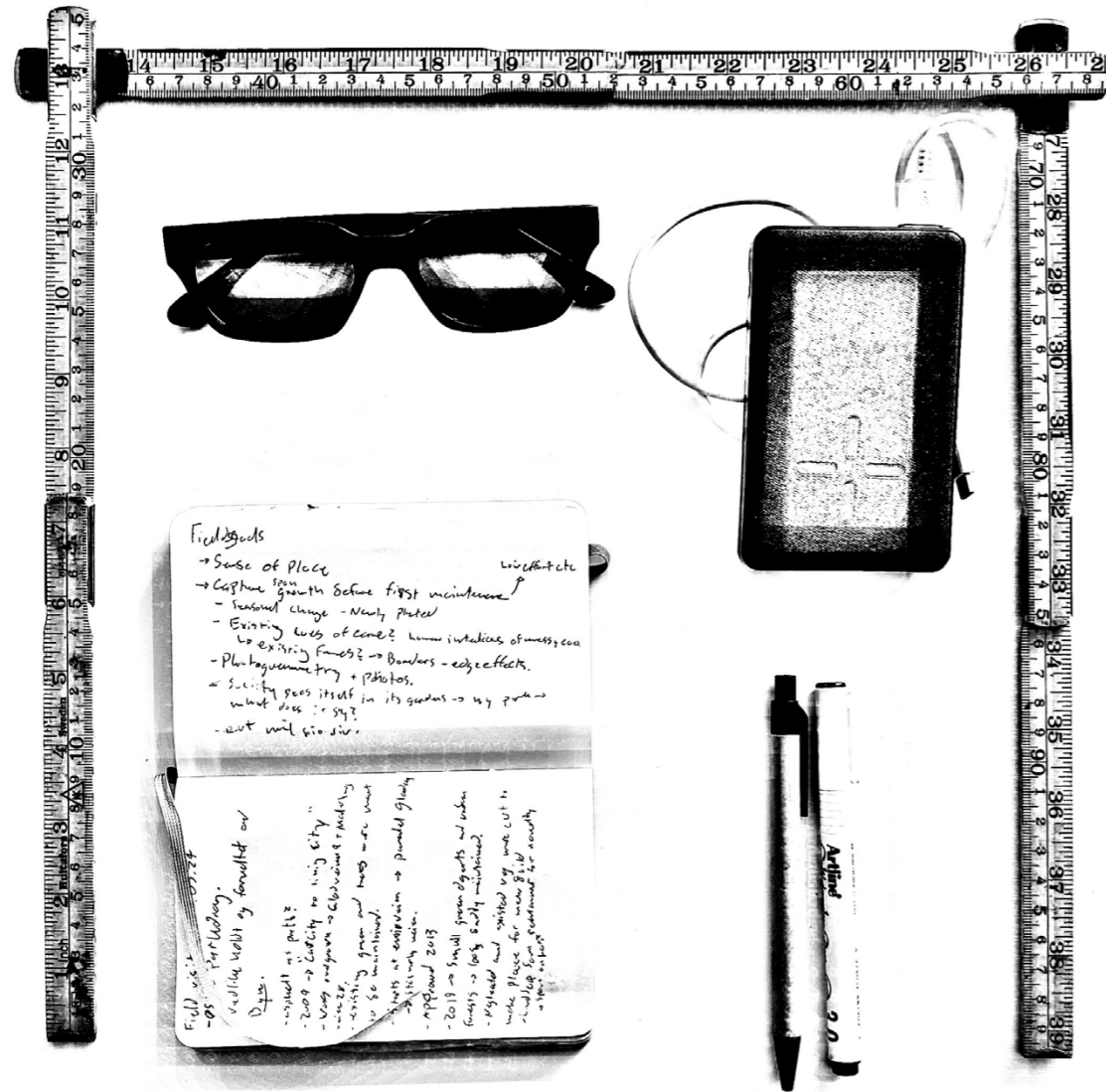


Figure 6.1. Intro picture to result chapter, 2024

## Subchapters

Document analysis

Semistructured Interview

Observation

The question of how CTCs can be used to improve ecological quality is the leading question of this research. As gathered, chosen CTCs must fit in an area's landscape care language, which can be done via landscape elements or ornaments, or via maintenance. To aid the literature review, three distinct research methodologies were used. Firstly, document analysis and a semistructured interview were conducted to gather data on the existing landscape maintenance practices and the landscape language in Oslo, Norway and NMBU. This information is crucial for integrating the CTC identified from both literature and empirical research onto Østre Parkdrag. Field observations were also carried out in Østre Parkdrag to identify existing CTCs and to find suitable locations for testing some relevant CTC.

## Document analysis

The document analyzed to research the current landscape care practices in Oslo, Norway was the Operation and Maintenance Performance Description used by the municipal department where I had my summer job. This document covers the city's green infrastructure, relevant for an area of 1,435,000 m<sup>2</sup>. It was selected for its relevance to addressing the sub research question concerning the landscape care language in Oslo. Obtained during my time working at the municipal department, this document was an important tool actively used by myself and my colleagues to validate, monitor, and report on the municipal green spaces. It provided essential guidelines outlining the expected standards for maintenance work, and also served as a reference for other landscape care providers to ensure consistency in maintenance practices across the city. Reports were written on inspected properties to discuss whether the maintenance activities met the municipal goals for green standards as outlined in the document. These guidelines were the cornerstone of all relevant maintenance practices within this municipal department.



Figure 6.2. Frontpage of document (Anonym, n.d)

The document has different chapters where the first is 1) General about the mission, 2) General requirements, 3) maintenance of outdoor areas – fixed execution, 4) evaluation of trees – fixed execution, 5) additional services, and 6) Tables ZK5 and ZK6 – Complete quality classes for green facility management and guidance.

In chapter 2, the objective for the maintenance agreement in focus is defined, and it is made clear that municipal facilities should appear arranged, orderly, and safe for all users and the facilities local environments. This is done through the particular maintenance means and techniques of suppliers. One can then understand that the overarching care signal in Oslo may be the same Nassauer found in USA and South America, as human presence through neatness and order.

Chapter 3, 4 and 6 are more specific, with maintenance and assessment requirements on both green facilities and trees in the Oslo area. Regarding the municipality's outdoor areas, clear guidelines in the form of rules for management are established:

**Grass Heights:** For lawn areas, the height should be between 50 to 110 mm, while peripheral areas can have up to 140 mm, made into the form by edge trimming. It is also specified that the edging should have precise alignments.

**Weeds:** For lawns, a uniform appearance is required, where some weed presence is tolerated. In beds, the area should be nearly weed free. Weeds should also be trimmed or heat-treated seasonally along curbs, facades, fences, and other structures.

**Leaves:** Leaves should be removed during the leaf-falling season, from October to December. Accumulation of dense layers of leaves on lawns or other surfaces should be avoided.

**Annual Maintenance:** Plants should be cut back in the spring, and throughout the growing season if they lose their ornamental value. New shoots should be removed once per season. Shrubs should also be pruned, with dead and damaged branches removed annually after the winter season.

**Maintenance Classifications:** Maintenance is also classified through a quality scheme where 1 is very well maintained, 2 is well maintained, 3 is moderately well maintained, and 4 is less well maintained. Most of the work outlined here falls into category 2, where these areas are maintained every 7 days. However, maintenance of leaves and weed management on paths, edges, and other structures falls under category 1, requiring more frequent attention than every 7 days.

To get a more objective and correct assessment on Oslo's care language one can possibly analyze more maintenance plans and guiding documents. One could possibly also cross examine the maintenance plans for different cities, especially if one of the other places are known for more dynamic and alternative forms of maintenance, which result in higher ecological quality. Although this is only one document, the overarching goal of order and attendance is meant to guide the maintenance of an area of 1435000 m<sup>2</sup> in Oslo and can therefore be viewed as relevant.

## Semistructured Interview

During the interview with the current park manager of the NMBU Campus the current landscape care system of Norway, Oslo and NMBU were discussed. In the start important background information were shared to contextualize his role in NMBU. Here it was made clear that the Park Manager had responsibilities regarding maintenance operations and the developments of the outdoor areas of NMBU campus. The identity, values, and philosophy of the NMBU campus is based on environmentally friendly maintenance, and the park is linked to education and research. Therefore, the park's ecological value must be maintained in a correct way. Regarding the current landscape care system and maintenance regimes of Oslo, it turned out that the NMBU park manager had previously been a park manager in Oslo, and therefore he had good knowledge of the context in question. In contrast to NMBU, Oslo has much larger areas that requires maintenance, and larger budgets, but the larger areas lead to a general lower quality of maintenance work on Oslo's landscapes. Furthermore, the gathering of Oslo's many large parks, and green areas are mainly focused to achieve and work towards bettering public health of Oslo inhabitants and residents.



With the current maintenance system, Oslo's infrastructures are meant to look respectable, but there is no or little focus on plant collections and diversity. Yet the park manager also states that there has been a shift in Norway during the last decades. A big change can be seen regarding the lawn, and how this can be called a desert. And the acceptance of green infrastructures that aren't very well groomed has gotten bigger. But the park manager argues that that doesn't have to explain why grass aren't being cut and why foliage isn't being picked up. The park manager also states that the maintenance system is meant to lead to prettiness, as Norway has a distinctive climate, with many seasonal changes. The time window where we can sit outside and enjoy the sunrise is limited, and it leads to a bigger need for areas to be pretty. The Park manager looks towards Sweden and Denmark and sees some contrasting differences, as they move towards more constructed landscapes, but the population of Norway is more used to the natural landscape, which leads to another view on nature, and perhaps a different frame. Furthermore, the common practice for new landscape designs with the focus on trees and plants is to root cut trees and plants, which is an artificial way of producing urban nature. The Park manager states that this is lightweight, fast and cheap, and does not provide the best plant quality, nor ecological quality.

#### The CTC of NMBU

In exploring the existing CTC at NMBU, I rephrased questions to identify examples of the most used CTCs on campus. The park, which is well maintained, can be viewed a large CTC, as it represents a large scale demonstration of human care and intent. According to the park manager, certain deliberate features contribute to its aesthetical look and helps make it a preferred landscape. One such feature is the precise maintenance of edges along borders, walkways, and roads across the entire campus. The park manager states that well kept edges suggest that the areas within can tolerate greater ecological richness. However, he also noted a downside where this method of edge cutting can sometimes be environmentally non friendly.

During our discussion, a new CTC emerged related to these edges were talked about. The gradual transition from manicured lawn to more spontaneous vegetation. It works as a kind of vegetation fade and can lead to more diversity in the areas that are more naturally growing. Another signifier of care on campus is the preservation of existing trees, some of which are historic. Additionally, the maintenance of leaf foliage was highlighted. NMBU expends lots of resources on collecting and removing fallen leaves. Recently the park manager mentioned, that there has been a shift toward crushing more of the foliage to minimize waste. Which is seen the opposite of what Oslo is doing. However, they are increasingly allowing leaf assemblages to decompose naturally, which fits with more sustainable landscape management practices.

#### Observation

The observation method was used twice to gain a general understanding of the park's areas, as well as to 1) identify the more complex vegetation areas within the site, and 2), detect any existing CTCs. The observation routes included two different paths and were selected to experience more of the park through multiple angles. Route 1 was more randomly chosen than Route 2, as an opportunity arose to pass through an active construction area via an opening in a fence and this was done in collaboration with Magnus Simonsen. Route 2 was more planned and specifically aimed at finding "messy" areas within the park and any potential CTCs that could be used in later chapters. Using the observation method, I was able to observe the "messy" ecosystems, habitats, or areas in Østre Parkdrag. These areas are interesting for the project as they can be chosen and tested at through the CTC proposal chapter.



Figure 6.3. Trail map, 2024



Figure 6.4. Found sites, 2024

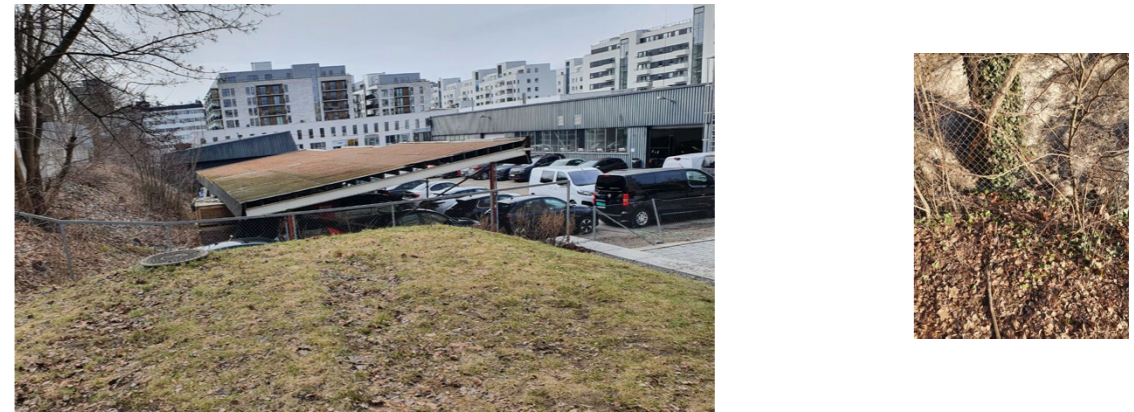
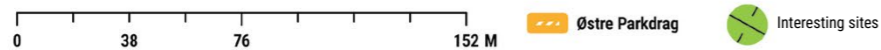


Figure 6.5. Collage, 2024



The park's green spaces start from Stålverkveien to the north, which also is the starting point for both observation routes. A pathway cuts through this land, flanked by lawns and water infrastructure on opposite sides. It was here that the first cluttered area was identified. This habitat is placed on a slope at the border between the public site and a private area, descending towards a fence that separates these areas. Characterized by reduced maintenance, this area allows for the addition of weeds and bushy plants, contrasted with the intended lawn on the top of the slope. The lawn itself consists of both constructed lawn areas and adaptive plant species, with some spontaneous tree growth around the edges of its area. Notably, it is along the with adjacent fences that the most noticeable unmanaged growth is found.

Observed site - 2



Figure 6.6. Collage, 2024

The other complex habitat is located as the park's existing urban forest patch, which is characterized as a larger area of current Østre Parkdrag. This is an urban forest patch with a mix of remnant tree vegetation and new adaptive sprouts. Site 2 appears cluttered due to the density of new tree vegetation, where a mix of species grows together. Leaves are present on the ground, and due to the density, people must use paths that are already made in the areas. There is also a lot of garbage in these areas, especially in the outer zones down the slopes of these habitats. This area also feels cluttered because human intention in the landscape seems to be absent. There is no recreational value found here, other than greenery, and without the human paths this area would probably not have any human usage.

Observed site - 3



Figure 6.7. Collage, 2024

Site - 3 is a type of border area located between the urban forest patch and a maintained and fairly monocultural lawn. Within this peripheral zone, more spontaneous vegetation and longer plant growth can be observed, which can seem cluttered, especially in contrast to the nearby lawn area. This patch is interesting because there has been efforts to make this area framed with a circular lawn pattern. The problem is that it doesn't seem to work, the freer growing vegetation goes over border zones and it results in disharmony. I also think this area is interesting because of the lawn areas, here one can test alternative maintenance to increase ecological quality.

### ***Østre Parkdrag - found Cues to Care***

The Cues to Care identified along the observation routes may be crucial for the alternative proposals to the site's more complex ecological areas. The presentation of these localized CTCs follows the route order starting from the point described in the previous paragraph, nearby Stålverksveien. These CTCs are more subjective since they were discovered and analyzed by me, however, using Nassauer's definition, that deals with human presence and intention in the landscape, made it possible to identify CTCs. The presentation is a mix of existing CTCs found in the literature and new ones discovered by me.

### ***Stone Ornaments***

The rectangular stones are the first CTC found in the park, positioned at the starting point of the entire park area, and at the end of it. In the literature, Nassauer discusses a point under neatness where lawn ornaments or architectural details are listed as CTC. These stones fulfill the CTC's intention in terms of human presence and order in the landscape. They are also rectangular and stand in contrast to a more dynamic or natural expression of design. Furthermore, they are placed in a curved line that follows the boundary between the park and the pedestrian area close to roads. While they may not have the greatest potential for enhancing ecological quality, closer inspection reveals microhabitats for lichens growing on these stones. The rectangular shapes remind me of kinds of CAD design.



Figure 6.8. Collage of photogrammetry, 2024





Figure 6.9. Collage of photogrammetry, 2024



### Manholes

Circular shapes is also present at the initial landscape of Østre Parkdrag. These remind me of the rectangular stones because their presence indicates human intention and engagement in the landscape. They could potentially complement the stones as architectural details, but they are not a typical type of lawn ornament. They serve a different function, which I believe distinguishes them from the literature. This might be the only localized CTC I have identified myself, which could possibly bias my interpretation of its significance as a CTC. Nevertheless, I feel that the presence of manhole covers in the landscape indicates human involvement through elements and our extension into water systems, which the manhole cover symbolizes. Design elements can also be observed on the cover, where a simplified figure found on Oslo's municipal coat of arms can be seen. Whether care can be associated with the manhole cover is uncertain, but by integrating the function of the manhole cover into the landscape, one might blend water care with landscape care. An idea is to let this element cooperate with other types of maintenance CTCs.



### Pathways

Paths in Østre Parkdrag are shaped by humans and serve as a cue to care through their demonstration of intention and accessibility. Without the path in certain landscapes, there likely wouldn't be any signs of human intention. The path activates the area for human traffic, defines boundaries, and almost acts as a frame between the human made and the more complex and natural. What it really signals is human presence, as it is designed for use and makes it easier for us to navigate. However, I am not certain if the path can be classified as a cue to care, but with the aid of other landscape maintenance interventions, it could potentially be transformed into something more.



Figure 6.10. Collage of photogrammetry, 2024





Figure 6.11. Collage of photogrammetry, 2024

### ***Fallen, but placed wood***

In her writings on localized cues to care in Sweden, Fackel highlights the concept of fallen, but strategically placed trees. A similar phenomenon is observable in Østre Parkdrag, where in certain areas, branches and trees are intentionally grouped together. While such formations may not stand out very much, as many parts of the urban forest patch randomly has branches and trees, the deliberate grouping in specific localities clearly demonstrates human neatness, intention, and even care. This approach can also be seen as an alternative method for landscape maintenance, which contrasts the common practices in parts of Oslo where dead branches are removed, as seen in the document analysis. By allowing dead wood to remain, we embrace the idea that "there's life in dead wood".



### ***Circular lawn patterns***

The last CTC discovered at Østre Parkdrag can be found near Site - 3. The vegetation here is spontaneous and seemingly disordered, but is neatly locked in by circular mowing. This design element respects the vegetation by framing it in such a way that it shows human intention and care, drawing attention away from the "mess" of the vegetation. However, as noted in the previous subsection, an issue arises when the vegetation begins to grow through the circle, challenging the neat boundary established by the circular mowing.

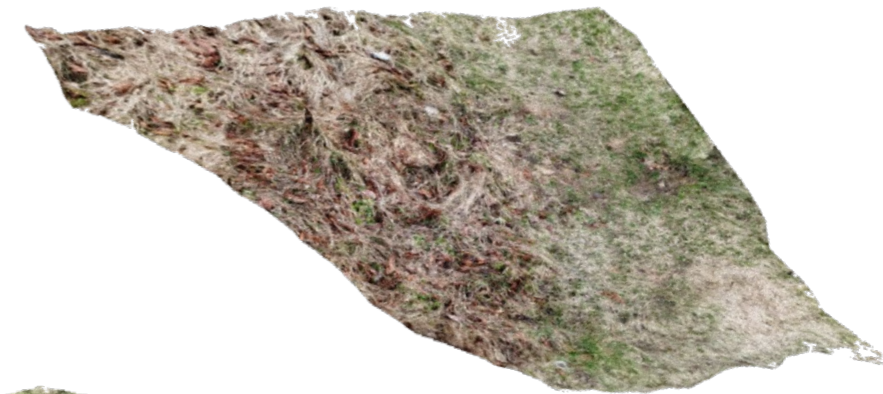


Figure 6.12. Collage of photogrammetry, 2024



# 7.CTC PROPOSAL CHAPTER

*This chapter is meant to answer sub RQ 1 and 2 and represent what eventual CTC's may fit within some areas of Østre Parkdrag.*



Figure 7.1. Intro picture to CTC proposal chapter, 2024

## Subchapters

Intro

What kind of CTC fits in Oslo?

Proposal

## Intro

The aim of this chapter is to identify appropriate Cues to Care for Østre Parkdrag. Before selecting and representing suitable CTCs, the data presented in the literature review section, as well as findings from other methods, must be analyzed and discussed. The first and second sub-questions of the research question are intended to be answered in this chapter, as they were formulated and chosen to guide the landscape care methods and design that is suitable for Oslo and Østre Parkdrag. They are as follows:

- What is the current landscape care language in Oslo, Norway, or the landscape care outcome preference?

*The question aims to identify Oslo's landscape care language, as this is the language that CTC elements and maintenance must align with to be accepted by the population of Oslo*

- What Cues to Care of Østre Parkdrag fits its locality, and how can it visually be represented or manifested in the landscape?

*This question aims to illustrate what characterizes appropriate CTC in Oslo, and how these can be represented in the landscape. This question activates the illustrative direction of this thesis.*

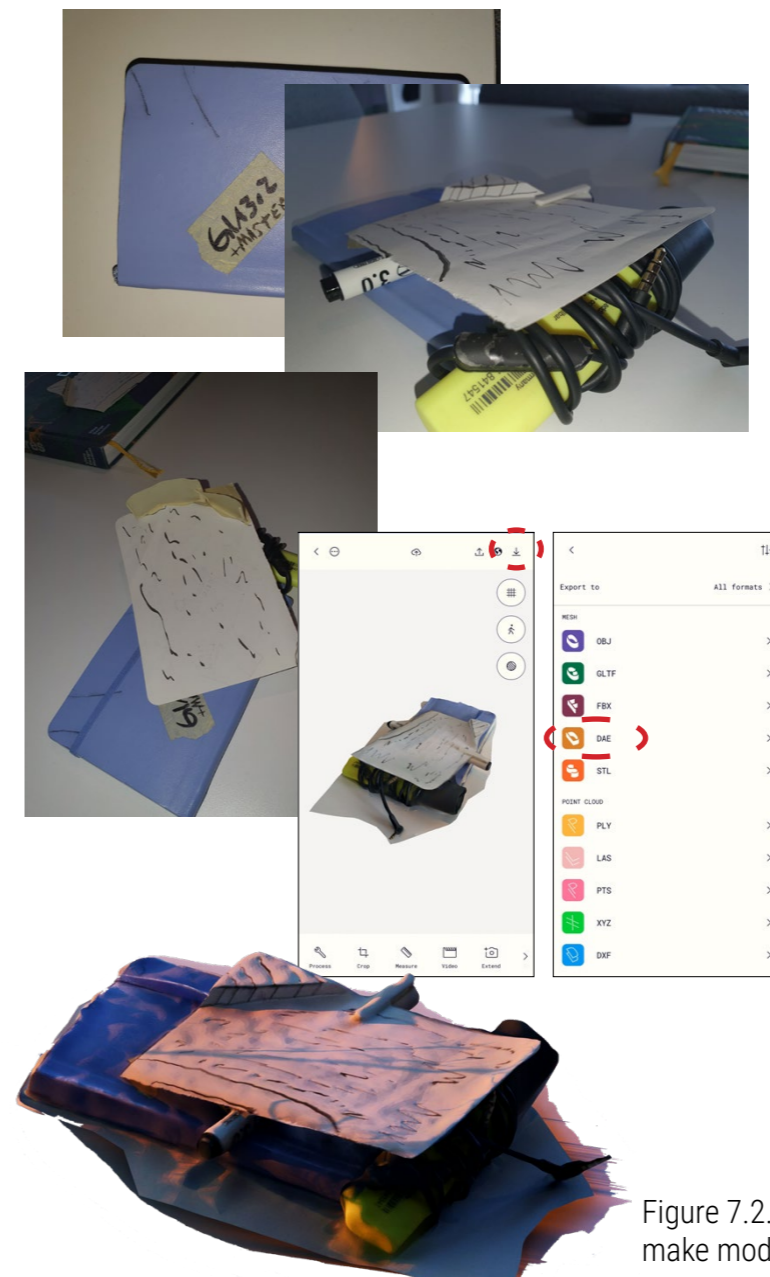
## What kind of CTC fits in Oslo?

What appropriate Cues to Care or signs for landscape care can be used in Oslo, Norway depends on the local population's expectations and preferences for their outdoor spaces. The literature review section made it clear that ecologically high-quality assemblages often appear messy to people, and that ecological quality in urban environments is most often found in spontaneous or adaptive vegetation assemblages. Furthermore, Nassauer clarified that ecological quality needs to be framed within a familiar form system. In North America, this system is as seen based on neatness and order, which are interpreted by people as signs of human intention and presence in the landscape. In other words, messy vegetation must be framed in a way that aligns with what Nassauer describes as the romantic picturesque, a landscape that focuses more on beauty and cultural expectations than on ecological quality. The subsection "What do the people of Oslo prefer?" discusses how Nassauer conducted other studies on landscape preferences, showing that many countries prefer neatness in landscapes and that this as an indication of attractive landscapes. This seems to be true for Oslo as well, as indicated by the document analysis, which revealed that the general goal for managing outdoor spaces in Oslo is to maintain facilities that appear well kept, tidy, and safe. This suggests that parts of Oslo's landscape are managed in a style that aligns with Nassauer's description of neatness and order. This finding is consistent with an interview with the park manager at NMBU, who previously managed parks in Oslo. The literature section explains how Nassauer, Sutton, and Ernwein interpret today's design and maintenance regime as standardized, flawed, and characterized by a type of domination over landscapes. This domination leads to clarity and simplicity, suppression of weeds and other unwanted species, and maintenance remains effortless. This is important to consider because these approaches create the cultural nature Nassauer writes about, characterized by landscape care that promotes neatness and order. The interview with the park manager revealed that certain things from the literature align with practices in Oslo, where much of the maintenance work, planting, and design are standardized to meet the needs of Oslo's population from a public health perspective. It was also made clear that ecological function has received more focus in recent years, as lawns are now referred to as "green deserts" within planning and maintenance circles in Norway. However, the findings from the interview suggest that the same methods are used to is used in Norway, which indicates that Oslo's landscape care language also relies on neatness and order. But as seen in this interview this neatness may be another than seen neatness in Northern America, as the Park manager sees that areas don't need to be well groomed to inhabit prettiness.

Therefore, one could argue that cues to care located in complex vegetation systems should be based on the same principles. CTC should indicate human presence through elements or maintenance techniques that promote neatness and/or order. And because of the findings from the interview one can afford to have CTC elements and techniques that results in landscapes which looks less well-groomed as the public acceptance of such areas have gotten better with time. This can be implemented in various ways at the test location to show how these CTCs can be implemented in Oslo.

## Proposal

Now that the appropriate landscape care language has been identified, one can select specific elements that support the goal of enhancing ecological quality through the use of CTC. This project marks my final work as a student, and I have desired to use this last period to explore my creativity. My advisor suggested that I could build models to represent the physical spaces of Østre Parkdrag, as the terrain and topography has many unique characteristics that are well-suited for representation as models. Throughout this task, I have utilized photogrammetry as a resource because I find the models it produces to be interesting, representative, tangible, and offer a way to experience entire areas differently than pictures can take. With this in mind, I have decided it would be interesting to represent the proposal areas as models made with photogrammetry. As this approach will allow me to effectively show the relevant areas and the interventions in the existing terrain.



Throughout my master's program at NMBU, I have used my blue notebook the entire time. It has been with me to Germany and England under the direction of GLA courses. Previously, it was used to capture quotes and lectures, as well as to make quick sketches. When my advisor recommended that I create chunky and possibly more abstract models, I had to think a bit about how. After some thinking, I realized that the notebook's paper was somewhat see through, allowing for the direct tracing of accurate cartographic details. I tore out a page and experimented a bit, finding that this method works well. The paper can also be shaped in such a way that the distinctive topography of Østre Parkdrag can be represented with the help of other elements like pencils, powerbanks and wires, then it could be modeled. The picture section shown in Figur 7.2 is meant to show how to do this process, where you first make the models, with different forms of material. Then scan the model with photogrammetry. Then export the model as a DAE and then import the model into Lumion, where it can be altered.

Figure 7.2. Illustration to show how to make models, 2024



**Reference illustration**

This illustration is meant to show where each CTC test zone is located.

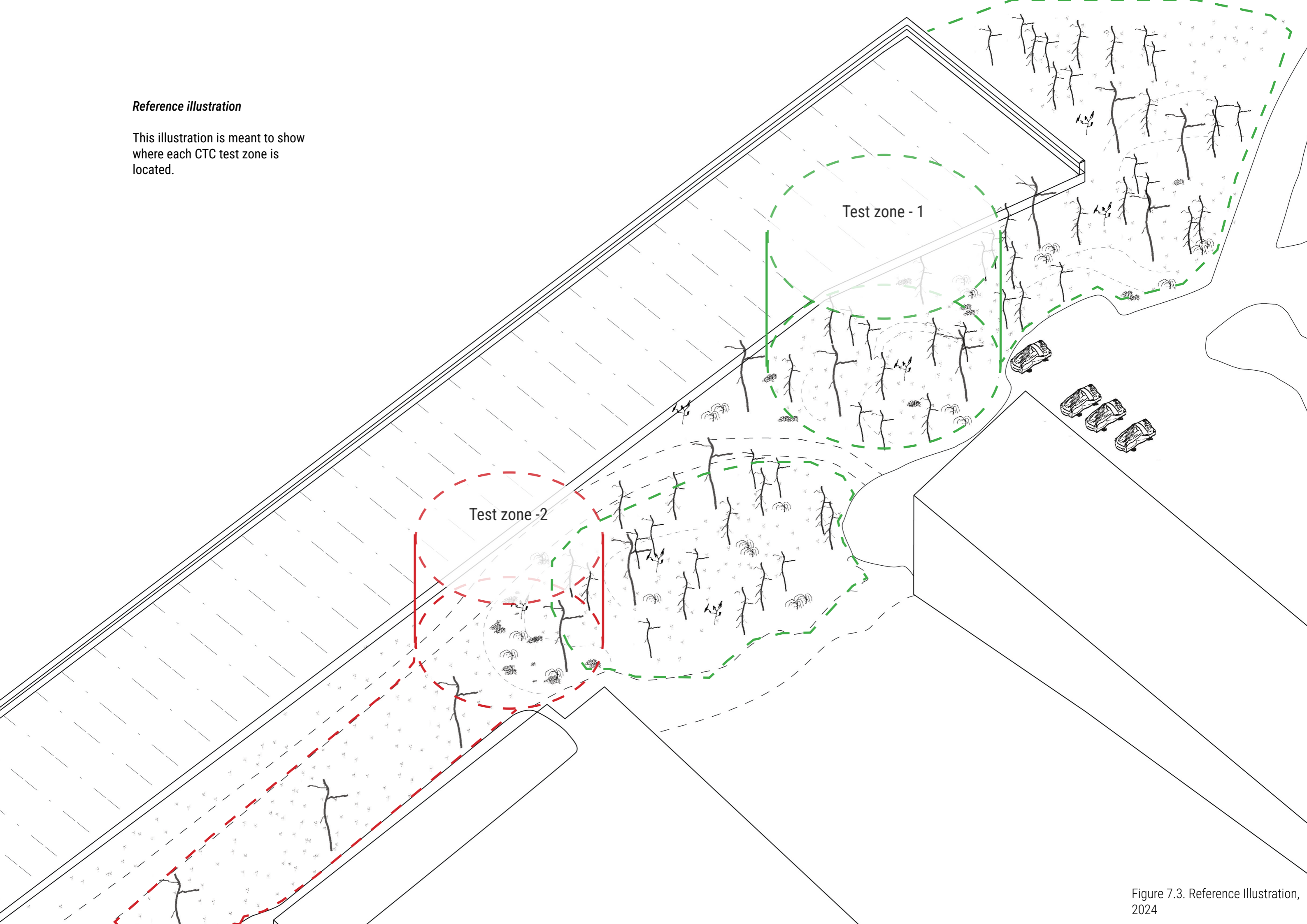


Figure 7.3. Reference Illustration, 2024

### Test zone - 1 model and CTC

This is the first Cue to Care displayed digitally on the photogrammetry model representing test zone - 1 at Østre Parkdrag. By utilizing the surrounding branches and vegetation of the area, one can create a type of small fence or an element that indicates intention and neatness in the area. This CTC was chosen for the area as it is located in an existing urban forest patch and includes a mix of remnant and adaptive species as shown in Egeland's research from 2020. Furthermore, its written about in the literature, where the Skogfleck report example serves as an inspiration for this CTC, as it is relevant not only location based, but also regarding the type of habitat the Skogfleck report focused on. One must use what is available, and what is noticeable in this habitat is the forest, the trees, and the branches. Therefore, it was natural to use what was found in the area as an example as a CTC element, with alternative maintenance techniques where, instead of removing loose branches on the site, they are sorted and gathered along the path leading in the middle of the forest patch. The 3D model is intended to represent this and how it would and could look like at Østre Parkdrag.

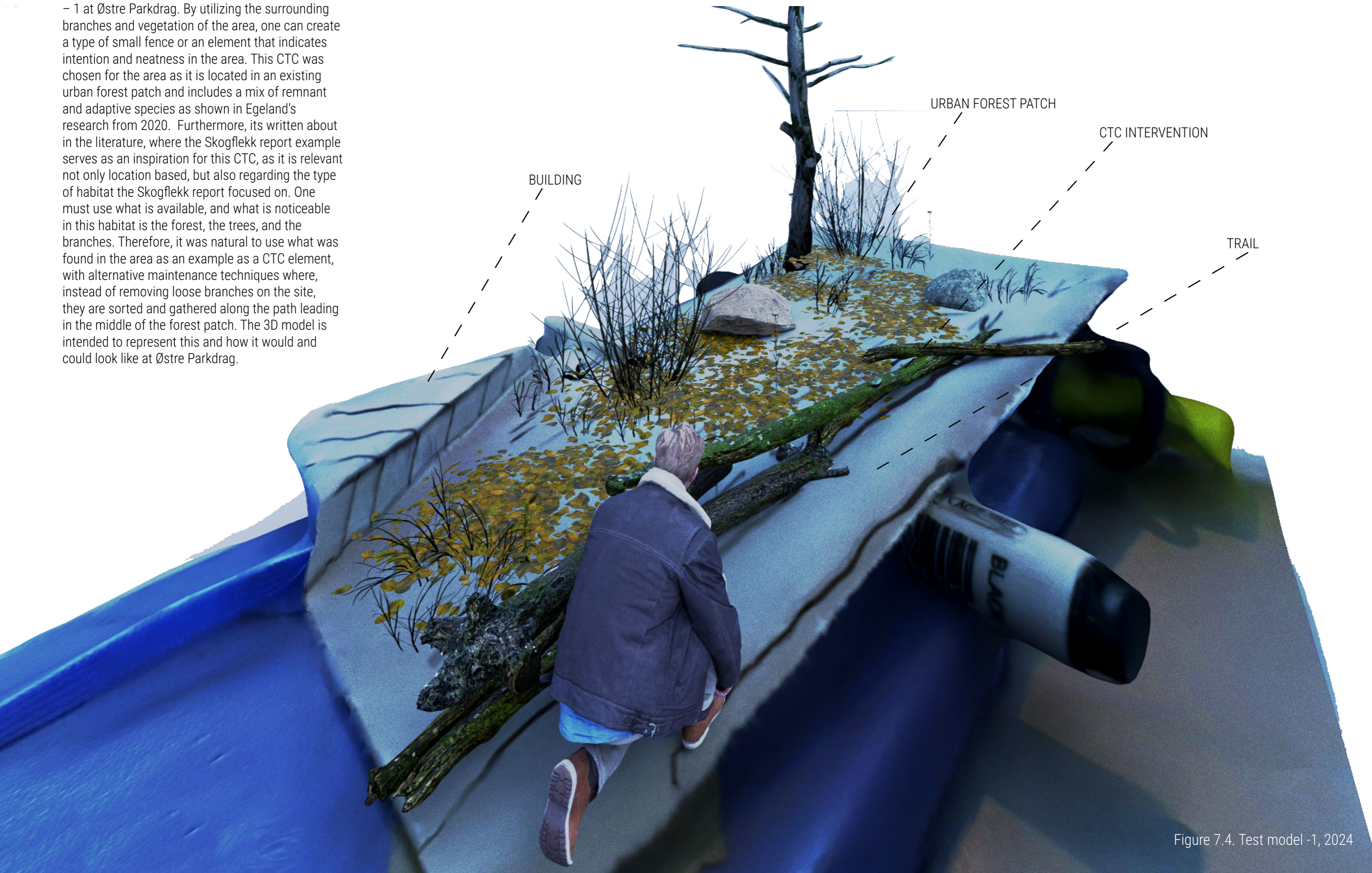


Figure 7.4. Test model -1, 2024

### Test Zone - 2 model and CTC

This is the second digital model based on photogrammetry, meant to represent the lawn areas south in Østre Parkdrag, as shown in Figure 7.3. This area was chosen because the lawn has been a significant focus in this project, given that it is a monocultural system that can and should be improved upon, and is the biggest indicator of humans in landscape care regimes. This fits with observations done at Østre Parkdrag. In the literature review, Geffel's solutions and techniques for creating dynamic ecologies on lawns and other habitats, leads to results in a single growing season. There are several methods to do this, as long as the mowing practices outcome is systematized so that it is unmistakably intended. Geffel highlights Zamboni patterns, but in this digital proposal, I have divided the lawn areas into a grid of three between the path and the road, and then implemented a pattern within these sections. Some of the grid cells are selected for more natural, free growing vegetation. This results in parts of the lawn grid becoming more natural and dynamic, creating what Geffel describes as different ecologies in a compact area. The goal of this design is to increase complexity in lawn areas while maintaining accessibility between the path and the road. This is also a maintenance method that can be adjusted based on the preferences of the people who use it, to increase acceptance and thereby, according to Nassauer, enhance ecological quality.

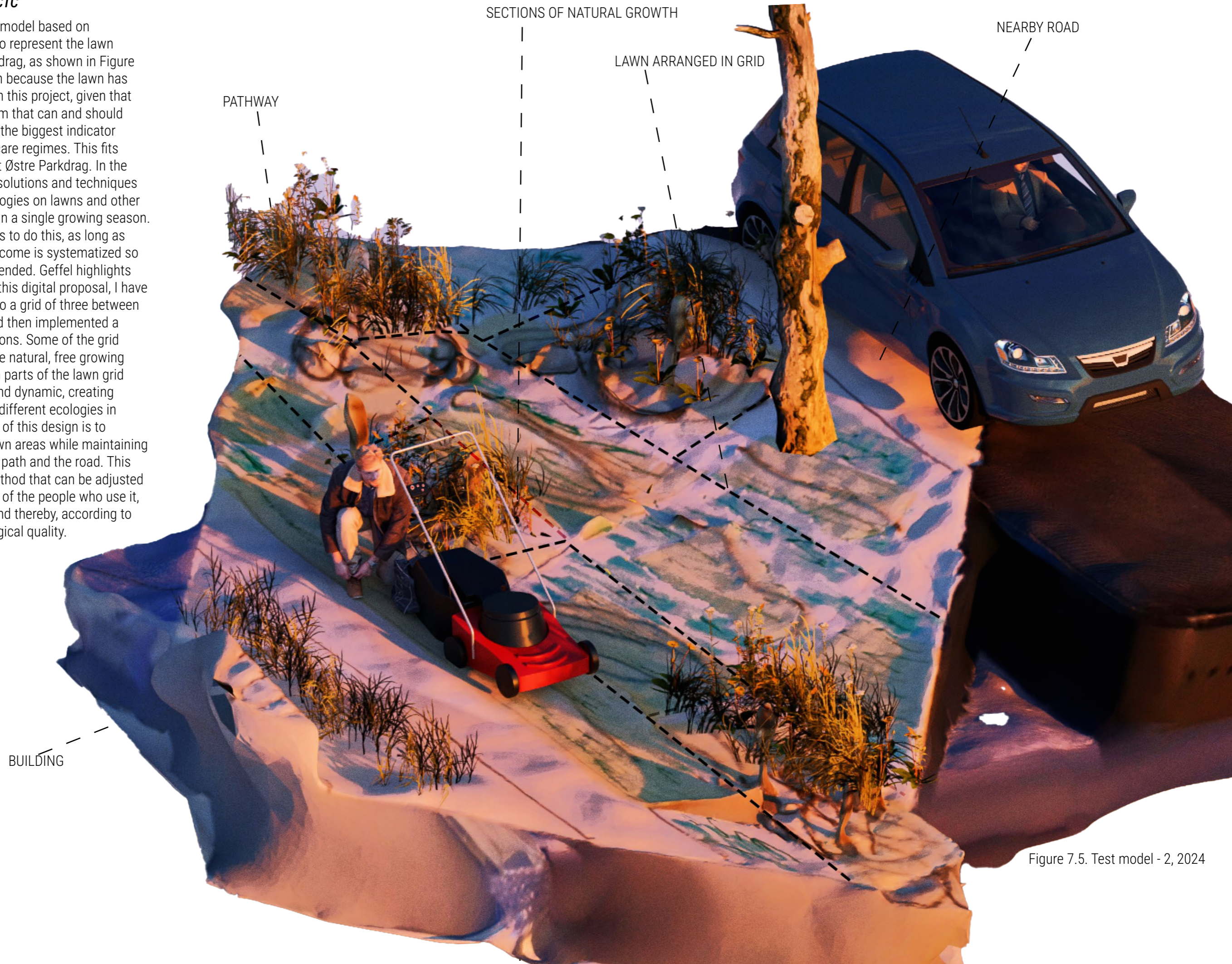


Figure 7.5. Test model - 2, 2024

Calendar of Care based on CTC  
 interventions proposed at Østre Parkdrag

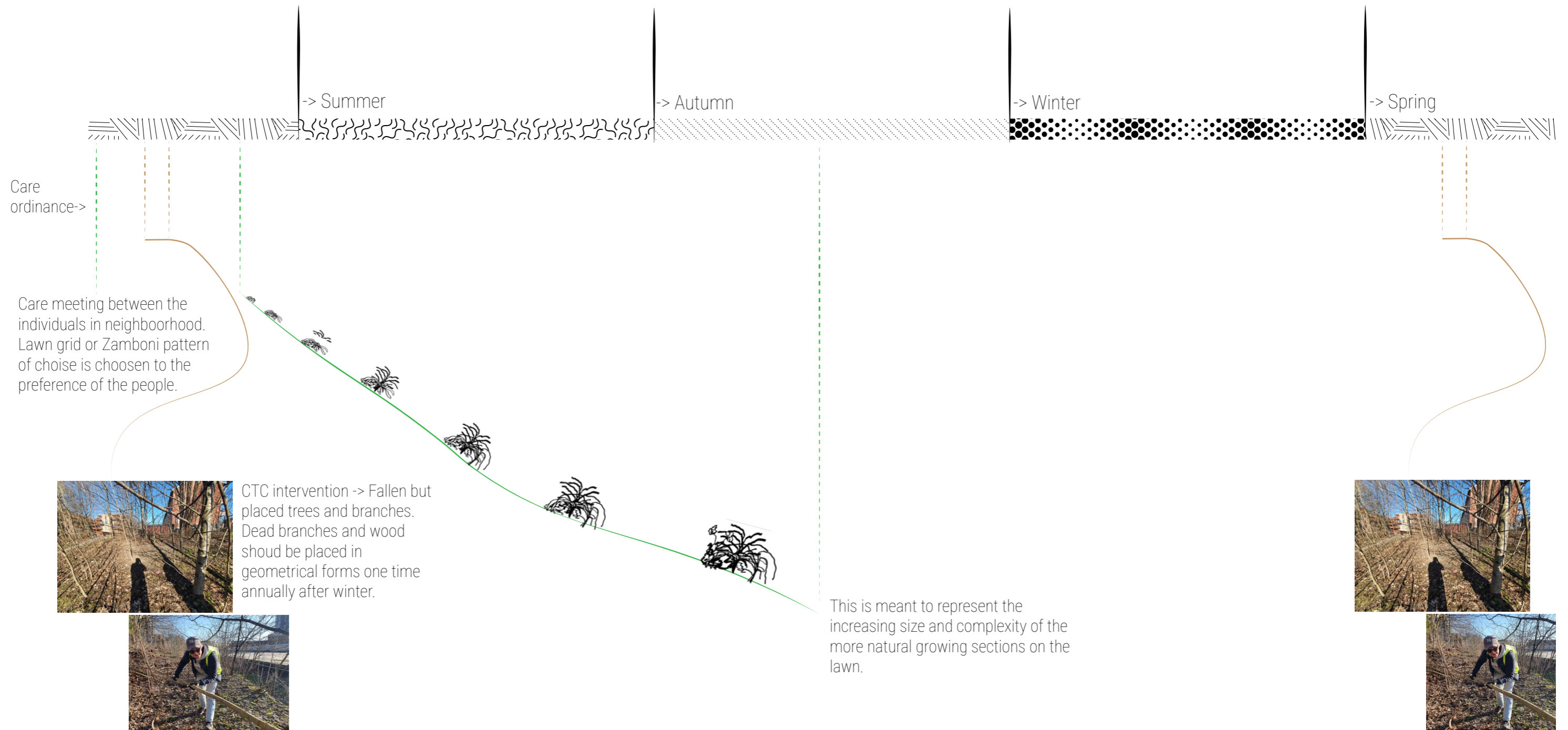


Figure 7.6. Calendar of care, 2024

# 8.ACTION RESEARCH

*This chapter presents the physical interventions at Østre Parkdrag, meant to show how individuals may make CTC's through action research.*



Figure 8.1. Visiting Østre Parkdrag, 2024

## Subchapters

CTC INTERVENTION - 1

CTC INTERVENTION - 2



Figure 8.2. Magnus walking towards test areas, 2024

During the visits to Østre Parkdrag, it quickly became clear that the test location's were well suited for representing and testing some CTCs not only digitally, but physically. By testing potential designs physically, one can observe and notice aspects that might not be apparent when merely illustrating landscapes or models digitally. Two interventions of CTC were conducted in Østre Parkdrag in test area 1 shown in figure 7.3, and here are the results and the physical interventions:

### CTC INTERVENTION - 1

The first implementation of a CTC was done during the first field visit with Magnus Simonsen on March 7th. This implementation was quite spontaneous, but it proved to be significant for the thesis as it was inspiring and provided valuable data that could be used further in the study. As previously mentioned, test zone 1 consists of an urban forest patch that appears to grow spontaneously. The path that separates two patches of forests serves as a CTC by indicating human presence, but it feels more like it is set up as a fast paced route through clutter and spontaneous growth, and that its care indication is not great. Magnus and I noticed a lot of wood in the form of branches, trunks, and twigs which added even more disorder within the habitat, where some were spread out randomly, and others were laid in a cluster together. An idea occurred to us to utilize these twigs and trunks which might have been removed from the Østre Parkdrag anyway. What about activating these since there is life in dead wood, and it may help create habitats that aid the ecosystem? Large trunks, taken from a cleared area, were placed along the path. By doing this, the wood is activated, and a human intention is implemented onto them, aligning the CTC with neatness and order as it frames the forest. By doing this one may also stop the removal of these trunks from the park, because they have a function, else they may be defined as fallen wood and should be removed as stated in the document analysis.

The work was simple, but rewarding. Magnus and I felt that we were perhaps overstepping our presence a bit in the neighborhood and the park, but we were met some friendly smiles as we carried the trunks to frame the forest. Once the frame was in place, the forest patch became more neat, and I could clearly feel the atmosphere change. This was constructed on March 7th and I did not have high expectations for this design to stay put for long, but on my next visit on April 9th, I was pleasantly surprised to find that the CTC element was still there. This doesn't have much empirical significance other than that no one disliked the intervention enough to remove it, but it still made me happy.



Figure 8.3. CTC intervention, - 1, 2024



## CTC INTERVENTION - 2

The second intervention was made in the same area and was again carried out with the help of Magnus on April 16th. This was less spontaneous than the first CTC implementation made. A thought struck me after we created the first CTC concerning the urban forest patch. Yes, we had framed the forest with the found wood along the pathway, but the forest was still the forest, still complex, still spontaneous. After, the idea was to use the remaining loose wood in the forest to again utilize it so that it wouldn't be removed during clearing or maintenance, thus creating signs of human care within the forest to make it appear tidier or more neat. One idea that came to me was to arrange these in geometric shapes amongst all the vegetation, creating human shapes within the forest floor that could perhaps make the patch appear tidier. This was done after the modeling shown in the previous chapter and allowed us to test the "fallen, but placed trees" CTC.

This time, unlike before, I had purchased yellow vests and gloves for myself and Magnus. With these, we felt more secure and comfortable in our role as forest caretakers. The intervention and design were relatively simple. We went back and forth to fetch wood and placed the wood in two lines within the forest. This shows that CTC interventions can be relatively easy to execute, incredible designs or hard maintenance are not needed to achieve signs of humanity, neatness, and order. After the design was completed, I checked it from various angles, and although it may not be as recognizable as the frame by the path, I felt that the forest appeared tidier, that it was not just another spontaneous forest patch but a forest patch with meaning, which may improve its public acceptance. Being there to see the CTCs working together was also an interesting experience since they are not far from each other. I felt that a theme framed the complex forest patch using the two CTC methods. I would like to give a big thank you to Magnus for his participation in this experimentation!



# 9.DISCUSSION AND CONCLUSION CHAPTER

*The ending chapter presenting, discussing and reflecting on the thesis mission, findings and proposals, ending with a conclusion.*

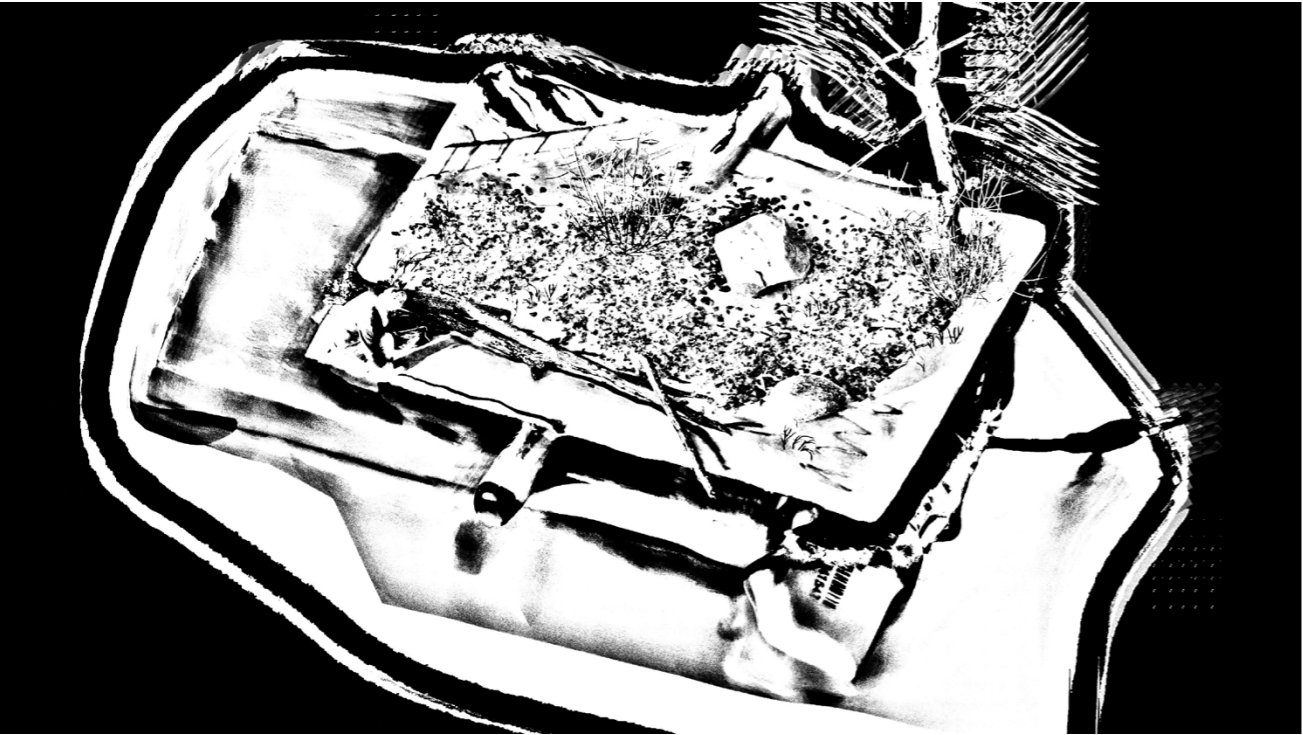


Figure 9.1. Scanned CTC model, 2024

## Subchapters

Discussion and reflection

Conclusion

This concluding chapter are intended to answer, discuss and reflect on the various findings in relation to the main research question asked in the thesis, and to reflect on the thesis itself.

*How can Cues to Care, tailored to specific locations, be applied to improve urban ecological quality and to gain public acceptance?*

## Discussion and reflection

Before CTCs could be selected and tested or implemented to enhance ecological quality in urban areas, with the focus being in Oslo, it was important to choosing the right type of vegetation. My thesis generally covered different vegetation assemblages, as I lacked the expertise to select specific species based on their needs and unique functions. The literature review's first theme was about where ecological quality could be found in cities, looking at the benefits of adaptive vegetation assemblages that include some remnant, but dynamic species and the many species that have arrived in urban areas. With often better properties to thrive in cities, this is clearly "the flora of the future." These vegetation assemblages are often characterized and seen as messy, neglected and forgotten, but are fundamentally complex compositions of species that resides in small and large ecosystems and habitats. Through Del Tredici's work and writings, we could see how many of these species are pre adapted to the urban environment, and are able to find new ecological niches and offering ecosystem services that help mitigate various anthropogenic effects like pollution, urban heat island effects, and biodiversity loss. Despite being called "weeds", a term with little meaning, but still used by current planning and maintenance authorities in Oslo as seen in the document analysis, the literature review made it clear that spontaneous vegetation holds possibly the biggest potential for increasing ecological function in cities. This vegetation requires less maintenance, thus reducing pollution, and allows cities to spend less money compared to constructed and remnant species assemblages, a point argued by Moore and Sutton in the theory and background section. A discussed dilemma about these adaptive species was regarding the risk of spreading over their new ideal city environments. This dilemma currently lacks a clear solution. Still, the research question in this thesis focuses on the urban context and after the literature review, we now know where quality can be found. The next question is how to utilize the potential of adaptive and spontaneous vegetation. Throughout the different parts of this thesis, Nassauer's concept of Cues to Care has been written about and tried digitally and physically to hopefully enhance ecological quality in Oslo. Although Nassauer herself did not specifically focus CTC on spontaneous vegetation, it turns out that her ideas of human frames and signs of intention can enable or help more spontaneous vegetation grow in cities, and therefore enhance cities ecological quality. Which is a dilemma, as some of these patches of life can be viewed as third landscapes, which Clement makes clear comes from the neglect of vacant land in sometimes urban areas, where great diversity resides. If these are modified, can you still call them third landscapes? I'm unsure, but the vegetation that this thesis wishes to "frame" is still adaptive, and still cosmopolitan.

The main research question which has driven this research is regarding the concept or theory of CTC and how this if fitted correctly with a landscape's care language or the landscape care preference of the public can increase ecological quality in cities. Through the use of CTC as maintenance techniques and ornaments, these complex systems can be framed in such a way that neatness and order can be achieved. This can be done in many ways, as seen in the literature section regarding the many different CTCs. I have found several recently that are not mentioned in the text but seem very interesting. There

is especially one that I like the idea of, which is involves robotic lawnmowers that are common many places in Norway. Figure 2.11 shows the lawn outside the apartment I rent in Ski, and one beautiful morning I thought about the possibility of changing the settings on this robot, so that it mows strips as Nassauer mentions as a CTC, or operates in Zamboni patterns movements like Geffel. This could be a very interesting experiment to perform, and perhaps this would get more people to use this type of CTC because you don't have to do it yourself. As seen earlier, CTCs work "when they: 1) achieve a reassuring "orderly frame" for environmentally beneficial landscape design, and 2) do so in a way that is culturally sustainable" (Nassauer and Li, 2020). It is important that CTCs are used in a way that fits with the local landscape care language, otherwise, there is a risk that CTCs will not be accepted by the people, which could lead to the area being perceived as messy and needing change, in the form of more constructed vegetation, imported soil and cloned saplings.

In Chapter 7, I wanted to answer the sub research questions 1 and 2, where 1) involved identifying the landscape care preferences or landscape care language of the people in Oslo, and where question 2) activated the illustration approach in the thesis. It became clear that the language is based on what Nassauer describes in her texts as neatness and order, but it was also clear that a change might have taken place. Concepts of neatness are changing and shifting, as seen in the interview where the most significant feature of human domination, intention, and neatness now can be referred to as a "green desert". This suggests that a shift in preferences is underway or has happened, or that people have opened up a greater acceptance for more complex ecological systems in urban areas in general. I recommend others to explore this further. Personally, I had considered conducting a survey on this very theme but did not have time to do it. CTCs are also found in Østre Parkdrag as seen in the observation subchapter, but they are not used to a to improve ecological quality, yet they are a sign of intention to make the place pleasant enough to be and stay in, and they often serve other goals than enhancing ecology. CTCs are also found on the NMBU campus, where the maintenance practices and CTCs focuses on the site's historical and unique ecological characteristics. NMBU's landscape care identity or language is about environmentally friendly landscape maintenance and education or research, so it is also important that the park's ecology is maintained correctly. This means letting vegetation grow more naturally where it can grow more naturally as seen in the interview, and I believe that CTC interventions makes it easier for NMBU to hold this quality, as NMBU's CTCs signalize intention and education, making it easier for students and users of the Campus to accept any perceived "messiness".

But do the Cues highlighted in this thesis work as they should? My own interventions in Østre Parkdrag might suggest that some Cues to Care can be relatively simple to create or implement. Furthermore, the CTC proposals on the digital models from Østre Parkdrag could demonstrate the many possibilities available for people to facilitate ecological quality in their surroundings. However, I cannot definitively say whether the CTCs created at the Østre Parkdrag test locations have had a significant impact, but I hope that people notice them and are inspired to do something similar. This was done to test them in reality, to observe the physical elements, test the proposals, and physically feel the effect of the interventions. Although it is very subjective, I felt that the interventions achieved what they were set out to do, framed the urban forest patch, and got a human touch of intention in it. As mentioned, this is a test location for very specific chosen CTCs. For these ideas to have an impact in the bigger picture, they must be established on a larger scale, with the help of authorities or the many hopeful individuals. I am uncertain about the role of the authorities or municipalities, as seen in the document analysis, there is still a regime to remove weeds and the spontaneous vegetation that this thesis aims to protect and create safe places for. Furthermore, this finding supports what was shared during the interview, as there is currently no significant focus on maximizing biodiversity or complexity in Oslo's green spaces, but rather a focus on green spaces that are meant to promote public health. This answer possibly supports Eirne's view on current horticultural practices and Nassauer's domination approach, as it all fits in to a standardized system of landscape care. Until Del Tredici's concept of "cosmopolitan urban vegetation" is accepted and used by the many municipalities and Oslo, I think that it could be challenging to implement large

scale CTC interventions for spontaneous and adaptive vegetation. Considering the theory, I feel that the chosen and made CTC interventions at Østre Parkdrag aligned well with Oslo's landscape care language, framing the urban forest patch in such a way that a more natural neatness could be seen and felt. The same might be seen using the other digital test model involving Zamboni patterns, grids, and mowing. Here, the lawn were framed or designed using an alternative maintenance technique. This creates room for more ecologies in areas that previously had low ecological function and species richness, while also communicating through the CTC that this was intended. If done correctly in relation to the changing expectations and preferences of the people, this could be accepted, which further impacts ecological quality as it ensures a continuing proper maintenance of the area.

Through the theory and background chapter and a focus on anthromes, we see how humans have completely transformed the Earth and this contextualized the debate around native vs non-native species, as it turns out that most of the nature we observe has been entirely or partially altered by us. The "natural" vegetation we aim to restore in urban environments can, therefore, be best characterized as human made and potentially be unnatural. Del Tredici reminds us that ecological restoration is based on an illusion. In other words, anthropogenic effects have completely changed the playing field, making it interesting and relevant to take in the anthropause, where humans had to hold back, allowing vegetation to grow more freely in many environments. As a result, Sutton wrote about a New Aesthetic of Care, an alternative to a standardized maintenance regime that isn't sustainable and aligns well with Nassauer's theories and concepts. The standardized maintenance regimes that shape much of the urban landscapes creates what Nassauer describes as cultural nature, a nature that meets the general public's preferences but is constructed in a way that it possesses less ecological quality. It was therefore natural to point to an alternative, a new aesthetic of care where Sutton aims to change the practices of how we care for landscapes and consider what landscapes should look like. Sutton developed a framework on how this can appear, where potential plans have a greater focus on spontaneity, dynamic change, and enable novelty in the landscape. Within this framework, one finds 1) a moral framework, 2) a care ordinance, and 3) a calendar of care. These were discussed on page 60 and fit into the use of possible CTCs. It was rewarding to exemplify how the illustrated CTCs can fit into this framework. Although it is not written together with the proposal models, nor among all the CTCs used in this assignment, I think that the moral framework involves an embrace of the cosmopolitan, novelty, and spontaneous vegetation, and that these adaptive species have the potential for highest quality, ecologically, but also in terms of spending and environmental outcomes. The care ordinance for the various CTCs is hopefully explained where they are presented and should show maintenance techniques to achieve the desired site performance. I also tried to create a Calendar of Care that can indicate moments made possible by following the alternative framework. Here, I could have elaborated more, as the novelty and changes seen in the landscape based on Sutton's framework lead potentially to several new moments. Growth of various plants, changes in possible dynamic maintenance designs, and potentially a count of species richness could have made the calendar more meaningful, especially for the people who live and spend time nearby, which will further ensure the qualities the new framework enables.

Following this discussion and reflection, I can state or argue that the research indicates that CTCs can be used to increase ecological quality in cities, if they use the correct landscape care language that fits the place and its people. In Oslo, this is based on neatness and order, but this has changed, and more natural and dynamic growth may now be accepted. Additionally, the correct type of vegetation assemblages that increases richness should be used, where there has been a focus in this assignment on adaptive species assemblages. These should also have an alternative landscape care regime, found in Sutton's writings that does not lead to reflective ease.

As a concluding segment in this subchapter I want to return to the theory and background chapter. There, I mentioned the SDGs and the relevant goals that this thesis might help impact or reach. I presented these as a type of answer to the previously described anthropogenic problem in the chapter and how the world is in a deep crisis. I believed that the theories used in this thesis could help achieve these goals, and I wish to see if this is the case:

**Goal 3: 3.9 (REDUCE ILLNESSES AND DEATH FROM HAZARDOUS CHEMICALS AND POLLUTION).**

By using and increasing the utilization of CTCs along with more dynamic and thriving vegetation in cities, the ecosystem services from spontaneous vegetation could potentially be enhanced, where pollution mitigation was one of them (Toland, 2020). If spontaneous vegetation is used in places other than vacant land and used on a larger scale, made accessible via CTC, this might be possible. More research needed.

**Goal 11: 11.3 (INCLUSIVE AND SUSTAINABLE URBANIZATION), 11.4 (PROTECT THE WORLD'S CULTURAL AND NATURAL HERITAGE), 11.6 (REDUCE THE ENVIRONMENTAL IMPACT OF CITIES), and 11.7 (PROVIDE ACCESS TO SAFE AND INCLUSIVE GREEN AND PUBLIC SPACES).**

11.3: The urban environment could potentially be made more sustainable through a greater usage of spontaneous vegetation, as it requires less maintenance (Sutton, 2022), contrasting with the landscape care regimes that both Sutton and Moore have criticized.

11.4: I am more uncertain about this one, as there is a risk that "invasive" species could spread and outcompete species in eventual cultural and other landscapes. At the same time, I feel like mentioning that natural heritage have not been as relevant to this thesis since the city represents a new environment with novel features where adaptive species assemblages seem to fit best.

11.6: An increase in ecological quality in cities could potentially lead to a reduction in various environmental impacts of and in cities, possibly through the many feedback mechanisms adaptive vegetation possess.

11.7: I have not written much about the effects of these concepts on safety or inclusivity. I think that CTCs have a potential when it comes to collaborative experimentation with maintenance outcomes, where people can more easily address problems in existing CTCs so that they can be modified. This can be done through mowing, where potential mowed paths can be created where desire paths form.

**Goal 13: 13.3 (BUILD KNOWLEDGE AND CAPACITY TO MEET CLIMATE CHANGE).**

13.3: Much of this study has been aimed at increasing ecological quality now and ensuring that this quality persists in a warmer future. It has also been noted that adaptive species have some advantages, as cities potentially become warmer, it could become even more challenging for constructed and remnant species to survive in urban environments because the conditions are so different from what they once were.

**Goal 15: 15.3 (END DESERTIFICATION AND RESTORE DEGRADED LAND), 15.5 (PROTECT BIODIVERSITY AND NATURAL HABITATS), and 15.8 (PREVENT INVASIVE ALIEN SPECIES ON LAND AND IN WATER ECOSYSTEMS).**

15.3: I included this sub-goal after reading about "green deserts". I feel that especially the CTCs related to the lawn, where more complexity can be introduced to these "deserts" are relevant for this.

15.8: I am also uncertain about this sub-goal. As shown, not all types of invasive species are necessarily harmful, but problems do exist. With a more globalized world, it is also difficult to limit plant migration, and to set back the clock.

## Conclusion

The goal of this thesis was to explore how Nassauer's Cues to Care could be utilized to enhance ecological quality in urban landscapes, particularly in Oslo, and Østre Parkdrag which functioned as a CTC test area. This research has shown the many dilemmas with the usage of spontaneous vegetation, how human preferences shape earths landscapes, landscape care system errors and the potential for a new, more sustainable way forward. Furthermore, the thesis has shown through models and physical interventions how CTC's may have the potential to transform the urban biotype. The interventions at Østre Parkdrag, although small scale, fit within the landscape setting and hopefully meets expectations from the public, which is a result in itself, as that indicates that even small scale interventions can create environmental and ecological benefits if put together. To look further than just practical and digital implementations of CTC, this thesis has looked closer at theoretical works relevant to landscape architecture, and examined the status quo of current day horticulture practices, landscape care regimes and alternative to the norms. It has looked and searched for other ways to approach landscape care which enables novelty and accepts the emerging ecosystems of cities which are evolving rapidly in front of our eyes.

Furthermore, the anthropause has also opened my eyes for a new path forward. Landscapes are communication systems with inherent aesthetical expectations residing within them, and it is clear that nature in urban environments will largely be anthropogenic. But this does not mean that the nature or seminatural vegetation assemblages should not inhabit ecological quality, because this exists. By using CTCs and other similar approaches one can make the non palpable, palpable and even preferred. In conclusion, this thesis rings for a call as Sutton, Nassauer, Del Tredici, Sieweke, Moore, Hitchmough, Gandy, Jasper, Toland, Clement and Lindquist to see the quality of what is already residing in urban environments. When continuing traveling within the epoch of Anthropocene, we'll need it, we'll need the vegetation that is best suited for an ever changing environment. Give it frames, and it will give you quality.



Figure 9.2. London, 2023

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## Figures:

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Figure 1.2:

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Figure 2.5:

Laboureur, J.E. (1902-1903) *Les paradis terrestre* (Woodcut). The British Museum, England. Available at: [https://www.britishmuseum.org/collection/object/P\\_1949-0411-3695](https://www.britishmuseum.org/collection/object/P_1949-0411-3695)

Figure 2.6:

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Figure 2.7:

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# APPENDIX

Figure 2.8:

Hiroshige, U. (1843-1847) *Kagamiyama* (Woodblock print). The British Museum, England. Available at: [https://www.britishmuseum.org/collection/object/A\\_1906-1220-0-1008](https://www.britishmuseum.org/collection/object/A_1906-1220-0-1008)

Figure 2.9:

Vries, H.V.D. (1557) *Architectural composition* (Drawing on paper). The British Museum, England. Available at: [https://www.britishmuseum.org/collection/object/P\\_1946-0713-186](https://www.britishmuseum.org/collection/object/P_1946-0713-186)

Figure 2.10:

Knyff, L. (1702) *Bird's eye view of Hampton Court from the South* (Drawing on paper). The British Museum, England. Available at: [https://www.britishmuseum.org/collection/object/P\\_1961-0408-1](https://www.britishmuseum.org/collection/object/P_1961-0408-1)

Figure 3.3:

Norge i Bilder (2024) *Oslo - Follo - Romerike SV 1956* (Map). Norge i Bilder, Norway. Available at: <https://norgebilder.no/>

Figure 3.7:

USGS, Airbus, NGA and NASA (n.d) *Terrain: Slope Map* (GIS layer). ArcGis PRO. Available at: <https://elevation.arcgis.com/arcgis/services/WorldElevation/Terrain/ImageServer>

Figure 5.5:

Geffel, M. (n.d) (photo's). ASLA, USA. Available at: <https://landscapearchitecturemagazine.org/2019/06/17/lawnmower-man/>

Figure 5.7:

Øxnevad, H. Wolf, H. and Ringdal, S. (2020) *Collage*. In It's time we embrace spontaneous tree growth in the city. Citystudio. p.1-19.

I am including attachments in this appendix the form of the used interview guide and various illustrations that shows the process of creating this thesis. It has been a productive semester, and much was produced that could not be included in the thesis itself. Therefore, I am adding various images and illustrations in this concluding section.



## Interview Guide

Guide:

### Semistructured interview w key participant.

Have a general list of themes, and problems to discuss. Increase comfort and trust, present yourself and your research, you don't do research on subjects, but with. Information goes both ways; participants should always get something out of a interview. Semi structured meaning, nonstrict manuscript execution. Sebastian transcribes, no recordings. Don't ask RQ!

RQ being:

How can Cues to Care and alternative maintenance (Care) practices, tailored to specific locations, be applied to improve ecological quality and to gain public recognition, ensuring ecological value?

Recap: Goal is to increase ecological quality of urban Oslo by using the potential of spontaneous and already existing messy vegetation. This by following Joan Iverson Nassauer's theory of messy ecosystems, orderly frames, and cues to care. And Parker Sutton's New aesthetic of care, where Sutton goes away from the MBG regime and utilizes an alternative care regime.

[Redacted text]

Qualitative method to understand a Norwegian maintenance professional thoughts regarding maintenance practices and ecology vs aesthetics.

Is the following assumption accurate? The park has been kept with a strong focus of historic dimensions foregrounding composition, views, and ornamental gardens. How is an ecological approach different? How can ecology & aesthetics be integrated regarding maintenance practices?

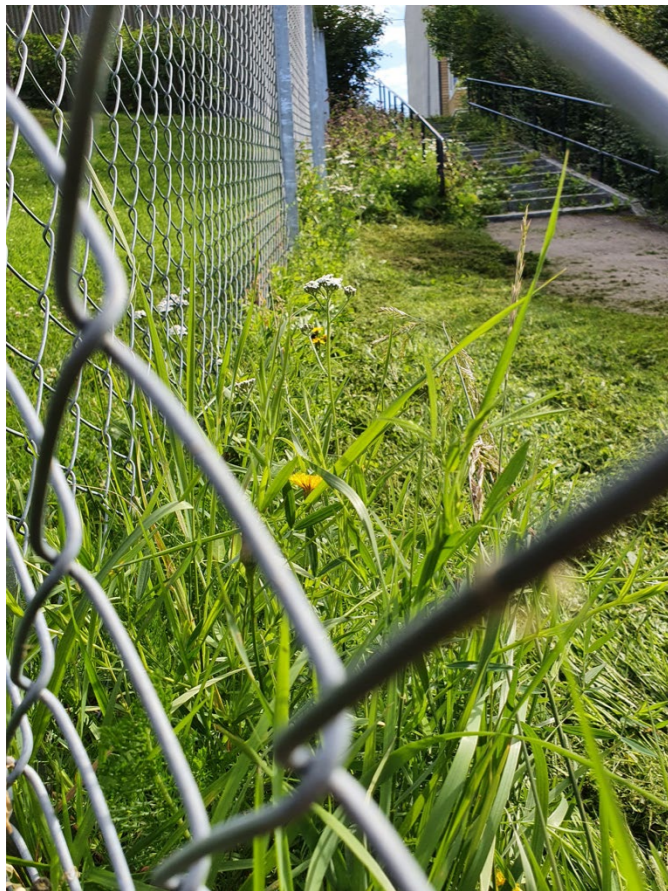
- 1) Start question: What are your role as Park manager in the NMBU system?
- 2) What is the philosophy of the maintenance work done here at campus?
- 3) Can you give examples which illustrates this? How is maintenance done here at NMBU?
- 4) How does maintenance respect / effect ecological quality?
- 5) (Info to participant needed) The Norwegian sphere of landscape maintenance in light of Sutton's MBG regime. Any similarities with this, any solutions. -> I feel like Sutton is arguing that the preferred ecological state in the US has gone too far focusing on aesthetics, green deserts and painted grass. How is this in Norway? How important do you think aesthetic preferences are in NMBU, and maybe Norway?
- 6) What are your thoughts regarding aesthetic vs function, or beauty vs ecological quality?
- 7) How cultural cues of intention is used in the NMBU landscape. Culture here being the culture of NMBU, university, international, research, conservation, inspiring.
- 8) What these cues are?
- 9) Why do you use these cues?
- 10) What are your thoughts regarding having "messy" habitats on campus? - subs may arise -> Ugrashagen NIBIO

Maybe elaborate a bit on the perception (def.? Messyness) vs. value of structural diversity / ecological parameters relative to majort.  
You need to sort these terms out for yourself in the theory section.

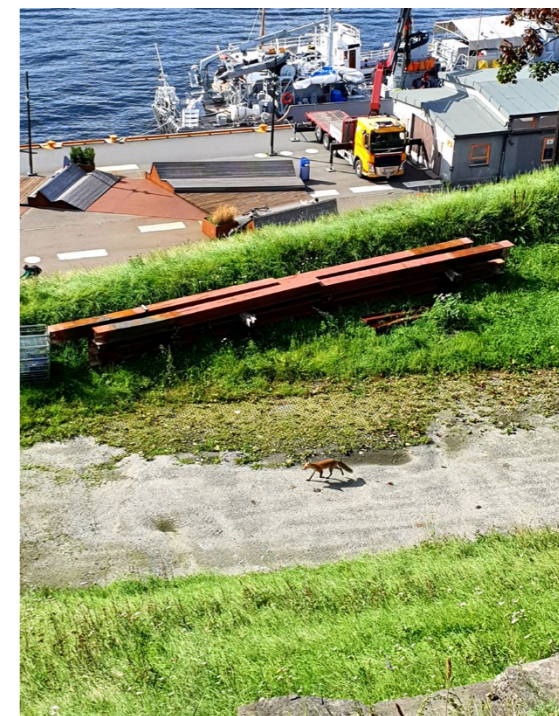


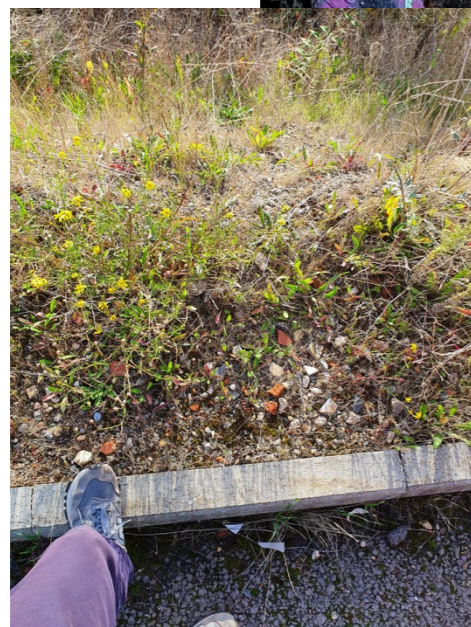
Interview guide made for the park manager interview

+ A snippet from my work experience. Here measuring the grass height.



Also including some pictures from work and from last summer in general, focusing on life in the city. These images show a mix of constructed, neglected, and thriving areas. An interest sparked by the last spring semester of 2023.



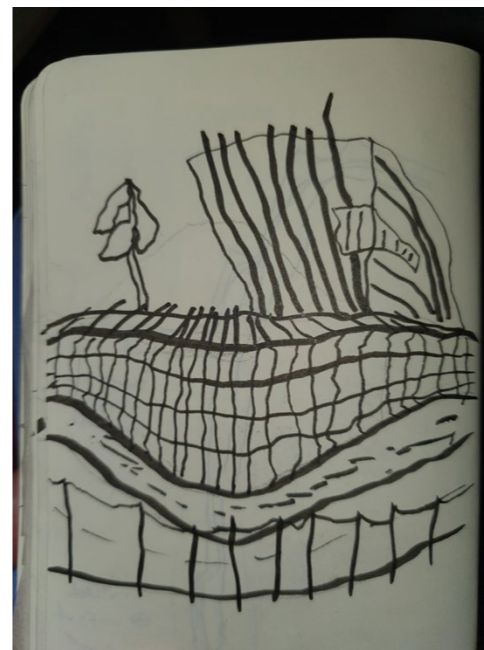
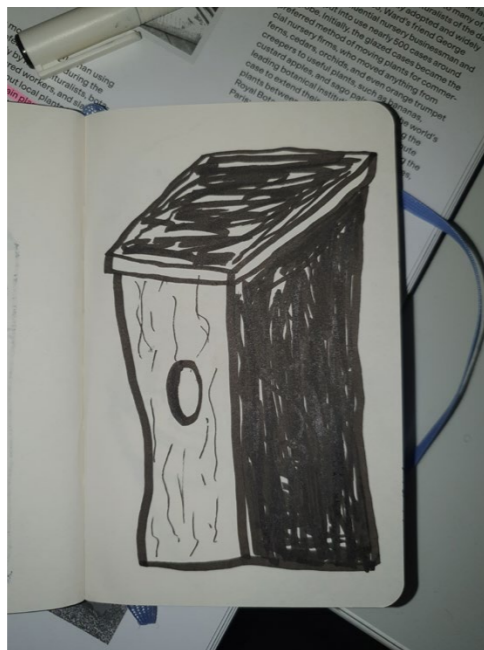
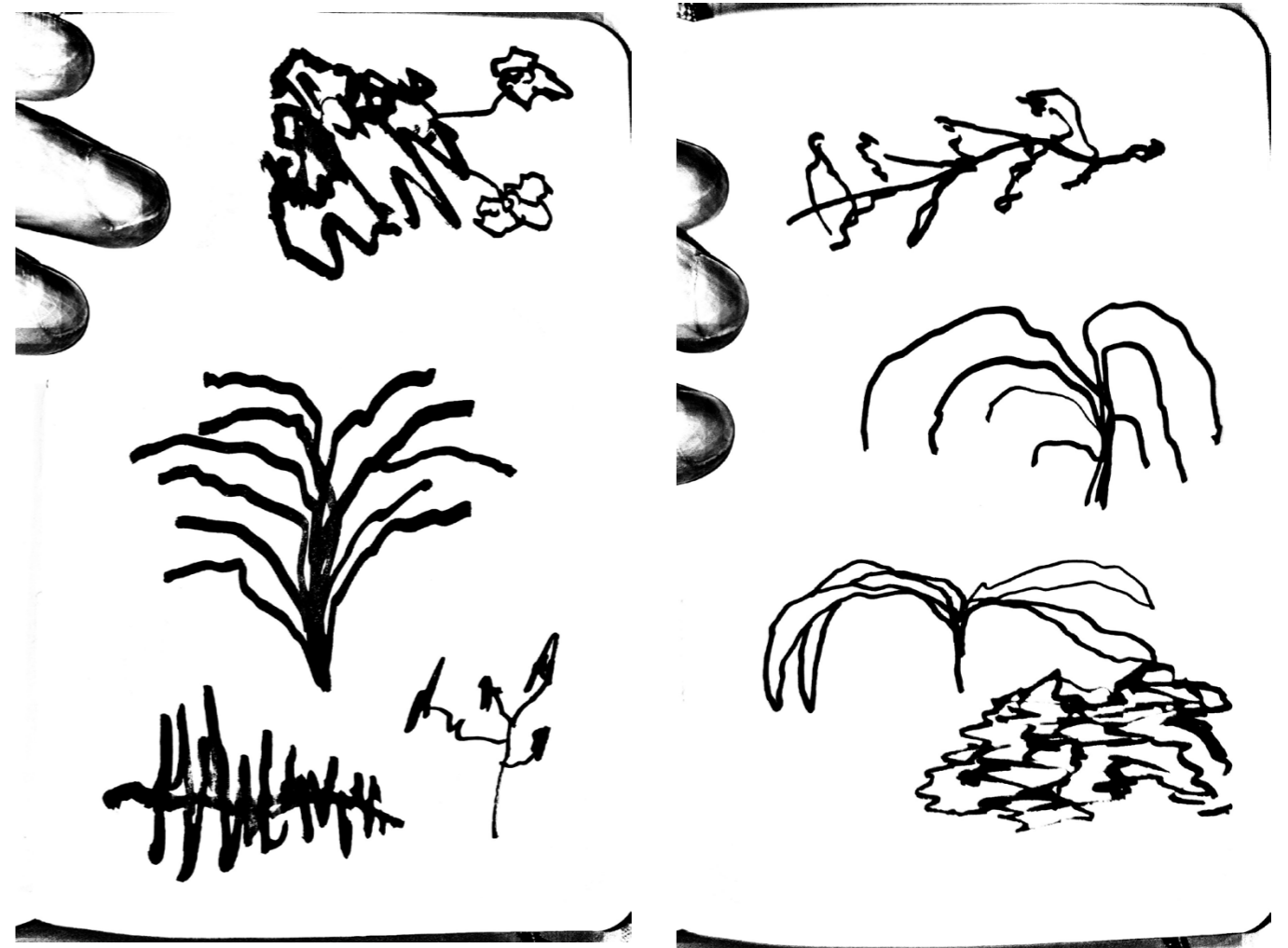


During my visit to London, England, under the supervision of the GLA305 last autumn in 2023, I continued to focus on vacant plots and the cosmopolitan species residing in them. I had my first meeting with Jorg a few months earlier, where we discussed the direction of the thesis, third landscapes, and spontaneous vegetation. In England the way forward remained unclear to me.

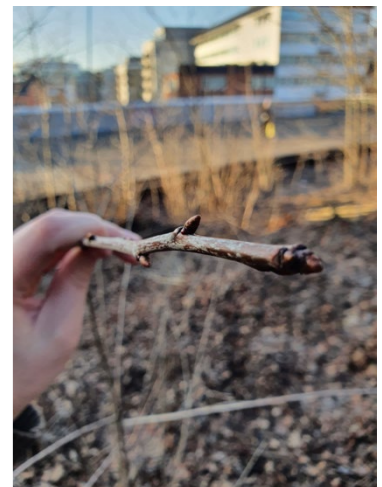
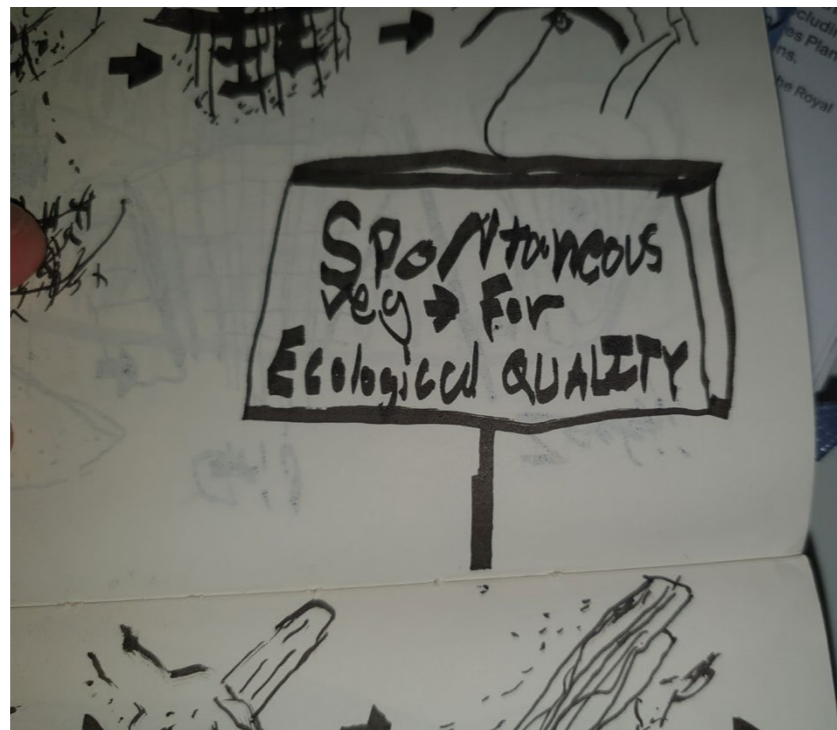
The last semester began and the winter was cold. I found a place at KA, and the Master's thesis could really get started.



My blue notebook was used a lot throughout the semester. It was incredibly rewarding to make quick sketches that could later be scanned and incorporated into various models and illustrations.



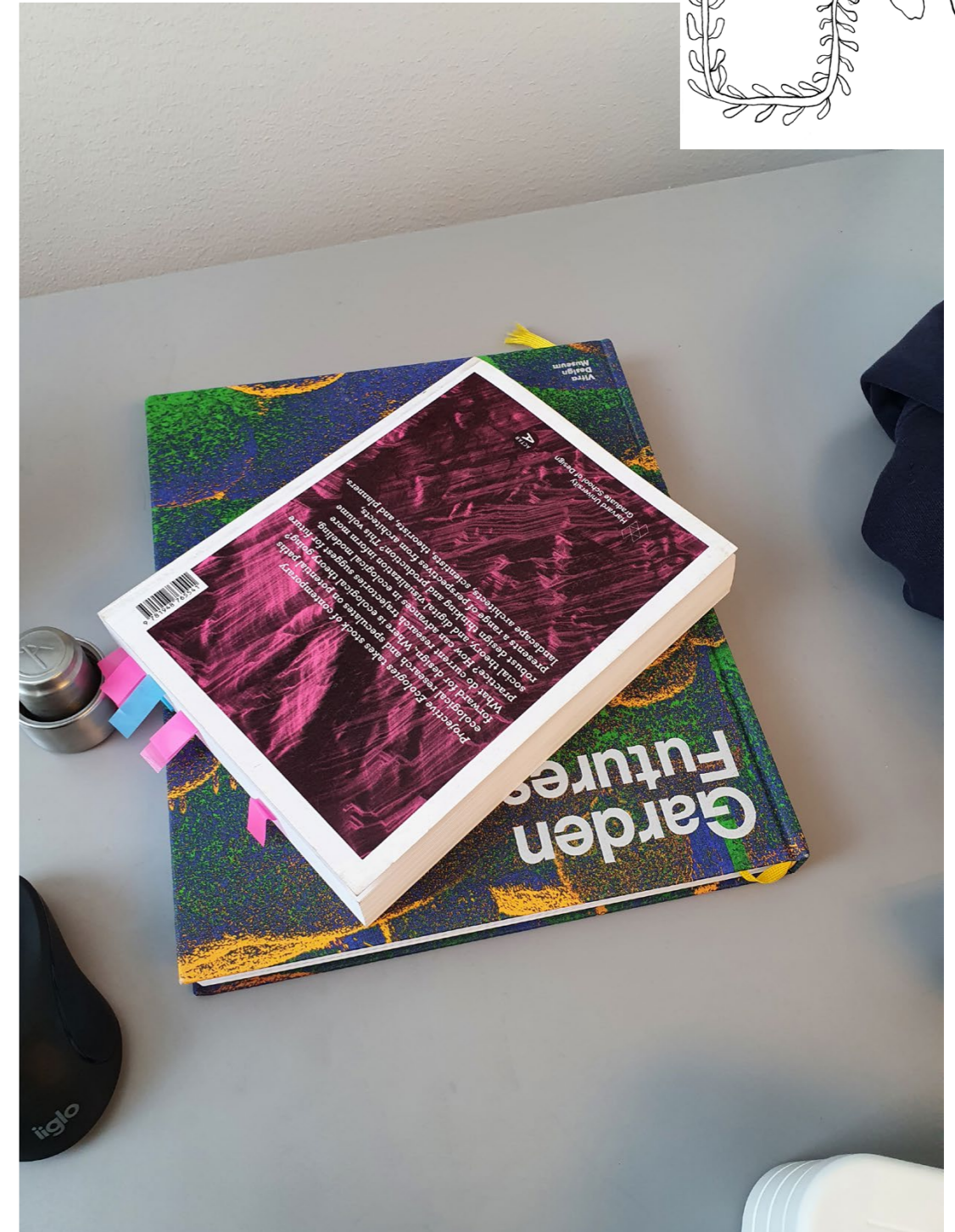
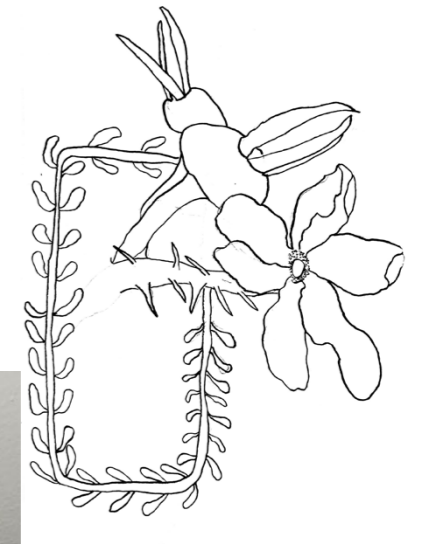
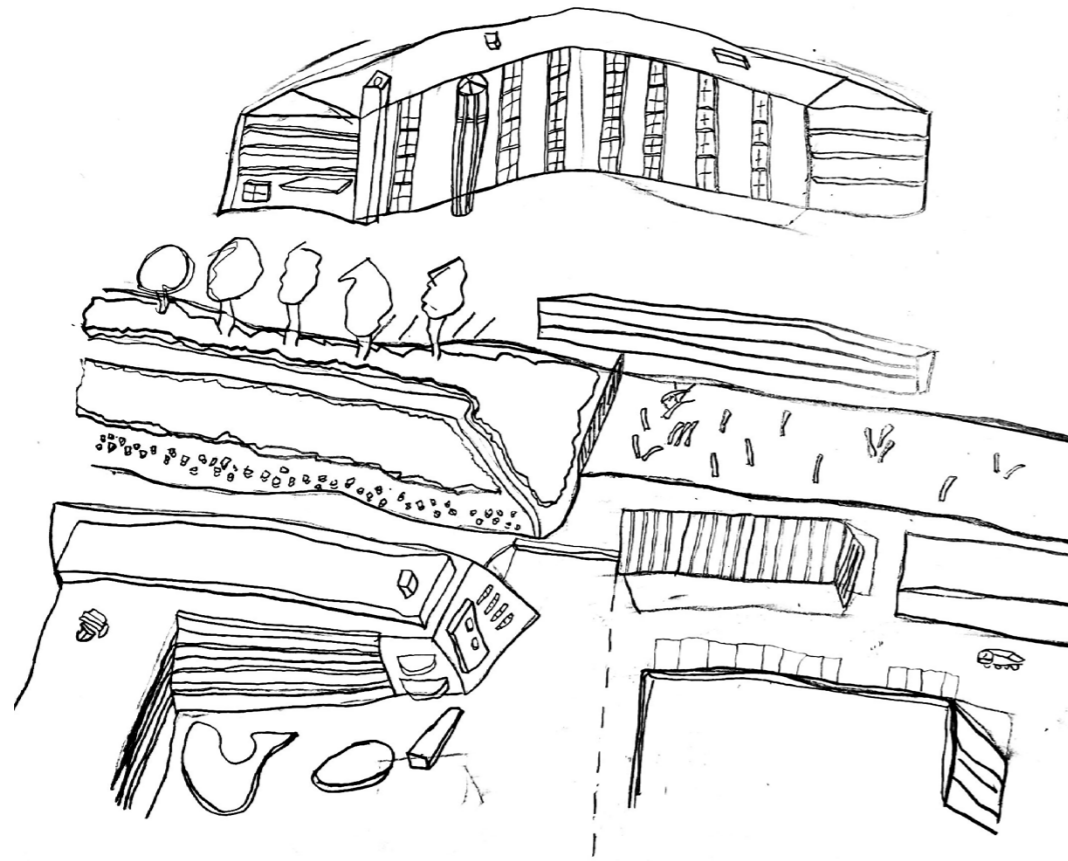
Unused colorful sketches.  
Liked the style,  
but was too timeconsuming.



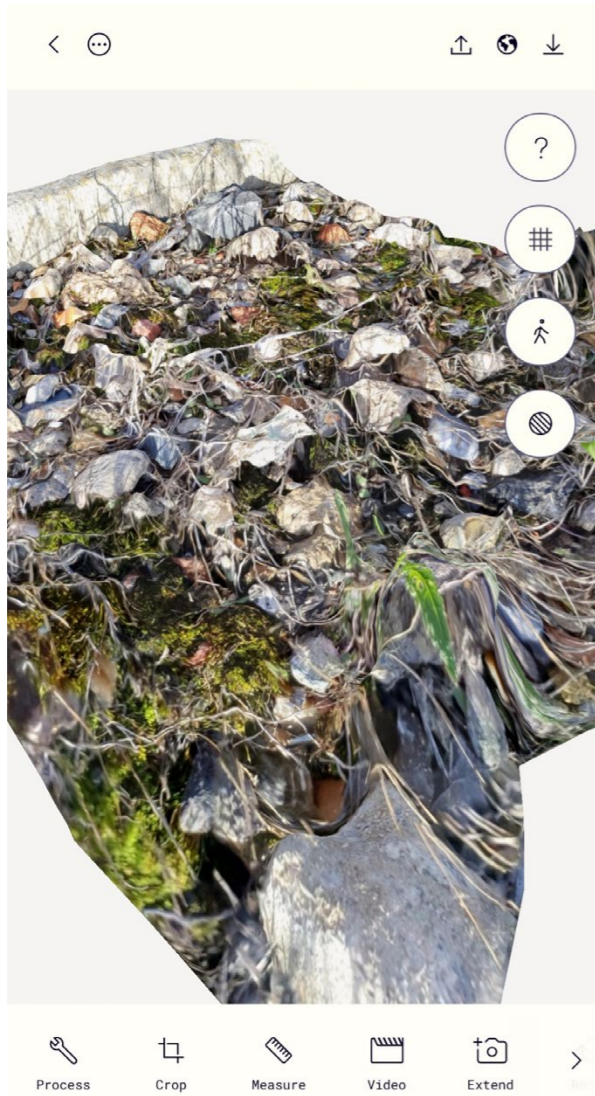
Some pictures  
from Østre  
Parkdrag.



Jade on the office, meant to bring luck. Some literature and unused sketches.

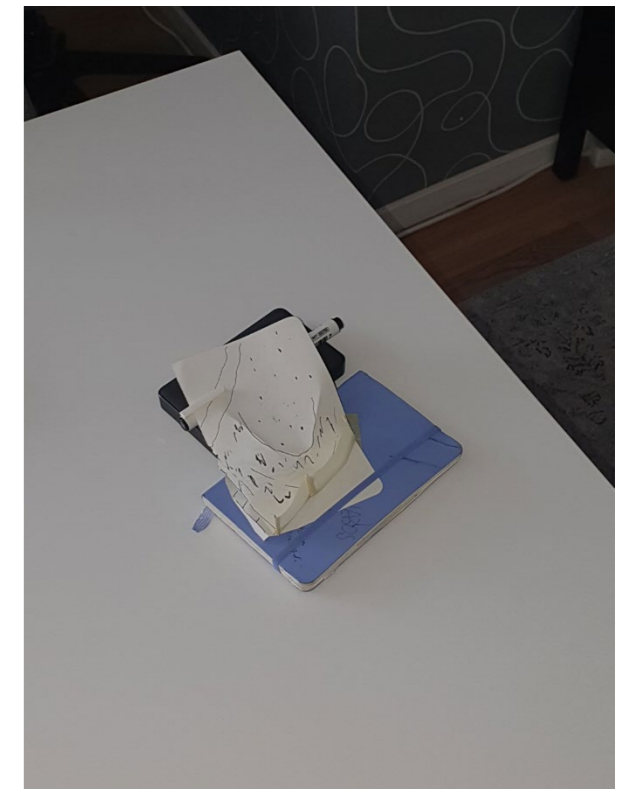
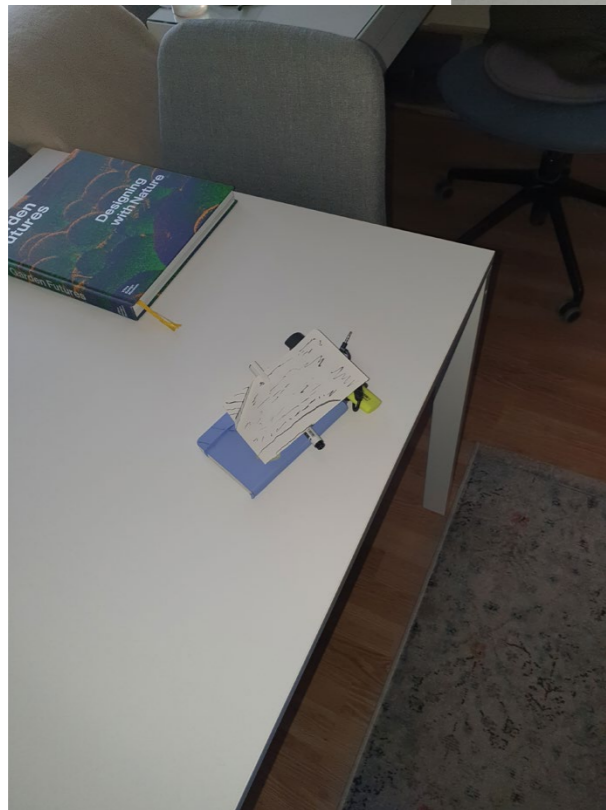
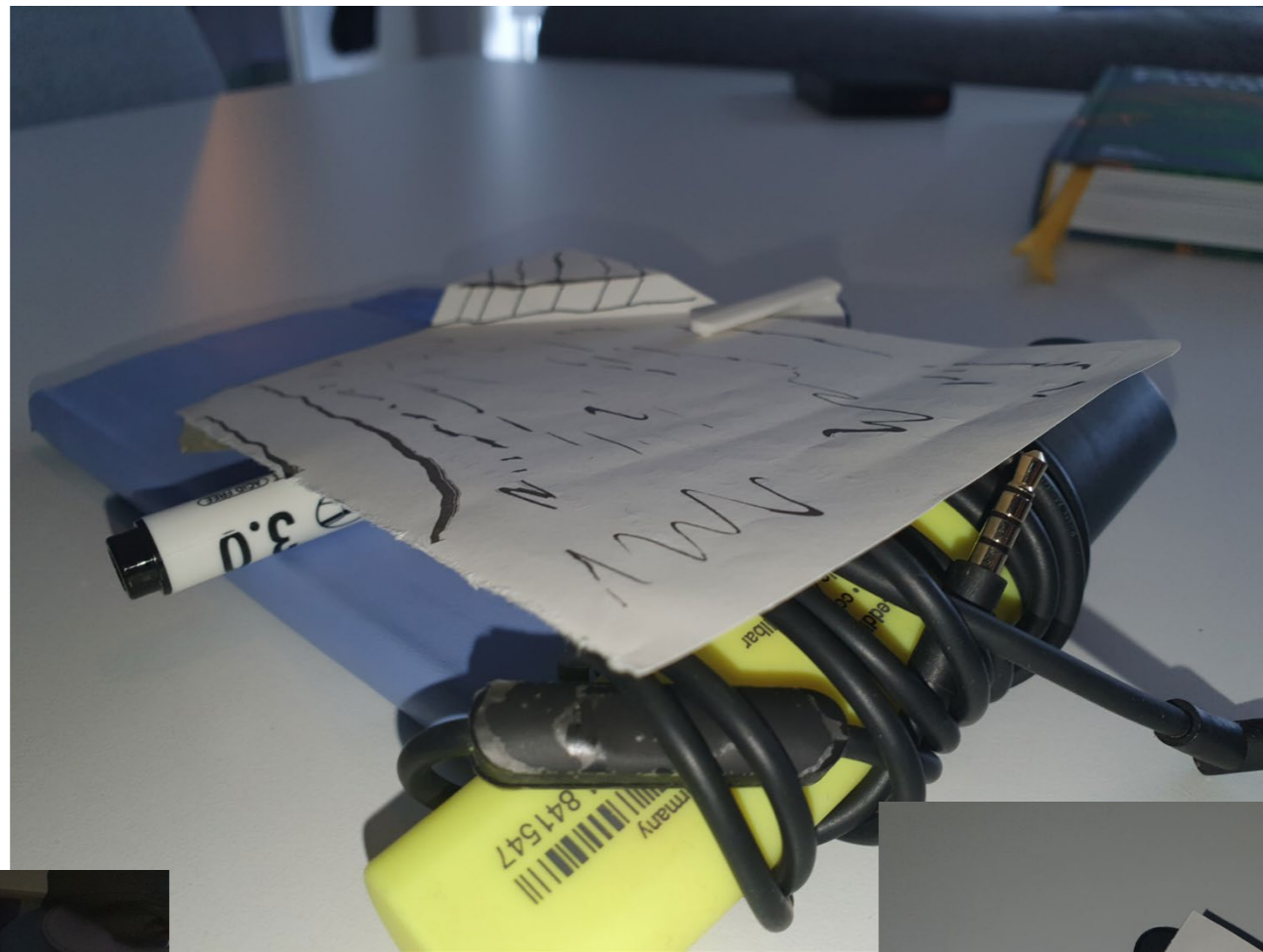


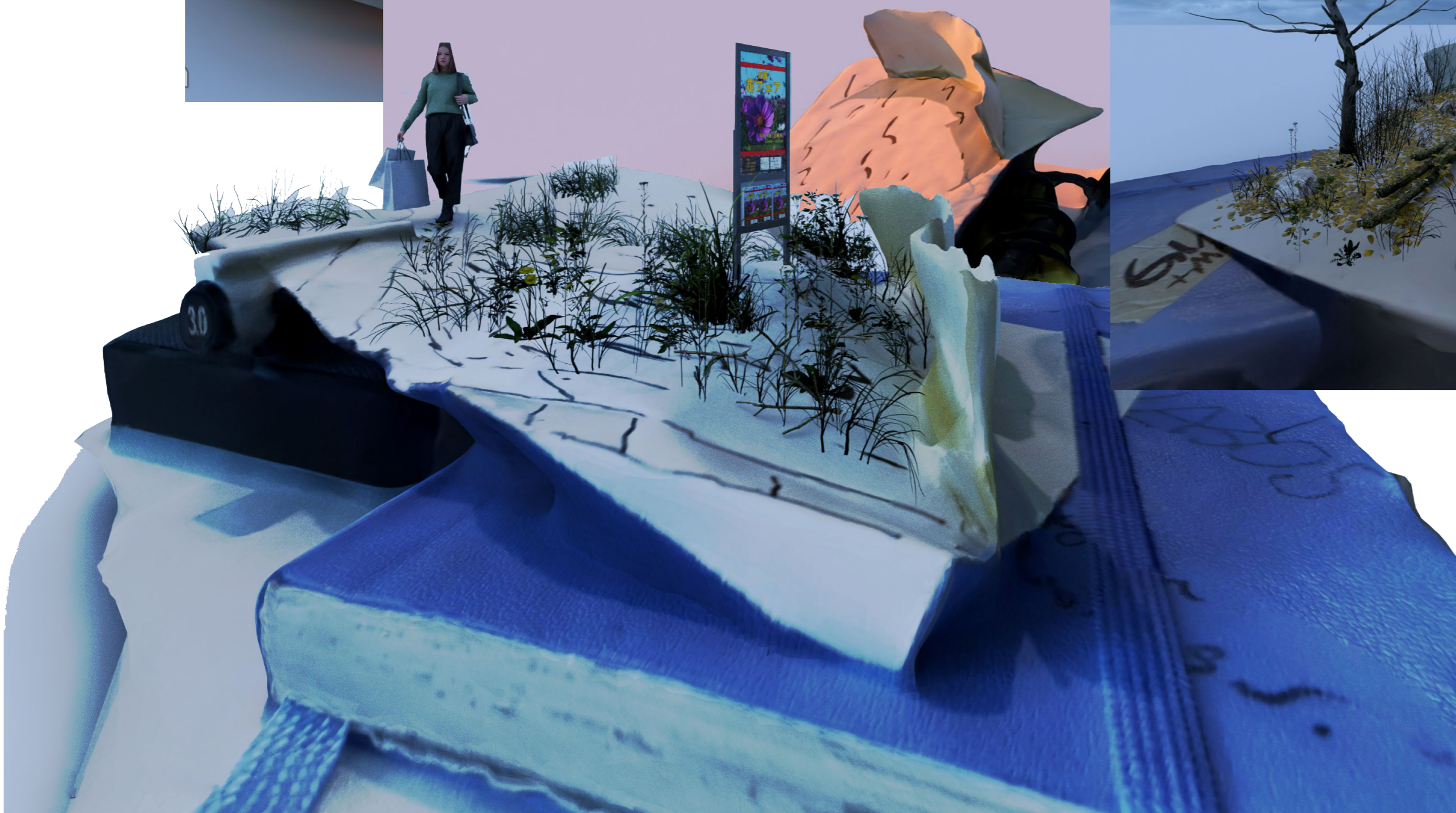
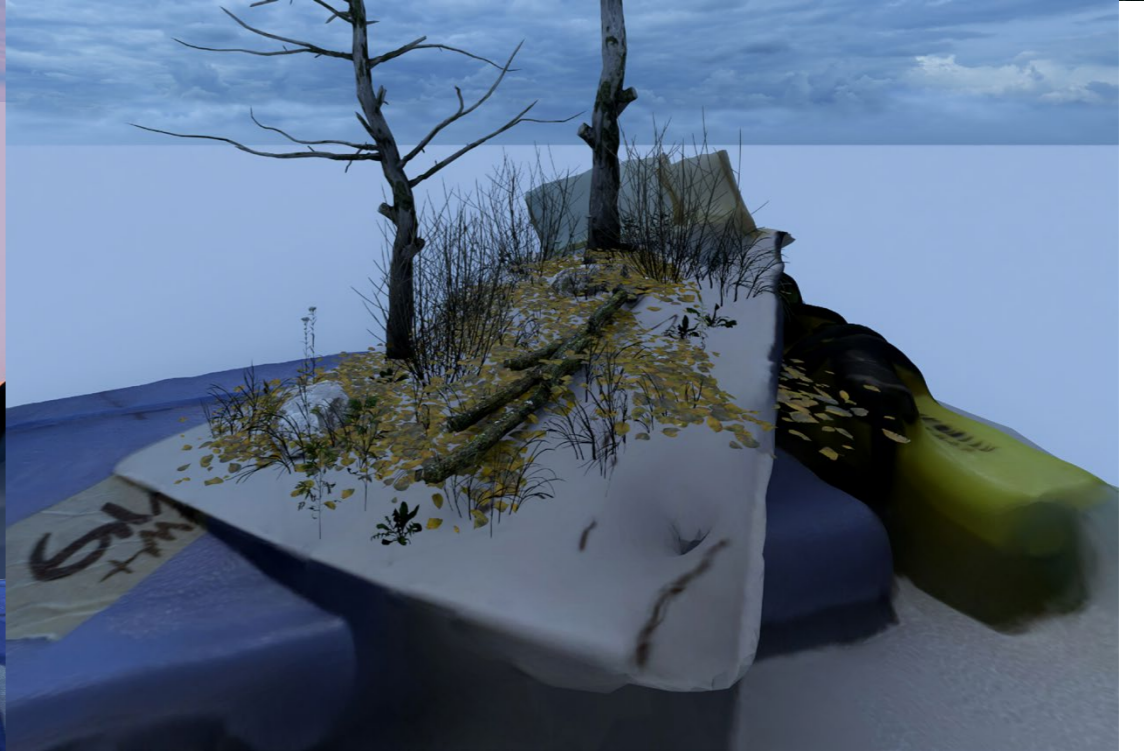
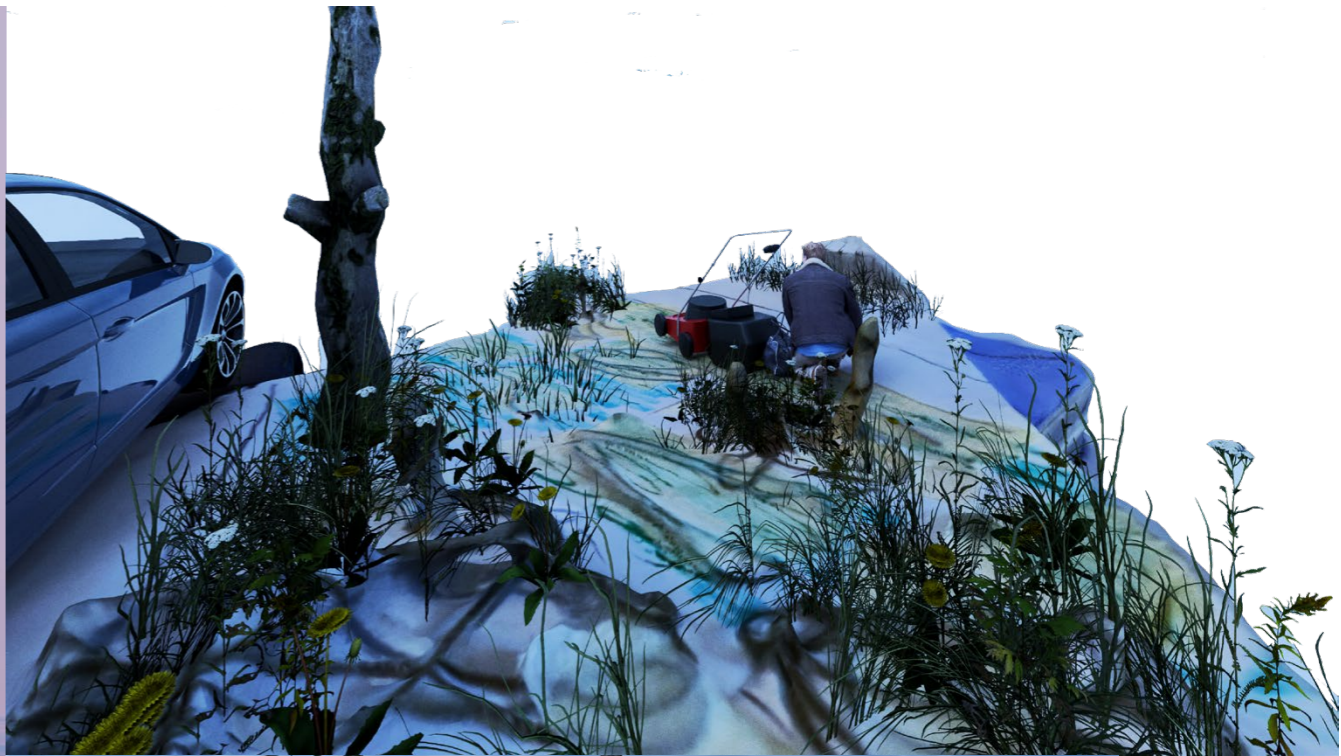
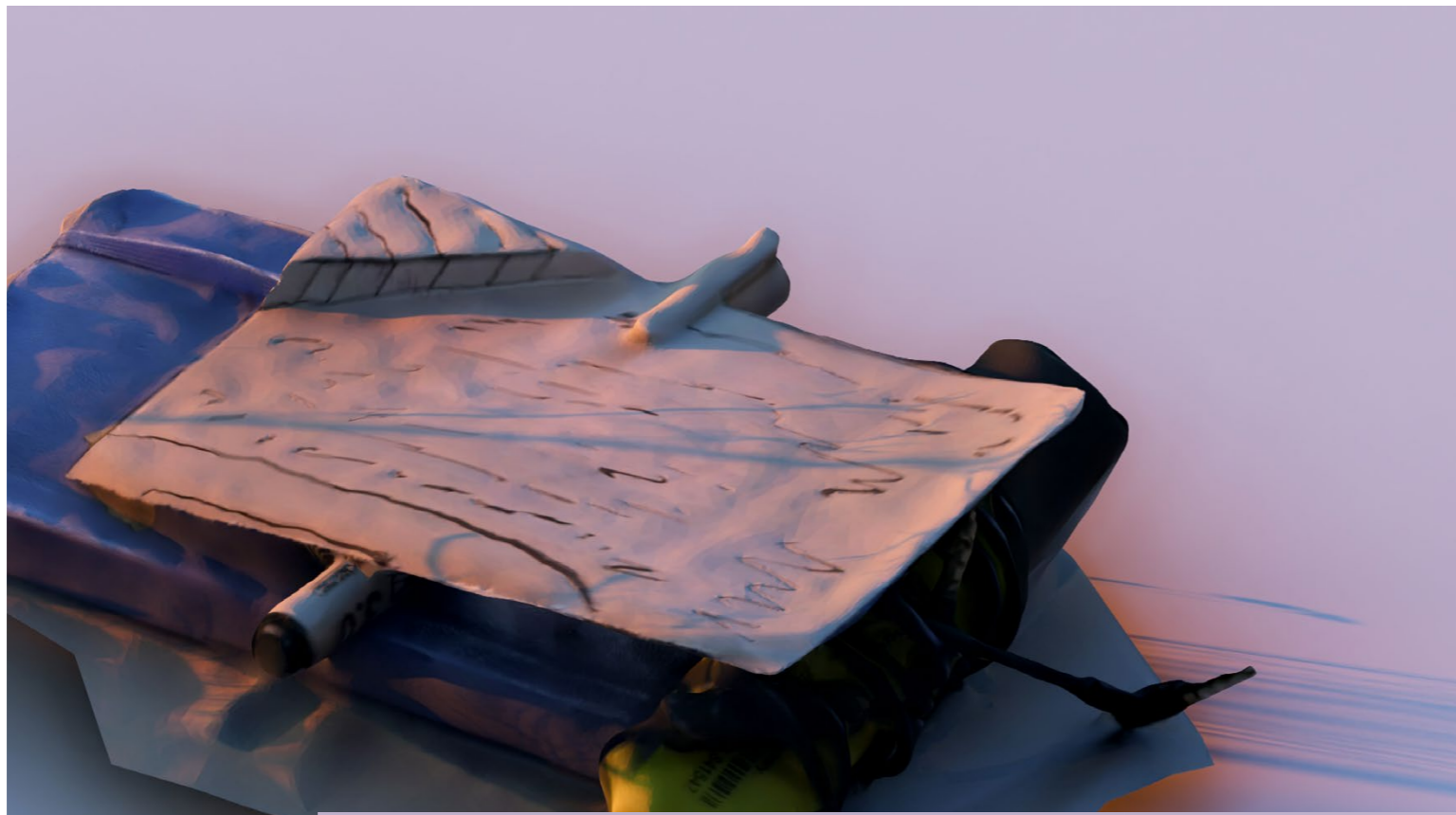
The focus on photogrammetry grew significant starting in 2023. The image to the right depicts a model of Sebastian during a visit to England in 2023. The screenshot depicts my first scan of a top layer in 2023, which served as an inspiration to continue using this technology and depicting method. The use of photogrammetry onto my thesis work proved to be a valuable resource.



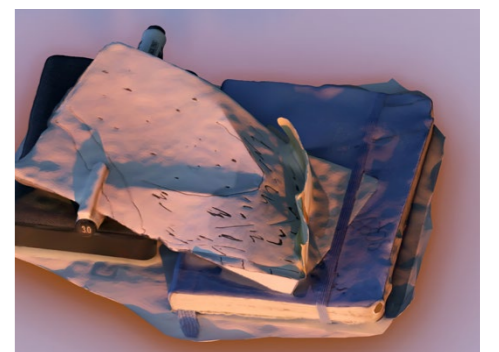


Some of the models representing places at Østre Parkdrag before they were scanned with Polycam and exported to Lumion for editing.





Some of the models represented with lumion, some edited, some quite clean.





Thank you dear reader.



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