THE MORE THAN HUMAN PERSPECTIVE

EXPLORING PARTICIPATORY FUTURES FOR AMAGER FAELLD

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Independant project in landscapre architecture
30 hp

Swedish University of Agricultural Sciences , SLU
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The More Than Human Perspective – Exploring participatory futures for Amager Fælled

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ABSTRACT

In an era of Anthropocene design, this thesis explores applications of more-than-human perspective in design within the field of landscape architecture. With the omnipresent effects of climate change and biodiversity loss we ask how we design our landscapes and who exactly we design them for. Against this backdrop, this thesis aims to explore how more-than-human perspectives could be strengthened within landscape architecture practises, as well as how landscape architects could practically implement these perspectives within landscape management.

The methodology employed a research phase into concepts of more-than-human design perspectives, which together with an interview with head biologist at Amager Fælled Paul Maslen tested practical methods of more-than-human design. Findings reveal that more-than-human-centred design highlights the mutual independence between humans and non-humans, distancing the view of seeing other organisms as inferior to humans or as an exploitable resource. The methods of noticing, scaffolding and refraining provide a potential framework for landscape architects to engage with notions of participation with other species in design processes as well as decentralizing humans from design decisions.

This thesis concludes that more-than-human-centred design extends the role of the designer to an assembly of stakeholders within the design context. As such the role of that landscape architect in landscape management could be viewed as that of a steward; overseeing, engaging and acting on behalf of all species present in the given context.

SAMMANFATTNING

I en era av antropocen design utforskar denna avhandling tillämpningar av mer-än-mänskliga perspektiv inom landskapsarkitektur. Med effekterna av klimatförändringar och förluster av biologisk mångfald underas hur vi utformar våra landskap och vem vi designar dem för.I detta context syftar denna avhandling att undersöka hur mer än mänskliga perspektiv skulle kunna stärkas inom landskapsarkitektur, samt hur landskapsarkitekter skulle praktiskt kunna implementera dessa perspektiv inom landskapsförvaltning.

Metodiken utforskade mer-än-mänskliga designperspektiv, som tillsammans med en intervju med ansvarande biolog på Amager Fælled Paul Maslen testade praktiska tillämpningar av mer-än-mänsklig design. Resultaten visar att mer-än-mänsklig design framhäver det ömsesidiga oberoendet mellan människor och icke-människor, vilket tar avstånd från från ställningen att andra organismer är underlägsna till människor eller ses endast som en exploateringsbar resurs. Metoderna noticing, scaffolding och refraining ger en potentiell ramverk för landskapsarkitekter att engagera sig andra arters deltaganden i designprocesser samt att decentralisera människor från designbeslut.

Denna avhandling drar slutsatsen att design som är mer-än-människocentrerad utvidgar designerns roll till en sammanställare av intressenter inom designkontexten. Som sådan kan landskapsarkitektens roll i landskapsförvaltningen ses som en förvaltares, som övervakar, engagerar och agerar på uppdrag av alla arter som finns i det givna sammanhanget.

I think having land and not ruining it is the most beautiful art anyone could want to own.

- Andy Warhol

INTRODUCTION

BACKGROUND

That our relationship with nature must change is more evident than ever. Our attitudes towards the land and how we use it is causing us to design the world to death. In pursuit of short-term goals, we are polluting the oceans, changing our climate, depleting the planet of its biodiversity and draining its soils of all life. Furthermore, rapid urbanization has left us increasingly disconnected both physically and mentally from the natural systems that we depend on.

Our attitudes towards nature seem to manifest in our gardens and urban landscapes, where designed landscapes are, as critic Jim Lewis comments on the English landscape gardens: "like nature, only better" or "with all the awkward bits smoothed out" (Brown & Lewis 2015). In recent decades, the anthropocentric beliefs and values that have shaped and defined western culture for centuries have started to be questioned more than ever, including the conviction that nature is a world to be tamed, dominated, and civilized by man. As evident in the eighteenth- and nineteenth-century English landscape gardens, where an orchestrated idea of untouched nature was in reality meticulously planned and enforced to the last, minute detail. These attitudes seem to persist in our urban landscapes even today; the lawns originating from the eighteenth-century English landscape gardens have evolved into the monotonous expanses of cut grass we recognize globally.

In light of the escalating states of planetary crisis and the omnipresent effects on design, rethinking our attitudes towards nature, how we design our world and who it is designed for are crucial to mitigating and adapting to the effects of climate change. (Heinrich, Kuijpers, Stappmanns 2023). Critics and curators Paula Antonelli and Alice Rawsthorn suggest in their 2022 book Design Emergency that design's "limited role to which it was confined in the industrial age" needs to be broadened to "build a better future not only for human beings, but also for the other species with whom we share this planet" (Antonelli & Rawsthorn 2022).

Correlating with the first environmental movements of the 20th century, the field of landscape architecture and garden design abandoned the constraints of the increasingly outdated idea of the picturesque deriving from the dominant concept of the western garden. Landscape architecture has since then developed with sustainability and non-human collaboration as an inherent part of its practice. More recently, designers have been experimenting with collective traditional and Indigenous practices not typically considered under the western rubric of gardening as potential grafting points for expanded ways of designing with nature (Williams, Sikutshwa, Shackleton 2020; Heinrich, Kuijpers, Stappmanns 2023).

As such, a certain paradigm shift has recently been taking place within many fields of design. With the awareness of the human induced problems threatening the planet and its systems, and the challenges associated with climate change, designers have been drawing on participatory design principles and feminist theory to explore and expand upon collaborative design attitudes towards nature and the species and systems we share the planet with (Forlano 2017).

In 2000, writer and curator John Beardsley wrote for the Harvard Design Magazine that landscape architecture would soon become "the most consequential of the design arts" (Beardsley 2000). He elaborated that urgent changing societal and environmental demands need to be met by the development of a new compelling design language that is particular to landscape architecture. Within the rubrics of sustainability, ecological design and posthumanism, many designs have started extending the scope of their practises to include a more-than-human perspective. The need for recognizing diverse actors and their knowledge is being considered increasingly critical for sustainability within land use and conservation (Williams, Sikutshwa, Shackleton 2020). Designers are also recognising the value of non-human knowledge in planning and maintenance processes, as recently exemplified by the seven years long planning process of a dam and wetland establishment in the Czech Republic being completed and doubled

in size by a small population of bevers, saving taxpayers near 1 million euros (Bittel 2025).

Gardens and landscapes have been increasing twofold as laboratories within which to find new methods of relating and interacting with nature as well as exploring collaborative methods within design processes (Beardsley 2000; Kurz 2023): An increasing amount of landscape projects have been by varying means incorporating a more-than-human perspective into their designs. Focusing on the collaborative relationships between humans and the non-human systems and entities we depend on, designers have been working at the increasingly blurred intersection between culture and nature. Embracing landscapes as an open-ended design process of perpetual becoming (Palmquist 2023), as a system in constant flux in collaboration with the non-human entities around us, rather than a fixed, rigid idea to be enforced and maintained for the sole benefit of humans. Researchers Naomi Jacobs and Annette Giesecke argue in their 2012 book Earth perfect? Nature, Utopia and the garden for the symbolism and potency of gardens as spaces to encounter and interact with nature and reflect on our relationship with it. They go on to wonder whether "a new ethos grounded in gardening could lead us to a more sustainable relationship between humanity and the natural world?" (Geisecke & Jacobs 2012).

The rapid urbanization we are experiencing correlated with the expanding loss of natural habitats is urging an understanding that natural and urban environments need to overlap (Baumann 2023). Within this discourse, landscape architects and designers play an important role in facilitating human interactions and encounters with non-humans. These types of interactions could take place in urban commons, spaces that could foster human/non-human interactions to become multispecies commons, spaces within which to explore sustainable, more-than-human design futures (SOS 2021; Haldrup, Samson, Laurien 2022).

One such common is Amager Fælled, a unique common in southern Copenhagen, Denmark that is currently under a land use conflict between the cities increasingly neoliberal urbanization and a wide range of local residents, active biologists and conservationists, who wish to preserve and strengthen the common as a unique space for nature-culture interactions. The friends of Amager Fælled (Amager Fælleds Venner) organization have been greatly opposed to plans to develop areas of the common, arguing for the right to access nature and non-enclosed biodiversity, as well as enforcing the non-capitalizing exchanges between culture and nature that define what a common is in the first place (Skaaning 2016, Malmio & Kurikka 2020). By connecting with non-human species interests and agencies for participation, commons could become an important precedent for how we bring nature into urban environments as well as how designers could connect with other species as co-creators of knowledge and experiences (Rosen, Normark, Wiberg 2022). Furthermore, they could become vital spaces within which to foster reconnections with nature and embodied experiences of nature-culture interactions (Eliason 2023). In this regard, while who, what and where are salient questions, the more pressing question to ask is how? As such, this master's thesis will explore participatory design methods and how such methods can be implemented practically with commoning between humans and other species that share urban commons.

INTERPRETATION OF BACKGROUND

While collaborative considerations for other species and impacts on the environment have been foundational aspects of contemporary landscape architecture practices, posthuman perspectives within landscape design, planning and management could create new ways of interacting and relating to other species and natural processes.

Despite foundational theoretical backgrounds for more-than-human design perspectives, how these perspectives may inform a practical design strategy is less defined. In Amager commons, there is an opportunity to explore design dialogues with the common and study commons as testing grounds for col-

laboration that could benefit all human and non-human stakeholders present on the site. The distance present between our daily lives and both human and non-human infrastructures that support us in urban and semi-urban areas call for designers to explore methods of integration together with non-human systems, allowing the designer to take on the traditional role as a steward to create physical frameworks from which non-human stakeholders can act upon, inhabit, transform and thrive in as participatory designers. Furthermore, communicating these frameworks visually explores different aesthetic and sensory ways of encountering and engaging with other species. By doing so fostering embodied knowledge to invite humans understand the lives of other species and how we are connected.

PURPOSE & OBJECTIVES

The aim of this thesis is to explore the more-than-human perspective and its origins within design, as well as identify methods of designing to strengthen a more-than-human perspective within design processes. Testing the practical implementation of these methods and their outputs, focusing on Amager Fælled as a specific example. Furthermore, this thesis aims to explore how visual/aesthetic modes of representation can wake discussions of more than human rights in the development of Amager Fælled. Experimenting with methods of visualizing changes and fluctuations in Amager Fælled over time to address the need for a both thriving and expanding ecosystem in Amager Fælled.

The purpose is to develop a broadened understanding for the more-than-human perspectivee within landscape architecture and design, as well as methods of designing within a more-than-human perspective. Furthermore, address how these methods within landscape architecture could engage in the land use discourse of Amager Fælled, as well as similar contexts where human/non-human relations are explored through design to strengthen social and ecological values of an area.

PROBLEM FORMULATION

The development of a more-than-human perspective within design asks designers how the rhetoric of design may be extended to include non-humans within participatory design processes. While contemporary landscape architecture practises are predicated on collaboration with other species and natural processes, distinct methods of including non-humans within participatory design frameworks need to be investigated to strengthen human/non-human interdependencies in commons such as Amager Commons, Copenhagen. This will be explored through the following research questions:

- ***What methods could strengthen a more-than-human perspective within landscape architecture?***

- ***How could more-than-human design methods be utilized by landscape architects in the management of commons such as Amager Fælled?***

METHODOLOGY

This master's thesis is divided into two stages: firstly, conducting research into more-than-human design to introduce and define the design perspective and identify participatory methods that can strengthen more-than-human perspectives in landscape architecture. Secondly, through the example of Amager Fælled, the identified participatory methods were tested; exploring how more-than-human perspectives are being applied to the management of the fælled based on methods identified from part one.

The first stage was achieved through literature review. Research was conducted into literature by landscape architects, environmental scientists, designers and artists to research the origins and definitions of a more-than-human perspective as well as what ways a project can be more-than-human oriented. Methods with which a more-than-human perspective can be strengthened within design processes were identified (noticing, scaffolding and refraining) and then discussed within the context of landscape architecture and

design. This was achieved by cross referencing the literature review as well as referencing examples where each method has been used to include more-than-human participation. The second stage discussed and examined the identified methods (noticing, scaffolding and refraining) and how they strengthened more-than-human perspectives in the specific context of the development and management of Amager Fælled. A site visit to Amager Fælled was conducted, led by Paul Maslen, head biologist overseeing and maintaining Amager Fælled for the municipality of Copenhagen. After the visit, Mr Maslen was interviewed, the identified methods were explained to him before prepared questions were asked on his work at Amager Fælled as well as how more-than-human design methods could/are being used and his future plans for the area. Mr Maslen's answers were recorded, transcribed and, with permission, referenced throughout parts one and two of this thesis. Paul was then asked to point out areas he plans to develop. This information was then used as a base to explore how future developments in Amager Fælled from the perspective of the identified more-than-human design methods will take place and change over time. A number of species currently present on site, as well as in the open areas surround it, were identified with the Arter.dk tool, an information common where users can upload species they have discovered and place them on a map. These developments and fluctuations were then visualized in sequencing diagrams.

PART I
On more-than-human design

INTRO: GARDEN ATTITUDES & ECOLOGICAL DESIGN

In many ways, the environmental crisis is a design crisis. The built environments we create are a direct result of various intentional design decisions made for specific purposes, these decisions impact and alter the local environment they are placed within (Rottle & Yocom 2010). As such, how buildings are constructed, and landscapes are used has a consequence on the environment locally and by extension globally (Van Der Ryn & Cowan 2007).

To talk about design is also to talk about the state of the planet and the impacts of climate change. The way in which we design our surroundings reflects our attitude towards the world. As such, the gardens and landscapes we have built throughout time represent our attitudes and relationships towards nature, as well as what we seek to gain from it. The first gardens in history were created out of necessity, offering protection from the outside world and improving chances of survival by cultivating plants and animals for food, gardens manifested humanities change from a tribe to a society (Olonetzky 2017). The first examples of garden design beyond the necessity and survival were the Persian gardens and later medieval cloister gardens in Europe, these early gardens were grounded in the religious notion of paradise: "paradise" stemming from a Persian term for "walled enclosure" (Olonetzky 2017). In more recent times, gardens have taken on a variety of functions, from grand symbols of power and dominion to spaces of political assembly and wellbeing in an increasingly industrialised world (Beardsley 2000; Olonetzky 2016). The notion of the garden as a healer and saviour is a reoccurring theme that has taken on a variety of definitions and contexts throughout garden history. While gardens have been typically placed within the context of human benefit, there is compelling precedent for how we may expand the notion of healing beyond human interests towards non-humans, exploring the garden as a space for regeneration and strengthening human/non-human relations. The notion of exclusion has however always defined the garden. Gardens have by nature been designed to keep out undesirable elements: Traditionally making order out of chaos; non-human life – plants and animals – have only been admitted to our gardens selectively, whitelisted based on what benefit they may serve for the humans tending the garden. Gardens are as such a very specific expression of what it means to be human at a certain time within a certain culture (Kurz 2023). The significance of which stretches further than romantic notions of picturesque flower beds, escape and paradise, "gardens are rather a construct and a cultural artefact, the product of an idea, a dream, a vision" (Kurz 2023).

The idea that sustenance and refuge can only be provided by a controlled and allocated form of nature is a paradigm that must be revisited: In North America alone there are 40 million acres of cultivated lawn (Holthaus 2019). To sustain these lawns, Americans annually use a third of all residential water nation-wide (United States Environmental Protection Agency 2022), apply 27 million kilograms of pesticides (Atwood & Paisley-Jones 2017) and burn 800 million gallons of fuel by mowing (Son 2020). Cultivated lawn is North Americas largest "crop" (Holthaus 2019), the resource cost of which is staggering. Landscape architect James Hitchmough refers to lawns as "green deserts", critiquing the excessive monocultural habits we impose on our built environments, while stating the issues with covering 25 per cent of our cities with "something virtually nothing lives in" (Hitchmough 2008). While only one of the many ecological issues threatening the planet, the lawn is perhaps one of the most prominent representations of our idea that nature can be moulded to our interests at will (Pollan 1989). With the threat of large-scale biodiversity loss, philosopher Bruno Latour inquires "do we continue to nourish dreams of escaping … or do we start seeking a territory that we and our children can inhabit?" (Latour 2018). Expanding the concept of the enclosure may be one way, such as botanist and gardener Giles Clements concept of the "planetary garden", where he writes, as the garden is always an enclosure, it now encloses the entire planet, introducing a

new collective responsibility for the rest of the world that is not immediately within our reach (Clement et al. 2015). As the effects of climate change are often felt in regions seemingly far away from the west (Warner & Van Der Geest 2013; Williams, Sikutshwa, Shackleton 2020), this notion urges us to consider the world as a common garden that needs to be collectively tended. In 1966, landscape architect Ian McHarg together with other concerned environmentalists wrote that there may not be a single "one-shot cure" solution for the environmental design issues we are faced with. Instead, they write, there is a need for collaborative solutions, groups of solutions "carefully related to one another" (McHarg et al. 1966).

The ideas formulated by McHarg et al. (1966) in their Declaration for concern announced that an age of environmental crisis was upon us. In the 1960s, awareness of global environmental issues started to grow. With the widespread success of publications such as Rachael Carsons A silent spring accounting the detrimental environmental impacts of industrial and agricultural chemicals in 1962 as well as the devastating impacts of the Santa Barbara oil spill in 1969 and the first photographs taken of plant earth by astronauts in space in 1968 paved the way for the first modern environmental movement (Attia 2017, Dalziel 2022). With increased awareness of the threats of human impact on the planet and her systems, attitudes towards how we tend to our natural surroundings started to change. Ian McHarg's Design with nature in 1969 and Edward Wilson's Biophilia in 1984 manifested environmental concerns within the context of landscape management and design, contributing to what became known as the ecological design movement (McHarg 1969; Wilson 1984; Rottle & Yocom 2010; Attia 2017). According to Rottle & Yocom (2010), ecological design encompasses the initiation of various design concepts tasked at improving environmental health, where composition and processes aim to maintain and increase the ecological relationships of a targeted area. Van Der Ryn & Cowan (2007) define ecological design as "… any form of design that minimizes environmentally destructive impact by integrating itself with living processes." Thus, ecological design is the adaptation to and integration with natural processes, holistically testing solutions and accounting for their impacts on the environment. This considers impacts both within the local environment as well as how they affect connected systems at varying scales (Van Der Ryn & Cowan 2007; Rottle & Yocom 2010).

Ecological design based on McHarg's design with nature are part of what Attia (2017) accounts as the second out of roughly six paradigms of sustainable architecture to date (Attia 2017, p. 8). These paradigms have generally shown to follow political concerns. As such, the increasing focus on concepts of resource efficiency and carbon neutrality for architects could suggest a coming paradigm of regenerative architecture (Attia 2017).

Dalziel (2022) is critical to how exactly this new paradigm would be manifested within current environmental perspectives. He cites Leatherbarrow & Wesley (2019) who state that traditional dichotomies between nature and culture have been the limiting factor in making environmental architecture truly sustainable, a task that they say is "misconceived and in practice unmanageable" (Leatherbarrow & Wesley 2019 see Dalziel 2022). Dalziel (2022) however elaborates that collective and site-specific practise in architecture, linked to bioregional concerns stated by McHarg in 1969 could be potential grafting points for a new architectural paradigm (Leatherbarrow & Wesley 2019; Dalziel 2022).

In landscape design however, concepts of collaboration have always been foundational aspects for its success. Viewin g the garden as a human/nature interface, its future, and in some cases, its present may depend on interconnecting human and natural environments organized in eco-social networks (Heinrich, Kuijpers, Stappmanns 2023). This way, contrary to previous garden attitudes, garden definitions are broadened beyond ideas of enclosure; its ethos and practise spreading across entire cities. This highlights a need to discover a common middle ground within which everything between the city and the wilderness "can somehow be encompassed in the word home." (Cronon 1996).

POSTHUMANISM & MORE-THAN-HUMAN PERSPECTIVES

Architecture, as a humanist tradition, has developed within an anthropocentric thought-space. Within architectural ontology, questions have primarily evolved around architectural objects and the humans that use them, with "Nature" relegated as a backdrop for human agency and well-being (Dalziel 2022). Today, this human tradition of anthropocentric architecture is being challenged, formulating new design perspectives with ties to posthumanism and relational interdependencies (see; Abram 1997; Hayles 1999; Barad 2003, 2007; Bogost 2012; Haraway 2016; Forlano 2017; Braidotti 2019; Rosen, Normark, Wiberg 2022). In his article Should Trees Have Standing? published 1972, lawyer Christopher Stone recounts the continual improvement of constitutional rights for underprivileged groups such as indigenous people, people of colour, genders, sexualities etc. He argues that plants and areas of nature too could be given constitutional rights (Stone 1972). Since then, rivers in New Zealand and Australia have obtained the same legal status as human beings (O'Donnell & Tallbot-Jones 2018), a robot has become a partner at a law firm (Niel 2010) and new medical devices replace what are typically thought to be exclusively human functions (Forlano 2017). Forlano (2017) makes the case that posthuman ontologies are shaping the future of cultural, political, economic and environmental transformations. In the space of possible ways of being, posthumanism states that those accessible to human beings form only a tiny subset (Wolfe 2009; Yong 2022). It explores the human relationship to the world in a non-anthropocentric light, undermining traditional dichotomies (human-technology, nature-culture) that may often be held responsible for unethical and unsustainable attitudes towards the environment, and recognising the significance of non-human contribution to our lifeworld (Wolfe 2009; Forlano 2017; Rosen, Normark, Wiberg 2022).

Central to posthumanism is the concept of the more-than-human, first popularised in ecologist and philosopher David Abram's book The Spell of the Sensuous: Perception and Language in a More-than-Human World (Abram 1996). More-than-human concepts expand the subject beyond anthropocentricity and, drawing on object-oriented ontology (see Forlano 2017 p. 22; Harman 2018), explores the agency and existence of non-human species on an equal plain, within which human are an equal participant (Forlano 2017; Graham 2018). While applying posthumanism and more-than-human concepts to architecture may spark narratives and aesthetics akin to sci-fi, Escobar (2018) accounts that more-than-human ideas are far from new; they originate from indigenous architecture and permaculture, viewing nature as animate, ascribing traits more commonly associated with humans, such as intelligence, sentience and agency to non-humans (Escobar 2018; Rosen, Normark, Wiberg 2022; Dalziel 2022). However, when viewing posthumanism in architecture, both extremes may be equally applicable, as opposed to the highly aestheticized world of contemporary design, posthumanism centres around "what things do" rather than "what they are" (Dalziel 2022). As such, posthumanist developments in face of ecological crisis may be offer an opportunity to imagine new forms of participation, creativity and stories, shifting attention from what life is and how it is managed, to how can a planet be a healthy place for all life on earth? (Chakrabarty 2019; Haldrup, Samson, Laurien 2022)

While the field of sustainable design has a long history, these new ways of understanding and valuing the environment may allow for it to gain greater traction. There is an expanding interest for a variety of new design methodologies based on posthuman theory, such as transitional design and participatory design (Irwin, Kossoff, Tonkinwise 2015; Slavin 2016; Smith 2016). The indigenous origins of more-than-human ontologies are becoming increasingly recognized within contemporary western society (Williams, Sikutshwa, Shackleton 2020): Recently, designers and participatory designers have drawn on indigenous ontology as well as posthumanist and feminist discourses to explore how participation design can be enhanced to integrate the interests of and concerns for more-than-human actors within design processes (Escobar 2018; Akama et al. 2020).

Based on broadening the scope of participation, and the notion of accounting for others, a new more-than-human design perspective has emerged. Design and infographics researchers Rosen, Normark, Wiberg (2022) describe the inclusion of more-than-human perspectives within design as more-than-human design. More-than-human design recognizes the importance of interdependencies between species, forefronting that many organisms, humans included, could benefit from holistic and relational design perspectives (Clarke et al. 2018; Akama et al. 2020; Nijs et al. 2020; Rosen, Normark, Wiberg 2022).

Considering the omnipresent states of the global environmental crisis and its challenges on design and planning, more-than-human design asks how more-than-human rights could be taken into consideration within participatory design processes, and how other species could be considered participants and collaborators in making liveable environments accessible for more than exclusively humans.

The more-than-human approach to design challenges anthropocentric notions, decentring humans and re-imagining ourselves as planetary subjects rather than global agents, asking how designers could maintain existing ecologies while repairing damage done by current landscape design practises (Haldrup, Samson, Laurien 2022). In her book The Posthuman, Rosi Braidotti (2013) writes that "This practice of relating to others requires and is enhanced by the rejection of self-centred individualism. It produces a new way of combining self-interests with the well-being of an enlarged community, based on environmental inter-connections." Dalziel (2022) further states that when applied to the discipline of architecture, posthumanism could be highly transformative to both our definition of what architecture is, as well as ways in which knowledge is produced (Braidotti 2019, Dalziel 2022). When applied to a specific discipline like architecture, posthumanism prompts us to reconsider our ways of knowing and acting beyond the scope of one specific species, expanding our focus to all earthly material, whether animate or inanimate (Grahan 2018; Braidotti 2019; Dalziel 2022).

As nature commons, rivers, watersheds, and nature reserves become increasingly enclosed, incorporating non-humans into our thinking and designs can offer designers opportunity to reinvigorate nature commons and advocate for environmental justice on behalf of species that are currently underrepresented in communities and political assemblies. (Forlano 2017; Studio Other Spaces (SOS) 2021; Haldrup, Samson, Laurien 2022; Rosen, Normark, Wiberg 2022).

While inspiration for these approaches originates predominantly from indigenous cultures, these approaches also suggest a change in the roles of planners and designers operating within the context for social democratic modernist welfare states. As such, Haldrup, Samson, Laurien (2022) elaborate that the role of designers can be re-imagined as that of commoners (Stewards, herders, gatherers), embracing and acting upon cosmologies that allow for new alliances between the land, sky, plants, people, animals etc. Eliasson (2021) writes that we must advocate for "a collective space to explore sustainable, more-than-human futures", if we are to accomplish incorporating more-than-human interests and rights into our future democratic assemblies (Eliasson 2021). This reimagining of the designer's role as the steward (see Van Der Ryn & Cowan 2007 p. 86) as well as participatory design practises in landscape and garden contexts could be a method of working with an earthly communing between humans and other species (Haldrup, Samson, Laurien 2022). Stewardship invites non-human stakeholders to participate in design developments, rather than working counter to them in pursuing human centred design interests.

EMBODIED EXPERIENCES OF NATURE

In an Instagram post, environmental artist Olafur Eliasson stated that "Knowing about something alone will not necessarily lead to change. What is truly needed is embodied knowledge – whether about the climate, war, or peace. If you encounter something bodily and emotionally, you are much more likely to act upon it." (Eliasson 2023).

While Eliasson (2023) is pointing to the global effects of climate change and war, the concept of embodied knowledge may be applicable to issues within more-than-human design as well: Experiments with the body, senses and sensemaking play a central role in understanding non-human interdependencies as well as also noticing ourselves as part of these interdependencies on an experiential level (Aspling 2020; Tsing et al. 2020; Biggs et al. 2021; Haldrup, Samson, Laurien 2022; Rosen, Normark, Wiberg 2022). Transmedia designer Kit Braybrooke describes these experiences as "those moments in life where something shifts within ourselves and we perceive differently, a point from which there is no going back" (Braybrooke 2022). Others have described sensory experiences of being in nature as a "blurring" or "blending" of notions of the self with the surrounding environment (Rosen, Normark, Wiberg 2022). Biggs et al. (2021) also explored experiences of abjection (see fletcher & Benjamin 2012) as a means of blurring lines between the experience of self and the environment.

Developing deeper understandings of other species and designing for more-than-human interdependencies may therefore be more dependent on subjective personal experiences than solely relying on data to communicate awareness (Rosen, Normark, Wiberg 2022). While focusing on human-oriented experiences may initially seem egocentric, they may be key to connecting with nature and non-humans. The reinvigoration of nature commons plays an important role in this development: According to Van Der Ryn & Cowan (2007), in de-natured places, we are likely to develop de-natured thoughts. As such, semi-urban spaces such as commons offer opportunities to engage in multispecies co-design to "re-enchant" these spaces, while facilitating everyday interactions that can reinforce human/non-human interdependencies in processes of "co-becoming" (Singh 2017).

MAKE NATURE VISIBLE

Van Der Ryn & Cowan (2007) argue that we currently live in a "de-natured" world; the designed environments we live in as an increasingly urbanised species has caused us to develop a disconnectedness to both the ecological and technological processes that sustain our lives. This creates a sense of emotional and physical distance, both from such processes as well as the natural world we are a part of (Van Der Ryn & Cowan 2007). In pursing more-than-human agency and relations in our designed environments, there is a need to develop awareness through effective design that can help inform us of our place in nature. Building on Eliassons idea of embodied and emotional experiences, as well as ecological design theory, making nature and its processes visible may be one way of doing so (Thayer 1976; Van Der Ryn & Cowan 2007; Meyer 2008, 2015; De Block & Vicenzotti 2018). The concept of making nature visible helps weave nature back into our everyday lives, reminding us of the ecological processes and diversity all around us (Van Der Ryn & Cowan 2007). New ideas and connections to nature can be learnt most effectively when they are expressed visually and experienced directly, as such, speculative and artistic utilization of media could be a grafting point to base dialogues with and citizenship to non-humans (Eliasson 2021, 2022). Landscape architect Robert L. Thayer calls this an aesthetic of Visual ecology, describing design environments that make complex or invisible natural processes understandable and visual, emphasizing unrecognized connections with nature (Thayer 1976). Spaces developed under this design philosophy could create valuable opportunities for humans to reconnect with wider communities of life, while also informing us of the ecological consequences of our activities (Thayer 1976; Van Der Ryn & Cowan 2007).

SUSTAINING DISTANCE

While posthuman theory decentralises humans, blending nature/culture dichotomies, there may be reason for environmental design aesthetics that sustain distance between human and non-human. In 2008, landscape architect Elizabeth Meyer argued for the role of aesthetics within the sustainability agenda. In her article, Sustaining Beauty, she says it will take more than just ecologically regenerative designs for cultures to be sustainable, what is needed is designed landscapes that provoke awareness of how those who experience them affect their environment. Meyer (2008) states that aesthetics are equally as important as a landscapes ecological performance, arguing that a designed landscapes appearance can perform by "leading to attentiveness, empathy, love, respect, care, concern and action of the beholder", in this sense persuading or educating the users to ultimately behave more sustainably.

Meyer however does not argue for human-centric perspectives, instead she considers re-centring human consciousness from egocentric to bio-centric perspectives. Similarly, landscape architects Nigel Dunnett and James Hitchmough state that while nature-first sentiments have been growing in recent decades, nature-rich environments are still not within the mainstream of urban planning. They argue that this may be because humans aren't considered in these developments (Dunnet & Hitchmough 2004). As such They argue for a potential "people-first" (Dunnett 2024) approach to urban planning, where designed landscapes - where applicable - can orchestrate immersive experiences that may become a gateway to more widespread applications of ecological ideas, opening the general public's eyes to alternative ideas (Dunnet & Hitchmough 2004; Dunnett 2024). These sentiments have been explored in a variety of garden and landscape design projects, such as the Lurie Garden in Chicago (fig. 1), offering an aestheticized experience of what native ecosystems may have existed on site before settlers arrived, or the Tower of London Superbloom in 2022 (fig. 2), expressing unique natural processes from other parts of the world.

Reflecting on Meyers article, De Block & Vicenzotti (2018) argue that "an aesthetic that sustains distance between subject and object could offer ways to "free" the beholder and create space to reflect actively and critically on the connection between the human and non-human" (De Block & Vicenzotti 2018). As such, working with visual representations of species interdependencies, and reenchanting seemingly invisible habitats through various methods such as how we designate or name them (Haldrup, Samson, Laurien 2022) may be salient methods of creating multispecies awareness and relating to the non-human. While design alone may not be able to change society, Meyer (2008) believes that it can alter an individual's consciousness and assist in restructuring priorities and values towards nature. As such, we need landscapes that can create stories, affections and practices that connect humans with other species. Our environments, whether they are sprawling parking lots or wild meadows, are as Van Der Ryn & Cowan (2007) say "the most powerful teachers we have".

Fig. 1 (top right)
The Lurie Garden, designed by Piet Oudolf in 2004. (CNT 2014)

Fig. 2 (bottom right)
The Tower of London Superbloom, designed by Nigel Dunett 2022. (Manila 2022)

DESIGNING FOR THE MORE-THAN-HUMAN

Despite the evident rationale for more-than-human design, there are still disparities between theory and practice. This chapter will explore what characterises designing within a more-than-human perspective, as well as identify methods of engaging a project from a more-than-human perspective.

There are multiple ways a project can be more-than-human oriented; Through ontology and epistemology based on posthuman theories and concepts (Smith et al. 2017, Light et al. 2017; Liu et al. 2018, Liu et al. 2018, Liu et al. 2019; Bardzell et al. 2021). By considering its intended users; catering to the needs of previously unconventional users, such as animals and plants (Kuribayashi et al. 2007; Norton et al. 2014; Heitlinger et al. 2014; Aspling 2015; Aspling et al. 2016; Fastnacht et al. 2016; Carrozzo et al. 2018). Through methodology, to include perspectives of non-human stakeholders (Galloway & Caudwell 2018; Liu et al. 2019; Livio et al. 2019; Nijs et al. 2020). In orientation; decentring privileges and empowering margins though concrete actions (Light et al. 2017; Foth & Caldwell 2018; Clarke et al. 2019; Akama et al. 2020). Lastly through form; reworking expressions of representation (Holstius et al. 2004; Fastnacht et al. 2016; Liu et al. 2018; Liu et al. 2021). More-than-human considerations into design may require new forms knowledge, and expand the field of design with new questions, opportunities and problems that human-centred design practises may not yet be equipped for (Forlano 2017): Engaging with new opportunities within emerging non-human design knowledge asks design projects to consider first who, or what are the users involved and for who should the project be desirable for? In what ways are power and agency distributed between humans and non-humans? What kinds of new stakeholders and partnerships are needed and how are ethics, values and responsibilities incorporated within the design process? Decentring humans from design processes raises questions about how landscape design could be imagined beyond traditional human exceptionalism, as well as what methods designers could employ to connect with more-than-human agencies and include non-humans as co-creators of our shared environments.

Gardens represent that kind of shared environment between humans and non-humans where, opposed to other disciplines of design, collaboration is an inherent part of its process and success. Predicated on the perpetual state of becoming, gardens are designated spaces where gardeners negotiate and collaborate with both nature as well as other people (Heinrich, Kuijpers, Stappmanns 2023). Working with nature in the context of gardening involves a constant process of action and reaction; A gardener may try something, and nature responds, then the gardener responds to that and so on. There is a kind of back and forth, non-verbal conversation between gardeners and nature, a kind of sustained dialogue (Stuart-Smith 2020). Documenting and sharing the knowledge gained from such dialogues are also integral parts of gardening culture. Gardeners pay close attention to how nature responds to their actions, what works and what does not, and knowledge is gained through these experiences which is then often shared between gardeners across informal networks such as online forums, in magazines or verbally from person to person (Rosen, Normark, Wiberg 2022; Heinrich, Kuijpers, Stappmanns 2023).

Similarly, more-than-human design practises could be based on large collective networks, predicated by human and non-human dialogues. Here, knowledge sharing, adaptation and custom-made solutions emphasize habitual relationships between design and use in a perpetually developing design process that continues “as long as the organisms are alive” (Rosen, Normark, Wiberg 2022). In the context of commons, landscape architecture from a more-than-human perspective could become less about finding grand solutions but rather about looking for simple, individual and local gestures (Baumann 2023); the process taking on the character of a question rather than trying to be a definitive answer (Heinrich, Kuijpers, Stappmanns 2023). This way, change and adaptation can become a fundamental part of the design (Möldner 2023).

As such, the role of the landscape architect could include notions of stewarding when working within more-than-human spaces (Singh 2017). Designer Fritz Haeg explores a new attitude towards the relationship between architect and the designed land in this regard, describing the idea of an architect's role changing to that of a gardener; "someone who's there strategically, every single day. Paying attention and listening and watching and cultivating and caring for things as opposed to imposing a vision then forcing people to live in it" (Fritz Haeg 2021). Or, in Brian Eno's own words : "think like a gardener, not an architect: design beginnings, not endings (Eno 2021) Here, the architect is no longer the spider in the web but rather a co-commoner; one part of a continuously developing whole, who's designerly attention is redirected to the multitude of "multispecies knots" that connect humans to other species and habitats (Haldrup, Samson, Laurien 2022).

While user-centred participatory design has played a fundamental role in development of successful architecture, attending to human needs implies that less attention has been directed towards other non-human users, with environmental oversight as a consequence (Rosen, Normark, Wiberg 2022). How could the scope of participatory design be extended to include non-humans, inviting them to participate in development processes? One option may be beginning a design process by putting oneself in the place of other species (see Clarke et al 2019). Another may be to consider design objectives from the perspective of a different species. Tasking designers to, rather than prioritizing human needs in design processes, consider what the needs of another species may be. This perspective asks us to consider what kind of expertise, theories, models, methods and frameworks would be needed to address this problem and explore possible solutions? What kind of new design languages could be formulated based on this? (Forlano 2017, Haldrup, Samson, Laurien 2022). Forlano (2017) argues that posthuman concepts may be an introduction to these discussions within the field of design. Rosen, Normark, Wiberg (2022) summarize three methods with which to approach a design from a more-than-human perspective: namely noticing, scaffolding and refraining:

NOTICING

Noticing is a form of culturally sensitive skill articulated by anthropologist Anna Tsing (2015, 2020). It is a systematic and relational way of thinking that is comprised of methods of becoming aware of and treating something as worthy of recognition and attention (Liu et al. 2018; Livio et al. 2019; Liu 2021; Biggs et al. 2021; Haldrup, Samson, Laurien 2022; Rosen, Normark, Wiberg 2022). Navigating more-than-human interdependencies can be exceptionally complex. In a design process, identifying where it might be beneficial to intervene or design can be difficult as it entails interacting with non-human actors that might not be immediately perceivable (Rosen, Normark, Wiberg 2022). Rosen, Normark, Wiberg (2022) found that Noticing could be a possible method for understanding and relating to more-than-human complexities at a given site, going beyond what is immediately perceivable to observe underlying structures and patterns of non-human interest. It is a method of being part of experiences and staying open to the environment, a way of aligning positive human experiences with the needs of other organisms. In their workbook for noticing practises, Livio et al. (2019) describe noticing as "amplifying, augmenting and attuning" one's attention to a widened range of "actors, perspectives, and relations." To better understand "the divergent, layered and conjoined projects that make up our world" (Livio et al. 2019). Linguist Charles Goodwin (1997) Stated that as individuals learn about a given context, their perception of nuances within said context increases. Noticing may therefore not only be dependent on sensory capability but also cultural background and initial knowledge levels (Goodwin 1997; Haldrup, Samson, Laurien 2022). This implies that Noticing is a form of tacit or pre-understood (see Prpa et al. 2020) knowledge that develops as one becomes more familiar with a given context (Liu et al. 2018). Haldrup, Samson, Laurien (2022) argue that noticing is a disciplined act that requires intention, stating that while noticing involves opening up, one opens

up to take in only certain aspects of the environment (Haldrup, Samson, Laurien 2022).

Noticing is an act of multisensory listening that can help humans perceive that which is often overlooked or not evidently perceivable. While we as humans are accustomed to noticing from a human perspective, noticing from more-than-human perspectives may require a foundational change in mindset (Biggs et al. 2021; Haldrup, Samson, Laurien 2022). Biggs et al. (2021) recognises this; they state that: "It is a personal and emotionally difficult journey to reconfigure oneself as a designer and researcher, a psychological labour that, while worth doing, is also part of the reason why this paradigm shift in design is so difficult to put into practice." (Biggs et al. 2021 p. 14). The application of technology can however be a tool to help bridge the limits between human and non-human perceptions (Bowser et al. 2017; Liu et al 2017; Rosen 2022). Rosen, Normark, Wiberg (2022) make the example of heat composting, where a thermometer was used to document the increase of temperature of a composting pile over time, helping gardeners gauge when the compost pile needed more material to maintain the correct temperature for beneficial microbes. Through the measurement of temperature using a thermometer, gardeners were able to notice the presence of beneficial microbes and that the active composting process was working, highlighting interdependencies between humans, microbes, moisture and nutrient composition to create conditions within which healthy soil is created (Rosen, Normark, Wiberg 2022).

More-than-human design also entails the intentional intervening of more-than-human interdependencies through various practices that involve co-creation with non-humans (Rosen, Normark, Wiberg 2022). Haldrup, Samson, Laurien (2022) study an example of co-creation potentials with noticing practices as a catalyst for interdependency dialogues: In the city of Borås, Sweden, quality habitats for brown trout have been declining in tandem with urban developments throughout the city. Fishermen, specifically anglers, that by habit and experience recognise fish behaviour, noticed where the trout were congregating along the river and recognised that with small interventions, those areas could become greatly improved habitats for brown trout (Haldrup, Samson, Laurien 2022). This example highlights not only how noticing becomes a powerful tool for both recognising issues and planning interventions, but also how designers can collaborate with non-designers holding unique and site/species-specific knowledge. As such, more-than-human design approaches aren't only scientific, but also social. Not only is it about understanding non-human behaviour and evaluating potential interventions to empower interdependencies, but also about facilitating embodied knowledge to acknowledge voices and interests of non-human stakeholders in the first place (Escobar 2016; Haldrup, Samson, Laurien 2022; Rosen, Normark, Wiberg 2022). The role of the design and the designer can therefore be understood in a more open-ended way, sharing agency between multiple stakeholders within design processes. Designing then becomes a matter of strengthening certain natural processes while strategically slowing down others, the challenge then being to notice where beneficial interventions can be made and balancing conflicting interests (Rosen, Normark, Wiberg 2022).

SCAFFOLDING

Another approach to more-than-human design is what Liu et al. (2017) calls providing scaffold. This entails creating possibilities for more-than-human interdependencies through creating conditions in which processes can unfold in desired but uncontrolled ways (Liu et al. 2017; Rosen, Normark, Wiberg 2022). Scaffolding can be seen as a kind of more-than-human infrastructure (Seravalli 2018; Prost et al. 2019; Teli et al. 2020), where interactive technologies are used as structures to create conditions within which certain practices can unfold (Rosen, Normark, Wiberg 2022). Looking at the example of composting in urban farming again, the scaffolding provided is composting piles, organic garden waste and heat, and the conditions created support a concentration of microbes that in turn produce heat and desired forms of decomposition for the farmers (Rosen, Normark, Wiberg 2022).

Fig. 3
River Aire renaturalization. Initiation and process.
(Superpositions 2016a)

Fig. 4
River Aire renaturalization. Chutes and runoffs.
(Superpositions 2016b)

Fig. 5
Living root bridges in Cherrapuji, India
(Hedge 2012)

More literally, scaffolding can be adapted to a larger landscape scale where initial landscape interventions can be implemented to allow certain desired processes transform the land. One such example is the renaturation of the river Aire in Geneva (fig. 3). Here, a previously channelled river was redirected into a field where a large diamond pattern was dug out of the sand. The river was then allowed to flow freely through the field, eroding the sand diamonds in unpredictable ways. Over time the river made its own path, drawing sediment with it. Through the erosion and deposition of sediment, the rivers natural path creates a variety of chutes and cutoffs with their own depths and flowrates, in turn creating a wide variety of habitats throughout the river (fig. 4). Examples of scaffolding practises originate from indigenous cultures, such as the living root bridges of Cherrapuji, Meghalaya, India (fig. 5), where the Khasi tribe train the areal roots of rubber trees (Ficus elastica) to build bridges across steep, landslide-prone terrain in one of the wettest regions in India (Watson 2019).

Similarly to how technology can assist and enhance noticing capabilities, so to can technology assist in creating new scaffolding practises; Oyster-tecture (see https://www.scapestudio.com/projects/oyster-tecture/) is an exhibition project by SCAPE Landscape Architecture that explores more-than-human futures for New Yorks waterfront by installing a network of "Fuzzy rope" along the waterfront to create an ecological infrastructure that supports intertidal habitats for oysters to grow on, in turn protecting the waterfront from waves and storm surges, as well as cleaning the harbour water (Lokman 2017).

REFRAINING

Knowing exactly when and where to intervene as a designer can be challenging. Designing from a more-than-human perspective, the aim is to create places of coming together and facilitate strengthened interdependencies. In some cases, the best way to support more-than-human interdependencies was to do nothing at all; for example, refraining from mowing lawns has proved to benefit insect biodiversity (Egan & Schulenberg 1997; Tree 2018; Rosen, Normark, Wiberg 2022). In these cases, the design aspect of the project may instead be to communicate an otherwise invisible decision to visitors, showcasing the interdependencies of insect- and plant life cycles and human landscape management (Rosen, Normark, Wiberg 2022).

This example highlights that various natural and non-human processes do not strictly require human intervention. In the case of composting in urban gardens, all organic matter will eventually decompose regardless of human intervention. As such, Rosen, Normark, Wiberg (2022) write that in replacing a balanced natural system with a design that requires human management, there is a risk of "playing god" (Haraway 1991), where a particular motivation dictates, disguised by neutrality. This issue can be further exacerbated by misuse of information acquired from noticing practices; information can be used assertively by humans under the belief they are benefiting certain processes while harming others (Rosen, Normark, Wiberg 2022). The point here is that it can be difficult to discern when and where to provide scaffold and when to refrain from intervening altogether. Designing from a more-than-human perspective entails engaging in dialogue with non-human stakeholders, rather than stressing particular views. As Van Der Ryn & Cowan (2007) write on ecological design; design dialogues, solutions and practices should always be mediated from the particularities of the site. As such, decisions on when and where exactly to intervene or refrain will be grounded in dialogue with the non-human stakeholders both currently and previously present at a given site or process (Van Der Ryn & Cowan 2007, Rottle & Yocom 2010). In these cases, noticing plays a major role in perceiving more-than-human interests. Noticing practices can be used to discern which stakeholders or processes are present in each situation and use that information as a starting point for design dialogues (Rosen, Normark, Wiberg 2022).

A MORE THAN HUMAN PERSPECTIVE IN LANDSCAPE ARCHITECTURE

Applying a more-than-human perspective to landscape design does not articulate a new kind of design method or process; fundamentally, many of the methods described are used in landscape practices today, in analysis, design and management alike. Rather, a more-than-human perspective offers exactly that; a way of looking at how we currently design our landscapes and who exactly we design them for. The more-than-human perspective doesn't undermine current design practices but may instead augment our design process through the inclusion of methods such as noticing, scaffolding and refraining to provide designers with articulated tools to recognise diverse actors in a given context and extend the scope of a project to include said actors as intended users. The cyclic relation between noticing, scaffolding and refraining may also help landscape designers embrace a design practice in "perpetual motion" (see Palmquist 2023) that responds to the stakeholders and environments it serves. This way, it extends the design process beyond defining a fixed static solution towards creating spaces that are adaptable and capable of evolving with the changing needs of the environment and those, human or non-human, who inhabit and define it. This creates an idea of an open-ended process that as Rosen, Normark, Wiberg (2022) state "continues as long as the organisms are alive".

In human-centered design, the term "user experience" implies the human experience. A More-than-human perspective in design challenges the notion of a single user, as the more-than-human world is comprised of an almost infinite amount of differently structured user experiences (Wakkary 2021). The challenges of more-than-human design lie in understanding these different experiences (Rosen 2022). Noticing has shown to be a potential method of engaging with and understanding the experiences of other organisms as well as moving one's attention from experiences of self to experiencing oneself as part of the local environment (Forlano 2017). Rosen, Normark, Wiberg (2022) and Rosen (2022) discuss noticing as a viable method of relating to the experience of other species: Noticing is a method of intentionally aligning oneself with the interests of other species and processes and perceiving "that which may often be overlooked" in typical design scenarios (Rosen, Normark, Wiberg 2022). Within the field of landscape architecture and design, noticing could be a means of understanding the needs, interests and actions of non-human stakeholders, noticing therefore becomes not only an effective tool for various types of landscape analysis to inform design choices, but also a means of communicating more-than-human interdependencies to humans. Based on what has been noticed, designers can then evaluate the application of design methods such as providing scaffold or refraining.

Noticing may not inherently require technology, but it does however play a role in the process by complementing the use of senses by supporting, augmenting, amplifying, measuring and storing what is noticed (Rosen 2022). At Amager Fælled, Maslen (2024b, interview) describes the utility drones and other surveying equipment provide for gathering consistent data as a means of noticing responses and developments from decisions and actions taken over the area. As such, technologies play an important role in analysing what future actions might need to be taken in the interest of both human and non-human interests and interdependencies.

In their "methods for noticing workbook" Livio et al. (2019) describe almost meditative methods of noticing with the human senses. Noticing with the senses in this manner can offer important opportunities for designers to engage with and collect local knowledge from non-designers, as exemplified by Rosen, Normark, Wiberg (2022) when observing local anglers noticing behaviours in trout in the rivers of Borås, Sweden, creating potential grafting points from which to base design interventions.

Noticing both with and without technology can be useful for the variety of scales landscape architects work within. In terms of engaging with larger scale scenarios, as is common in landscape architecture practices, technology

can be necessary, as many interdependencies between species and processes may not be visible to humans or take shape on a larger scale or from multiple points in the landscape over varying points in time. Noticing without technology can however play an important role in smaller local scales; at Amager Fælled, the process of conserving, maintaining and developing the area is heavily dependent on consistent data acquired by surveying. In this context, surveying is reliant on both technology assisted and non-assisted noticing, where a variety of biologists and other both professional and amateur nature enthusiasts gather data (Maslen 2024a, tour of Amager Fælled).

Noticing practices can thus be carried out by people of varying skills and backgrounds, as the foundational act of noticing the more-than-human is universal regardless of who is noticing, be it a designer, engaged citizen, farmer or a researcher (Rosen 2022). These types of intermediations between the various human and nonhuman stakeholders, locals, experts and the designer are the type of actions and inputs within landscape planning processes where Rosen (2022) states the role of the designer is "toned down", relying on other participants within the working context. Within more-than-human design, others extends participation to include non-humans as well (Bardzell 2018). As such these notions manifest the role of the landscape architect as a steward in the landscape as similarly described by Singh (2017).

As mentioned previously, noticing can play an important role in recognizing and understanding the experiences of other species. Rosen (2022) notes that noticing is especially interesting in the context of "plant blindness" (Wandersee & Schussler 1999 Allen 2003; Nyberg et al. 2019). Plants play an interesting role within more-than-human perspectives as plant ways of being can seem alien and thus difficult for humans to relate to (Rosen 2022). Whereas animals can be approached similarly to humans (animals, which humans also are, move, communicate through gestures and sounds and affect objects around them (rosen 2022)), plants as stakeholders in design require us to define how more-than-human design is articulated. As such, we need to work actively and intentionally to notice plants in our environments; as plants are often noted as a backdrop or not noted at all when describing images of nature (Sanders 2019; Nyberg et al. 2019). Nyberg et al. (2019) discusses this being due to both the similarity between humans and animals described previously, as well as animals giving stronger sensory stimulation in terms of movement, colours, smells and sounds in comparison to plant dominated environments where plants are perceived to operate in the "slow lane" (sanders 2019 see Nyberg et al. 2019).

However, Nyberg et al. 2019 discusses that reasons for visiting areas of nature aren't always about the plants individually, but rather positive experiences afforded by environments within which plants play a defining role (Sanders 2007). As such, in managing environments such as Amager Fælled, noticing opportunities can be facilitated by giving non-humans a "face" humans can recognize and mirror themselves in (Haldrup, Samson, Laurien 2022). Plant species and habitats can be foregrounded by designers through aesthetic representations such as displaying information about a specific species, habitat, decision or process (Nyberg et al. 2019), labeling/naming areas to signify specific habitats (Haldrup, Samson, Laurien 2022) and planning landscapes to create opportunities for humans to access habitats within situated and embodied experiences where they can "get dirty and get into it" (Maslen 2024b).

As mentioned previously, providing a scaffold is the intentional intervening in systems and processes to create conditions within which desired but unpredictable outcomes develop. Designing within more-than-human perspectives entails that the role of the designer, or in fact the designer itself, can be seen as the amalgamation of "agentic capacities" (Wakkary 2021) between humans and non-humans in ways that create things (Rosen 2022). Scaffolding practicalizes these notions: By creating conditions where humans and non-humans convene to assemble designs, scaffolding could distribute control across several actors, considering both the design process and designer as fluid concepts (Rosen 2022).

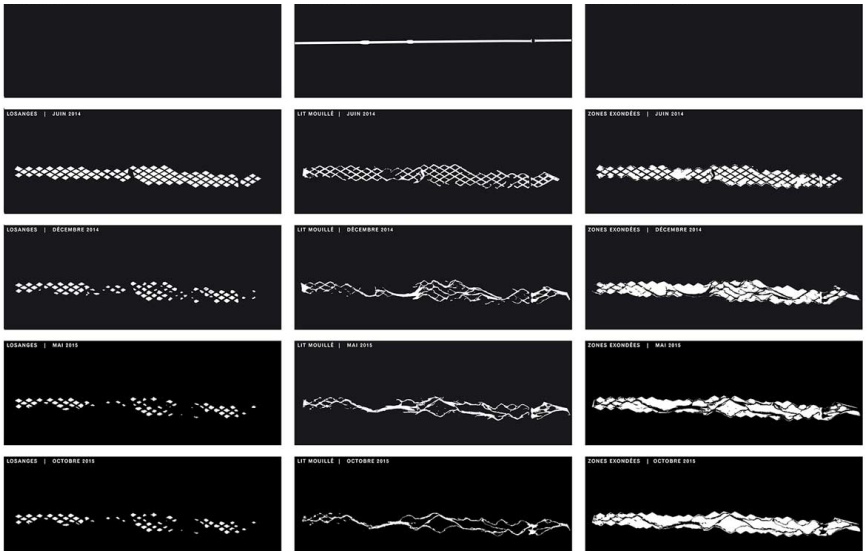


Fig. 6 River Aire renaturalization. Development sequencing. (Superpositions 2016c)

Fig. 7
Cattle cilmbing and scraping dike edge.

Fig. 8
Cattle trample and define dike edges.

Like noticing, Scaffolding isn't inherently dependent on technology; many examples of scaffolding can be found in indigenous and permaculture practices (Mollison 1988; Watson 2019; Rosen 2022). Technologies have however helped expand the scope of co-creative capacities of non-humans within more-than-human design by now including both living and machine-based participants. This includes using technologies initially to create beginnings for non-humans to inhabit and transform, as well as integrating technology into natural processes in what Mayer (1997) and Lokman (2017) call "Cyborg Landscapes". While Meyer (1997) describes cyborg landscapes as landscapes where technology has been used in the process of making and maintaining a designed landscape, Lokman (2017) explores scenarios where abiotic technologies have been integrated into biotic systems and processes (see oyster-tecture p. 20-21). While an extreme case, the cyborg landscapes exemplified by Lokman describe scaffolding scenarios in landscape architecture where technology is implemented to combine both human and non-human agencies within a physical infrastructure predicated on more-than-human participation (Lokman 2017).

Both scaffolding and refraining are practical methods of designing within a more-than-human perspective based on what is noticed. In the context of landscape architecture, what is noticed can inform what kinds of interventions could be made based on the interests of both humans and non-humans. landscape designers designing within a more-than-human perspective can explore notions of scaffolding as a means of designing beginnings as well as how their designs might include and facilitate change, variation and non-human participation. The cyborg landscapes that Meyer (1997) describes utilize technology either within the construction and/or management process; as exemplified previously, the renaturation project of the river Aire in Geneva (Fig. 6) utilizes technologies to create an initial infrastructure of diamond patterning in a desired direction and area. After this initial construction, the river is redirected into the constructed infrastructure where control is then surrendered to the river, where it is allowed to alter the shape of the diamonds, distribute sediment in non-predictable ways in a continuous process of everchanging chutes and deltas. In this process, landscape designers have created initial conditions within which the river is able to flow and alter the shape of the field in desirable ways, the variety of which establishes new habitats for other plant, insect and animal species.

Rosen (2022) writes that designing within a more-than-human perspective entails recognizing the diverse temporalities within nature; while nature is always slowly and consistently changing at a natural pace, as humans, we want to avoid causing abrupt disturbances. As a counter-principle to scaffolding, refraining explores how a given system might benefit from stopping a particular practice, as in certain situations, the most beneficial way for supporting interdependencies may be to not design anything (Rosen 2022; Rosen, Normark, Wiberg 2022). As such, it is important to recognise that not all scenarios require human intervention, natural processes will take place either way, and in some cases, human intervention could be detrimental to certain processes (Rosen, Normark, Wiberg 2022).

While refraining is considered counter to scaffolding, the two methods may be intertwined. Many may read refraining as disengaging oneself as a harmful agent from non-human processes, it's definition as described by Rosen (2022) is stopping a certain process. It can be difficult for landscape architects to decide where to provide scaffold and where to refrain from intervention, as previously mentioned, these decisions should be based on the perceived interdependencies on the site in question i.e. what is noticed. Based on what is noticed, the designer can make a decision in terms of where to intervene and initiate scaffolding for a desired process to unfold to benefit interdependencies, or refrain from intervening in situations where interdependencies don't involve humans. This duality can be exemplified by the rewilding of The Knepp Castle Estate in southern England, where a struggling cattle and dairy farm was slowly transformed into a permaculture farm and rewilded nature reserve through instigating various permaculture and

scaffolding processes such as reintroducing a variety of animal species and refraining from ploughing the farmed areas (see Tree 2018).

PART II
Amager Futures

INTRO: AMAGER FÆLLED

Amager Fælled or Amager commons is a nature park located on the western side of the island of Amager just 4 kilometres south of the municipal centre of Copenhagen. On Amager lies Københavns universitet Amager (KUA)s faculty for humanities that connects to the commons northeastern tip. In the south of Amager lies Kastrup airport – Scandinavia's largest airport, as well as Denmark's largest shopping mall Fields. A metro line runs between these points into Copenhagen's city centre. In southwestern Amager lies the larger area of Kalvebod fælled.

Malmio & Kurikka (2020) write that all manners of biodiversity can blossom on Amager commons. The areas poor soil quality creates conditions for rare Flora and fauna that have existed in the area for the past 5000 years, such as Filipendula vulgaris and Selinum dubium, as well as the great newt and the skylark (Skaaning 2016; Malmio & Kurikka 2020; Haldrup, Samson, Laurien 2022), and a multitude of red-listed insects that don't thrive on otherwise cultivated land. Furthermore, there is a wide diversity of uses for the commons; the high connectivity to the centre of Copenhagen and the rest of Amager means the common is used by thousands of Copenhageners daily (Maslen 2024a). People forage for herbs and berries, exercise, walk their dogs, transport their children from school in cargo bikes, light campfires and stay the night, students get fresh air – all these activities accompanied by a tight chain of airplanes traveling to all parts of the world from Kastrup airport right above people's heads, as well as above the grazing livestock that graze roughly 20% of the 223-hectare designated area (Maslen 2024a).

As such, the commons can be perceived as an entanglement of natural and cultural interests; the result of culture-nature interactions has given cause to a wide variety of species and users combining to create a unique thriving ecosystem. The commons are however also an entanglement of social, economic, ecological and recreational in terests. The lands proximity to the municipal centre combined with accelerated neoliberalism and urbanism, as well as a political and planning perspective of the area being a "garbage dump" or an "empty lot" has made the common attractive for urban development (Malmio & Kurikka 2020; Haldrup, Samson, Laurien 2022). This area of unique ecological and cultural history has since 2016 been subject for development of the new Fælledby, originally planned for construction over many key wildlife habitats in the marshland (Skaaning 2016; Malmio & Kurikka 2020; Haldrup, Samson, Laurien 2022). The development was greatly opposed by the Friends of Amager Fælled (Amager Fælleds Venner) and, eventually the project was relocated to flat open ground to the south of the site where construction has since begun. Maslen (2024a) however states that the open land is unique to the area and is an important habitat for ground nesting birds such as the skylark. Despite the Fælledby project moving into construction phase, the friends of Amager Fælled, as well as a wide community of biologists and locals still oppose the project, arguing for the right to access free nature that is marked by continuity, non-enclosed biodiversity as well as coercion free non-capitalizing exchanges between nature and culture (Skaaning 2016; Malmio & Kurikka 2020).

THE HISTORY OF AMAGER FÆLLED

The island of Amager, as well as Amager Fælled by extension, has had a complex relationship to the rest of Copenhagen. Amager has previously been considered either a wasteland or a low-status area, historically an island for peasants. The island was used for dumping and treating waste from the capital in the 1700s; open so-called "chocolate wagons" drove soil and human waste to be stored on the island, earning the island its name of "shitty island" (Lindegaard 2001; Malmio & Kurikka 2020). Since then, large amounts of waste have been deposited on the island, including toxic waste, which has founded the "waste dump" attitude towards the island.

Amager has, despite its history, remained an ambiguous place; much of this island was used to supply Copenhagen with vegetables and, despite the status of the island, Danish author and actress Johanne Luise Heiberg stated that "(…) I do believe that no one in the entire city of Copenhagen knows the beauty of Amager as I

do; perhaps I have a peculiar taste for exactly this kind of beauty, the beauty of the plains, where the eye meets no obstacle, but reaches forward indefinitely (...)" (Heiberg 1944). Much of the plains Heiberg describes have since been covered and replaced by an increasing urban development outward from the capital and Ørestad to offset the expensive metro line that runs parallel to the common (Skaaning 2016). What remains today is the expansive area of Kalvebod Fælled and Amager Fælled. Used as an execution site in the 1800s, as well as military terrain, Amager Fælled is comprised of land claimed from the ocean and a salt marsh with flora and fauna that has remained relatively undisturbed for 5000 years (Malmio & Kurikka 2020; Maslen 2024). The poor soil of the common made it good for pasture and it is from this that the common earnt its name; the notion of livestock (fæ in Danish), and community (fællesskab in Danish) or commonness (fælled in Danish) are semantically implied in the word fælled (Malmio & Kurikka 2020). The poor soil also houses a species diversity that otherwise doesn't thrive on cultivated land. Maslen (2024a) states that there are 2144 identified species of flora and fauna, and new species are being discovered every few months. This is partly due to an increasing amount of interest in the common's biodiversity as well as an increased need to recognize the areas value in terms of preservation in response to the Fælledby development. The area has however become increasingly overgrown, with 50% of the surface turning to shrub in the past 30 years (Maslen 2024b). Maslen (2024a) has however been working on reintroducing grazing to the common, with 20% of the area now being actively grazed by ponies, cattle and sheep to restore the original open grazeland that has previously existed in the area.

THE COMMONS: A TESTING GROUND

Commons such as Amager Fælled are a kind of non-territorialized area, the significance of which has become increasingly debated globally (Harvey 2011; Jeffrey, McFarlane & Vasudevan 2011; Hodkinson 2012; Caffentzis & Federici 2014; Bresnihan 2015; Villesen 2016; Martinez 2020; Malmio & Kurikka 2020; Foster, Clark, Holleman 2021). Drawing on anti-capitalist ideology, commons are spaces that have not been capitalized, or at least where capitalist exploitation is not (yet) active. In other terms, accor ding to Danish poet Liv Sejrbo Lidegaard; commons have the significance of being able to not be put to much use in the context of capital territorialization (Villesen 2016) This is especially significant in a city, where every place has great economic value (Villesen 2016).

How such commons are conceptualized and put to good use are becoming increasingly significant historical, environmental and social questions: With roughly 55% of Denmark's surface consisting of cultivated land, commons become important spaces of inquiry for how land can be put to use in the interest of all species in the face of local and global decline in biodiversity (Malmio & Kurikka 2020). As is the case with Amager Fælled, the area has historically been an entanglement of varying uses and intentions. Its use as a grazeland has created the diversity in conditions and species present there today. However, Amager Fælleds degree of biodiversity is not solely related to the diversity of species – the area is far from a pristine natural reserve – the common has constantly been in use: from foraging herbs and berries to encampments, surveying wildlife, planning meditative walks (Maslen 2024a) to having anonymous sex (Villesen 2016; Malmio & Kurikka 2020).

Commons are a kind of non-designated, shared socio-ecological arena as made violently apparent by the workers of Copenhagen during the famous "battle of the commons" (Slaget om fælleden in Danish) at Nörre Fælled (now known as Fælledsparken) in 1872, as well as the decisively peaceful demonstrations at Amager Fælled on September 16th, 2016. Over 2000 people opposed the Fælledby project being constructed over the most biologically diverse and vulnerable part of the area (Skaaning 2016; Villesen 2016; Malmio & Kurikka 2020). Based on the notion of non-capitalizing exchanges, the scope of socio-ecological debate has extended to all species, opening

Fig. 9
Map over southern Copenhagen
1:30 000

Prøvestenen
Christianshavn
København H
Amagerbro
Amager
Fælled
Ørestad
Amager
Fælledby
proposal
Tårnby
Kalvebod
Fælled

Amager Fælled as a testing ground for interspecies relations and both creating new and reinstating previous modes of interdependency and management (Maslen 2024b).

Commons such as Amager Fælled contain a large diversity of interdependencies as they are areas that have historically been in constant use. In other words, the diversity that predicates commons exists because of the human/non-human interdependencies created through the diversity of interactions between humans and non-humans. As Maslen (2024b) mentions, vegetation coverage of Amager Fælled has increased by 50% over the past 30 years.

This entails that the habitats unique to the common, as well as the species that inhabit them are dependent on humans putting the site to use in terms of maintaining grazelands with cattle etc. As such, within the preservation and future management of Amager Fælled, refraining and scaffolding go hand in hand, where scaffolding is used to reinstate the grazelands and their defining species, while refraining is used to maintain and preserve them.

Maslen (2024b) states his unique situation in relation to this duality; as a biologist on site, he is free to treat Amager Fælled as a testing ground of sorts, where he can learn by testing how non-humans respond to the interventions he makes. Maslens process at Amager points to a more cyclic process akin to noticing, scaffolding and refraining, where noticing firstly highlights a need, then, scaffolding, refraining or both are used as a method of responding to what is noticed, and then lastly stepping back to notice reactions to interventions and so on. For example, after noticing a decline in amphibian habitats across the site, Maslen (2024a) used machinery to dig new dikes and ponds with a higher water table in the winter months and lower in the summer months, a necessary fluctuation for amphibians. In creating these habitats, grazing cattle started to use the dikes to bathe, when stepping in and out of the dikes, the cattle scrape the edges, further defining and enlarging the dikes (fig. 7, fig. 8). These events describe a scenario where an initial intervention (digging new dikes) has been made based on what has been noticed (amphibian habitats disappearing), after which, other species have been able to utilize, alter and ultimately participate in the development after the initial intervention (cattle using the dikes to bathe and clean, reshaping and maintaining the dikes).

FÆLLED FUTURES

On a tour around Amager Fælled early September 2024, head biologist Paul Maslen, who has been overseeing the management of Amager Fælled for the past ten years, shared his strategies for the management and future of the common. He explains that the common has changed a lot in recent decades due to neglect and aforementioned perceived low value attributed to the area. As such, Maslen (2024a) states his process of monitoring what is still present in the common, in terms of habitats, species etc. and then recreating what once was. In 2014, Mr Maslen begun reintroducing grazing to the common. Various grazers such as highland cattle, ponies and sheep were introduced to both help restore the open areas that have been lost to overgrowth, as well as manage invasive species such as Goldenrod (*Solidago gigantea*), Japanese knotweed (*Reynoutria japonica*) and Wild parsnip (*Pastanica sativa*).

The cattle especially have become foundational part of the performance of the common; about 20% of the area is now actively grazed, and visitors can access and share the grazelands with the cattle. Maslen (2024a) points out the visibly lower presence of invasive populations in grazed areas compared to non-grazed areas. The cattle graze all year, at the end of the year, many cattle are slaughtered, their meat distributed to the many volunteers that help maintain them. Paul keeps some cattle over into the next year, as they pass on grazing experience and knowledge to the new cattle that arrive.

Fig. 10
Map over Amager Fælled and selected sites for clearing
1:15 000

Amager
Fælled
Site 1
Site 2
Site 3
Site 4
Fælledby
proposal

The management of the grazing animals is different depending on the behaviours of the species; Maslen (2024a) notes that sheep are especially effective for managing invasive species, but detrimental to preservation in contrast to cattle, as they eat everything. As such, sheep have been directed to areas with prevailing populations of Wild parsnip, areas that Maslen (2024a) notes have grown stronger after the dry summer of 2018 as well as in machine harvested areas. In an interesting relation between humans, non-humans and technology, Maslen (2024b) explains his plans to create a deployable mini-grazeland where up to five sheep are put on a trailer mounted with solar panels, the trailer is then placed in the target area, and an electric fence is deployed. This method is one of many that Maslen (2024a) is testing for combating invasive species and restoring open grazelands.

Mr Maslen also works on improving the commons where possible. Today, a large lake can be found all year round in the western part of the common. This lake was previously a wetland that dried out during the summer months and refilled in the winter. Maslen (2024a) explains that since the summer of 2018, the wetland became progressively drier. In response to this, water was pumped into the wetland to maintain levels. As fish began to establish in the wetland, it became increasingly difficult to maintain amphibian populations, now, the wetland is actively maintained as a lake, while Maslen (2024a) began to establish new habitats for amphibians. Two large ponds have since been dug in the northern part of the common, here, water levels are allowed to fluctuate to create habitats for amphibious species.

As a place in use, the various cultural entanglements of the commons merge with its management; through the tour, Maslen (2024a) points out various signs, posts and birdboxes. The latter of which are used by a local school of ecology, that frequently host monitoring walks through the common, aiding with data collection. Maslen (2024a) also moved a planned grazing area due to wishes of creating a mindfulness walk for psychiatric patients. Maslen's (2024a, b) strategy for the future of the Amager is directed towards restoring many of the open areas that Amager Fælled is known for. With the success of the grazing programs he has introduced, Mr Maslen aims to increase the amount of grazeland across the common from 20% to 50%.

It is also difficult to engage with Amager Fælled in any way without mentioning the ongoing Fælledby project in the south of the common. To Maslen (2024b), unless the majority of what equates to the population of a small town becomes highly interested in the nature of the common and want to take a participatory role in its management, then the possible effects of the development are highly concerning. Maslen (2024b) argues that while environmental surveys have been taken to measure the impacts of the building process to local species, the increased presence of people in the area have been less accounted for: The common won't only be used for recreation, it will also be used for quicker transit from the development into the city center just north of the common. This puts new pressures on the common; Maslen (2024b) states that with larger visitor numbers, the current population of deer will most likely disappear. Furthermore, many of the residents may transit into the city center be means of bike, a popular choice in Copenhagen. As such, this will place higher demand for infrastructures within the site, such as better paving for biking, and streetlights for security. All of which Maslen (2024a, b) states will be strongly detrimental to many of the sensitive ecologies present on many different scales throughout Amager Fælled (fig. 20).

Maslen (2024a) has experimented with various methods of managing human visitors across the common. In the northeastern corner, where the common connects to the metro (DR byen station) and the sculptured river enters the site, a set of lawns are permanently mowed for recreational purposes. Furthermore, as a strategy, Maslen (2024a) experiments with "nudging" visitors to less important areas of the common through implementing various infrastructures such as bench placement and, to some extent, the fenced grazelands as well.

Many of the futures for the common discussed with Maslen (2024a, b) involve either by restoration or innovation reinstating the open, low-nutrient areas that historically defined the Amager Fælled: Along with the development of new amphibious ponds, mounds of raw soil from nearby construction sites have been implemented to aid habitat diversity, and meadows have been established with semi-assisted sowing.

Most controversially, the construction of the Fælledby is taking place over unique open grasslands that Maslen (2024a) states as important for ground nesting bird species, such as the Eurasian skylark (Alauda arvensis). As a response to the loss of large parts of this habitat following the development, Maslen (2024b) plans to clear overgrowth from parts of the common to reinstate habitats for a multitude of species, such as ground nesting birds, plant habitats such as meadows and pastures as well. Maslen (2024a) argues that the best chance for reinstating these habitats is by strategically choosing areas that have previously been open meadows, due to the chance of seedbanks for such species lying dormant in the soils there. The areas will be cut, grazing will be introduced to keep the area open and manage invasive species and over time allow meadow species to be reintroduced through grazing and burning the fields.

Looking at these actions through the lens of the identified methods of noticing, scaffolding and refraining; through opening the forest (fig. 18), a scaffolding process is created, where conditions for other species are created, inviting them to participate in and alter the site (fig. 19). Mr Maslen provided four areas (fig. 10) where he plans to reintroduce open meadows. A small area close to the Fælledby was selected (fig.13) to explore the potential scaffolding process (fig.14-17).

While Maslen (2024b) was not familiar with the methods of noticing scaffolding or refraining, many of the management strategies he employed drew similarities to the identified methods of designing within a more than human perspective. The various methods of data acquisition both through analogue and technology-assisted means, such as creating and accessing knowledge networks, surveying or using drone photography are comparable to the various methods of noticing articulated in part one of this thesis. Furthermore, creating physical frameworks for other species to inhabit such as the new wetland/dryland for amphibians, reinstating previously open areas for ground nesting birds and meadow species, as well as identifying areas to refrain from interventions bear similarities to scaffolding and refraining methods.

As such, the case study of Amager Fælled shows an example of a semi-urban space that is already predicated on notions of participation from humans and non-humans: Noticing, scaffolding and refraining methods are in this case comparable within the management strategy and developmental process that Maslen is already practising with the common. Within large scale spaces such as Amager Fælled, the methods of noticing, scaffolding and refraining may be applicable in terms of identifying stakeholders, creating knowledge networks and formulating management strategies.

While noticing, scaffolding and refraining are separate articulated methods of engaging with a project from a more-than-human perspective, the case of Amager Fælled also highlights interdependencies between the methods to create a functioning result; a scaffolding process may not reach an intended or desired outcome without also refraining from intervention: Depending on the stakeholders involved in a scaffolding process, varying degrees of time are needed to achieve a result. The process may not be successful if the process is disturbed, and as such, different scenarios may be more or less sensitive to developments taking place outside of the intended area. The Fælledby project exemplifies this: The potential pressures it poses on the common in its entirety highlights the question of the different scales of which these methods can encompass and operate within simultaneously as well as how susceptible they may be to external developments. In the context of urban environments, space is highly valued and contested, where resources for other species are at best allocated or

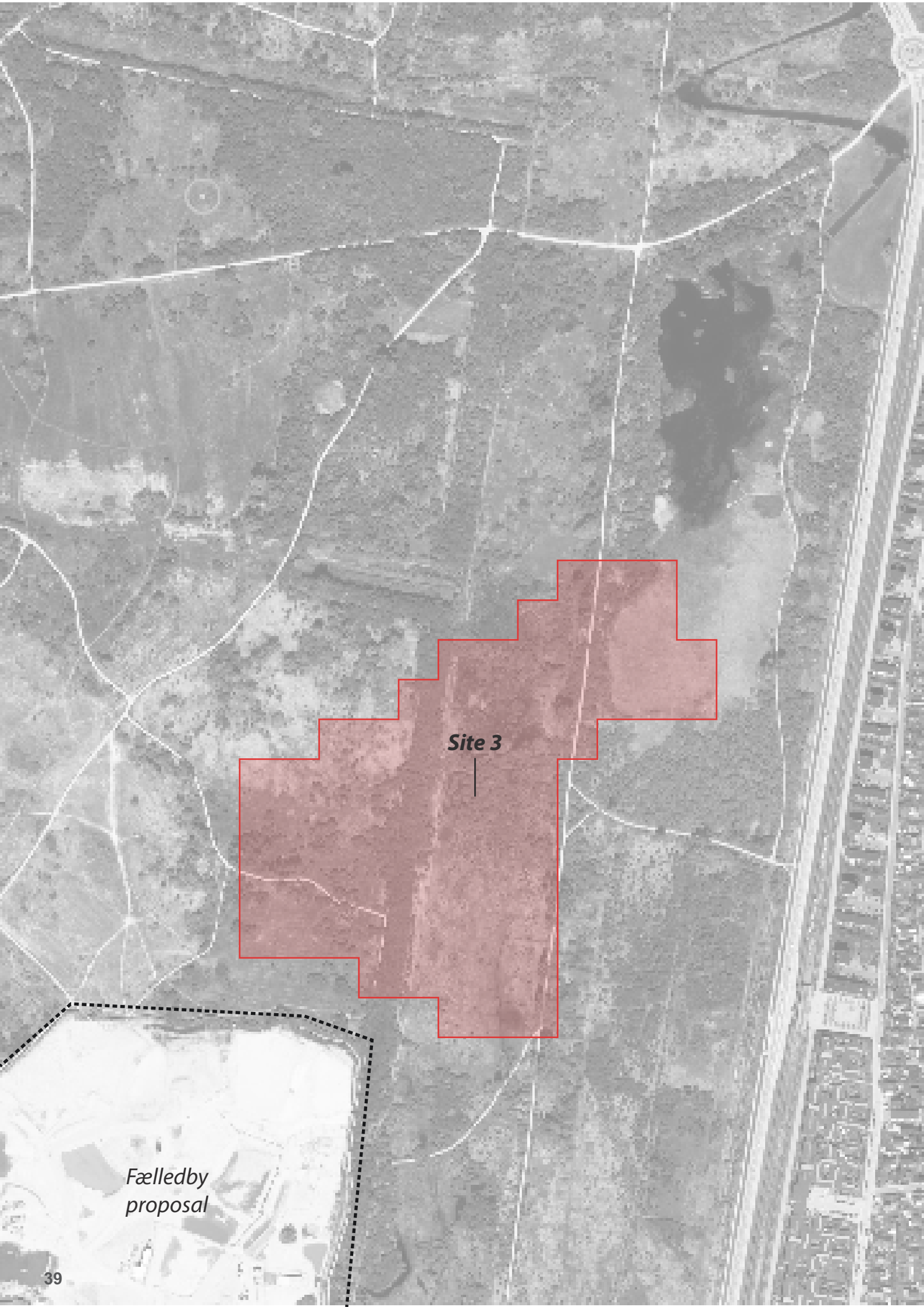
enclosed. As such, the application if scaffolding and refraining within the design process of dense urban environments may be limited.

Fig. 11 (left)

Fig. 12 (right)

Alauda arvensis
Populus x canadensis
Betula pendula
Salix cinerea
rubus armeniacus
Solidago gigantea
Cirsium arvense
Carex nigra
Cirsium vulgare
Carex hirta
Lychnis flos-cuculi
Prunella vulgaris
Arrhenatherum elatius
Luzula campestris
Carex flacca

Alauda arvensis
Populus x canadensis
Betula pendula
Salix cinerea
rubus armeniacus
Poa trivalis
Lathyrus pratensis
Carex disticha
Carex nigra
Cirsium vulgare
Carex hirta
Lychnis flos-cuculi
Prunella vulgaris
Arrhenatherum elatius
Luzula campestris
Carex flacca


Site 3
Fælledby
proposal

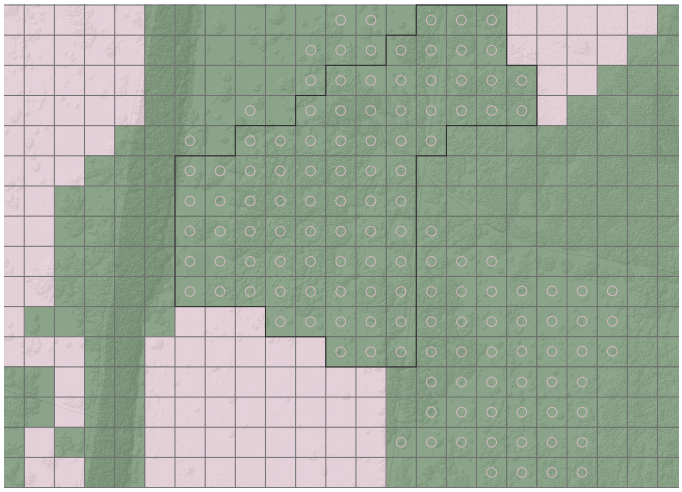


Fig. 13
1:5000

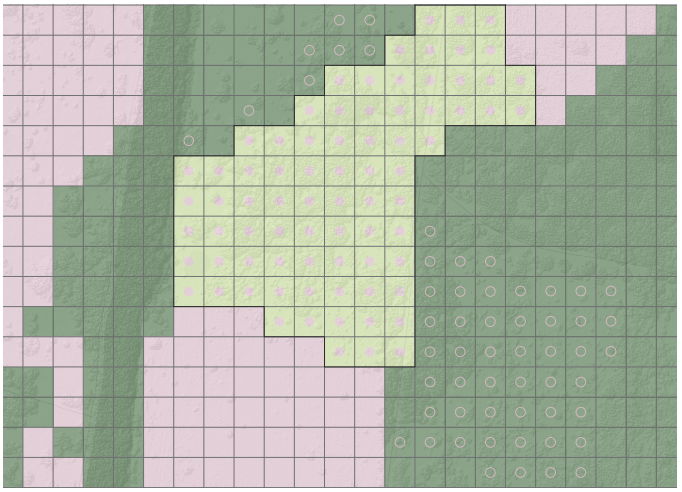


Fig. 14
Site present day

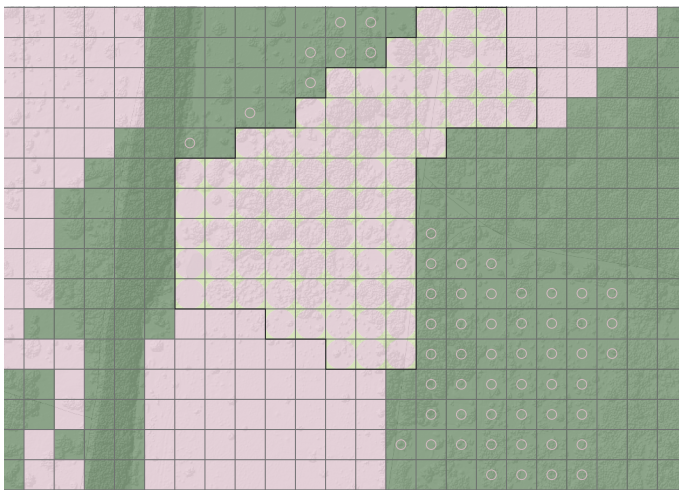


Fig. 16
Dormant meadow species
start taking over

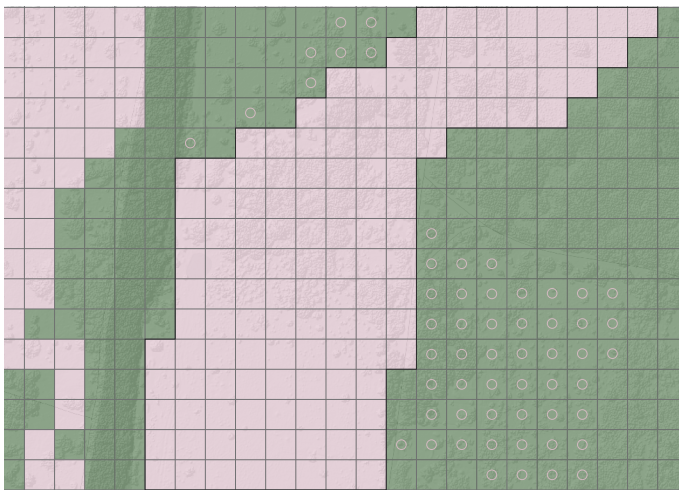
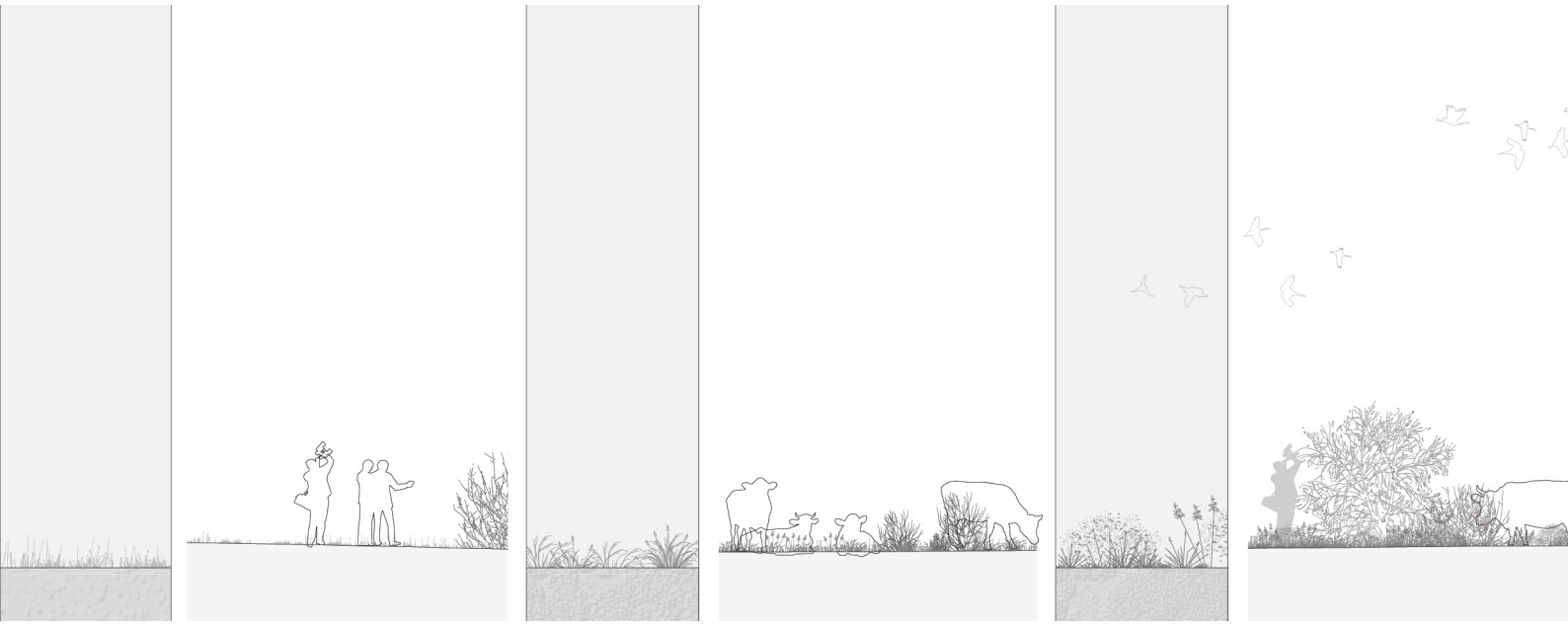


Fig. 15
Site after initial clearing
and introduced grazing

Fig. 17
Meadow habitats joined



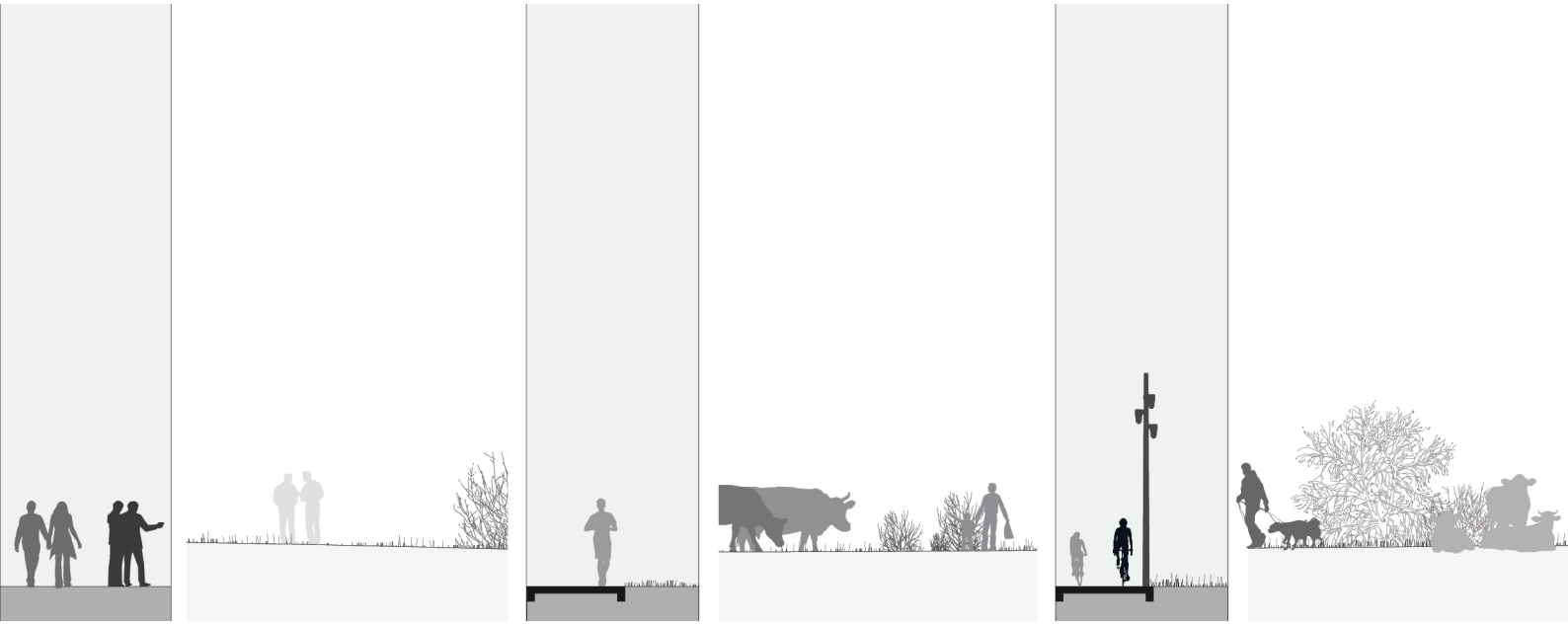


Fig. 18

Present day at focused area. Dominated by overgrowth, inaccessible to ground nesting birds and grazers. Dormant meadow seed bank in soil.

Fig. 19

Shows area development in stages in time from left to right. After initial clearing and introduction of grazing, dormant meadow species begin to transform area. With yearly input from grazing, the open meadow is reestablished, recreating habitats for ground nesting birds. Possibilities for human users to experience and engage with the habitat and non-human users through Maslens (2024a) "nudging". Noticing networks established and strengthened through surveying.

Fig. 20

Shows area development in stages in time from left to right. Area development becomes increasingly human-focused as Fælledby project puts pressures on new infrastructures actoss the common. The desired outcomes of the initial scaffolding process become interrupted by intensified human usage, becoming difficult to manage through "nudging", disturbing habitat establishment. Highlights dependency between scaffolding and refraining practices and sensitivities to external developments and scales.

DISCUSSION

When applied to the field of landscape architecture, the methods identified in this thesis (noticing, scaffolding and refraining) take on an interconnected role within design processes:

Noticing is a method of acknowledging oneself as an inherent part of the landscape, identifying participants as well as human and non-human interdependencies and interests. As a sensory practise, noticing can be carried out by anyone, and as such can create knowledge networks between designers and non-designers. The addition of technology to noticing can further augment, support and amplify information gained in the variety of scales commonly practised in landscape architecture that can then be used as a basis for design decisions.

Scaffolding processes can then be initiated based on what has been noticed in terms of which participants, interdependencies or processes are involved. This way, conditions are created for humans and non-humans to convene and assemble designs in a process that is desirable but unpredictable. The notions of surrendering control over design outcomes as well as distributing control to multiple human and non-human participants decentralizes humans from the design process, shifting the designer's role to that of a steward.

Refraining as an opposite to scaffolding, or as an intention of stopping certain processes becomes a method of realizing when intervention on the part of humans may be detrimental to non-human processes as well as allowing certain noticed processes to unfold without interference.

These three methods can be combined in design processes from analysis, design, and management respectively in a process that continues for as long as the participants are alive or present. In this way, the process of designing with these three methods can be drawn out in a similar manner to a listening cycle of attending, acknowledging, summarizing, inviting and asking, where the process of co-creating between humans and non-humans becomes a cycle of attending, noticing, scaffolding and refraining (fig. 10).

More-than-human-centered design doesn't however denounce human-centered design, but rather offers a posthuman view on that which has previously been "overlooked" in design processes (Rosen 2022). Human-centered design is as such being extended to more-than human design, within which humans are an equal participant on a "shared stage" (Wakkary 2021). Rosen (2022) expresses the lack of dichotomy between human-centered and more-than-human-centered design; it is important to recognize the current foundational backgrounds in design as not to unintentionally "tear down" the strengths of current design paradigms. Human experiences and well being should continue to be taken into equal account within more-than-human-centered design, if not more so, as posthumanism attends to the specificality of being human (Wolfe 2009): The rapid advancements of technology, HCI (human-computer-interaction) and especially artificial intelligence are affording humans to see, experience and interact with non-human modes of being at an increasingly accessible level. As such, posthuman perspectives offer ways of describing our relationship to the rest of the world as "sensing and thinking humans with bodies" (Rosen 2022).

The relevance of this in relation to landscape architecture, design and management is expressed in understanding the imminence of the various climate crises we are faced with at this present moment. Experimenting with methods can take time, however with the existential urgency of climate change there may not be time for classic modes experimentation, and as such there may be value in experimenting in scenarios currently unfolding "in places where people are taking concrete action" (Rosen 2022).

In the specific case of Amager Fælled, Maslen (2024b) explains his process of learning by doing in an active and constantly evolving scenario of the commons, within which technology-assisted noticing plays an important role in surveying and acquiring data to understand the results of his experiments. Refraining from any kind of action over the site has proven to be detrimental to the local biodiversity

unique to the common (Maslen 2024b). It has been made clear that commons, specifically Amager Fælled needs to be maintained as a site that is in constant use (Malmio & Kurikka 2020). As such, the complex abundance of cultural and natural entanglements makes the area a potent and important testing ground for studying the practicalisation of more-than-human-centered design methods and managing the diversity of human and non-human interdependencies. The application of scaffolding practices in the context of Mr Maslens future plans for Amager Fælled showed both possibilities and problematizations in the use of the method. Providing scaffolding to the designated area expressed potential for augmenting non-human participation and strengthening more-than-human interdependencies, but also problematizations in terms of influences from surrounding areas: the selected areas proximity to the ongoing construction of the Fælledby housing estate highlights how a resulting rise in demand for better infrastructure could affect the conditions desired for scaffolding processes to unfold. Maslen (2024a) mentions however that his strategy is to create human user opportunities in areas of less ecological sensitivity as a means of diverting visitors from encroaching more sensitive areas. In areas of more ecological sensitivity, refraining practices may be most suitable in terms of preservation and protection.

When discussing issues of expanding the field of participatory design to include a more-than-human perspective, it remains pertinent to note that the practice of landscape architecture is predicated on notions of human and non-human collaboration. As Beardsley (2000) writes, contemporary landscape architecture should be viewed as an "expanded field", bridging science and art and mediating between nature and culture. As such, landscape architects could play an important role in not only actively exploring modes of extending participation towards non-humans but also facilitating vital embodied experiences and interactions between humans and non-humans. The inclusion of a more-than-human perspective within current landscape design practices may however help designers identify and in turn extend the scope of a projects intended users through noticing, scaffolding and/or refraining methods.

The plan to clear overgrowth to create and restore more open meadows and pastures offers opportunities to explore conservation and restoration in a non-capitalized territory such as a common, but also to fortify notions of collaboration, not only for non-humans, but between professions as well. The inclusion of noticing within planning and analysis processes is, as previously mentioned, strengthened by the knowledge from the noticing practices of biologists, local users and enthusiasts actively surveying the common. This kind of collaboration also provides input to the dilemma of designing at a multitude of radically different scales (from small urban squares to entire ecosystems) that contemporary landscape architecture grapples with (Beardsley 2000).

The role of the landscape architect in the scenario of Amager Fælled may be simply as an intermediary between all these inputs, exploring ways of facilitating embodied interactions between humans and non-humans, creating opportunities for positive experiences and increasing perceptions of value and appreciation for the area as a result. The notions of embodied and emotional experiences explored by Eliasson (2023) also point to the potential for preservation in areas where these experiences are facilitated.

METHODOLOGY DISCUSSION

The methodology employed in this thesis was developed to explore and introduce new knowledge and how it could be applied to a specific scenario such as Amager Fælled. As such it was suitable to research more-than-human-centered perspectives from a variety of sources and backgrounds to understand the perspectives in broader terms before then placing it within the specific context of landscape architecture. This information created a foundation of knowledge to then base the rest of the thesis on. This knowledge was then gathered to identify methods that could be applied to a variety of specific use cases, of which this thesis explored one. The methods used also provided a framework for engaging

with the specificalities of a site, from identifying key people and interviewing them both on their understanding and perspective on the site, but also how they would engage with the identified methods based on their specific knowledge of the site. This method could be used by future readers to test ways of engaging with non-human agency at a specific site.

One of the aims of this thesis was to explore how other species may be able to participate in design processes that would transform over time, visualizing stages of change and development over the site was an important way of expressing this. However, the explored modes of representation were specific to the site and its conditions and challenges, and as such, while being useful in communicating the developments site and the complexities involved, they may not be specifically repeatable in other scenarios.

CONCLUSIONS

This thesis has aimed to introduce and explore a more-than-human perspective within design, as well as identify methods of designing that can strengthen a more-than-human perspective within landscape architecture practices, and how said methods may be applied to the management of commons such as Amager Fælled.

Engaging in more-than-human-centered design does not entail disregarding human-centered design but rather expands its scope by also including non-humans as equal parts in design processes. As Wakkary (2022) notes, a more-than-human perspective forwards a pluralistic understanding of the relationship between humans, non-humans and machines. As such, the "designer" in these scenarios is no longer a role lead by a single human, but rather an assembly of human and non-human stakeholders. The role of the designer then becomes about designing with these assemblages rather than dictating or dominating them (Rosen 2022). This thesis has identified and subsequently explored how three methods (noticing, scaffolding and refraining) of design could be integrated into design processes to strengthen a more-than-human perspective within the field of landscape architecture. These methods could be used by landscape architects as potential frameworks from which to approach and engage a design project from a more-than-human perspective. The explored application of these methods at Amager Fælled has provided an introductory example of how other landscape architects could work to include non-humans in developmental processes, as well as how these spaces could help "give a face" to the invisible participants and processes we share our environments with to promote positive embodied interactions between humans and non-humans. The visual representation of these processes has also been studied: Visualisations play an important role in being a tool for designers to explore and communicate potential future outcomes of an initial design process beyond rigid or fixed master planning, towards a kind of open collective development process defined by open-ended continuity and adaptability. In the context of this thesis, visualisations have also been used as a tool to explore and communicate potential strengths and weaknesses of scaffolding processes within Amager Fælled. The visual material explores different stages of development in different outcome scenarios, one showing how the focus area could potentially develop in a possible scaffolding scenario if allowed to unfold as intended, where non-humans are able to re-enter, affect and define the space. The other exploring how the scaffolding process may be interrupted by a human-prioritised expansion of the common in relation to the arguably exploitative development of the Fælledby. This raises questions about how susceptible scaffolding processes are to external developments and on which scales they maybe be plausible to operate on. It also highlights how ascribing non-human rights to open-ended design processes may give non-humans agency in overlapping urban/rural areas as well as the interdependencies between humans and non-humans for such transformations to begin to unfold. Visual representations also remain a vital part of communicating the various dimensions (scale, visibility, time) that a design project may encompass. As some processes and ac-

tors may not be directly apparent or visible, the dependencies created through them may count on visual modes of communication to express their presence to human users. However, as the visual material of this thesis is specifically related to the problematisations of noticing, scaffolding and refraining within the specific context of Amager Fælled, they may be difficult for readers to adapt and implement in their own future work.

FUTURE STUDIES

When engaging with a project in Amager Fælled today, it is difficult to exclude the current land-use discourse of the Fælledby project. While this thesis has not aimed to develop a specific design development to any areas of the common, it has touched on themes of problems the development of the housing estate may cause to the rest of the common and its current and future users.

Future studies working with the common from a design context could explore the effects of the project and how landscape architects could find ways of integrating the project together with other stakeholders of the common to promote the non-capitalizing exchanges that predicate the existence of commons. More detailed research into the future impacts of the Fælledby could help to identify possible future outcomes as well as identify new points of sensitivity throughout the common, and how to adapt to and manage such changes. While studying methods of engaging projects within a more-than-human perspective, more deeper studies into the selected areas habitat, species and users as well as mapping out the participation of such has been left beyond the scope of this thesis. The more intricate dimensions of this project in terms of species and habitats could be defined through longer term collaboration with head biologist Paul Maslen. Furthermore, in terms of communicating a project from more-than-human perspectives, designers could benefit from exploring modes of presentation of the project and its intended users visually, either through photographing, drawing, picking and pressing, etc. to emphasize the notions of assembly that predicates more-than-human-centered design.

The methods identified and studied throughout this thesis have been applied to the specific context of Amager Fælled. While a framework of approaching a project from a more-than-human perspective is developed, the practical application of these methods on other sites and design scenarios is highly context dependent, as each specific context hosts a different composition of stakeholders and potential participants. As such, how this framework of methods could be applied to other contexts, and the outputs of such applications needs to be researched further.

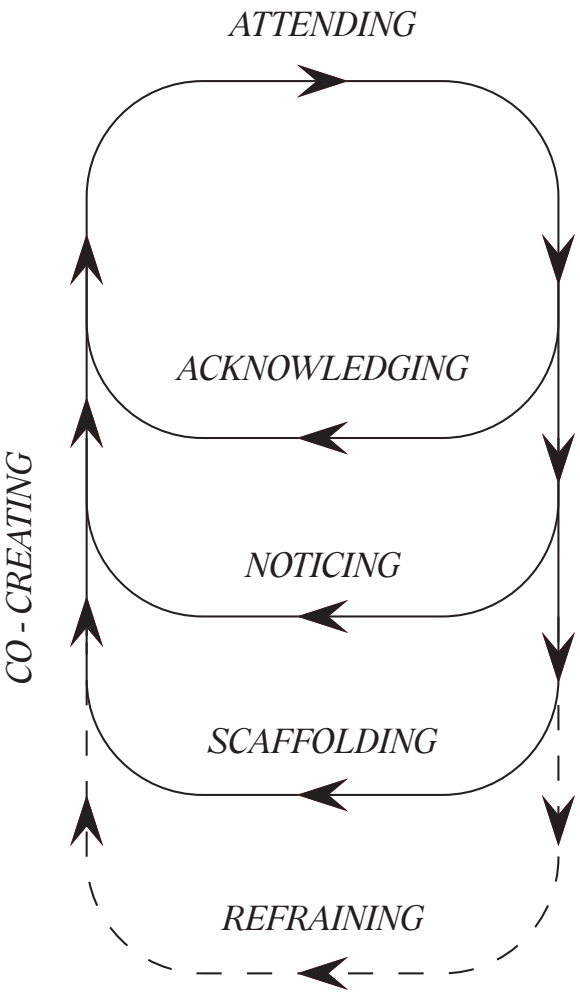


Fig. 21

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PERSONAL MATERIAL

Maslen, P. Biologist. Københavns Kommune, tour of Amager Fælled 2024-09-03 (a).

Maslen, P. Biologist. Københavns Kommune, Interview 2024-09-03 (b).

FIGURE LIST

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Figure 1. Center for Neighbourhood Technology (CNT). (2014). Laurie Garden at Millenium Park – Chicago. [photograph]. https://flic.kr/p/o1nqXY (CC BY-SA 2.0) (2024-09-26)

Figure 2. Manila, I. R. (2022). Super Bloom, Tower of London. [photograph]. https://flic.kr/p/2nE2tAd (CC BY 2.0) (2024-09-26)

Figure 3. Superpositions. (2016a). Renaturation of the River Aire. [photograph]. (usage permission pending) (2024-09-26)

Figure 4. Superpositions. (2016b). Renaturation of the River Aire. [photograph]. (usage permission pending) (2024-09-26)

Figure 5. Hedge, V. (2011). A double decker living root bridge in Meghalaya, December 2011. [photograph]. https://commons.wikimedia.org/wiki/File:A_double_decker_living_bridge_in_Meghalaya,_ December_2011.jpg (CC BY 2.0) (2024-09-27)

Figure 6. Superpositions. (2016c). Renaturation of the River Aire. [photograph]. (usage permission pending) (2024-09-26)

Figures 9, 10, 13. Maps with orthophoto base from Styrelsen for Dataforsyning og Infrastructur. (W.D.). Orthophoto [cartographic material]. https://sdfikort.dk/spatialmap (2024-09-28)

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Figures 18-20. Sections with shademap base from Styrelsen for Dataforsyning og Infrastructur. (W.D.). shademap [cartographic material]. https://sdfikort.dk/spatialmap (2024-09-28)

APPENDICIES

Interview with Paul Maslen

What is your job at Amager Fælled?
I'm a biologist for the municipality of Copenhagen. My job is primarily conservation on the large natural areas in Copenhagen amongst others Amager Fælled. As such I'm not concerned with the small municipal parks, or classic parks, purely the natural areas.

How long have you been working at Amager Fælled? How has your understanding of the area changed during this duration?
I have been working here for ten years. I've understood that the area is far more complex than I thought when I first came here; there a far greater degree of separation in the types of nature that exist out here. There are not just one or two particular types of nature here, but rather a whole variety. The species diversity is what really amazed me, I'm learning things almost every day and we discover new species, mostly insect species almost every couple of months. This is partly because there hasn't been that much proper registering in the area, due to people only recently understanding the value of AF.

Do you think it takes a lot of time/effort to notice this diversity, or do you think its quite apparent?

If you are ready to "go off the beaten track", if you stay on the larger path, you won't see that much that is different. You have to go out and get dirty and get into it: Fight your way through a brush area, stand for a long time by the water areas. You won't see much just walking by, you need to spend time here taking part in it and let nature come to you, which it will eventually.

How do you allow/create the possibility for these interactions in the area? Are there any ways currently or that you would like to try and establish in the future?

I'd like to create more openings to encourage people to go off the main paths more. The paths currently have vegetation all the way up to the path edge, but if you work through it, ten meters in you'll enter a new open area, which people don't often experience, because they aren't prepared to experience it. As I mentioned before, this way I can direct people into areas that I know wouldn't be negatively impacted by people visiting. For example, I wouldn't lead people straight over an area with orchids growing. So its a matter of creating openings for people to explore, and doing this by managing dominant species that maybe aren't particularly interesting.

What are humans role in the site?

An important role for humans is the people who are heavily interested in the area. They can help raise awareness for those who don't know what the area has to offer. Their passion can help get other people to appreciate what they have right at their doorstep. In a more practical sense, there would never have been the possibility to create grazing areas if there weren't volunteers to take care of the cows.
I like people to use nature, its not just for the "nerds" who want to wade through the bushes, its important for every single Copenhagener to come out and experience the green areas. So people who do use them are more likely to encourage other people to come out and use it. Not necessarily to go out and look at specific plants or birds but to go out and get some fresh air and exercise, create mental health rather than walking around a housing estate. Humans have the ability to create the knowledge, love and possibilities out here.

What informs you when to intervene and when to refrain?

Experience and learning by doing. I'm privileged to have quite free hands and I'm not afraid to try new methods within the context of my background and to learn from my mistakes. If something works, I'll try it again, if not I'll try something else. Of course I read lots of literature, and there's a lot of specialist knowledge I take part in. When there are botanists who know every plant species here, entomologists who know every insect, and I try to use their valuable knowledge to inform

decisions. I can learn a lot from them.

Do you think there are ways of interacting with non-human knowledge aka other species knowledge and how do you think you learn from them?

By noticing that the things I've done work or haven't worked. I'm trying to help nature, and if nature takes the help I've given and appreciates it and "says" this works, then I'll respond by continuing to do it that way basically.

What methods do you use to notice if something is working or not?

Monitoring. I use everything from the naked eye to drones actually. We also have certain spots we visit consistently year after year, especially the areas where I try to do something. This is because a long series of data is far more valid than single data points.

What does AF need right now?
More grazing. Its definitely the way forward, the year-round grazing with mixed species. Its almost self explanatory really, these are the species that created the biodiversity we have here, in Europe and the world over and returning to these methods make perfect sense to me. Ideally, I would have large grazing species and apex predators here, however I don't think I'm allowed to introduce wolves haha. Simply put if things worked then why can't they work now?

Can you talk a bit about the one kind of habitat you're hoping to establish more of in the future?

One problem we have had throughout the years is because of the lack of grazers on site, large parts of AF have turned into brush and forest. There is of course biodiversity in these types of habitats, but if it covers the whole site, a lot of other potential biodiversity disappears. So, I really have nothing against chopping down at least 500 trees, if necessary, because I'm not just helping one species I'm helping a variety of species. Flower, insects, the start of a whole food chain really. Forest areas should be forest areas, but the whole site can't be a forest, and that would happen if we left it unattended. So, the one type of habitat I would work with more are the meadows and pastures. They are certainly the most biodiverse areas. They are what have been here previously, and it makes perfect sense to try and recreate that. In the past 30 years or so, the vegetation coverage has gone up about 50%.

How will the Fælledby project affect AF?

I'm worried to be honest. It was one thing to make an environmental assessment over how the building process could affect species, but nobody has thought about how much the presence of what equates to a small Danish town is going to affect the nature. For example, there is a population of deer in the AF that will undoubtably disappear, there will be simply too many people out here for them to thrive. Also, a lot of the new people who will live in the new Fælledby will not necessarily use it as a place of recreation, they'll use it as a means of transit, so there will be a lot more people travelling up and down through the Fælled. With that there's going to be greater demands for infrastructure, cycle paths, they won't want gravel they'll want asphalt paths, they'll want asphalt paths with lights on.

Do you see any potential opportunities in those changes?

Hypothetically, if everybody who moved in was as interested in nature as I am, then potentially AF could benefit from larger volunteer groups who help with some of the work previously mentioned, who help with the ponds with the clearings and with the cattle. But this is a very big maybe.

As you showed on our tour of AF, the Fælledby project has removed a lot of the unique flat open areas of the AF. Where do you think you would aim on reestablishing some of that habitat in collaboration with the orchid populations.

I would choose the areas where I could see it's been more open before, building on what has already been previous on the site. If it

has been there previously, why wouldn't it work there now? It makes no sense to remove a heavily forested area and hope that there some kind of seedbank left of the orchids or interesting plants to reestablish themselves.

A term we talk about within more-than-human design is scaffolding, in a quite literal sense. Humans making an initial intervention, for example such as you mention cutting trees to make a larger open area is a form of scaffolding with the intention for other species to be able to build upon that. What kind of methods do you think you would use for that? What would be the main ways you would work to create such opportunities/conditions?

Both of the above. Clearing the less useful bush vegetation, introducing cattle to make sure it doesn't grow back again, use burning both to maintain open areas and remove invasive species. These have been relatively well-known methods for hundreds and thousands of years, so I'm not doing anything that people haven't done before. I'm not adverse to using new technology, however. The new ponds were dug by diggers, I use drones for monitoring.

You mentioned a method of targeted grazing using a mobile sheep enclosure. Could you explain what that is and you plan to use it?

Because we have an invasive species called wild parsnip. It's become very prevailing since the drought of 2018, and we have a theory that the harvesting we have done to keep the grass areas open in the autumn may have encouraged it. We have seen that a lot of the areas where we have harvested with machines are also where the wild parsnip has grown. Sheep are fantastic for fighting invasive species but are terrible for normal conservation because they eat anything; they love orchids, the rare flowers so I'm not going to use them on the areas where I have a rich botanical base. But in areas where we have a rich prevalence of invasive species like the wild parsnip, sheep would be very effective. So, the method would be to have a sheep trailer with solar panels on top, an electric fence and move it from place to place, five sheep per enclosure. Of course, there wouldn't be only wild parsnip in these enclosures so I wouldn't use them in any of the botanical hotspots, so its really a method of targeted grazing.

What are the relationships between humans and nature like here, are they competitive/collaborative, hierarchical/horizontal?

There is competition and there is collaboration. One of the issues I've had with introducing grazing is will people still use the areas. Lots of people will go for walks out here with prams and might want to go through grazed areas with them. Lots of people run out here; they don't want to have to stop and open gates. But there's also collaboration out here, the grazing we currently have is managed by a volunteer organization. So, both aspects are there, its just a matter of finding the right balance. I have to accept that it is a very popular area that thousands of Copenhageners use on a daily basis and that also has to be respected to a certain degree. There are of course other parks they could use, but as I said previously, I want people go be able to get out and experience nature to get people interested and then they might want to protect the areas as well.