Profit over subsistence? – The role of private corporations, the state and academia in embracing an ecofeminist forest concept as part of an agroecological transformation

A case study of Sweden

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Abstract

In recent times which require systemic change, agroecology demands a conceptual transformation of the food system. Its counter-hegemonic approach aligns with radical theories like ecofeminism and envisions an alternative future: a new socio-ecological paradigm which rethinks different landscape structures as one interconnected ecosystem. An ecofeminist forest concept, which this study elaborates, is one visionary idea which can facilitate an agroecological future.

In Sweden forests build the backbone of an intensive bioeconomy that is established by the main actors of private corporations, the state and academia alike. Forests cover most of Sweden's land and hence assume an important role for agroecology. Yet, forest concepts, which shape how humans perceive the forest, influence decision-making and change within the forest and beyond and therefore affect agroecological transformations, often remain untouched. Their power is seldomly assessed. To identify the conceptual possibilities of an agroecological shift in the case of Sweden, this critical, interview-based study uncovers how some corporate, governmental, and academic actors conceptualize the forest. The study analyses whether these particular concepts or considered alternatives might lay the conceptual groundwork for an agroecological future which builds on ecofeminist ideas.

The analysis shows that the analyzed corporate, governmental, and academic actors share a powerful forest concept which does not align with an ecofeminist forest concept for agroecological change. Critical, indigenous and historically developed, caring perspectives on the forest describe alternative ways of seeing the forest. Even though these perspectives are marginalized, they can enhance an agroecological transformation because they already now show resistance to socio-ecological conditions that work against agroecological change.

Keywords: agroecology, transformation, ecofeminism, forests, concepts

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Abbreviations

RFP(s)	Regional forest program(s)
SFA	Swedish Forest Agency
SFIF	Swedish Forest Industries Federation
SLU	Swedish University of Agricultural Sciences

Preface

In my life I have planted two trees, a nectarine tree and a common beech. I can still remember the soft leaves of the beech, like silver velvet when they appeared in spring. This was my tree, gifted to me at a young age. I saw it grow. It offered its shadow to plants in my garden. It was home to ants. For some reason I never considered this tree a part of the garden. Sometimes I even disliked it because the shadow it offered retarded the growth of other plants I loved.

Today I can't be in my garden anymore. I don't know how my beech looks like, how tall it has grown, how many ants go up and down its stem. I can't touch the bark anymore. I cry missing my tree. But maybe today I start to understand that my tree belonged not only to me but also to my garden. Today I think of my tree as a protector offering shadow to the plants under the burning sun. I think of the tree as taking care of my plants, which I can't tend anymore. Today my tree and my garden are one and both have taught me that it takes time to grow—in the shadow, under the burning sun. It takes time to take root and develop. In the fast-paced days of this life and age, I tend to forget that time is nourishing. I want to be able to check off to-dos, complete tasks, finish projects, off to the next. But didn't I say time is nourishing? Should I even aim for something to be complete? Will it ever be? Or is my aim to call something finished maybe preventing that something unexpected can emerge? Something that is more at peace with myself because I did not force it into being but made time so it can grow?

I like to think of this thesis as something complete and yet always unfinished. I like to imagine that with time from the ground of this paper my thinking—and maybe also yours—is nourished. A garden of thoughts is nourished which grows, plants and animals and trees and humans as one, human and non-human nature in the shadow of a tree under the burning sun. As I write these words, I want to remind myself to always remember where I come from—from my garden with its tree—to know that it takes time to let the garden and the tree become one. It takes time as agroecology takes time, because "agroecology moves slow, careful but irresistible" (van der Ploeg 2023[1]).

[1] Jan Douwe van der Ploeg, adjunct professor, China Agricultural University, keynote talk, GPN Workshop Series on Sustainable Agroecology, University of Kassel-Witzenhausen, 2023-07-18.

1. Introduction

Humanity experiences troubling times which require radical change. The Anthropocene[2] has created an age of unending, interconnected crises, which challenge humankind with unknown extremes (Stephens 2013; Salleh 2017). Not the least industrial agriculture is part of a global system of destruction, which builds on capitalism, the commodification of nature and the separation of human from non-human nature (Gliessman 2015; Stuart & Gunderson 2020; von Redecker & Herzig 2020). Yet, its compartmentalized, short-sighted thinking dominates until today and encloses policy making, business and research (IPES-Food 2016).

Agroecology counteracts this hegemony on three connected levels as it describes an alternative agriculture: It uses agroecological practices that mimic natural ecosystems. It builds a social movement and a science (Wezel et al. 2009; Gliessman 2015). Agroecology, particularly its political articulation (González de Molina et al. 2020), strives for a transformation of today's agriculture and addresses socio-ecological questions that go beyond agroecosystems' spatial boundaries. In short, it aims to create a sustainable global food system that would ultimately allow for reimagining cultural and economic values and overcome persistent power structures (Tittonell 2014; Gliessman 2015). Indeed, agroecology describes a radically different future and vision I dream of together with others like Giraldo (2019: xii):

> "Without trying to prophesize, I argue that in any potential scenarios, agroecology will accompany our transition to other forms of civilization. In fact, I think this is an opportunity to dream of other landscapes with forests integrated into an agroecological rhizome and with human populations living in their interior. In any case, other future possibilities different from the imaginaries of progressive artificialness would require not only a change in the technical and political-economic platform but also a profound ontological and spiritual change."

Dreaming of these "other landscapes" (ibd.), however, is not only an opportunity to envision a change that facilitates the emergence of agroecological practices that networks like Agroecology Europe (2020) call for. It is also a necessity: According to Jeanneret et al. (2021), agroecology needs healthy landscapes composed of thriving ecosystems (e.g., regarding biodiversity (Gliessman 2023)), and it depends

[2] The Anthropocene describes a geological epoch which is defined by humans' dominating impact on the earth (Willett et al. 2019).

on a fundamental change of social paradigms (Rosset & Altieri 2017). Despite this requirement, cases like Sweden show that research on agroecology mostly relates to physical-biological questions of agroecological practices on a farm-level (Gallardo-López et al. 2018). Agroecological research on a landscape scale, which also considers science and socio-political questions as important parts of agroecology, lacks analysis. This knowledge gap invites to take a leap and work towards an expanded agroecological epistemology that fosters change.

To identify the conceptual possibilities of an agroecological transformation, I therefore want to look to Sweden, a country that is known for its widespread, heavily managed forests covering about 70% of Sweden's land as the forest map of Europe in Figure 1 shows (Beland Lindahl et al. 2017; Swedish Forest Industries 2022).

Here, forests shape not only the socio-ecological landscape that agroecology depends on. Forests also provide the basis to an intensive forest business that mostly grows tree monocultures for export: Sweden owns only 1% of the world's forests but holds the 5th position in global pulp, paper, and sawn timber exports (Wohlfahrt n.d.; Keskitalo et al. 2016; Swedish Forest Industries 2016; Swedish Forest Industries 2020a). With an export rate of 85%, which has generated an export value of SEK 164 billion in 2021, Sweden maintains an export surplus that has substantially contributed to the country's welfare (Swedish Forest Industries 2016; Hägglund n.d.).

Backed up by the Swedish state, it's a few integrated private forest corporations that govern the forestry sector (KSLA 2009; Beland Lindahl et al. 2017). Historically, the state has enforced timber production directly before broadening forest legislation to include other concerns like environmental protection. Yet, its focus on wood production prevails (Appelstrand 2012; Beland Lindahl et al. 2017). Together with Sweden's private forest corporations, the state creates the political, socio-ecological landscape of the bioeconomy (Fischer et al. 2020) and which the Swedish public shows some social acceptance for (Nagy et al. 2021).

Both private forest enterprises and the government, however, depend on a third agent: These actors invest in collaboration with science[3]. From the onset of Sweden's forestry development, science has informed decision-making processes (Laestadius 2015). Thereby, the Swedish University of Agricultural Sciences' Faculty of Forest Sciences plays an important role. The faculty educates the future personnel of the Swedish forest sector based on a governmental mandate (Swedish Association of Graduates in Forestry n.d. cited in Hånell et al. 2005; KSLA 2009).

[3] Sweden's yearly investments in forest research at universities, institutes and colleges account for SEK 2 billion. Additionally, private forest industry corporations spend SEK 2.3 billion every year to invest in their own research (Swedish Forest Industries 2016).

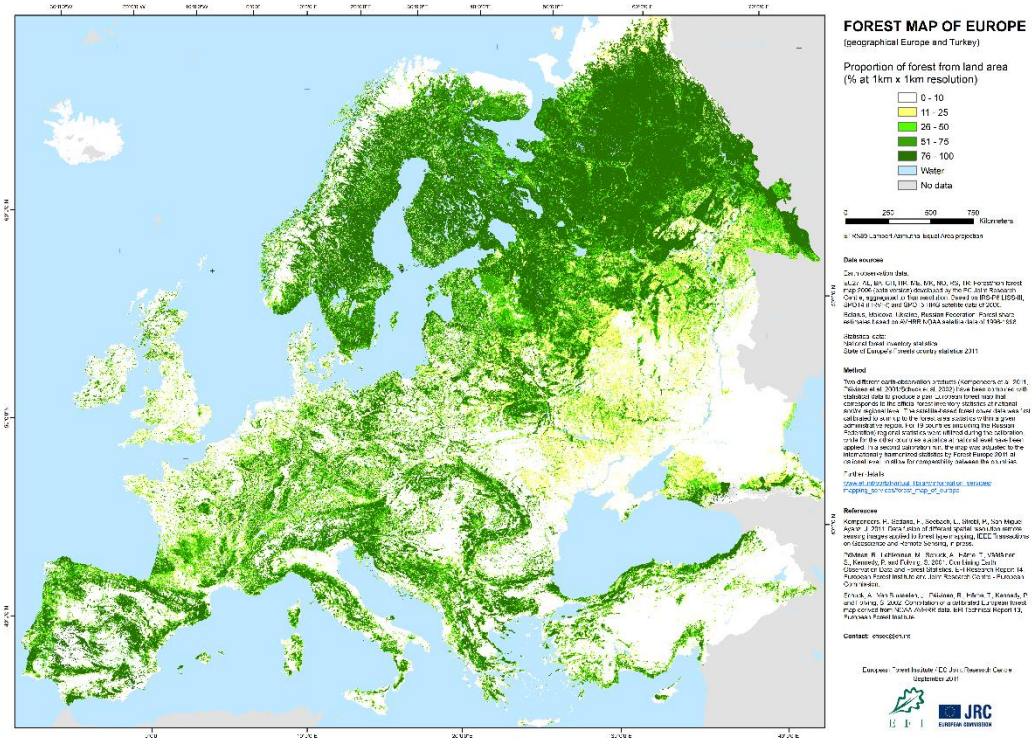


Figure 1. Forest map of Europe, which shows Sweden's widespread forests covering about 70% of the country. The map indicates the importance of forests when discussing agroecological transformations with a landscape approach: If agroecological solutions shall emerge and subsist, the socio-ecological conditions of forests need to align with agroecological principles (image: Kempeneers et al. 2011).

It engages in cooperations with the forest industry (e.g., within the research school "Bioeconomy-adapted forest management" or the strategic collaboration with the global player Stora Enso (SLU 2022; SLU 2023a)), and the university as a whole assumes a crucial role in the state's national forest program (e.g., by receiving several mandates for forest-related research) (Regeringskansliet 2022). Private corporations, the state and academia therefore represent key players that shape the political, socio-ecological conditions of the Swedish forest landscape. They influence how the forest is seen, used, and integrated in Sweden's socio-ecological landscape.

Some authors like Eriksson et al. (2018) argue that the Swedish forest sector has developed a prime example for sustainable forest management that can even instruct developing countries' practices. Angelstam et al. (2020) and Beland Lindahl et al. (2017) on the other hand, highlight that the particularly economy-driven Swedish forestry undermines biodiversity conservation, impairs ecosystem services, and weakens forests' central function in mitigating climate change. As a result, impoverished landscapes with weak green infrastructure are left behind. They show, for example, in the loss of reindeer lichen in Northern Sweden, where

indigenous reindeer herders depend on the plant for their animal husbandry (Eggers et al. 2023). At the same time, formerly widespread silvipastoral agroforestry, which can be considered an agroecological practice, had to give way to the specialized timber production of the Swedish forest industry (Kumm & Hessle 2023).

Against this background and presupposing that agroecological transformations are interdependent because they require healthy landscapes and alternative social relations, dreaming of "other landscapes" (Giraldo 2019: xii) seems visionary, if not illusionary. In current troubling times, however, there is a need to think in a new way like the International Panel of Experts on Sustainable Food Systems (IPES-Food) demands: The independent committee, which informs debates on food systems' change, calls for integrated landscape thinking and food systems science that build on systems thinking and transdisciplinarity. It asks for a new research agenda that is not siloed like in traditional agronomy but analyses dynamics on a deeper, conceptual level (IPES-Food n.d.; IPES-Food 2016).

Without claiming to be an expert in forestry but driven by my interest to understand humans' conceptual approaches as part of transformations that embrace agroecological ideas, I therefore engaged in a critical qualitative analysis. In this analysis, I explored the possibilities to integrate forests "into an agroecological rhizome" (Giraldo 2019: xii) in the context of Sweden. An alternative forest concept, which I developed based on ecofeminist theory, did thereby show a possible pathway towards an agroecological transformation. By looking to the theoretical roots of Sweden's forest landscape, I wanted to learn which concept of the forest the actors have in order to analyse whether either this particular concept or its considered alternatives might lay the conceptual groundwork for an agroecological future. The following research questions guided my analysis:

1. In the context of Sweden, how do private corporations, the state and academia conceptualize the forest? Which values do these actors consider if they think of the forest?

2. Which scope for alternatives to existing concepts of forests can be identified and how do possible alternatives look like? Which space for changing those concepts which are substantial to today's forest landscape do the actors foresee?

3. To which extent do the actors' forest concepts and/or its considered alternatives support an ecofeminist forest concept? Which possibilities for an agroecological forest landscape in the case of Sweden can thus be identified?

2. Theoretical framework

This chapter offers two perspectives on the forests: Section 2.1 introduces the context of forests in the case of Sweden and describes the rationale of the Swedish forest sector as a socio-technological regime. Section 2.2 sees forests from a different angle and presents an ecofeminist forest concept that supports an agroecological future of Sweden's forest landscape.

2.1 Sweden's forests: An introduction to a multi-layered landscape

Sweden is a forest country (FAO 2016). Most of its land, that is around 70%, is covered by forests (Swedish Forest Industries 2022). Due to Sweden's natural conditions, boreal forests of coniferous trees dominate the landscape except for some deciduous forests in the south (KSLA 2015).

The boreal forest is one of the world's largest land biomes. It accounts for 29% of the global forest area and stretches across Canada, Alaska, Sweden, Finland, Norway, Russia, Kazakhstan, Mongolia, and Japan (Kayes & Mallik 2020). Like all forest types generally, Sweden's forests influence "the environmental conditions that make life possible, from regional hydrologic cycles to global climate" (Bryant et al. 1997: 8). Forests and forest soils are a central part of the water cycle on which climate regulation depends (Hofnung n.d.). Globally, boreal forests contain large reservoirs of surface freshwater (IBFRA n.d.). They store carbon dioxide in their biomass (ibd.), which is a widely acknowledged function of trees necessary to achieve a radical reduction in greenhouse gas emissions like the latest IPCC report (2023) demands.

Where forests, boreal or other, still exist in their primary state, i.e., as natural forests[4], they do not just hold great biodiversity defining the capacity to respond to diseases, pests or changing climate conditions. In their primary state forests also act as self-maintaining organisms: For instance, they balance nutrient cycles that prevent leaching and subsequent groundwater pollution and trees' root systems

[4] According to FAO (2000), natural forests are forests that develop and reproduce themselves naturally, are composed by previously established organisms and do not show significant signs of human intervention.

regulate soil erosion (Salim & Ullsten 1999). In an agroecological sense, these natural forests can be understood as a role model for complex ecosystems, which agroecology seeks to mimic, e.g., within successional agroforestry[5] (Altieri 2002; Young 2017).

Looking to Sweden, however, one finds that the last old natural forests disappear although they represent an essential ecosystem for life, which young or monoculture forests[6] can't provide (Luyssaert et al. 2008; Gilhen-Baker et al. 2022). As Ahlström et al. (2022) have shown, Sweden's formally unprotected forests older than 140 years in 2020, have been felled at a rate of 1,4% per year since 2003. Without change, these unprotected natural forests will therefore be lost in about 50 years (ibd.). Yet, the transformation of Sweden's forest landscape did neither just begin in 2003, nor has it only changed the ecological conditions of the described old-growth forests. Sweden's forests reflect continuous social changes at large (Josefsson & Östlund 2011), which go beyond the forest itself.

From varied subsistence structures to uniformity for profit

Analyzing the conceptual possibilities for an agroecological future of Sweden's forest landscape requires understanding past and present dynamics which influence future outcomes. Or, to use Sylwan's (2011: 10) words:

> "Without knowing where we come from or understanding what brought us to the present—or why—we cannot pronounce the future."

In Sweden forests have a long history (KSLA 2015). The forest landscape a visitor sees today differs fundamentally from forests before the 20th century (Östlund et al. 2003; Berg et al. 2008; Ericsson et al. 2000). Once a mosaicked landscape of boreal biodiversity (Pyne 1997), forests have been used for locally defined subsistence purposes, e.g., as building wood (Ericsson et al. 2000; Antonson & Jansson 2011). Traditional farmer-foresters (Sylwan 2011), but mostly Sámi reindeer herding communities used to shape the preindustrial, cultural forest landscape, of which today only some vestiges are left (Östlund et al. 2003). Modern forest management, which has started to develop as early as the late 18th century spreading from Sweden's south-west northwards, has turned Sweden's forests into a production

[5] Successional agroforestry systems are complex, diverse agroecosystems which resemble native forest structures. They help to recover soils and enhance agroecosystems in degraded landscapes and are sometimes developed within indigenous traditions. So far, this approach has mainly been used in Latin America (Young 2017; Bertsch 2017). However, some research on an adaptation for European contexts has emerged (cf. Schulz & Weckenbrock 2016), which, for instance, suggests food forests for temperate climates.

[6] Monoculture forests refer to forest plantations that are even age forest stands which are composed of one or two tree species planted with regular spacing. The forest stands are either of introduced species or of heavily managed indigenous species. If plantations are not intensely managed for a significant period of time, they are defined as semi-natural plantations (European Environment Agency 2000).

unit (Hallberg-Sramek 2023; Ericsson et al. 2000). Industrialization and mechanization, capitalization and reorganization have developed a technology- and profit-driven forest industry (Josefsson & Östlund 2011). Its landscape has increasingly been shaped by knowledge-intensive land use, which according to Sylwan (2011) shifted away from direct dependence on land.

Indeed, knowledge has been influential (KSLA 2015). Throughout Europe, the development of the modern, uniform forest and associated management methods has been linked to forest science (Scott 2020). In Sweden, as later throughout the world, German forest science has impacted how the forest was seen, used, and eventually transformed (ibd.; Lundmark 2020). Inspired by German forest institutes, the Swedish Forest Institute has been established in 1828 (Jönsson 2019 cited in Hallberg-Sramek 2023). Its founder, Israel Adolf af Ström, has laid the groundwork for a rationalized forest management including management plans, rotations, and clear-cuts (Hallberg-Sramek 2023). The latter being the dominant forest management method in Sweden today (Swedish Forest Industries 2020b).

What Pyne (1997: 512) describes as a "vast tree farm" spreading across Sweden, reflects the larger tradition of European forest sciences, which depict forests as an abstract production site for timber: In line with Ericsson et al.'s (2000) observations that Swedish forest management considers forests as a production unit, in science the forest is calculated, modelled, and laid out to bring maximum sustainable yields and profits (Nair et al. 2022; Schabel 2001). This approach prioritizes efficient commodity production, first and foremost that of wood for timber, fuel, and pulp (Puettmann et al. 2015). Despite more systemic, holistic perspectives, which exist within forest science (Ciancio & Nocentini 2000), conventional forest science rests on the pervasive, mostly Western paradigm which values humans over nature (Nocentini et al. 2017; Nocentini et al. 2021; Filotas et al. 2014, Batavia & Nelson 2016; Batavia & Nelson 2017; Rist & Moen 2013). It consistently co-creates a more-than-academic, positivist culture that privileges deterministic predictability over ethical responsibility (Ciancio & Nocentini 2000).

Calculations aiming for maximum yields and profits, commodity production, and an anthropocentric viewpoint which seeks deterministic predictability, however, have to be seen in connection with the state. Scott (2020: 22) argues:

> "The intellectual filter necessary to reduce the complexity [of forests] to manageable dimensions was provided by the state's interest in commercial timber and revenue."

In Sweden, the welfare state one recognizes today has indeed its roots in the Swedish forest and its successful export story (Sylwan 2011). Throughout time, the state envisioned maximum, predictable production, which has been directly enforced by legislation and through research-based practice (Pyne 1997; Beland

Lindahl et al. 2017; Sundström 2010 cited in Fischer et al. 2020). For instance, the state used fertilization to increase productivity in its own forests (Hallberg-Sramek 2023). It prohibited controlled forest fires, which were used to improve the grazing areas the Swedish forest landscape has once been interspersed with, but slowed down wood production (Ericsson et al. 2000; Pyne 1997; Antonson & Jansson 2011). In an attempt to engineer a forest that serves the ideal of a uniform public, the state governed a process of "biotic homogenization" (Pyne 1997: 512).

Farmer-foresters, who had shaped the subsistence economy and its varied forest landscape (Ericsson et al. 2000), assumed a new role in the market economy (Sylwan 2011). Now they provided the raw materials for an industrialized production, and as customers of industrial products they invested their capital and labor, hence contributing to the establishment and expansion of international markets and exports, in which increasingly concentrated industrial forest companies represented Sweden's forest sector (ibd.; Antonson & Jansson 2011). With time, the traditionally close relation between Swedes and the forest began to loosen and society now navigated in globalized contexts (Antonson & Jansson 2011).

Sweden's socio-ecological forest landscape meanwhile has been completely transformed by the end of the 20th century (Josefsson & Östlund 2011): Up until today, radically simplified, easily worked, even-age forests with single-species stands (mostly spruce or pine) dominate the scientifically modelled, state-governed forests, which mostly describe the post-industrial landscape of the 21st century (ibd.; Scott 2020; Sylwan 2011). These forests are weak, fragmented and homogenized, lack biodiversity and valuable niches, and limit the viability of indigenous Sámi communities, their reindeer and culture (Josefsson & Östlund 2011; Angelstam et al. 2020; Pyne 1997; Fischer et al. 2020; Eggers et al. 2023).

Such is not the least the case because the Swedish Forestry Model governs the forest sector. In this model, which appears against the background of science- and state-related influences, the forest industry (i.e., private and state-owned companies engaged in large-scale forestry) has a major influence (Andersson & Keskitalo 2018). It shows in a common support of industrial approaches and is shared by the state, the forest industry and private small-scale forest owners, who still own as much as 50% of Sweden's forests (Hertog et al. 2019; Lidestav & Westin 2023; KSLA 2015). The model is embedded in an export-oriented private forest industry that pushes for sustainability but resists a shift away from an overly production-oriented conventional forest management (e.g., clear-cuts) towards alternative management methods (Beland Lindahl et al. 2017; Hertog et al. 2022). Equally, the Swedish Forestry Model is reflected in the forest sector's strong narrative of the bioeconomy: Part of a wider European discourse on the bioeconomy, the Swedish narrative reinforces a productivist perspective on forests that marginalizes nonconforming forest concepts (e.g., that of Sámi reindeer herders) (Fischer et al.

2020). Small-scale forest owners, who due to their ownership hold an important position in the Swedish forest sector (Lidestav & Westin 2023), enjoy some authority to define their own forest-related decisions outside the industrial production norm since forest policy was changed in 1993 (Holmgren 2015; Appelstrand 2012). However, the "epistemic authority", which gives preference to forest professionals and the knowledge they share in consultations with private forest owners, subsumes small-scale foresters in the industrial model, which practices knowledge-intensive land use as mentioned before (Appelstrand 2007 cited in Andersson & Keskitalo 2018: 79; Sylwan 2011). Subsequently, a "tight political-economic relationship between forestry industries, forest owners, forestry-related academia and the state through the Swedish Forest Agency" consolidates the Swedish Forestry Model (Fischer et al. 2020: 899).

However, it is not only the production-oriented directive of the Swedish Forestry Model that penetrates Sweden's multilayered forest landscape. A closer look reveals the continuity of a gendered[7] forest field in the case of Sweden, which often lacks analysis in forest research (see, e.g., Banerjee & Bell (2007) or Arora-Jonsson et al. (2021)): Even though Hertog et al. (2022) have identified a trend that more female forest owners engage in forestry, the gendered assumption that the forest is a man's domain persists (e.g., Andersson & Lidestav 2016; Arora-Jonsson et al. 2021; Baluee 2021). The assumption is reflected in the reports of many women who denounce sexism within forest science in a Swedish context (Johansson et al. 2018; Grubbström & Powell 2020; Powell & Grubbström 2021).

Yet, gendered dimensions of the forest also show beyond Sweden when the logic of the production-oriented directive is applied to very different contexts, e.g., in countries of the global South. For instance, both Sweden-based development agencies and a partly Swedish private forest corporation contribute to the transformation of land areas in countries like Uruguay, and in Eastern and South Africa (Ortiz & Achkar 2023; World Rainforest Movement 2020). As in the case of Sweden many years ago, formerly biodiverse rich, culturally diverse landscapes are turned into monoculture tree plantations that facilitate low-cost production, increasing profits, and carbon markets (Overbeek 2016; World Rainforest Movement 2023c). These changes affect women in the global South, particularly in poor areas, differently than changes of the Swedish forest would impact women living in Sweden, because women in the global South often depend on the forest more immediately, e.g., to have access to firewood and food (Clancy et al. 2002). Hence, women in the global South experience also more direct violence, e.g., sexual abuse, when the model of simplified, standardized monoculture plantations (cf. Scott 2020; Pyne 1997) "divides into concessions what before was seen as

[7] According to Acker (2006: 444), gender describes the "socially constructed differences between men and women and the beliefs and identities that support difference and inequality".

inseparable" (World Rainforest Movement 2023b). Despite these differences, it is the central question of prevailing power relations that connects struggles of women in both global North and global South contexts (ibd.).

The rationale of a uniform forest landscape as a socio-technological regime

It is not only a certain set of technological practices that shapes Sweden's (and other countries') forest landscape but a deeper logic that facilitates the understanding of forests as a production unit. There is an economic, cultural, and managerial rationale that governs the Swedish forest sector, which according to previous research holds on to business-as-usual instead of adapting to climate change (e.g., by still aiming for maximized production using traditional management methods) (Andersson & Keskitalo 2018). This rationale describes the norms which are connected to Sweden's industrialized forest landscape. It builds a sectoral culture (Hertog et al. 2018). Because the rationale entails the established practices and their rules which sustain the status quo (i.e., the gendered, production-oriented directive described before), it defines the socio-technological regime of Sweden's forest landscape (Geels 2011).

A transition that promotes an agroecological forest landscape beyond niche-like transformations will show in a change of the socio-technological regime and its rules, which offer orientation and coordination for the actors within the regime (ibd.). The forest regime in the Swedish case comprises

(I) the forest industry, which subsumes private forest owners through its knowledge authority (Appelstrand 2007 cited in Andersson & Keskitalo 2018),

(II) the state, represented, amongst others, by the Swedish Forest Agency, (Fischer et al. 2020) and

(III) forest-related academia (ibd.).

As powerful institutions which use knowledge and manipulation (e.g., simplification, abstraction, etc.) to manifest their interests (e.g., profit maximization) (Scott 2020), these actors build the "ruling apparatus" of Sweden's forests (Smith 1990: 2). It directs, leads, regulates, and organizes the forest sector within the contemporary capitalist society and "in an indefinite variety of actual local contexts", e.g., through management, media, and discourse (ibd.). Therefore, the actors' understanding of the forest is central for an agroecological reorganization of the Swedish forest landscape.

In this sense, it is important to uncover how actors associated with the regime conceptualize the forest (research question 1) and which space for changing those

concepts the actors consider (research question 2). Or, to cite Andersson & Keskitalo (2018: 81):

> "Without knowing these logics [that hold on to business-as-usual], we will be unable to construct arguments or develop incentives that go beyond the established logics and ways of thinking to produce substantial change within the specific case."

An agroecological reorganization of Sweden's forest landscape, which addresses the logic of the socio-technological regime beyond technical changes, requires an alternative rationale. This is the case because the logic of Sweden's forest sector is hardly compatible with an agroecological agenda like Table 1 shows, which lists some of the contradictions between Sweden's forest landscape and an agroecological future thereof. The incompatibility applies particularly if, like done in this study, one considers the anti-capitalist arguments of a political agroecology, which resists co-optation and questions ideologies and power structures[8] (Sevilla Guzmán & Woodgate 2003; González de Molina et al. 2020; van der Ploeg 2020; Giraldo 2019).

Recognizing the incompatibility, in the following section I will therefore turn to the ecofeminist literature. It does not only align with agroecology's agenda. Like many authors in the spectrum of political agroecology have emphasized before me, ecofeminism even enhances agroecology's counter-hegemonic concept (González de Molina et al. 2020; Puleo 2011 cited in González de Molina et al. 2020; Montiel et al. 2020; Anderson et al. 2021; Morales 2021; Espinal et al. 2021; da Silveira Furtado da Silva et al. 2022). Because ecofeminism insists on its emancipatory moment, it safeguards agroecology's transformational approach, e.g., when co-optation prevents structural change. Based on an explanation of ecofeminism's alternative rationale, I will therefore use ecofeminist arguments to lay out one possible pathway towards an agroecological future: In the following chapter, the ecofeminist forest concept describes a different logic that facilitates an agroecological transformation of Sweden's forest landscape. I will use the ecofeminist forest concept to analyse to which extent the ruling actors are open for radical change (research question 3).

[8] Agroecology is not necessarily anti-capitalist, especially not after it has been co-opted by socio-technological regimes (e.g., states (Schiller et al. 2020)). Instead, it can be stripped of its emancipatory potential if it is only incorporated into existing logics (Giraldo & Rosset 2022; Wakeford et al. n.d.). This argument emphasizes the relevance of a *political* agroecology, which seeks structural change like this study does, and the importance of a conceptual analysis that questions governing rationales.

Table 1. A contrasting juxtaposition which shows some of the differences between the Swedish forest landscape and its underlying rationale, and an agroecological forest landscape associated with alternative ideas.

The Swedish forest landscape and its rationale	**An agroecological landscape and its alternative ideas**
conventional forest science rests on the pervasive, mostly Western paradigm which values humans over nature (Nocentini et al. 2017; Nocentini et al. 2021; Filotas et al. 2014, Batavia & Nelson 2016; Batavia & Nelson 2017; Rist & Moen 2013)	agroecological relations care for humans' reciprocity with nature (Petersen & Monteiro 2020)
a more-than-academic, positivist culture privileges deterministic predictability over ethical responsibility as in classic agronomy (Ciancio & Nocentini 2000; Norgaard & Sikor 1995)	predictability is denied because agroecosystems are systemic, discontinuous, evolutionary; the culture is pluralist; phenomena are analyzed in their contexts (Norgaard & Sikor 1995; Gómez-Echeverri et al. 2020)
nature is commodified for the profit of an industry, e.g., as wood-based products that sell on international markets (Josefsson & Östlund 2011; Pyne 1997; Beland Lindahl et al. 2017; Antonson & Jansson 2011)	agroecology seeks to redistribute value, power and control, especially to small-scale farmers; it fosters autonomy, self-determination and economies of care (Anderson et al. 2020; Alonso-Fradejas et al. 2020; Wynberg et al. 2023)
landscapes are, similarly to those shaped by industrial agriculture, mostly monocultures; they lack biological, structural, and cultural diversity (Keskitalo et al. 2016; Josefsson & Östlund 2011; Angelstam et al. 2020; Pyne 1997; Fischer et al. 2020; Eggers et al. 2023)	agroecology counteracts simplifications by mimicking nature in its complex diversity, e.g., as in successional agroforestry (Altieri 2002; Young 2017)
reactive to specific challenges (e.g., specific events linked to climate change) but no structural adaptation (Andersson & Keskitalo 2018)	immediate and structural change is desired, reluctancy is dismissed (Gliessman 2015)
other purposes than wood production are secondary, alternative uses of the forests are marginalized (e.g., the use of forests by Sámi reindeer herders) (Beland Lindahl et al. 2017; Fischer et al. 2020)	forests are multipurpose systems, e.g., they are used to grow food alongside with trees (Nair 2013; Seghieri et al. 2021).
women are disadvantaged and experience sexism, the gendered assumption that the forest is a man's domain persists (Andersson & Lidestav 2016; Arora-Jonsson et al. 2021; Baluee 2021; Johansson et al. 2018; Grubbström & Powell 2020; Powell & Grubbström 2021)	agroecology puts women at the center of its agenda; it empowers women (e.g., by initiating knowledge exchange amongst women); women feel represented by the agroecological concept (FAO 2018; Odibeli n.d.; Lobo & Curado 2022)
Sweden's forest management is considered a universal blueprint for forest management in developing countries; the rationale undermines life in foreign contexts, e.g., the global south (Eriksson et al. 2018; Ortiz & Achkar 2023; World Rainforest Movement 2020; Overbeek 2016; World Rainforest Movement 2023c)	agroecology proposes local, traditional, ecological knowledge instead of universal solutions; it protects already existing agroecological systems (e.g., agroforestry) for showcasing a counter-hegemonic agricultural development which respects planetary boundaries and is socially and ethically responsible (FAO n.d.; Saylor et al. 2017; Pereira et al. 2018)

2.2 Seeing forests in a different light: an ecofeminist perspective on forests for an agroecological future

Ecofeminism, its critique and how it applies to Sweden's forest landscape

Ecofeminism is, like other feminisms, a conceptual approach to reveal and oppose structural forms of human oppression (Tong 1998). Different from other feminisms, however, ecofeminism broaches the twin domination of women and nature (Warren 1990), a power dynamic which the underlying rationale of Sweden's socio-ecological forest landscape insinuates (see Chapter 2.1). This twin domination, as Ruether (1995) and others (King 1989; Warren 1990; Salleh 2009a) illustrate, originates in a mostly Western thought concept, which traditionally associates women with nature and subordinates both women and nature to men. In patriarchal societies, therefore, which subordinate and exploit nature (and women) it is also women (and nature) who are subordinated and exploited (Ruether 1995). Some examples for this dual oppression of women and nature in both Sweden and elsewhere have become visible herein before (e.g., in the simplification of the once natural forest and the ideology that a forest is a man's domain). Sexism and naturism, however, are, for instance, also part of patriarchal religions and industrial societies generally (ibd.). Both use the "backgrounding" of women and nature to maintain patriarchal power relations (Plumwood 1993: 21) that are typically ruled by "the white, western, male expert or entrepreneur" (ibd.: 4). These patriarchal power relations inform capitalist societies in general (Fraser 2022). Accordingly, ecofeminists criticize that in capitalist societies it is not nature and all and everything associated with it that has power (i.e., women, but also other groups like indigenous peoples (cf. Sámi reindeer herders) and peasants (Salleh 2017)). Instead, power is tied to men and their rationality (e.g., the "epistemic authority" of forest professionals, who are mostly men (Appelstrand 2007 cited in Andersson & Keskitalo 2018: 79; Skogsstyrelsen 2023a)), which allegedly gains in quality the stronger it delineates itself from nature and women (Plumwood 1993). The following quote reflects this well:

> "But nature stays put (...), and thought consistent in its principles. Hence the objectivity of science, like it or not. Science has liberated us from raw dependence on nature. We may celebrate the uniqueness of European scientific thinking among the great intellectual feats of mankind." (Crombie 1995: 238 cited in Kogge 2022: 169)

In ecofeminist theory, such patriarchal power relations are further perceived as part of a patriarchal oppressive conceptual framework that purposefully applies a logic of domination to subordinate women and nature, and profit from it (Warren 1990). Similar to a socio-technological regime (Geels 2011), this framework constitutes a dominant way of seeing and organizing the human and non-human world. It values that which is identified as male and devalues that which is not male, i.e., women

and nature. As Figure 2 visualizes, division and separation by means of value dualisms (e.g., male, mind, reason, consciousness, production, culture vs. female, nature, body, emotion, reproduction, spirituality) and a hierarchy based on value-hierarchical thinking (e.g., male is superior to female and nature) are therefore central to the logic of domination that patriarchal systems uphold (ibd.; see also Mellor 2009).

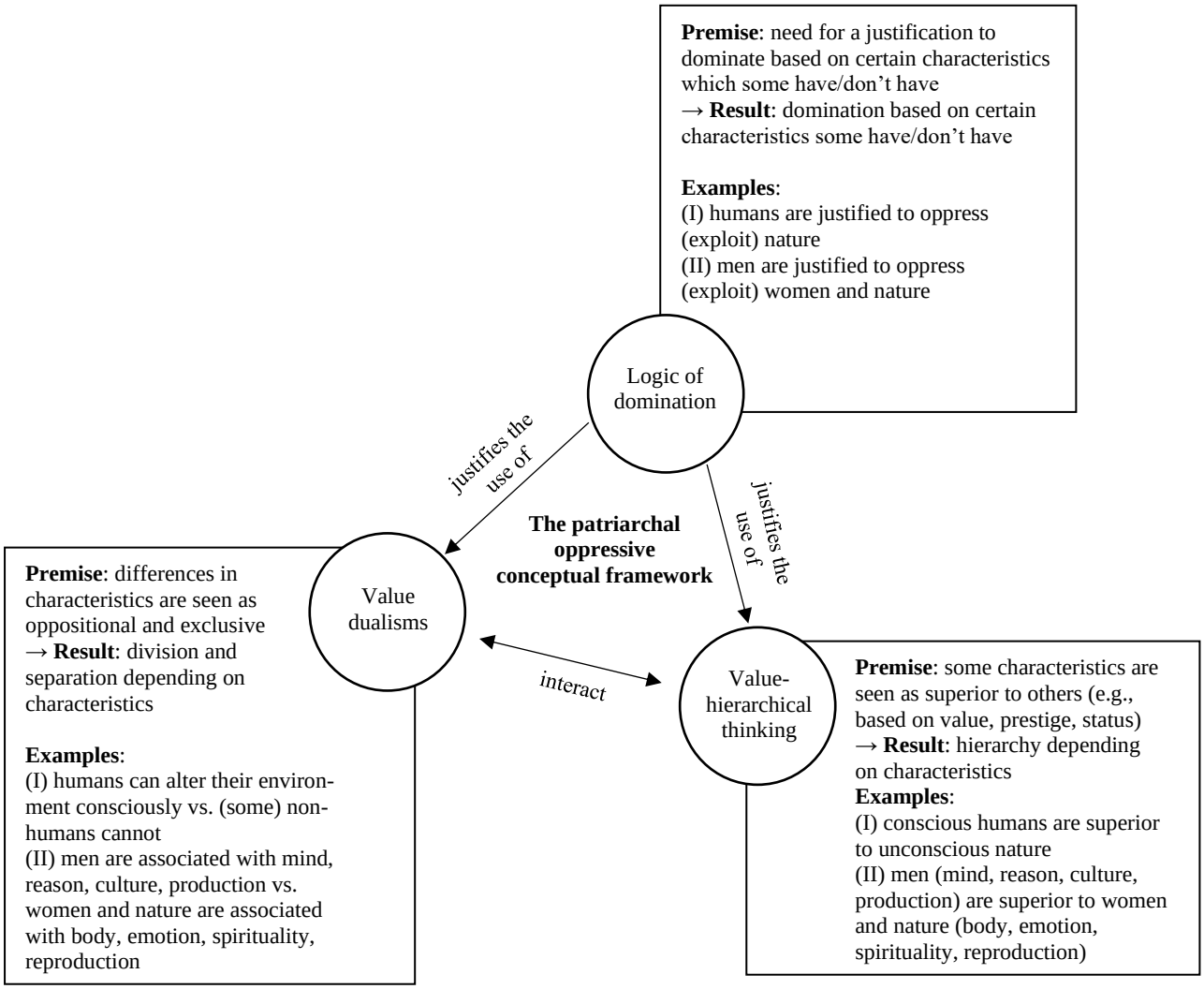


Figure 2. A visualization of the patriarchal oppressive conceptual framework based on Warren's (1990) work: The framework applies a logic of domination to oppress certain groups, e.g., women and nature. Sets of value dualisms (e.g., male vs. female/natural) which interact with value-hierarchical thinking (e.g., male is superior to female/natural) are central to the logic of domination, which results in the oppression of certain groups due to some of their characteristics (e.g., male is justified to oppress female/natural).

Following this line of thought, ecofeminists argue, it is no longer sufficient to criticize a general human-nature dualism like some beforementioned critics of conventional forest science do (Nocentini et al. 2017; Nocentini et al. 2021; Filotas et al. 2014, Batavia & Nelson 2016; Batavia & Nelson 2017; Rist & Moen 2013). The equation and ideology "Man/Woman=Nature" (Salleh 2017: xix), ecofeminists put forth, is much more representative. Awareness for this ideology is necessary to ensure a complete and thorough analysis of patriarchal oppression (Warren 1990). It marks the first step of transforming oppressive structures which organize socio-technological regimes (Geels 2011), and which I will address more closely now.

According to ecofeminist Carolyn Merchant (1980: xvii), oppressive structures emerge in environmental problems which are connected to the economy, science, and technology. Like Pyne (1997: 512), who observed a "biotic homogenization" of Sweden's forest landscape, Merchant highlights "a world view and a science that, by reconceptualizing reality as a machine rather than a living organism, sanctioned the domination of both nature and women" (ibd.). Other (eco)feminists like Haraway (1988), hooks (2005) or Mies and Shiva (2014) point to exploitation, which for them must be seen in connection with capitalism, because capitalism constitutes an existential part of a wider and deeper system of patriarchal oppression. Why? Because, simply put, capitalism depends on growth (see, e.g., Hinton & Maclurcan 2017). Green capitalism and its technological fixes to mitigate climate change make no difference, because "the problematic features of incessant growth, waste and inequalities within a capitalist economy cannot simply be resolved by well-meaning green entrepreneurs" (Fox 2022: 15). These features require change. Incessant growth, meanwhile, ties in with exploitation, since it necessitates extraction of human and non-human resources, which under hardly any circumstances can be sustainable (Bellamy Foster et al. 2010, special consideration may be given to Chapter 1). In this sense, ecofeminists have often criticized, it is women's and nature's reproductive labor which is exploited and serves the accumulation of wealth (see, e.g., Mies 1981; Federici 2009; Salleh 2009a), e.g., that of the state and the forest industry (see Section 2.1). Or, as Stephens (2015) relatively recently framed it: Women's gendered discrimination and sexual mistreatment (e.g., sexism within Swedish forest science (see Section 2.1)) stems from the same dominant economic and social structure that caused and causes nature's destruction (e.g., the erasure of biological diversity in Sweden's forests (see Section 2.1)).

In addition to capitalism, Merchant (1980) names science as another historical agent of domination. Her argument is therefore that academia also contributes to and exacerbates a logic of oppression. Ten years later, Maria Mies' (1990) article "Women's Studies: Science, Violence and Responsibility" arrives at the same conclusion and frames another ecofeminist critique: Science is patriarchal, because

it exercises a "structural violence" (ibd.: 438). This violence builds on the claim that science is pure and neutral when in reality it reinforces the superiority of the rational white man, who is legitimized to subordinate women and nature (ibd.). Salleh's (2010) description of science as a culture, which is involved in business-as-usual, picks up Merchant's argument once more and applies it to relatively recent times. It is reflected in the Swedish Forestry Model, in which forest-related academia contributes to a gendered, production-oriented rationale and the associated sectoral culture (see Section 2.1).

Transforming oppressive structures, however, the ecofeminist scholarship shows, needs more than identifying them. Central to ecofeminist alternatives is hence a two-step approach: Ecofeminists first reject the logic of domination that oppresses women and nature. Then they move on to advocate for radically different ways of living, which can be assigned to three basic strands of ecofeminist thought (King 1989):

1. disrupting the ideological women-nature connection in order to integrate women in the "non-nature" world of male, mind, reason, consciousness, production, culture etc.; i.e., women become part of the other side of the equation Man/Woman=Nature (also referred to as social-constructionist ecofeminism (Tong 1998), which is aligned with liberal (eco)feminism that embraces capitalism and wants to sustain it (Lakshmanan 2018))
2. emphasizing the ideological women-nature connection in order to distance women from that which is associated with male, mind, reason, consciousness, production, culture etc.; i.e., differences are seen as exclusive qualities, which reinforces the equation Man/Woman=Nature (also referred to as nature or culture ecofeminism (Tong 1998))
3. acknowledging the ideological women-nature connection as a patriarchal, social construct and building on women's alternative perspectives in order to establish a new culture and politics, which connects both sides of the value-dualism Man/Woman=Nature as long as liberated and ecological societies can emerge (also referred to as transformative-socialist ecofeminism (Tong 1998))

To lay out the ecofeminist forest concept in the next chapter, I will focus on the third strand of ecofeminism. Looking for a possible pathway towards an agroecological future, the rejection of the first and second strand is based on the following reasons:

Pursuing a liberal ecofeminism would most likely not transform the production-oriented rationale which the Swedish Forestry Model applies. As in co-optation, the transformative, emancipatory moment of both ecofeminism and agroecology would be lost (cf. Giraldo & Rosset 2022; Wakeford et al. n.d.; International Forum for

Agroecology 2015; Rosset & Altieri 2017; Zaremba et al. 2022), which especially political agroecology refuses (cf. Giraldo 2019; Sevilla Guzmán & Woodgate 2003; González de Molina et al. 2020).

Arguing like nature ecofeminism does, claims that women are closer to nature by their biological determination (e.g., because women menstruate, become pregnant and give birth). Supposedly, they can thus connect with nature in an essentially better way than men, which Archambault (1993) identifies as regressive thinking: Biology would determine women's and men's fate and gender norms were reproduced (ibd.). Women then are not much more than caring creatures—both by nature and patriarchal will—and women's liberation becomes a distant prospect (Merchant 1990; Biehl 1991). What is more, women then are not only taking care of humans and non-humans alike. They are also destined to tend the wounds patriarchal environmental destruction left behind (Stephens 2013). The proposed transformation of oppressive structures would recreate another rationale that subordinates. It would reproduce the either-or logic of Man/Woman=Nature, which gave rise to the recent dilemmas in the first place (Salleh 2017).

Using the third strand might not undo Biehl's (1991) critique that ecofeminism as a whole lacks consistency precisely because several strands of ecofeminist theory coexist which contradict each other. However, it is ecofeminism's broadened spectrum which criticizes the oppression of both human and non-human worlds which stands out amongst other feminist theories. Ecofeminism is therefore apt to inform socio-ecological transformations that involve non-human nature as in the case of this study (Saave 2022). The focus on transformative-socialist ecofeminism bypasses the shortcomings of first- and second-strand ecofeminist scholarship. It connects with agroecology's idea to establish an alternative rationale, "new values for new times" (Bruil et al. 2020: 3), which might also change the logic behind Sweden's socio-ecological forest landscape.

An ecofeminist forest concept for an agroecological future

Drawing on the insights of ecofeminist theory, how could then an alternative way of seeing the forest look like which enhances an agroecological future? Which concept of forests emerges if ecofeminist arguments are considered in order to overcome the gendered, production-oriented directive Sweden's socio-ecological forest landscape reflects, but contradicts agroecological transformations?

An ecofeminist forest concept which supports agroecological change, creates something new because it does not conform but transform (Bruil et al. 2020). It strives for a "pluriverse of alternatives" (Demaria et al. 2023: 60), which criticizes the standardizing Sustainable Development Goals, and intercedes for "radical change from local to global" (ibd.: 65). Alternatives, transformative ecofeminists claim, lay within that women's subculture which has been excluded from the

normative culture of capitalist patriarchy and was therefore forced and able to develop an alternative rationale for life—and not just for the economy (Mies 2005; Salleh 2017). As Bennholdt-Thomsen and Mies (1999) and Mies (2005) argue, these alternative rationales lay in women's and peasants' subsistence perspective[9], which does not aim for commodity production but for sustaining life (see also Federici (2009) and Szopa (2022)). The subsistence perspective can shortly be defined according to five lessons Bennholdt-Thomsen and Mies (1999) have elaborated on. They include (ibd.):

1. a bottom-up approach: development and transformations are not determined from top (e.g., by the forest industry, the state and forest-related academia), but from below from women (especially rural women and poor urban women from the global south) and peasants (e.g., small-scale farmer foresters) who know what is necessary for everyday life and its politics
2. independence and interdependence: subsistence does not depend on education, profit, status and prestige (e.g., the knowledge and status of forest professionals) but on the independence to be able to produce one's own life, e.g., outside dominant norms and interdependent with a community
3. self-determination: independence, i.e., the ability to stand on one's own feet, lends dignity, pride, courage and equality
4. universal subsistence security: transformations need to orientate themselves according to a society's needs, not its wants
5. de-development: the division in developed and developing countries is artificial, it obscures the universal needs for subsistence security

Importantly, these lessons do go beyond the meaning of self-provisioning and therefore beyond economic questions as the following quote outlines (Mies 1983 cited in Bennholdt-Thomsen & Mies 1999: 20):

> "Subsistence production or production of life includes all work that is expended in the creation, re-creation and maintenance of immediate life and which has no other purpose. Subsistence production therefore stands in contrast to commodity and surplus production. For subsistence production the aim is 'life', for commodity production it is 'money', which 'produces' ever more money, or the accumulation of capital. For this mode of production life is, so to speak, only a coincidental sideeffect."

[9] A complete picture of what the subsistence perspective entails goes beyond the scope of this thesis, but Bennholdt-Thomsen and Mies' (1999) book "The Subsistence Perspective" is a good reader for the one interested in learning more. Since this study is mostly about analysing underlying rationales in the context of an agroecological transformation to define which space for change exists in the first place, I won't explain in detail the *technical* changes the subsistence perspective entails (e.g., how communes or eco-villages could transform living conditions (ibd.)). These changes are part of follow-up questions, which mostly make sense if this study has identified an openness for an agroecological transformation informed by ecofeminist ideas.

Reflecting upon this logic, for an ecofeminist understanding of forests the focus can therefore no longer be on producing for the market or capitalist who exploits. The focal point must shift towards a subsistence production that cares for human and non-human life (Bennholdt-Thomsen 2015). From an ecofeminist standpoint, it must be a production for local needs, which remains within the limits of a limited material world (Bennholdt-Thomsen & Mies 1999). To be more precise, an ecofeminist forest concept is therefore not part of a globalized economy of growth, which fuels metabolic rifts between places of production and consumption, e.g., in terms of global North/global South divisions that exploit the global majority[10] (Salleh 2009b). At the same time, this redirection from global to local does not aim for a protectionism that seeks national advantages in economical terms. Instead, it is the internationalism of a solidary alter-globalization movement which underlines that around the globe and in the name of productivism "[life] is consumed and killed in the accumulation of capital" (Charkiewicz 2009: 66) thus necessitating radically different concepts for life (Demaria et al. 2023; Salleh 2017).

Illustrating this different life as part of an ecofeminist forest concept further, transformative ecofeminists identify the ideology Man/Woman=Nature as a patriarchal, social construct, which requires change. They find that the binary system deprives both men and women, though harming women and nature much more: Neither are men socialized to belong to nature nor are women respected as full humans. Thus, both sexes are primed for an inner discontinuity imposed upon them (Salleh 2017). That is why transformative ecofeminists continue to argue that any label like man, woman or nature will always be too narrow to allow for the full subjectivity of human and non-human nature, which is "always in process of being made" (ibd.: 259). In other words, that means that the contradictions of current ideologies will not be resolved by another categorization that divides and inhibits (cf. ecofeminism's first and second strand). Rather, ecofeminists suggest to unmake dualisms by engaging in a dialectical process of (self-)reflection and subjectivity building, which is as much feminist as it is political and personal. This process will have to disintegrate the exclusionary, powerful identities many people are socialized to embody as they interact with each other and the forest: What will need to disperse are the stereotyped identities of man, of woman and of nature, which capitalist patriarchy has already predefined prenatally to establish an oppressive conceptual framework, which stifles women and nature, and that universally impairs independent development (ibd.; Mies 1998). Role allocations like man—the ruler, woman—the caregiver, nature—the resource and associated power hierarchies, transformative ecofeminists predict, "are triangulated like a Borromean knot and will only be dismantled together" (Salleh 2017: xxii).

[10] The term global majority, coined by Rosemary Campbell-Stephens (2020), refers to citizens who have often been racialized as ethnic minorities but represent about 80% of the world's inhabitants including people who are Black, Brown, Asian, dual-heritage and/or indigenous to the global South.

Against this background, transformative ecofeminists analyze how gendered identities tie into the concept of gendered labor. Gendered labor is at the core of capitalist commodity production and its rationale but remains invisible because it is work done by at least partly marginalized groups and has not yet been commodified (Mies 2005; Salleh 2009a; Francisco & Antrobus 2009). For realizing the ecofeminist forest concept, it is therefore women's, peasant's and indigenous communities' undervalued work that needs to be re-examined because it opposes commodity production capitalists aim for (Mies 2005; Salleh 2017). As subsistence work it "enables people to produce and reproduce their own life, to stand on their own feet and to speak in their own voice" (Bennholdt-Thomsen & Mies 1999: 3). As Maria Mies (1998) explains, it is, however, not all women's work that requires re-evaluation. Rather, Mies (ibd.) refers to those women who work within the informal sector, which includes part-time jobs, domestic labor, unpaid or low-paid jobs with little to no security and high demands of flexibility. The informal workforce typically consists of so-called "internal" colonies of women who work as housewives in industrial societies and "external" colonies industrial societies control abroad, and which comprise human and non-human nature (ibd.: 17).

As transformative ecofeminists emphasize the meaning of undervalued subsistence work, it is important to understand what makes this kind of work different from other types of work done under the capitalist regime. It is also important to know what makes this work relevant for an ecofeminist forest concept and why it is it worth to be preserved.

In the context of forests, it is particularly the work of peasant women, but also the work of indigenous peoples, which is a radically different kind of labor (Salleh 2017). According to ecofeminist argumentation, it combines the direct production and reproduction of life, which is necessary to satisfy direct human needs like food, housing, or care (Mies 2005). At the same time, it is this labor which is done in direct connection to the land, the forest, which today is mostly practiced at the periphery of capitalism's catchment area, e.g., in rural areas of the global South (Fraser 2022). This work counteracts capitalism's work relations which build upon wage labor and technologies deepening humans' disassociation from their material belonging to nature (Salleh 2009b). What is more, it is labor which understands how to take care of nature, proven precisely because it did not invest in profit-making but has tended and preserved natural ecosystems for numerous generations like land under indigenous stewardship shows (Friends of the Earth & Capire 2021). Without this highly productive work any other labor or life in general could not exist (Mies 2005). And yet this labor remains unpaid and becomes increasingly impossible, because it does not provide any wage which is necessary to survive in the capitalism of the 21st century that devours people of their good life, their subsistence, their land, their forests (Fraser 2022). Under such circumstances, Salleh (2017) emphasizes, it is increasingly important to turn to women (e.g., as

forest dwellers) or caring workers of both sexes as role models. Why? Because these people are still able to labor in reciprocity with human and non-human life hence manifesting their interdependence with nature, which capitalist societies tend to forget or deny (ibd.). Patriarchal men, who expect most often that such reciprocal work is done by women for free or try to displace women who work with their lands, have a lot to learn—not the least in the context of commodified forests that turned complex ecosystems in enclosures under neoliberal control (Isla 2009).

How then, do forests as complex ecosystems look like within an ecofeminist forest concept? What is their biophysical nature? While the reviewed ecofeminist literature does provide no concrete instructions for an alternative silviculture, it does guide us to the same women, peasants and indigenous peoples who have been identified as pioneers for a structurally different life. Their rationale for life, for land, for forests teaches, as transformative ecofeminists aver, a relationship with non-human nature that interacts with the environment "in a way that does not disrupt the time of ecosystemic processes", which are necessary so life on earth can flourish (Salleh 2017: 250; see also Carson (2000: Chapter 2) who analyses the detrimental impact of contamination outpacing earth's timed regeneration dynamics). Then, non-human nature has its own right to develop and unfold in its own time. This forecloses any harm done to nature that would speed up payouts while depriving ecosystems of their basis to reproduce and exist, e.g., by curtailing their biodiversity or overly extracting their resources (Brennan 2000; Shiva 2014). This approach does neither undo nature by replacing it with monocultures, nor does it aim for creating surplus value through the commodification of forests. Instead, it practices the symbiotic coexistence with people, animals and plants by preserving and caring for natural and diverse ecosystems in the very first place—and not as a curative measure after much damage has been done, like some ecofeminists criticize (Mies 2005; Irigaray 1994).

Women living in rainforests who depend on forests for subsistence (cf. Bennholdt-Thomsen & Mies' first lesson which requires a bottom-up approach) put this alternative silviculture into practice as they fight for the diversity of forests as spaces for plant cultivation, foraging, fishing and holding ceremonies: They strongly oppose industrial monoculture plantations because these cultivation systems and their managers rob women of the native plants, soil and water which women need for their traditional agriculture and medicine, which cover for their substantial needs (World Rainforest Movement 2022). Covering substantial needs, however, is also necessary because it frees women from their (financial) dependence on men, which capitalist societies have established (Bennholdt-Thomsen & Mies 1999).

In an ecofeminist forest concept, this alternative way of relating shows, for example, in community forest management, which re-thinks how land is organized; re-values local needs, cultures and knowledges; re-considers spiritual connections

to the forest; and resists an anthropocentric world view of control (Calle 2017). Other possibilities that coincide with ecofeminist conceptions are found in agroforestry systems. They form a multipurpose system of crop production, tree cultivation and livestock farming, which contributes to increased biodiversity and better access to resources for women (e.g., firewood and food). They improve peasants' livelihoods while minimizing socio-ecological pressure on forests (Agroforestry Network 2019). Indeed, agroforestry is part of the agroecological idea (Nair et al. 2022) and integrates forests into an agroecological landscape.

The resistance of "re/sisters"[11] (Salleh 2017: xxv), eventually, is the key term that puts an ecofeminist forest concept in an even broader context of a factious group which struggles against the corporate enclosure of life. Ecofeminist forest concepts are therefore no isolated application seeking life for a few. Rather, such an ecofeminist understanding of forests finds its supporters in social movements which join in a battle against the current hegemonic power of extractive industries, e.g., of industrial forestry or agriculture (Giraldo 2019).

[11] Salleh (2017) defines re/sisters as "women activists" (ibd.: xxiv). Though I agree with her position to privilege women's perspective on life, I use the term re/sisters to also include others who do not identify themselves as women but join women's struggles in solidarity.

3. Materials and methods

The following paragraphs inform about data gathering and analysis in the context of this thesis (Chapter 3.1) before outlining my own positionality (Chapter 3.2).

3.1 Study case

3.1.1 Data gathering

For the purpose of this thesis, both primary and secondary data were collected. Table 2 lists all data which was analysed for each chosen actor. Here, I explain how I gathered all information.

Primary data: Interviews

Primary data was collected by conducting individual, in-depth semi-structured interviews with informants of the three actors that were analysed in this study because they belong to the socio-technological regime: private corporations, the state (including the state-owned company Sveaskog), and academia. The interviews provided insights into how the chosen members of the three actors conceptualize the forest currently and whether they foresee any change to these conceptualizations. A set of ten questions was prepared prior to the interviews and used as guideline during the interview (see Appendix 1).

The interviews were laid out as follows:

- **Considering ethical questions of research:**
  Since my study case involved the participation of interviewees, ethical questions were important: Interviewees had to give their informed, voluntary and explicit consent to being interviewed and the handling of personal data had to be transparent and in line with the General Data Protection Regulation (EU) 2016/679.
  For that purpose, I drafted an information sheet based on SLU's "template for information to the data subjects" (SLU 2023b) that briefed informants on the interview and the processing of their personal data prior to the interview itself (see Appendix 2). The information sheet was checked and approved by SLU's

Privacy and Data Protection Function Dataskydd. Informants gave their formal consent to participating in the interview and to the handling of their personal data by signing the same document. All signed consent forms were stored safely on my own device. Additionally, the consent form has been referenced at the beginning of each interview to make sure all ethical questions have been communicated clearly.
All personal data was pseudoanonymized and the interviews were stored in the form of recordings and written transcripts on my own local device to ensure safe data storage.

- **Choosing actors for the categories private corporations, state and academia:**
  For **academia** I chose SLU's Faculty of Forest Sciences because it is SLU's faculty which is most directly involved in forest research. Even though other academic institutions conduct forest related research, too (e.g., Skogforsk), I focused on my own university to allow for self-critical reflection as I consider myself a part of SLU.

  For **private corporations** I randomly chose companies which the Swedish Forest Industries Federation (SFIF) listed as their member companies as of May 2023 (see Swedish Forest Industries 2023b), and which provide information written in English to avoid language related misunderstandings.

  For the **state** I chose informants of the state-owned forest company Sveaskog and of the Swedish Forest Agency (SFA), which acts under the direction of the Swedish state thus exemplifying the nation state and its forest concept. Additionally, I considered regional government institutions like the County Administrative Boards of Sweden's provinces.

- **Contacting potential interviewees:**
  Several individuals of SLU's Faculty of Forest Sciences, different private forest companies, Sveaskog, the SFA and regional government institutions were contacted by e-mail, informed about the purpose of my study, and invited to participate in an interview. Those who were open to participate included (see also Table 2, column on internal perspective and primary data):

  - 3 researchers from SLU's Faculty of Forest Sciences (hereafter called researcher A, researcher B, and researcher C);
  - 3 individuals from private, industrial forest corporations including Södra, Sweden's largest forest owner association and an international forest industry group; the SFIF as a representative of the private, industrial forestry sector in Sweden; and Skogssällskapet as a foundation which advices private and public forest owners and runs

business operations in several different companies, though was not listed as one of the SFIF's members;

- 1 individual from Sveaskog, the state-owned forest company;
  3 individuals from the SFA (hereafter called SFA's informant A, SFA's informant B, and SFA's informant C);
  1 individual from the regional forest program (RFP) in Sörmland.

- **Conducting interviews:**
  All interviews except two were conducted and recorded via Zoom and took place between 17 May and 12 June 2023. The interview with the SFA of Norra Västerbotten was replaced by a questionnaire, which was answered with written answers. The individual from the RFP Sörmland was not involved in a formal interview but I talked to this person during an informal phone call with subsequent information provided by e-mail. The language for all interviews was English, but one interview was conducted in German.

- **Transcribing and storing data:**
  After the interview, all recordings were stored on my own local device in order to ensure safe data storage. The recordings were then transcribed using the Word function "Transcribe" and reviewed manually to correct any false transcriptions. Transcripts were stored on my own local device to assure data protection and are available upon request.

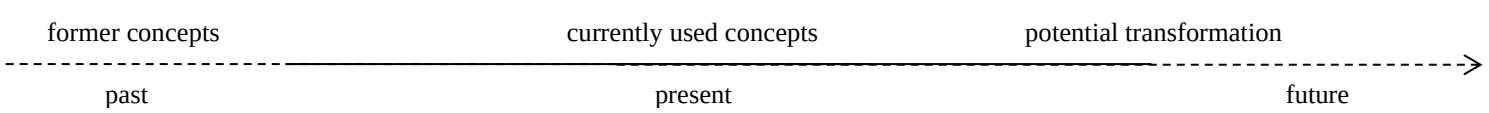
Secondary data: Text materials

Secondary data was retrieved by searching for documents accessible on the chosen actors' websites and included reports, strategy papers but also information on websites itself. For an overview of the chosen actors' positioning, I used secondary data which was usually published on the actors' websites and listed under the category "About us", "This is us" or similar. Secondary data which regarded the previously defined actors' long-term approach, was selected by looking for materials on the actors' websites which were tagged with "strategy", "targets", "vision", "mission" or similar. As a result, I was able to see the current forest concepts, which were most likely influenced by past conceptualizations, and the strategic directions the actors have chosen for future developments (see Table 2 including the timeline at the bottom of the table, which describes which data referred to which time period).

Table 2. An overview of primary and secondary data which has been analysed for the socio-technological regime and its three main actors private corporations, the state and academia using three different ways of 'seeing' the materials: getting an overview of the actors' positioning, gaining insights into internal perspectives of the actors, and having an outlook into possible futures. Data within the categories 'overview' and 'internal perspective' mainly represent the currently used concepts of forests, which are most likely influenced by past conceptualizations of the forest. Data associated with 'outlook' indicates future developments which the three actors aim for, thus delimiting potential transformations for how forests are understood.

Actors		**Purpose of data analysis using three ways of 'seeing'**		
Category	**Chosen members of the category**	**Overview: secondary data**	**Internal perspective: primary data**	**Outlook: secondary data**
Private corporations	**Swedish Forest Industries Federation**	**Website:** What we do (Swedish Forest Industries 2020a) **Report:** Facts and Key Figures: Swedish forest-based industry (Swedish Forest Industries 2022)	Semi-structured interview conducted with an informant of the SFIF	**Report:** Roadmap for Fossil Free Competitiveness: Forest Sector (Swedish Forest Industries & Fossilfritt Sverige n.d.)
	Södra	**Websites:** - Our core values (Södra n.d.c) - About Södra (Södra n.d.a)	Semi-structured interview conducted with an informant of Södra	**Website:** Group targets and strategy (Södra n.d.b)
	Skogssällskapet (Foundation)	**Websites:** - About us (Skogssällskapet n.d.a) - Our own forests (Skogssällskapet n.d.b) - The Skogssällskapet organization (Skogssällskapet n.d.c)	Semi-structured interview conducted with an informant of Skogssällskapet	**Websites:** - Vision (Skogssällskapet n.d.d) - Our own forests (Skogssällskapet n.d.b)
Swedish state	**State-owned company Sveaskog**	**Website:** This is Sveaskog (Sveaskog 2023d) **Report:** Sveaskog: Annual and Sustainability Report 2022 (Sveaskog 2023c)	Semi-structured interview conducted with an informant of Sveaskog	**Websites:** - Long-term approach to sustainable forestry (Sveaskog 2023a) - Our mission (Sveaskog 2023b) **Report:**

				Sveaskog: Annual and Sustainability Report 2022 (Sveaskog 2023c)
	Skogsstyrelsen (Swedish Forest Agency) A	**Websites:** general: - About us (Skogsstyrelsen n.d.) - The Forestry Act (Skogsstyrelsen 2023b) region-specific: Regional forest program of Västerbotten county—the short version (Skogsprogram Västerbotten n.d.)	Questionnaire with written answers from an informant of the Swedish Forest Agency A	**Report:** Uppdaterad handlingsplan och lägesrapport för Sveriges nationella skogsprogram (Regeringskansliet 2022)
	Skogsstyrelsen (Swedish Forest Agency) B		Semi-structured interview conducted with an informant of the Swedish Forest Agency B	
	Skogsstyrelsen (Swedish Forest Agency) C		Semi-structured interview conducted with an informant of the Swedish Forest Agency C	
	Regional forest program Sörmland		informal phone call with an informant of the regional forest program with subsequent info provided by e-mail	
Academia	**SLU's Faculty of Forest Sciences including researcher A, B, and C**	**Websites:** About the S-faculty (SLU 2021), including the linked websites: - SLU Future Forests (SLU 2023d) - ForBioeconomy (ForBioeconomy n.d.a), Knowledge is best shared (ForBioeconomy n.d.b)	Semi-structured interviews conducted with three researchers at SLU's Faculty of Forest Sciences	**Report:** Fakultetsstrategi för fakulteten för skogsvetenskap för perioden 2021–2025 (SLU 2020)



3.1.2 Data analysis

The data analysis drew from my interest to understand the actors' conceptual approaches to the forest, their rationale. Concepts were a part of the change which facilitates the emergence and continuity of an agroecological landscape in the context of Sweden. Thereby, I perceived concepts as Margolis and Laurence (2019) do, namely as "building blocks of thoughts". These were "crucial to such psychological processes as categorization, inference, memory, learning, and decision-making" (ibd.) and therefore influenced how the actors understand the forest and how their understanding may change.

Additionally, the perception of the forest shaped the actors' engagement in their environment (e.g., in their forest-related workplaces), and their environment (e.g., their social conditions) influenced their understanding of the forest and the openness for changing this understanding. Therefore, the actors shared their concept of the forest from a certain standpoint (Borland n.d.; Harding 1991). To take account of this situatedness of the perspectives of the chosen actors including the interviewed informants, I sketched brief introductions to each actor and informant. Ethical and privacy considerations had to be respected, thus limiting the introductions in scope, e.g., regarding informants' specific role within the chosen corporate, governmental and academic institutions.

On these premises, I grounded my data analysis on two main approaches: a qualitative thematic analysis and ecofeminist systems thinking with the latter framing the former. I explain both approaches in the following paragraphs.

Ecofeminist systems thinking

Ecofeminist systems thinking (hereafter EST) was the basis for a *critical* qualitative analysis. EST, also referred to as feminist systems thinking, combined systems thinking with feminism (Stephens 2013). Systems thinking by itself was key to see things in connection: from relationships to feedbacks and whole systems, systems theory broadened and deepened my view (Hanson 2001). It resonated with agroecological thinking, which is itself systemic (Altieri 2015; Jeanneret et al. 2021). In addition to usual systems thinking, however, its ecofeminist alternative aimed for uncovering and challenging power relations, which oppress women, nature, and other marginalized groups (Stephens 2013). Therefore, choosing EST was a political act (Stephens et al. 2010). It was grounded in five core principles of feminist systems thinking, which according to Stephens (2013) were not mandatory to consider all within the same research project. Nonetheless they offered imperatives for a radical analysis: Show gender sensitivity! Include marginalized perspectives! Centre non-human nature! Select appropriate methods and methodologies! Bring about social change!

Other than summative structural models, which are less nuanced and tend to reproduce dominant views, EST was important for a both deconstructive and constructive research (Hanson 2001): EST helped to detect logics of oppression, was instrumental to deconstruct dividing dualisms and enhanced the visualization of constructive alternatives (ibd.; Stephens 2013). Additionally, EST was a tool to engage in critical self-reflection, which was crucial to reveal oppressive behaviour I have internalized myself. As such, it overlapped with general feminist theory, which moves from a critical analysis of systems of oppression towards a radical transformation of dominating structures (see, e.g., Arinder 2020).

Choosing EST was also an attempt to approximate an ecological epistemology, which, amongst other things, emphasizes that knowledge is interdependent with non-human nature and never produced individually (Campbell 2008). Inspired by the idea of an ecological epistemology, which links with agroecology's interdependence, it was not sufficient to look out for what is known, but important to understand how the known is known:

> "We need not only to know how we know the natural world but also to know this in a way that is consistent with seeing our knowing as part of that world" (ibd.: 164).

Thematic analysis

Combining ecofeminist systems thinking with a thematic analysis was possible because a thematic analysis is considered a highly flexible method regarding both theoretical frameworks and the research design, e.g., in terms of research questions or modes of data collection (Clarke & Braun 2017). What is more, the thematic analysis was "a method for identifying, analysing, and interpreting patterns of meaning ('themes') within qualitative data" (ibd.: 297). These themes described the concepts or "building blocks of thoughts" (Margolis & Laurence 2019) I was looking for.

To cover both currently existing and alternative forest concepts, I considered different sets of data: For current forest concepts I used the primary data and that secondary data which is listed under "overview" in Table 2. For alternative forest concepts I analysed all primary data and that secondary data which is categorized as "outlook" data (see also Table 2). The latter described the actors' future developments, thus delimiting potential transformations of today's forest concepts.

To structure my research, I predefined four main themes with corresponding codes. They were derived from the theoretical framework and described relevant fields of forest concepts which I paid attention to during the analysis. The main themes included "kind of production", "diversity of values in the forest", "role of women" and "relation of human to non-human nature". The codes referring to each theme

are listed in Table 3. In addition to predefined themes, I also considered codes and themes which emerged during the analysis and without prior definition.

Table 3. Overview of the four main themes and corresponding codes which were derived from the theoretical framework and describe relevant fields of forest concepts. These themes and codes were predefined before the analysis and structured the research process.

Main theme	**Codes**
Kind of production	Subsistence, income, local, complex ecosystem, commodity production, export, global/international, profit, monoculture
Diversity of values in the forest	Plant cultivation, animal husbandry, foraging, medicine, recreation, climate, spirituality, emotional meaning, production, nature protection/conservation
Role of women	Participation, integration, business-as-usual, alternative business models (e.g., less profit-oriented, focus on reproductive work), parity
Relation of human to non-human nature	Reciprocity, dominance, awareness, unfamiliar

After defining the main themes, I conducted the thematic analysis, which was guided by the general instructions by Lester et al. (2020) but adapted to my own study case. The following steps describe the process which uncovered the actors' current forest concepts and their alternatives:

1. Reading and understanding all materials
2. Coding all data (i.e., identifying important statements related to predefined codes and newly emerging codes)
3. Categorizing all codes (i.e., finding related codes to assemble categories)
4. Assembling themes from all categories (i.e., systematizing the categories according to predefined themes or newly emerging themes)

The results were then organized in tables, which listed all statements, references and main themes per research question and actor. To keep the analysis concise, however, I only quoted the most explicit statements in the main body of text. Confirmative results can be looked up in an additional document, which shows the tables beforementioned. This document is due to ethical and privacy considerations only available upon request.

3.2 Positionality

Ariel Salleh (2017), whose work first introduced me to ecofeminism, explained that despite dualistic ideologies like Man/Woman=Nature persist, it is personal experiences that influence how humans feel and see. These personal experiences form our subjectivity. In her argument, Salleh matches with Donna Haraway (1988), who additionally highlights the need to disclose one's positionality: By sharing one's locatable, partial and critical knowledge, the point of view of the individual becomes visible, and relationships possible which allow for a politics of solidarity and openly discussed epistemologies (ibd.). Other scholars like Maria Mies (1990) reason in a similar way and clarify that a neutral, objective way to see and feel is impossible.

For my part, I speak from the position of a German, white, working-class child of a Christian upbringing, later student, worker and now again student, though this time joining the Master's program Agroecology in Sweden. The ways I see, feel and relate to human and non-human life are shaped by my experiences in subsistence farming in Southern Germany; my love to the land I used to own but lost; the meaningful encounters I had with people from non-Western background; my empathy and solidarity with (eco)feminist struggles; deeply felt sisterhood with my sister(s); my involvement in anti-fascist activism in Germany; and the physical and psychological experiences that patriarchy is alive. I write this thesis to make a clear standpoint on behalf of (eco)feminism, to privilege the vision of a world that seems impossible, because it exists outside of exploitation and oppression, and embraces the simple, solidary, radically different life instead.

4. Results

How do the chosen private corporations, state- and academia-related actors conceptualize the forest? What are their "building blocks of thoughts" (Margolis & Laurence 2019) which describe the forest today? Is there room to change the current rationale and how does this change look like? Following up on a short introduction of all actors, I will present the current forest concepts and their alternatives which the actors considered. In chapter 5, I will discuss whether the actors' concepts support an agroecological understanding of the forest which is based on ecofeminist ideas.

4.1 Actors' introduction

This chapter gives a brief introduction to the actors which were analysed for this case study in order to contextualize them within the Swedish forestry sector. Additionally, I briefly outline the informants' standpoints.

4.1.1 Private corporations

Swedish Forest Industries Federation (SFIF)

The SFIF is a federation which represents private corporations which operate in Sweden's forestry sector but also in a global context, e.g., by means of export (Swedish Forest Industries 2020a). Currently, the federation works on behalf of its 40 member companies, which are large private industrial forest enterprises owning 24% of Sweden's forest (Swedish Forest Industries 2016; Swedish Forest Industries 2023a). As of 2016, 50 pulp and paper mills and 120 sawmills have also been part of the federation (Swedish Forest Industries 2016). They comprise a network of the paper-, pulp- and woodworking industry, which reaches from Malmö in the south to Pajala in the North of Sweden (Swedish Forest Industries 2023b).

The SFIF's informant, a woman, speaks from a directing position. Overviewing forestry in Sweden, but not internationally, she interacts with private corporations of the forest sector.

Södra

Södra is Sweden's largest forest owners association and part of the SFIF (Södra n.d.a; Swedish Forest Industries 2023b). Located in southern Sweden, it is owned by about 52.000 members who are at the same time forest owners (Södra n.d.a). Södra organizes the production of wood-based products like paper pulp and renewable energy and is known as an international forest industry group, which exports to international markets (ibd.).

Södra's interviewee, a male senior forester, holds knowledge about forests and forestry in Sweden and internationally, including countries like Brazil. Besides being an employee of Södra, he owns forests privately in the 14th generation.

Skogssällskapet

Operating in Sweden, Finland and Latvia, Skogssällskapet is neither a full for-profit business nor affiliated with the SFIF or other industrial actors (Skogssällskapet n.d.a). Skogssällskapet positions itself as an independent public service foundation with a strong sustainability profile, which advises private and public forest owners based on knowledge that is continuously reproduced through ongoing research and development (ibd.). Additionally, the foundation owns several different companies, which themselves hold forest properties in Sweden, Finland, and Latvia (ibd.).

Skogssällskapet's informant, a woman who has been educated in forestry, advises other forest companies, which are customers of the foundation. With 28 years' experience in the forest sector, she focuses on sustainability questions.

4.1.2 State

Sveaskog

Sveaskog is Sweden's state-owned forest company and Sweden's largest forest owner: 14% of Sweden's forests belongs to Sveaskog, which utilizes forests for producing forest-based commodities like timber, biofuels or seedlings, and supplies forest services (Sveaskog 2023d). Trade completes Sveaskog's own supplies, which are mostly sold to the export-oriented Swedish forest industry. What is more, Sveaskog trades in the field of the land and wind power sector and facilitates forests' function in terms of outdoor activities and sustainability (ibd.).

Sveaskog's interviewee, a woman with a role in leadership, has been educated as a forester and completed PhD studies in a related field. Overlooking Sveaskog's forests all over Sweden, she is involved in internal work and collaboration with external partners, e.g., universities. With her work, she also contributes to questions of Sveaskog's strategy and development.

Swedish Forest Agency (SFA)

As the national authority handling forest-related affairs, the Swedish Forest Agency (Swedish: skogsstyrelsen) is in charge of implementing the state's forest policy, which is described in Sweden's National Forest Program. Production and environmental goals are the two main objectives which the agency administers while cooperating with the industrial sector and environmental institutions. Yearly directives, which the agency receives from the Ministry of Rural Affairs and Infrastructure, complete general forest policies, which reflect the state's understanding of the forest (Skogsstyrelsen n.d.).

All of the SFA's informants are women and engage in advising other forest actors including, amongst others, individual foresters or other governmental institutions. Since I have not conducted a personal interview with SFA's informant A, I lack information on this informant's background. SFA's informant B, on the other hand, has worked at the SFA for ca. 20 years. She deals with environmental questions and sustainability and has some previous experience in exploring the meaning of gender in forests. SFA's informant C has been educated in forestry and has worked for the SFA for 18 years. As she grew up on a small farm, she identifies for herself a "big nature interest from the ground".

Regional Forest Program (RFP) Sörmland

Similar to an offshoot of the National Forest Program, the RFP Sörmland elaborates a regional framework that builds on Sweden's forest policy and aims for the implementation thereof. Both the County Administrative Board (Swedish: länsstyrelsen), the SFA and a group of stakeholders involved in Sörmland's forests contribute to the program, which is led by the region (Region Sörmland et al. 2022).

The informant belonging to the RFP Sörmland has also been a woman. Since I did not engage in a formal interview with this person, I lack information on her standpoint.

4.1.3 Academia

Swedish University of Agricultural Sciences (SLU), Faculty of Forest Sciences

Highlighted as a faculty that is world-leading in forest research (CWUR 2017), SLU's Faculty of Forest Sciences is a central institution for both research and education in Sweden's forest sector (SLU 2021). The faculty advances expertise on the sustainable use of forest resources and develops knowledge in collaboration with other research institutions and stakeholders that operate in Sweden and internationally. Based on a governmental assignment, the faculty is responsible for environmental monitoring and assessment including the Swedish National Forest

Inventory (Swedish: riksskogstaxeringen) (ibd.). A further governmental mandate authorizes the faculty to educate the future personnel of the Swedish forest sector, which establishes concise connections between academia and praxis (Swedish Association of Graduates in Forestry n.d. cited in Hånell et al. 2005; KSLA 2009; see also Regeringskansliet 2020).

Researcher A, the only woman I interviewed on behalf of SLU's Faculty of Forest Sciences, looks at the forest from a non-Swedish background but has completed a PhD at a Swedish university. She engages in management and research at the faculty. The male researcher B explicitly reflects on his understanding of the forest he gained in both Swedish and international contexts. His knowledge is influenced by alternative perspectives on the forest which he engages with in his research. Researcher C, who identifies himself as not coming from a background of forestry, is engaged in forest-related research both nationally and internationally. He speaks from a position in leadership but is also involved in the faculty's administration.

4.2 Private corporations' forest concepts

4.2.1 Kind of production

Predominantly throughout the secondary data (Swedish Forest Industries 2020a; Swedish Forest Industries 2022; Södra n.d.a; Södra n.d.c; Skogssällskapet n.d.a; Skogssällskapet n.d.b; Skogssällskapet n.d.c), the private corporations conceptualized the forest in terms of commodity production which "convert[ed] wood raw material into climate-smart products" (Södra n.d.a). "Paper pulp", "sawn timber", "renewable energy" or "building systems" (ibd.) were mostly made from tree monocultures composed of "40% Scots pine, 41% European spruce and 19% broadleaves" (Swedish Forest Industries 2022: 11). The products were described as a substitute for products made from non-renewable resources (Skogssällskapet's informant) and pictured as "climate positive" (Swedish Forest Industries 2022: 3). The commodities were part of "international markets" (Södra n.d.a), to which the forest as an "industry" (Swedish Forest Industries 2022: 7) exported "80% of [its] production" (ibd.). What is more, many references indicated that the private corporations visualized the forest as the first "stage of the value chain" (Södra n.d.a) to generate "profitability" (Södra n.d.a) and "economic growth" (ibd.). In an interview the SFIF's informant concluded:

> "the forest industry and the forestry are important for the Swedish economy".

Looking for alternatives to this kind of production, the results were clear: With the central vision of "The forest sector drives growth in the global bioeconomy"

(Swedish Forest Industries & Fossilfritt Sverige n.d.: 6), private corporations—and especially the SFIF—did push their forest concept in the direction of "increased production of renewable products" (ibd.: 12). For that purpose, private corporations reframed their forest concepts in terms of "increas[ing] extraction of biomass from the forest" (ibd.: 17) and "efficient use of resources" (ibd.: 12).

Profit-making continued to guide the rationale as the actors chose a strategy that should enhance "growth" (ibd.: 6), "profitability" (Södra n.d.b) and "value chain competitiveness" (ibd.). In fact, the pursuit of economic growth seemed unchangeable and was part of the corporations' identity as an interview with the SFIF's informant revealed:

> "I think it's kind of built in a corporation that they rely on growth."

In the interview with Södra's informant, however, some space for transforming the current forest concept emerged. He reflected on a profit-driven forest business in a more critical way. He argued that profit-making itself prevented change towards a production system which aims for subsistence:

> "And as long as a lot of people make money out of it (...) it will be difficult to change."

If forest concepts should move away from commodity production for revenue and in the direction of an ecofeminist logic, it was either "the demand (…) from the market that would maybe change their [corporations'] views" (SFIF's informant) or "really bad crises" (Södra's informant) which could initiate such rethinking. Self-determined change was unlikely.

Still, it was Södra's informant, who owned forest privately, who already today understood forests in a rather ecofeminist way. His perspective indicated an opening for an agroecological transformation: For him, the forest was part of a traditional "bioeconomy" which once shaped the Swedish countryside and aimed for self-sufficiency instead of profit-making:

> "[T]here is a memory in the countryside from the early 1900s and the late 1800s where we actually had the bioeconomy. Cash was extremely rare. You could sell a few things outside your farm, but the most important thing was to produce your own food, your own clothing, your own firewood for heating, your own fat, for lights and candles, and so on. So, actually, everything was made on the farm in a sustainable way because we had no fertilizers, we had no poisons. And I mean, my grandfather remembered all this. All, all, all, all the stories about this. So, we still have a memory of, of this." (ibd.)

This understanding shaped his forest concept. He used the forest for self-sufficient living, e.g., by "produc[ing] all the heating firewood" he needed or by using trees "for food for the goats and sheep" he took care of. From his perspective, the forest was not for profit-making but to earn "an income" (ibd.).

4.2.2 Diversity of values in the forest

All private corporations recognized a diversity of values when conceptualizing the forest and described a multifunctional, multipurpose forest: For the SFIF's informant, for instance, "the multifunction is the (...) Swedish way of looking at forest". Values, which the federation considered, included recreation, biodiversity, biomass production and various other aspects like hunting (ibd.). Skogssällskapet (n.d.b) saw the forest as a site for education, knowledge development, research, awareness raising and for inviting visitors.

Södra's secondary data meanwhile stated explicitly that the forest owners association rather considers a limited range of values, which related to production for the purpose of economic growth. It pictured a climate friendly resource, which linked with economic interests and innovative approaches:

> "Some see a forest. We see a source of renewable raw material, climate benefits, long-term economic growth and Swedish innovativeness that will never stop growing." (Södra n.d.a)

A similar perspective was articulated in the SFIF's secondary data, which emphasized forests' value in offering "climate benefits", which the forest sector contributed to through its business operations (Swedish Forest Industries & Fossilfritt Sverige n.d.: 6).

Alone Södra's informant emphasized the emotional value he associated with his own forest while earning an income from selling trees. His reflections indicated some openness for an ecofeminist understanding of the forest, for instance, as he cared for his land and its species:

> "I love my land. But of course, I want my land to be alive. I, I love to see eagles and wolves and, and lynx which I have in my land. And otters in the river and, and kingfishers and, and all these species. Because they are a part of the land. And, and I showed them to my grandchildren. But of course, I do cut down trees and sell them also to get an income."

Some further support for an ecofeminist, agroecological approach was found in Skogssällskapet's (n.d.b) strategy, which expected to develop its forest concept towards "nature conservation" and "culture values".

4.2.3 Role of women

While all analysed secondary data (Swedish Forest Industries 2020a; Swedish Forest Industries 2022; Södra n.d.a; Södra n.d.c; Skogssällskapet n.d.a; Skogssällskapet n.d.b; Skogssällskapet n.d.c) did not deliver any information on the role of women, the interviews uncovered that women were part of the corporate forest concepts: Integrated in business-as-usual, women were forest owners and "forest owning, owning is kind of (...) business and female forest owners are the

largest business group for women" (SFIF's informant). Women gathered during "special activities" (ibd.) companies organized for them and they met in "networks for female forest owners" (Södra's informant). Individual women took over leading positions, for instance as the "president of Södra" (Södra's informant) or the "CEO of the Swedish Forest Industry" (Skogssällskapet's informant). Looking back on the role of women as objects, Södra's informant therefore concluded that women's role within the forest has changed a lot:

> "And, and I mean I, I've, I've been working 40 years with forestry and and it has changed quite a lot. When I was… a very young logger working with chainsaw (...) there was still calendars with naked women in the, in the cabins. They are long gone. They are long gone."

Openness for an alternative role of women and change beyond women's integration in business-as-usual was expressed by Skogssällskapet's informant:

> "I think that we are getting away from the old man knows everything to a more curious and humble business sector that could actually think of doing things in other ways."

Doing things in other ways did thereby also relate to "female forest owners [who] are quite curious when it comes to managing forest in different ways and [with] different objectives" (ibd.). In general, women's integration in forest business and their participation in establishing new approaches to the forest, were seen as "a good thing for many reasons" because it created "a more balanced way of looking at your whole existence" (ibd.).

4.2.4 Relation of human to non-human nature

Speaking of the relation of human to non-human nature, all corporate actors portrayed humans as managers of nature. On Södra's (n.d.a) website, for example, it was said that without human intervention the forest was not able to fulfil its natural functions:

> "The forest will not save our climate on its own, but when sustainably managed, it's an important part of the solution."

The SFIF's informant explained that in a changing climate and challenged with pests and diseases in the forest, humans were "managing, for example, bark beetles, fires".

At the same time, management was "more centralized and (...) less dependent on the interaction between people and more (...) looking at the computer about the forest" (ibd.), which digitalized the human-nature relation.

Differences between the corporate actors appeared when addressing a human-nature dualism during the interviews: While the SFIF's informant was overstrained

by a “hard question” (SFIF’s informant), Södra’s interviewee was able to explain his view. He denied the division of human and non-human nature and depicted the forest as bringing humans and nature together, which delineated a space for reconfiguring the relation between human and non-human nature:

> “I would say that it, it is, but with most landowners in Sweden, just the opposite, because I am the 14th generation owning the estate where I live. My son is the 15th. And my daughter has a child as well, so the 16th generation is born and we have been managing these areas for as far as we, we know the early 1600s.”

4.2.5 Emerging theme: renewable resource

In addition to the predefined themes, the private corporations thought of the forest as a renewable resource. Referring to the Swedish Forestry Act, which says that “the forest is a renewable resource that is to be managed sustainably yielding a good revenue” (Skogsstyrelsen 2023b), the SFIF’s informant emphasized:

> “I would say that for our federation and for our members, it is the, the definition in the forestry act that is the framework. Yes. Definitely.”

The Swedish Forestry Act used the same forest definition as the FAO (SLU 2023c) and pictured forests as “land with trees higher than 5 meter and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ” (ibd.). However, Södra’s informant pinpointed that the FAO framework “is not the way forest is defined in Sweden”. He and Skogssällskapet’s informant confirmed that forests are divided into two categories: managed productive forests which “produce more than one cubic meter per hectare and year” (Södra’s informant) and unmanaged “unproductive forest[s]” which produce less (ibd.). Still the theme of the forest as a renewable resource for production persisted.

4.3 State’s forest concepts

4.3.1 Kind of production

For the state and its forest company Sveaskog, Sveaskog’s informant outlined, the forest concept was informed by former times. In the past, “wood production was everything” (ibd.) and “forests and forestry [were] one of the main sources for the building of wealth in Sweden” (SFA’s informant A). Today, “the overall way of considering the forest” was still to see the forest as a “productive forest land”, which included “production forest, where we produce timber” (Sveaskog’s informant). In the secondary data, this forest was pictured as a monoculture (64% pine, 27% spruce and 9% deciduous trees (Sveaskog 2023c: 4)). “Timber extraction” (ibd.)

allowed for commodity production. Goods like "sawlogs, pulpwood, biofuel and cellulose chips" (ibd.: 16) were produced by the "forest industry [which] is one of the country's most important industries" (ibd.: 6) and "exports all over the world" (Sveaskog 2023d) to a "global market" (Sveaskog 2023c: 16).

Understanding the forest as part of this market, the SFA and Sveaskog framed the forest in terms of profit-making: "[P]rofit from forestry is a major income for the state" (SFA's informant A), "of great value for the entire European investment in growth" (Sveaskog 2023c: 6). This concept was confirmed by Sweden's forest legislation:

> "The law [the Swedish Forestry Act] states that the forest is a renewable resource that is to be managed sustainably *yielding a good revenue*." (Skogsstyrelsen n.d.; emphasize added by author)

Looking for change in production patterns, most data predicted that the state-related actors aimed for a production which used "less resources" (Sveaskog's informant) but focused on forests as a "renewable resource" (ibd.) which should be used more. In the written materials, the government's goal of "good and ensured access to national biomass from the Swedish forest while considering the national environmental goals" (Regeringskansliet 2022: 8; own translation) linked with Sveaskog's (2023c: 23) "[s]trategic targets for sustainable value creation", which included "[i]ncreased forest growth" and "[i]ncreased timber harvest" (ibd.). A "continued high level and secure supply of timber with major efforts to increase biodiversity" (Sveaskog 2023a) envisioned continued high-level commodity production combined with environmental considerations.

With the "staring signal" of economic growth, which SFA's informant B identified, profit-making remained central. State-related publications reframed the forest concept in terms of a "growing bioeconomy" (Skogsprogram Västerbotten n.d.) and elaborated a "vision" of the forest as green gold, which included strengthened exports to a global market (Regeringskansliet 2022: 15, 17):

> "The forest, the green gold, shall contribute to both employment and sustainable growth in the whole country and to the development of a growing bioeconomy." (ibd.: 5 (own translation))

Forests as a "carbon sink", which "must be protected" (SFA's informant A), demarcated a secondary alternative to existing forest concepts but highlighted a possible link to an ecofeminist forest concept. Thorough changes towards a subsistence perspective were only embraced during one interview—and in explicit contrast to the SFA's general approach. Even though the interviewee estimated that this shift in direction will "take extremely long time" and require humility, her view considered a fundamental shift towards an ecofeminist rationale, which could prepare an agroecological future:

> "For me,… Not forest agency, but [me], it's absolutely interesting to do [move to a subsistence perspective], I think we need to go back to a smaller community and live more closely if we are going to make this." (SFA's informant C)

4.3.2 Diversity of values in the forest

In its written statements, the state's forest policy considered production and the environment as the main values in the forest (Skogsstyrelsen n.d.). Nevertheless, in the interviews both the SFA and Sveaskog emphasized the forest's multidimensional character as a "full complex system" (Sveaskog's informant), which was used in "multifunctional ways" (SFA's informant B). "[E]conomic, ecological and social values" (Sveaskog 2023d) described a diversity of qualities in the forest, e.g., "feelings, benefits, ecological structures" (Sveaskog's informant), "recreation" (Skogsstyrelsen n.d.) or "cultural heritage" (Skogsstyrelsen 2023b). Special consideration was given to the forest as a site for "reducing climate change" (Sveaskog 2023c: 6) and protecting biodiversity (SFA's informant C). According to secondary data, Sámi reindeer herders' animal husbandry and linked interests were also of "crucial importance" (Sveaskog 2023c: 5). Dialogue between stakeholders within forests, however, SFA's informant B countered, didn't stop conventional forestry, which meant "a big problem for them [Sámi reindeer herders]".

In its Annual and Sustainability Report 2022, Sveaskog (2023c: 11) claimed the development of "all the values of the forest" as its "[b]usiness idea" while the company's informant recognized that wood production was "one of our main objectives". Within Sveaskog, the company's informant expanded, "[i]mmaterial aspects [i.e., "everything about life and the existence and whatever religions or cultural heritage and all those questions", "personal feelings"]" were acknowledged but less well defined in daily operations, which mostly dealt with production issues.

The general direction of future forest concepts foresaw a strong emphasis on the forest's economic, social, and ecologic values in line with the Sustainable Development Goals of the Agenda 2030 (Regeringskansliet 2022: 6). Within this framework, Sveaskog was "in a shift" of how the company compassed forests (Sveaskog's informant), and "sensitive to other interests and open to new approaches" (Sveaskog 2023c: 6), which opened up possibilities for agroecological transformations. Any change the company endeavoured to implement, was thereby expected to be wide in scope because Sveaskog acted as a role model for other forest owners:

> "We know that a lot of others like look on us because we are owned by the state and we are big, so then we know that probably a lot of other people also would follow this change that we might do…" (Sveaskog's informant)

Within state-related publications, “Sveaskog’s new long-term focus, which extends to 2050” (Sveaskog 2023c: 15) pictured a multipurpose forest (Regeringskansliet 2022: 12) which was predicted to cover the values of “high-volume and reliable timber delivery” (Sveaskog 2023c: 15), “increase[d] biodiversity” (ibd.) and “climate benefits” (ibd.: 32). “Ecological values (...) through nature conservation” (ibd.: 25) and “better coexistence with reindeer husbandry” (ibd.: 26) were equally desired.

Despite Sveaskog’s (2023c: 6) prediction that “[i]n the next five years, more will happen in the forest industry than has happened in the last fifty years”, which once again highlighted openness for a shift, SFA’s informant C didn’t expect “fast changes”.

4.3.3 Role of women

Women’s role was evaluated in two ways: For Sveaskog’s informant, at least within Sveaskog women were fully integrated in business-as-usual. Questions on gender and women’s parity were “a big fact (...) a long time ago” (Sveaskog’s informant). The informant herself used to be “a little extra tested” (ibd.) in the past because she engaged in forestry as one of the first women. Today, however, similar questions were nothing “anybody really reflects on (...) anymore” (ibd.). Thus, the informant foresaw no more need to reevaluate women’s role in the context of forests. A similar tendency became visible in the secondary data and the aim to integrate more women in business-as-usual (Sveaskog 2023c: 24; Regeringskansliet 2022: 12).

For the informants related to the SFA on the other hand, the forest was still a normed and “gender separated workplace” (SFA’s informant C). In this forest concept, women were “not represented well enough” (SFA’s informant B). One informant concluded:

> “[I]t's also a masculinity norm but also forest production norm (…) [it] is very mainstream or what to say, it is dominant among foresters.” (ibd.)

Despite these norms, women as forest owners did actively initiate change of how the forest was understood because “[s]tatistically women forest owners are more interested in other values than wood, pulp, and more positive to alternative cutting regimes” (SFA’s informant A). What is more, the data suggested further scope for change in favour of ecofeminist ideas because the SFA recognized a “need to change the (...) picture and our communication about what it means to be a forest owner” (SFA’s informant B) in order to overcome gender norms. By “mak[ing] space for other perspectives and get more voices to be heard” (ibd.) these informants embraced alternative perceptions of the forest.

4.3.4 Relation of human to non-human nature

The relation was portrayed as unbalanced. Even though Sveaskog (2023c: 6) once explained that "the forest is part of the people's soul" and one informant "can relate more to being part of the forest or (...) nature" (SFA's informant C), in the eyes of SFA's informant B humans remained "separate" from nature (ibd.) and the "human perspective" dominant. Humans were businesspeople "affected by digitalization" (Sveaskogs 2023c: 7) who "manage the forest and supply timber, pulpwood, cellulose chips, biofuel, seedlings and forest services to [their] customers" (ibd.: 16). Additionally, humans were managers of pests, e.g., as they countered "[i]mmense problems with spruce bark beetle due to [the] dry season" (RFP Sörmland's informant), which had caused a "second pandemic" in Sweden's forests (ibd.). The role of humans as managers of climate change and the biodiversity crisis strengthened the argument that humans acted as managers of nature. Sveaskog (2023a), for instance, "may come up against problems caused by rising temperatures" and "take actions to promote biodiversity" (ibd.).

Ethical considerations which problematized the human/non-human nature relation existed within the forest concept, e.g., in "philosophical discussions" Sveaskog's informant was part of. These debates could potentially elaborate an ecofeminist relation between human and non-human nature. Yet, these considerations did hardly refer to the field of production, which focused on using the forest and had a crucial role in the forest concept of state-related actors (see previous sections). The SFA summarized:

> "[W]hen we talk about environmental goals and sustainability, there is also aspects of this ethical dimension, who are we to say which species to live (...), which not to live? We, we have to (...) make space for the whole ecosystems and all the species in it. And also, but in this production area it's, it's more like how can we use the forest in a good way, in a sustainable way." (SFA's informant B)

As a result, the scope for change was limited and less likely to affect production as the core of the forest concept.

4.3.5 Emerging theme: (renewable) resource and national asset

For the SFA and Sveaskog, "Sweden's forests are a national asset and resource" (Skogsstyrelsen n.d.), which equates the forest with "a raw material" (Sveaskog 2023c: 11). This perception of the forest was reflected in the Swedish Forestry Act ("the forest is a renewable resource" (Skogsstyrelsen 2023b)) and resumed by the state-owned company Sveaskog, which "follow[s] the Swedish definitions of (...) what the forest is" (Sveaskog's informant).

4.3.6 Emerging theme: contingent forest concept

Less in the secondary data but clearly during the interviews, the SFA's informants' perspective on the forest uncovered that the SFA didn't conceptualize the forest independently. One interviewee recognized that "in the later years we [the SFA] have been a bit more influenced by private corporations" (SFA's informant C), which were "completely economy driven" (ibd.). By using "powerful lobby organizations" (ibd.),

> "[t]hey [private corporations] influence the politics and all, all, all the way. (…) And we as a state agency, we need to follow their politics. That's just what we do and have to do." (ibd.)

Not the least 90 to 95% of Sweden's forest land management, i.e., also production, which the state-related actors focused on in their forest concept, were controlled by "about 20 (...) big companies" (SFA's informant B).

A shift in how the forest is perceived was equally depicted as contingent: Transformations of how the forest is characterized depended on "ownership" (Sveakog's informant), which was "important to develop new ways of dealing with the forests" (ibd.) and central to recognize forests as "a big value that is something else than money" (SFA's informant C). Other drivers of change included "[e]ngagement" in "political movements" which influence forest politics (Sveakog's informant), "new laws and regulations" (Sveaskog 2023c: 28), "societal interests and the market" (ibd.: 6), "new research and (...) innovations" (ibd.) and efficient communication and mutual understanding:

> "You need to try to understand and try to, to meet. And to change and to make the change something that you look forward to and see the good things in the change." (SFA's informant B)

4.4 Academia's forest concepts

4.4.1 Kind of production

The interviewed researchers at SLU's Faculty of Forest Sciences perceived the forest as "different types of forests" (researcher A; own translation), e.g., "mixed forests" or "monocultures" (ibd.), or as a "landscape context" (researcher B). Such ideas of the forest related to the general notion of forests as a site for knowledge production, which included "higher education and research" linked to "the Swedish forest sector" (SLU 2021). Knowledge production, however, researcher C highlighted, referred to researchers who were "completely independent". As a result, one interviewee highlighted the individuality of academic forest concepts:

> "[T]here's no sole definition of what the forest is" (ibd.), "the forest is in the eye of the beholder." (ibd.)

Still, the same informant observed "more predefined areas [of research]" (ibd.), which correlated with "a political will" to put "the focus more on bioeconomy" (ibd.). This observation was confirmed by secondary data which showed that producing knowledge was directed towards the forest as an important part "for the development of a biobased economy" (SLU 2023d). Within the research network ForBioeconomy, for instance, the forest was described in terms of "biomass" and "ecosystem services" (ForBioeconomy n.d.b), which related to profit-oriented "markets for bio-based products" (ibd.).

Against this background, the faculty's strategy paper framed its future forest concept in terms of knowledge production for a circular bioeconomy and expected that research would increase parallel with the growing importance of the bioeconomy:

> "The forest and its resources play a very important role for the transition to a sustainable society which builds on a circular bioeconomy. Therefore, the field of research increases; also, as more ecosystem services are asked for, the depth within some research areas will increase and there is a need for transdisciplinary methods in order to study many of the questions which are interesting for the society." (SLU 2020: 3; own translation)

In a financially competitive setting, research areas had to be prioritized (ibd.). They were guided by sustainability concerns and internationalization (ibd.: 4, 5). Research on a digital transformation of the forest sector sketched the concept of a forest as a "digital ecosystem" (ibd.: 8; own translation), which allowed to "control forestry from forest to industry" (ibd.: 9; own translation).

Transformative change was not addressed in the faculty's secondary data, which was analyzed to indicate future developments (SLU 2020). Researcher B delimited that unless "accelerating huge problem[s]" forced radical change, a large-scale shift to a less economy-driven forest concept was predicted to be unlikely. Not only would it challenge "all the norms" within academia (researcher A; own translation); it would also go against "the economy we have and the export orientation of Sweden" (researcher B). As such, there was little probability for an ecofeminist forest framework, which could facilitate agroecological change.

Nevertheless, alternative approaches to the forest existed—at least according to researcher B: "[C]riticism from NGOs and from Sámi reindeer herding communities", which stated that "the solution is not to be more intensive", was recognized and suggested a different direction of how forests are understood. Recent research the same informant referred to and which demonstrated that the "smartest thing is not to substitute everything with wood or wood biomass [but] maybe leaving the forest as it is instead, because it (…) will act more as a carbon sink" initiated change and a "discussion [which] is moving at least partly in another

direction" (ibd.). Researcher B also advocated for new directions as he demanded to "cut less forest" and reconsider the need "to increase the economy all the time" (ibd.). Realizing such a transformation, however, depended on a new kind of academia like two interviews revealed: Change was linked with more open possibilities for gender equal, curious and empathetic debates within science (researcher A), the dismissal of the normed scientist as an "honest broker" in favor of a responsible, politically engaged researcher (ibd.) and researchers' ability to communicate their ideas to a broader public (researcher B).

4.4.2 Diversity of values in the forest

Researcher A highlighted the importance of using the forest for production as a dominant value:

> "It is mostly this forest: It's trees and trees are cubic meter." (own translation)

Understanding forests synonymous with cubic meter, however, was mostly related to "men [who] rather see the use value" (ibd.).

Despite this claim, the data suggested that the faculty valued the forest also for several other aspects: For instance, in both primary and secondary data the faculty considered "biodiversity", "outdoor activities" (researcher C) and forests' role in "climate adaptation" (SLU 2023d). Within "[e]nvironmental monitoring and assessment" (SLU 2021), special attention was paid to forests' ecological values. Spiritual parts "of course [have] been a minor thing" (researcher C).

The secondary data meanwhile indicated some openness for recognizing alternative values in the forest: Within the research platform Future Forests, for example, "different groups' perspectives on forestry are taken into account" (SLU 2023d). In educational programs, the "increasing pressure" on forests was acknowledged and a "holistic approach" broadened academia's view (SLU 2021).

Seeing the forest "in a more holistic way" (researcher B), was also part of the forest concept which Sámi reindeer herders had, and which informed the work of one interviewee. For this individual researcher, the reindeer herders' perception contributed to resolving the "division between the cultural heritage of forest and the biological, ecological values of forest, including biodiversity" (ibd.). Even though Sámi reindeer herders also "use the forest but (...) use other resources than the timber industry", they saw the forest in a different light, which reflected an ecofeminist way to value the forest because it went beyond economic questions:

> "They don't look at one stand whether it should be cut or not, they look at the landscape of the forest." (ibd.)

4.4.3 Role of women

With few exceptions, the role of women was only considered in the interviews. There, researcher B explained that women's role was influenced by the historically formed understanding of the forest which was established "from a male perspective" and "super closed male community". "[M]en [were] on all positions" (ibd.) including SLU, which excluded women:

> "They [men of the closed male community] were in the national board of forest and then they went to the state forest and then they went to SLU, to university, and then they went to SCA and then they went... I mean, these people were just moving around" (ibd.).

Even though today more women were integrated in mainstream structures (e.g., in the role of a professor at the Faculty of Forest Sciences or in other positions in governmental and corporate institutions (researcher A; researcher B)), these structures were still very male dominated and shaped by an ecomodernist approach, which aimed to improve and adapt nature:

> "[F]orestry is very male dominated. And this resource perspective and this 'we improve nature and adapt it' and this ecomodernist approach, that is from my point of view very male dominated, and that is the status quo. And the mainstream" (researcher A; own translation).

Women therefore had to have a "thick skin" (researcher A; own translation) and outcompete men, they had to "fight hard" (ibd.). One female informant was even "lucky that nothing significant had happened" to her yet (ibd.). She concluded:

> "Well, it is clearly patriarchal and anthropocentric, this perspective on the forest. And women simply have less influence there. (...) So… the feminist perspective on the forest is marginalized" (ibd.).

In the light of the faculty's strategy paper which aimed for the development of gender equality and norm criticism for balanced power relations (SLU 2021: 4, 11), women's role was able to change. At the same time, women initiated change themselves. According to researcher A, women's less anthropocentric view of the forest rather recognized the intrinsic value of nature and therefore challenged current male-dominated, ecomodernistic perspectives. As critics, women questioned business-as-usual of mostly middle-aged white men who neither understood their privileges nor took serious women's critique:

> "And if you as a woman criticize that [the male dominated view of the forest], then you are not taken seriously. (...) Something is changing, but it is mostly middle-aged white men who have this opinion and who do not understand their privileges and who have absolutely no understanding, who just don't understand what one criticizes (...). Yes, I totally agree with this critique [that men dominate both women and nature]" (ibd.; own translation).

4.4.4 Relation of human to non-human nature

The secondary data (SLU 2021; SLU 2023d; ForBioeconomy n.d.a; ForBioeconomy n.d.b) did not deliver any clear information on the relation of human to non-human nature. From the perspective of one interviewee, however, humans mostly engaged in a dominating relation with the forest. Some foresters who had been educated in academia, for instance, embodied an anthropocentric positionality that linked with the concept of the forest as a resource for production:

> "Well, I think for those who have been educated as foresters, [the concept of] the forest as a resource is deep-seated. And the anthropocentrism is quite strong. Not for everyone and there are nuances" (researcher A; own translation).

Another researcher on the other hand, emphasized the Swedish concept of "skötsel" (researcher C), which took up the idea of the forest as a "natural resource" (ibd.) but shifted the focus in the direction of an ecofeminist perception of the forest. Now, "caretaking" and a "wise use" of natural resources (ibd.) described a rather coequal relation of humans to nature, in which humans "safeguard a natural resource over time" (ibd.).

Other conceptualizations of the human/non-human nature relation were found in researcher A's ecocentric weltanschauung, which built on reciprocity between humans and forests and respect and gratefulness for nature. However, this ontology was likely to face opposition from other researchers:

> "Personally, I am less anthropocentric, I am more ecocentric, think that other species have an intrinsic value/right and we shouldn't dominate them. And (…) I would like to see more that we recognize ourselves as part of nature and have respect and don't waste so much but show gratitude for what we can take and don't assume it is our right to do. But this is, at least here at the university, in my environment,… Well, I can discuss that with some colleagues, but… I think I will run into quite some opposition with some people" (ibd.; own translation).

Thus, this approach was rather describing a minor alternative.

Researcher B's observations, which were linked to his knowledge of indigenous human-nature relations, did also open up room for change: Sámi reindeer herders were not focusing on single trees and biomass but engaged in an affiliation with forests:

> "[T]he Sámi reindeer herders have a very strong affiliation to the lands and a historical affiliation, whereas if you look at the forest through laser scanning, it's… You see the, the trees and the biomass and so on. (...) And this, this, indigenous people is, is also very much on the history of the forest. You know the places, you know the place names. You know the, the history of a certain place and, and how it was used and how, how it has changed, which is a very different, very, very much different from (...) the forest industry definition of forests." (researcher B)

Looking to this affiliation with the forest, the researcher concluded, would teach a "much deeper" understanding of the forest—also beyond academia:

> "[I]f we could establish such things [ways to establish an affiliation with the forest] within the schools in the interior or northern Sweden (…) or in Sweden in general, that would be fantastic, if that connection and understanding of the forest, not just as a production unit, but much deeper. That would be fantastic, but it's an enormous task to do it."

4.4.5 Emerging theme: natural resource

For the faculty, the mental picture of the forest as a natural resource was reoccurring: One of the researchers worked within the department of "Forest Resource Management", in which the anthropocentric view of the forest as a resource was deep-seated (researcher A; own translation). The research network ForBioeconomy (n.d.b) analyzed the "sustainable use of biomass", "skötsel" was a "culture on natural resources" (researcher C) and the faculty as a whole aimed for "increased knowledge about the sustainable use of forests as a natural resource" (SLU 2021).

4.4.6 Emerging theme: influence of industrial conceptualizations

The interviews disclosed that industrial forest concepts influenced the faculty's perspective on the forests, which was evaluated in two ways: there was strong influence, which was met with criticism vs. there was little influence and the university should take a neutral position.

Researcher A and researcher B averred the forest industry's "disproportionate strength" (researcher B): As "an extremely strong organization in (...) Sweden (...) they have been very active in (...) shaping the view of the forest" (ibd.). In practice, this showed in the forest industry's "oligopoly" to set the price for wood (researcher A; own translation) but also in a "big influence" on forest management methods (ibd.). Legislation, which reflected the state's forest concept, interlinked with industrial forest concepts:

> "So we are still under the influence that the state's forest laws and regulations are primarily in order to make the forest production for the industry—rather than having this multi approach of different interests and so. Everything is, the, the other things are a little bit more like cosmetic on top of that and even though we do have laws regulating cultural, the cultural heritage in the forest and biodiversity and reindeer herding and so on. Those are less effective and less functional (...) than the other parts, I would say…" (researcher B).

Reflecting on the proposed strong influence of the industrial forest concept, another researcher countered that "we look too much to these 25% [of the forests which

belong to the private forest corporations]" (researcher C). Criticism of industrial approaches to the forest was therefore not understood:

> "I really don't understand this focus on why we shouldn't be neutral." (ibd.)

5. Discussion

Reflecting on the key findings of this study, this chapter discusses whether the actors' forest concepts support an ecofeminist concept of the forest which describes one pathway towards an agroecological future by transforming the underlying rationale of Sweden's socio-ecological forest landscape. The chapter explains the results in relation to the theoretical framework, identifies the limitations of the thesis and poses continuative questions. Additionally, this chapter provides answers to my research questions.

5.1 Capitalist patriarchy and the continuation of the socio-technological regime

Following the thematic analysis, I argue that the actors' forest concepts mostly reflect a capitalist and patriarchal understanding of the forest. It can be seen as a continuation of the gendered, production-oriented directive previous research has identified when addressing the Swedish Forestry Model (see Section 2.1, first Subsection). At least according to the analyzed corporate, governmental, and academic actors, the rationale of the socio-technological regime of private corporations, the state and academia remains the same: it still privileges an industrial approach to the forest, which is linked to economic growth and, according to ecofeminist arguments, therefore to exploitation (Mies 1981; Federici 2009; Salleh 2009a; Stephens 2015). Similar to the corporate food regime, which governs the food sector with its capitalist, short-sighted and compartmentalized logic (cf. Gliessman 2015; Stuart & Gunderson 2020; von Redecker & Herzig 2020; IPES-Food 2016), the forest-related regime influences forest business, policy making and research on a conceptual and therefore profound level. It organizes Sweden's socio-ecological forest landscape with its established practices and rules (cf. Smith 1990; Geels 2001) in a capitalist and patriarchal way. Capitalism and patriarchy thereby operate by establishing dominating norms, which form the forest sector and shape its actors. In the sense of previous research, which has identified capitalism as interwoven with all life (cf. Cole & Ferrarese 2018), I will now discuss how both capitalist and patriarchal norms work to organize Sweden's socio-ecological forest landscape and life within it.

The growth norm

According to my results, predominantly that which are based in the analyzed secondary data, it becomes clear that all considered actors conceptualize the forest on the seemingly unquestioned premise of the "bioeconomy" (see Section 4.2.1, 4.3.1., 4.4.1). This bioeconomy is tightly connected with the underlying logic to always strive for more: For instance, the SFA and Sveaskog seek more economic growth (cf. Section 4.3.1), SLU's Faculty of Forest Sciences foresees that forest research within the framework of the bioeconomy will increase (SLU 2020: 3), and corporate actors represented by the SFIF aim for "increas[ing] extraction of biomass from the forest" (Swedish Forest Industries & Fossilfritt Sverige n.d.: 17). Despite environmental problems, which originate in the growth-driven simplification of the forest landscape (cf. Section 2.1, first Subsection) and which the state's national forest program demands awareness for (Regeringskansliet 2022: 8), the paradigm of economic growth conveys identity: The SFIF's informant maintains that it is "kind of built in a corporation that they rely on growth". That means, at least for corporate actors within the socio-technological regime, growth is a rather non-negotiable norm. It defines how corporations act and explains the economistic lens through which also the state sees the forest, namely as "green gold" (Regeringskansliet 2022: 5). The growth norm is embedded in a wider European context in that profit-making is "of great value for the entire European investment in growth" (Sveaskog 2023c: 6), which describes how widespread the urge to grow is. It further affects the work of the SFA, which interacts with the forest sector under the "staring signal" of economic growth (SFA's informant B). The persistence of the growth norm is confirmed by informants who identify "demand" (SFIF's informant), "really bad crises" (Södra's informant) or "accelerating huge problem[s]" (researcher B) as avenues for changing the directive of growth. Any self-determined change, however, the results therefore suggest, is rather impossible. The growth norm, I argue, undermines independent agency. It contrasts clearly with the ecofeminist forest concept, which rejects a growth-oriented rationale and encourages independence (cf. Mies 1981; Federici 2009; Salleh 2009a; Stephens 2015) because it puts profit over subsistence.

The production norm

Connected with the growth norm, the results indicate that there is a production norm that coordinates the socio-technological regime and therefore Sweden's socio-ecological forest landscape. Based in my results, it shows in at least two ways:

Firstly, production prevails as the dominant value despite all considered actors recognize a diversity of values and emphasize forests' relevance for climate change mitigation and biodiversity (see Sections 4.2.2, 4.3.2 and 4.4.2). For example, the faculty mostly sees forests in terms of production (researcher A), Södra (n.d.a) values the forest as a "source of renewable material" for production, and

Sveaskog's informant describes wood production as one of the "main objectives" of the state-owned company. This production norm coexists with an awareness for forests as multifunctional, complex systems, which, for example, Sveaskog's informant, SFA's informant B and SFIF's informant have elaborated on. Yet, the production norm dominates, I propose, how the socio-technological regime sees the forest because the production norm links with the growth norm. It links because economic growth depends on production, e.g., of wood for products which will eventually yield financial returns. In this way both norms reinforce each other. As a result, I argue further, forests' complexity and multifunctionality are reduced. The aim for ever more economic growth demands intensified production, which is achieved at the cost of diversity and complexity, which I will further address when discussing the uniformity norm.

The reduction of complexity and multifunctionality is also reflected in the identified concept of forests as a resource (see Section 4.2.5, 4.3.5 and 4.4.5), which describes the second way the production norm shows: By understanding and using the forest as a resource from which wood-based commodities can be produced (cf. Sections 4.2.1, 4.3.1, 4.4.1), I suggest, the forest is mostly reduced to a production unit, which aligns with Pyne's (1997: 512) observation of Sweden's landscape as a "vast tree farm" I highlighted earlier. The production norm the considered actors have internalized, however, goes beyond a reduction or simplification of the material forest landscape, which emerges from the extraction of resources. The norm allows the analyzed private corporations and the state-owned company Sveakog to operate as an industry with a strong export profile, which engages in a globalized economy (Swedish Forest Industries 2022: 7; Sveaskog 2023d; Swedish Forest Industries & Fossilfritt Sverige n.d.: 6; Regeringskansliet 2022: 15, 17). Even though these actors know about the forests' complexity, the picture of the forest as an abstract resource facilitates production and its intensification. Subsequently, I propose, the understanding of the forest as a resource empowers corporate actors on a conceptual level. Local networks of change, however, which organize around autonomy, self-determination and an economy of care in line with an ecofeminist rationale (cf. Wynberg et al. 2023; Bennholdt-Thomsen & Mies 1999), are undermined (cf. Salleh 2010; World Rainforest Movement 2023a). They are subsumed by a socio-technological regime in which an oligopolistic forest industry determines up to 95% of Sweden's forest land management (i.e., also production; SFA's informant B). Hence the "epistemic authority" previous research has identified (cf. Appelstrand 2007 cited in Andersson & Keskitalo 2018: 79) is amended with a production authority, which dominates most of Sweden's socio-ecological forest landscape.

The uniformity norm

Even though all norms could in principle be characterized as normalizing because they encourage, if not demand conformation (e.g., the corporations' need to grow), the results indicate that there is a specific uniformity norm which regulates life within Sweden's socio-ecological forest landscape.

Industrial monocultures, which according to secondary data shape the forest landscape (Sveaskog 2023c: 4; Swedish Forest Industries 2022: 11), do not only simplify a once diverse forest landscape (cf. Section 2.1, first Subsection). These monocultures, I argue, also reflect the rationale and the decision of the socio-technological regime over what can and should live and what not. I argue so because the decision refers to the "ethical dimensions" which SFA's informant B related to the question "who are we to say which species to live (…), which not to live?". Uniform monocultures, however, give clear preference to single species forest stands and their life. Monocultures subvert complex life relations, e.g., in terms of biodiversity (cf. Section 2.1, first Subsection).

What is more, monocultures and the underlying uniformity norm marginalize non-confirmative concepts of living like Sámi reindeer herders practice (SFA's informant B). For instance, it is the uniformity norm and its monocultures that create an abstraction of the forest, which researcher B compared to seeing the forest "through laser scanning" and only as "trees and the biomass". This abstraction contrasts with Sámi reindeer herders' perspectives that reveal "a very strong affiliation to the lands", an "understanding of the forest, not just as a production unit, but much deeper" (researcher B). I suggest therefore that according to the analyzed actors the socio-technological regime pushes for a homogenization that builds on an abstract forest concept which except for its productivist logic remains superficial. In the presence of the uniformity norm that what someone can know and relate with is reduced. Hence, the complexity of knowledge and relations diminishes, which, I argue further, deprives human and non-human life of vital parts of their existence. It shows, for example, if Sámi reindeer herders can no longer cultivate their affiliation with the cultural forest landscape because the Swedish Forestry Model and its uniform, industrial approach has destroyed it (cf. Section 2.1, first Subsection).

This argument of deprivation is further expanded when looking to the results which describe the human/non-human nature relation: Since the capitalist, patriarchal rationale builds on a uniformity norm, e.g., the uniformity of monocultures, it needs to regulate and govern, for instance, non-human nature in the forest. In order to regulate and govern non-human nature, however, the results illustrate that humans do not only need to engage as managers who cultivate the forest, combat pests and diseases and manage climate change and the biodiversity crisis (Södra n.d.a; SFIF's informant; RFP Sörmland's informant; Sveaskog 2023a). In line with the uniformity norm, it is also required that the human perspective dominates in the forest (SFA's informant B), which separates humans

from the forest (SFA's informant C). Eventually, researcher A highlighted that human nature even dominates non-human nature. Reflecting on these results, I propose that the uniformity norm facilitates a hierarchy which subordinates non-human nature to human nature. The uniformity norm confirms the managerial rationale that governs the Swedish forest sector, which Andersson & Keskitalo (2018) have previously identified.

The integration norm

The Swedish Forestry Model, which previous research has associated with a gendered, production-oriented directive (cf. Section 2.1, first Subsection), the results demonstrate, is not only continued. It also expands by means of integration: According to my interviews with state- and academia-related actors, it is the forest industry and its way of seeing the forest that influences both the work of the SFA and SLU's Faculty of Forest Sciences (see Sections 4.3.6 and 4.4.6). Both historical influences (researcher B) and currently active, "powerful lobby organizations" (SFA's informant C), for instance, "influence the politics and all, all, all the way" (ibd.). Therefore, I suggest, the corporate actors of the socio-technological regime establish an integration norm with which they try to impose their rationale on other actors within the regime. It shows, for example, in research areas that are "more predefined" than earlier and politically stirred in the direction of the bioeconomy (researcher C). This development, I propose, integrates research further in the capitalist, patriarchal regime. It questions and subverts the complete independence of researchers, which researcher C maintains still exists.

Additionally, the integration norm applies to women's incorporation into business-as-usual: Women engage as forest owners and leaders in the analyzed private corporations (see Section 4.2.3). In governmental spaces women's presence goes without saying and more women are meant to become part of the forest sector (Sveaskog's informant; Sveaskog 2023c: 24; Regeringskansliet 2022: 12). At the Faculty of Forest Sciences, at least one woman acts as a professor and women's inclusion in mainstream structures is recognized (researcher A; researcher B). These results clarify that women have become part of the male-dominated forest business, which Chapter 2.1 has outlined. To operate within this business, I argue however, women need to conform to the norms I explained before. They have to play to the rules of the game of the gendered, production-oriented socio-technological regime, because they are subordinated to a male norm, which I will discuss as the last norm of the capitalist, patriarchal rationale.

The male norm

In addition to the previously highlighted norms, the interviews uncovered that business-as-usual is historically modelled from a male-dominated perspective,

which has influenced Sweden's forest sector ever since (researcher B). Business-as-usual is pictured as a gender-separated workplace (SFA's informant C), in which women are underrepresented (SFA's informant B). Among male foresters, who engage in mainstream business, a gendered production norm predominates (ibd.; researcher A). At SLU's Faculty of Forest Sciences and in forestry in general, researcher A observes patriarchal, anthropocentric power structures, which marginalize the feminist perspective in Sweden's forest sector. The same researcher even feels privileged that she hasn't been involved in any serious incidents caused by men (ibd.).

Because these conditions prevail, I put forth, a gender perspective at SLU's Faculty of Forest Sciences is "generally quite limited in the research conducted" (Andersson 2023[12]), and special, all-female networks for women in private corporations (see Section 4.2.3) are still necessary. These networks build niches so women can operate safely within them, but these niches are liable to the norms of the *male*-dominated socio-technological regime because the niches are *women's* niches. In this way, I argue, the considered corporate actors of the socio-technological regime manage to integrate more women into the workforce of the forest business without changing their capitalist, patriarchal rationale, which I laid out. Instead, it seems like women adopt the regime's normed logic, e.g., when they engage as leaders of private corporations (see Section 4.2.3) that operate in the sense of capitalist patriarchy. Whether women negotiate their subordinate position within the regime by adopting its norms because it is their autonomous decision and conviction remains to be seen. In the light of my results, however, it rather seems as if they hardly have a choice.

Reflecting on the normed character of the socio-technological regime and its forest concept, I suppose, it doesn't require much to say that the capitalist, patriarchal rationale does not align with an ecofeminist forest concept. At least according to the actors I have analyzed, the logic of the Swedish Forestry Model continues. The identified norms hardly leave any scope for an alternative understanding of the forest. The norms rather demand conformation to the rationale that organizes and coordinates the Swedish forest landscape. Therefore, it is possible to say that the ruling actors are not open for a radical, transformative change. Accordingly, an agroecological transformation via an ecofeminist forest concept is unlikely, unless power shifts in the direction of alternative perspectives, which I will discuss now.

[12] Elias Andersson, associate professor, SLU, e-mail, 2023-05-25.

5.2 Signs of resistance: capitalist patriarchy and the discontinuities of the socio-technological regime

Even though the gendered, production-oriented directive continues to dominate, alternative forest concepts exist. They are the openings which challenge the dominant socio-technological regime and its organization of the forest sector from within—even if they are only tied to individual interviewees and not representing the analyzed actors as a whole. Looking for an agroecological transformation based on ecofeminist ideas, the openings are meaningful because they indicate resistance to capitalist patriarchy that confronts an ecofeminist rationale. In the following I will discuss these openings. I will address indigenous, traditionally rural and women's perspectives and analyze how these viewpoints reflect resistance to the norms of the socio-technological regime.

The indigenous resistance

Although I did not talk to a member of the Sámi reindeer herding communities, because they are not part of the socio-technological regime (cf. Section 2.1, second Subsection), researcher B's reflections on their forest concepts offered insights into indigenous resistance. I am aware that these insights are already filtered through the researcher's lens and thus potentially distorted. They do not replace the immediate inclusion of indigenous voices. Considering these limitations, I still include the researcher's reflections because they provide the opportunity to recognize indigenous resistance as an important part of agroecological transformations.

The results show that Sámi reindeer herders also use the forest as a resource. However, they do not compartmentalize the forest into production units but understand forests as landscapes (see Section 4.4.2). This perspective shows a break with the production norm that necessitates artificial uniformity (cf. Chapter 5.1). This approach, I argue, indicates a more holistic rationale that expands in space and depth: It is no longer the production unit that norms how the forest is perceived, but a personal "connection" (researcher B) with the forest is central. It enriches, I suggest, the relation between human and non-human nature. Indeed, I argue further, this rationale focuses on the relation itself, which the socio-technological regime has altered by destroying the cultural forest landscape Sámi reindeer herders have created (cf. Section 2.1, first Subsection). Yet, the relation itself can't be fully appropriated by the regime. Therefore, I propose, relating with the forest becomes a form of resistance. Because it aligns with the ecofeminist aim to reconnect human with non-human nature (cf. Salleh 2017; Mies 2005; Calle 2017), Sámi reindeer herders' relation with the forest can inform and facilitate agroecological transformations.

The traditionally rural resistance

Originating in the late 1800s or early 1900s, the traditional understanding of the "bioeconomy" (Södra's informant) delineates another forest concept that does not adopt the logic of the socio-technological regime. As it has been articulated by Södra's informant, it can be interpreted as an individual sign of resistance from within the regime.

The traditional bioeconomy builds on autonomous self-sufficiency rooted in rural traditions (see Section 4.2.1) and therefore challenges the capitalist norms I have previously addressed. By striving for an income, not profit (Södra's informant), the traditional bioeconomy questions the growth norm. Meaning comes not from the commodification of the forest. It is found in an emotional value the forest has: Based on ownership of forest that stretches over 14 generations, for Södra's informant it is "love" (ibd.) to the forest and all its species which brings human and non-human nature together (see also Section 4.2.4). This love, however, can't be fully organized, regulated or coordinated by the ruling actors because it is deeply personal. As in the case of Sámi reindeer herders and their affiliation with the forest, a loving relationship therefore describes resistance. It negotiates the uniformity norm, which subordinates non-human nature to human nature, because nature becomes lovable. Together with Södra's informant's wish for his land "to be alive", the traditional bioeconomy and its associated resistance show parallels to the ecofeminist idea of the subsistence perspective that seeks life, not money (cf. Bennholdt-Thomsen & Mies 1999). These ecofeminist qualities are important for an agroecological transformation of Sweden's socio-ecological forest landscape because they transform at least the capitalist rationale I have explained before.

Additionally, the traditional concept of "skötsel" (i.e., a kind of care; researcher C) describes an avenue for change. It conceptualizes forest management as "caretaking" and a "wise use of the forest" (ibd.), which, I argue, pictures a heedful relation to the forest. If something is used wisely, it seems unlikely that it is exploited like the production norm suggests. If skötsel means taking care, the concept appears at odds with a rationale that necessitates subordination like the uniformity norm does. It is therefore once more the relation to the forest which can express resistance and therefore a discontinuity of the socio-technological regime. The caring aspect of skötsel resonates with the ecofeminist forest concept which perceives caring as a central, life-giving part of all relations (cf. Friends of the Earth & Capire 2021; Mies 2005). Skötsel, it can be concluded, is therefore relevant for an agroecological transformation of Sweden's socio-ecological forest landscape.

The resistance of women

Like I have emphasized in Chapter 2.2 (first Subsection), I do reject the essentialist arguments that proponents of nature ecofeminism use. Women are not inherently more connected with the forest than men like my thesis has confirmed: Women are

also part of the socio-technological regime and therefore entertain the capitalist, patriarchal forest concept that separates human from non-human nature. What is more, resistance is not a female issue per se. Both researcher B and C and Södra's informant are men and their statements support at least parts of an ecofeminist rationale. Yet, some interviews also suggest that critical women engage in resistance. Because it is their gender that binds these women together as a critical group within the socio-technological regime, I introduce these women's resistance in this separate subsection:

As some informants reported, it is mostly women who embrace alternative forest management methods that put less focus on production values (Skogssällskapet's informant; SFA's informant A; researcher A). From the perspective of Skogssällskapet's informant, women even create a "more balanced" outlook on life—and not just on the forest. These described women, I propose, resist in at least two ways: Firstly, they directly challenge the gendered production norm (cf. Chapter 5.1). Their resistance negotiates the male norm by claiming other values than production. Secondly, women's holistic view that extends beyond the forest rejects a narrow perspective. It resists compartmentalized thinking. With this approach they may contribute to developing the alternative rationale for life that transformative ecofeminism strives for (cf. Salleh 2017; Bennholdt-Thomsen & Mies 1999; Mies 2005; Federici 2009; Szopa 2022). However, it is not clear whether these critical women are part of the socio-technological regime and could therefore use their potentially powerful position for initiating change. If these critical women operate outside the ruling structures, i.e., not as corporate, governmental or academic actors, their agency will most likely be limited. Then these critical women would need to be empowered to enhance their impact. This observation denotes also that advocates of agroecological transformations are well advised to look for allies outside the normative regime, where, as in the case of Sámi reindeer herders, alternative perspectives persist.

Within SLU's Faculty of Forest Sciences, researcher A tells, it is equally women who view the forest with a less anthropocentric perspective than men and challenge dominating forest concepts by criticizing them. At the SFA, informant B has recognized the need to overcome gender norms and make space for alternative perspectives and voices within forest concepts. These women, I claim, intervene through their awareness for the gendered and normed forest sector. They articulate a conceptual critique of the prevalent norms and therefore foreground practical resistance. With their counter-hegemonic approach they question, for instance, ideological gender norms like transformative ecofeminism does (cf. Salleh 2017; Mies 1998). Unlike other resisters who I have been able to identify within the limitations of my study, these critical women challenge patriarchy as a normative power. In this sense, these women are pioneers for an agroecological transformation on a conceptual level. Their critique is important and advanced because it points to

the norms of both the capitalist and the patriarchal regime, which together oppose ecofeminist ideas and therefore agroecological change.

5.3 Limitations of the thesis

Reflecting on the limitations of the thesis means reflecting on my own limitations. What did I fail to achieve, where did I go wrong, what could I have done better? The following list compiles weaknesses I have identified for myself; many more are likely to be hidden from my limited sight:

- Number of interviewees:
  In the scope of this study, I interviewed ten informants and had one informal phone call. Based on the limited data which I have retrieved from these interviews, it is possible that I have missed out on uncovering further forest concepts. These could have substantiated my analysis.

- Choice of informants:
  As I engaged in a critical analysis which was informed by ecofeminist systems thinking, I was hoping to initiate social change. For that purpose, the choice of informants could have privileged more of the marginalized perspectives, e.g., informants from the Sámi reindeer herding communities.
  What is more, I only analyzed some corporate, governmental and academic actors but neglected, for instance, other scientific institutions like Skogforsk or state-related actors who are involved in institutions other than the SFA. In this sense my study is not apt for generalizations but may initiate further research, e.g., by testing my findings against other actors' forest concepts.

- Points of discussion:
  Within the scope of this thesis, I was not able to discuss all my results. Having a closer look at the meaning of crises, ownership, political movements, new policies, market dynamics and research could uncover further pathways towards an ecofeminist, agroecological future. Additionally, discussing other feminisms (e.g., intersectional or decolonial feminisms) could benefit discussions on agroecological transformations. Other feminisms might open up additional avenues for change and help to refine the ecofeminist forest concept.

- Time limitations:
  Even though I invested much time in this project, more time and healthier time management could have contributed to a sharpened analysis based on more interviews and further analyzed literature. With more time, I might have also been able to explore the notions of an ecological epistemology, which I

unfortunately was not able to achieve.

- Pressure and lack of mental freedom:
  Within the context of this thesis, I recognized my own limitations in free, creative thinking. Stress, financial and self-imposed pressure confined the mental space I can usually explore within myself and in relation with others: I lacked clear information from my course (e.g., regarding deadlines), which complicated my planning and caused stress; I wanted to submit a good work and feared to fail; I lacked financial resources and had to cope with this situation. Other, more creative ways of expressing myself could have helped me to overcome my mental restrictions, for instance, by sketching or drawing my thoughts instead of putting them into words. However, I was not able to engage in this process of reflection.

5.4 Continuative questions

During the work for my thesis, several questions came up. These questions offer a space for reflection, both in immediate relation to my thesis' topic and in the context of ecofeminist ideas for an agroecological transformation at large. As they are developed further, they may suggest topics for future investigations. The list of questions follows no particular order.

If researchers want to engage in an ecofeminist, agroecological transformation without individualizing the struggle, what do they need to become/be bodies of change? Within academia, how can critical, political landscapes be built in which actors can be truly personal and vulnerable with each other to build networks of change beyond the immediate field of agroecology? Does adding agroecological, ecofeminist stories mean taking away power from dominant narratives? How can agroecology as a science co-exist with conventional sciences without being co-opted? Can it even? How would an agroecological university look like in which human and non-human nature deeply relate? How does agroecological, ecofeminist transdisciplinarity look like? How can actors care for deeply felt solidarity with on-ground struggles of peasants, women, indigenous peoples, all re/sisters and non-human nature, who already today live in alternative ways? How can something new emerge without establishing a new grand theory of norms? Should agroecology be another science and where are the women in it?

6. Conclusion

Agroecology, particularly political agroecology, opts for a radical change of the food system. To realize this transformation, around the world agroecology depends on healthy landscapes and alternative social paradigms. In the case of Sweden this means: Proponents of agroecology need to consider the socio-ecological conditions of forests, which cover most of the land, if agroecological solutions are meant to emerge and abide.

An ecofeminist forest concept, which I propose based on a literature review, suggests how a careful reconsideration of Sweden's socio-ecological forest landscape can look like. It describes one pathway towards an agroecological future by transforming the gendered, production-oriented directive which previous research has identified as governing rationale within the Swedish forest sector. But are those in power—private corporations, the state and academia—ready to lay the conceptual groundwork for this future? The analysis of the considered actors' forest concepts and their seemingly non-existent alternatives shows that a capitalist, patriarchal understanding of the forest prevents an ecofeminist, agroecological transformation. Critical, indigenous, and historically developed, caring perspectives on the forest, on the other hand, provide meaningful alternatives to current dogmas. They reflect a rationale that at least in parts aligns with ecofeminist ideas that can enhance an agroecological transformation of Sweden's socio-ecological forest landscape. The alternative rationale expresses a dissidence that challenges the dominance of the corporate, governmental and academic socio-technological regime by negotiating the regime's norms. Norm criticism and personal, loving and caring relations with the forest depict modes of resistance to the capitalist, patriarchal regime. These resistances deserve special attention as political agroecology moves forward. Researchers working on agroecological transformations in the spectrum of political agroecology and proponents of a political agroecology in general are well advised to pay close attention to governing logics[13]. These logics may subvert radical change in the very first place or integrate those actors and spaces which yet persist outside their rationale. Transformative ecofeminism and its ideas can thereby offer guidance.

[13] For further recommendations on future research on agroecological transformations in the spectrum of political agroecology see the factsheet on page 90.

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Popular science summary:
Not to see the forest for the trees? How our perspective on forests may turn things around—or not

Figure 3. Looking through the lens of my camera, I took this picture six years ago in a Swedish forest. Which lens do you use when you look at a forest? How do you see a forest? What is it for you? Trees, some green space, a resource, a friend? The way we see forests is not just a personal question. It influences where we as a society are heading towards (image: own picture).

The summers are hot, the winters are mild and the forest is on fire. Around the globe forests are threatened and show: We reap what we sow. In an attempt to fix with

the many crises we see today, everywhere people try to change course. Agroecology follows the same path. It works for an alternative agriculture which brings humans and nature together. Food production returns home from industrial food enterprises and is put back in the hands of small-scale farmers, urban market gardeners, local fishers, indigenous peoples. But as easy as that might sound, as bumpy is the road agroecology still has to go. To make progress, agroecology needs us to see things differently: as humans and nature are one. It needs us to care for healthy landscapes so nature-based food production remains possible.

In Sweden, where about 70% of the land is covered by forests, agroecology relies on a healthy forest landscape and on those who shape it: private corporations, the state and academia, who together build the backbone of the Swedish forest sector and engage in intensive forest business, policy making and research. But can agroecology count on those in power? How do they see the forest and which alternative approaches to the forest do they consider? Could it be that private corporations, the state and academia support a forest concept that helps agroecology move forward? Could it be that their perspective on the forest helps to turn things around?

Recent research shows: The dominant way of seeing forests prevents change, but not all hope is lost. Critical, indigenous and historically formed, caring perspectives on the forest are pathways to an agroecological future of Sweden's forest landscape. These pathways show how we as a society can change course, see forests with new eyes and cocreate the agroecological transformation of Sweden's forests.

Factsheet

Recommendations for researchers working on agroecological transformations in the spectrum of political agroecology

Political agroecology opts for a radical change of the food system that is governed by capitalist, compartmentalized and short-sighted thinking (cf. Gliessman 2015; Stuart & Gunderson 2020; von Redecker & Herzig 2020; IPES-Food 2016). To realize this fundamental change, political agroecology depends on healthy landscapes (e.g., regarding biodiversity) and alternative social paradigms (Jeanneret et al. 2021; Gliessman 2023; Rosset & Altieri 2017). Resisting co-optation, questioning ideologies and challenging power structures are avenues for change that political agroecology uses to promote and safeguard its radical ideas (Sevilla Guzmán & Woodgate 2003; González de Molina et al. 2020; van der Ploeg 2020; Giraldo 2019).

To advance the impact of political agroecology and its research, the following recommendations may inform future scientific interventions. The suggestions reflect the results of a small case study of Sweden's forest sector. It analyzed the conceptual possibilities of an agroecological transformation of Sweden's socio-ecological forest landscape by proposing an ecofeminist forest concept as a pathway to transform a gendered, production-oriented rationale that currently governs the Swedish forest sector but undermines agroecological efforts.

- Continuous, in-depth critique of capitalist patriarchy is necessary to question norms which oppose agroecological ideas
- Special attention has to be given to feminist questions because agroecological resistance is not necessarily anti-patriarchal but has to be in order to be transformative
- Personal and emotional relations to nature (e.g., the forest) are relations that can undermine the capitalist logic; they require further analysis to understand how they may enhance agroecological transformations
- Transdisciplinary research is key to connect knowledge about resistances in various contexts (e.g., in forestry and agriculture)
- Questioning underlying logics is meaningful because logics determine change

- Research on agroecological transformations needs to consider the wider context of landscapes because landscapes and their socio-ecological conditions impact agroecological change

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Appendix 1: Interview questions for the purpose of a Master's thesis with the preliminary title "Profit over subsistence? – The role of forest sciences, private corporations and the state in negotiating alternative concepts of forests"

1. To start off our conversation, could you give a short introduction to yourself and your role at work?
2. The Swedish Forestry Act defines forests partially according to the FAO definition, which says that forests are forest lands, "lands with trees higher than 5 meter and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ."
   Is this also how you and [SLU/private corporation/state agency] understands what a forest is? How do you conceptualize a forest?
3. The FAO definition has been criticized by both academia and some grassroots movements. Critics say that the definition does narrow down what a forest is: It is mostly perceived as only some trees. Often these trees are then used within a profit-driven economy. Therefore, the forest is mostly a resource to use. Critics argue that misses out on many other dimensions the forest has and they connect this concept of the forest with the underlying Western paradigm that humans see themselves as separate from nature and as superior to nature and are thus allowed to use the forests 'for free'. How do you, how does [SLU/private corporation/state agency] position itself in regards to this human-nature division?
4. Other critics now go one step further and say that this human-nature dualism is not precise enough. They explain that it is rather the concept of men vs. women=nature that reflects the reality. Therefore, it would be mostly a male group which is separate from women and nature and exploits not only nature, but also women and other marginalized groups. If we connect this understanding with the forest, the concept of forests would then be gendered.

From your perspective, is this a dualism which you also see in the field of forests? If yes, how does it show in the understanding of forests (e.g. when it comes to how it is used and by whom it is used)?

5. In the previous question I already mentioned the influence of a profit-driven economy, which uses forests as a free resource. What do you say from your work at/in [SLU/private corporation/state agency], what role do private corporations have in defining what a forest is and what for or for whom the forest is? Which influence do you see?

6. The economy is also developed in connection with the Swedish state, its policies, strategies, but also its subsidies. What role do you think does the Swedish state have in defining what a forest is and what for it is and for whom the forest is?

7. Forests and forestry are also developed in collaboration with science. Which role do you give to science in defining what a forest is, what for it is and for whom it is?

8. Our current economic system rests on the paradigm of growth (see, e.g., the need for a growing GDP). Therefore, it needs to exploit, because it needs resources so it can keep growing. We often observe that it is mostly women and nature who suffer from such exploitation. For example, forests are cut down even though before they have been means of subsistence for women, or women lose the forests, which played an important role in their lifes, which was not economic. At the same time, ecosystems are damaged when forests are cut down.
   Reflecting on this situation: What role do you think do local communities' and women's livelihoods/interests have in defining what a forest is and what for and for whom the forest is (e.g. how do their values, ethics, cultures etc. shape the concept of the forest)?

9. In current forest discussions, we often see that biodiversity plays an increasingly important role. What role do you think does biodiversity have in influencing the concept of forests, what they are used for and by whom?

10. One visionary idea to overcome the need for growth and exploitation is that we move away from "profit over subsistence" and instead understand forests as subsistence forests. That means, the forests and the people living in them would no longer be used as a (free) resource for profit-making, but the forests would provide for the (basic) needs of the local communities and not beyond. Reflecting on this idea: Where do you see the responsibilities of [SLU/private corporation/state agency] to move towards such an alternative concept? What

do you think are the major chances and challenges to realize such a visionary idea?

Appendix 2: Information to data subjects about participating in an interview for the purpose of a Master's thesis within the Agroecology program conducted under the preliminary title "Profit over subsistence? – The role of forest sciences, private corporations and the state in negotiating alternative concepts of forests"

Contact person
Your contact person for the interview is Miriam Knödler. You can reach her via e-mail at mmer0003@stud.slu.se.

If you have questions regarding your personal data, you can contact SLU's data protection officer at dataskydd@slu.se or by phone at 018-67 20 90.

Purpose
The purpose of the interview is to collect data which
(I) gives information about which definitions of a forest are used within [SLU's Faculty of Forest Sciences/name of private corporation/the Swedish Forest Agency],
(II) helps to see whether there is a scope for alternatives to these concepts and
(III) which implications the alternatives might have.
Special attention will be given to whether any alternatives show reference to an ecofeminist understanding of forests.

SLU will also process your personal data as required for SLU to comply with regulations on public documents and the archives of public authorities.

Categories of data and sources

For the purpose of contacting you, your name, title and e-mail address will be registered. For the purpose of the interview, your answers will be recorded, transcribed and this information will be stored and analysed. Your affiliation with [SLU/name of private corporation/the Swedish Forest Agency] will be disclosed, but your role within [SLU/name of private corporation/the Swedish Forest Agency] will not be mentioned. Since your name, title, e-mail address and your voice make you identifiable as an individual, personal data regulations apply. However, all your personal data will be pseudoanonymized prior to publishing.

Legal basis

The legal basis for **being interviewed** is that you as the data subject has given your consent to being interviewed. According to the General Data Protection Regulation your consent must be freely and clearly given, specific, informed and unambiguous. Your consent is given by signing this document, which is called "Information to data subjects about participating in an interview for the purpose of a Master's thesis within the Agroecology program conducted under the preliminary title 'Profit over subsistence? – The Role of Forest Sciences, Private Corporations and the State in Negotiating Alternative Concepts of Forests". Your signature needs to be added at the end of this document.

The legal basis for **processing your personal data** before, during and after the interview is that you as the data subject has given your consent to the processing of your personal data. According to the General Data Protection Regulation your consent must be freely and clearly given, specific, informed and unambiguous. Your consent is given by signing this document, which is called "Information to data subjects about participating in an interview for the purpose of a Master's thesis within the Agroecology program conducted under the preliminary title 'Profit over subsistence? – The Role of Forest Sciences, Private Corporations and the State in Negotiating Alternative Concepts of Forests'". Your signature needs to be added at the end of this document.

One signature is sufficient for consenting to being interviewed and for consenting to all processing of your personal data.

The principle of public access to information

As a public authority, SLU must apply the principle of public access to official documents. This means that all official documents, including personal data, that are not considered working material are public and can be released to anyone who requests them. However, if a document contains data that is subject to

confidentiality, the document will not be released.

Transfer of your data
Your personal data will be analyzed for the thesis but pseudoanonymized prior to any publication. Materials which are associated with this pseudoanonymized data could be published in the form of academic or divulgation articles.

Storing data
Your personal data will be stored in form of audio recordings taken during the interviews and in form of pseudoanonymized transcriptions of these recordings (i.a. written texts). This data will be stored until the thesis' publication or until a subsequent publication in the form of academic or divulgation articles is finished.

Both your personal and your pseudoanonymized data will also be stored for as long as required by the Public Access to Information Act and the regulations on the archives of public authorities.

Your rights
You have the right, under certain circumstances, to have your personal data erased, corrected or limited. You also have the right of access to the personal data being processed, and you have the right to object to the processing of your data. To exert your rights, contact dataskydd@slu.se.

Withdrawing your consent
Participating in the interview is based on consent, you have the right to withdraw this consent. You can do so by e-mailing at mmer0003@stud.slu.se or contact dataskydd@slu.se.

Comments
If you have any comments on the processing of your personal data at SLU, contact dataskydd@slu.se, 018-67 20 90.

If you are not happy with the answer provided by SLU, you can take your complaint to the Swedish Authority for Privacy Protection, imy@imy.se or 08-657 61 00.

Read more about the Swedish Authority for Privacy Protection at https://www.imy.se/other-lang/

Data subject's consent: Participating in a pseudoanonymized interview and processing of personal data

With my signature I hereby confirm that I am giving consent to being interviewed for the purpose herein before mentioned. I equally am giving consent to the processing of both my personal and my pseudoanonymized data including all actions stated in this document.

I know what both my personal and my pseudoanonymized data will be used for and I am informed that I can withdraw my consent any time.

_____ _____

First name, surname (plain writing) *Signature*

_____

Date (dd-mm-yyyy)

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