Masteroppgave

NTNU
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Fakultet for samfunns- og utdanningsvitenskap
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Practice Over Product

A commons perspective on wild product gathering

Masteroppgave i Natural Resources Management
Veileder: Elizabeth Barron

Januar 2022

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Kunnskap for en bedre verden

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Abstract

Wild products and practices of wild product gathering are ubiquitous. Recently, there is a resurgence of curiosity in the use of wild plant and mushroom species. Noticeable trends in the use and consumption of wild products are documented in the academic literature and in the proliferation of media and social clubs devoted to wild product gathering. However, there are very few qualitative studies documenting practices and trends of wild product gathering in Norway despite it being a popular recreational activity throughout the Nordic countries.

Through an online questionnaire and semi-structure interviewing, this thesis aimed to explore the relationship between humans and their surrounding environments by considering the role of wild product gathering. The main research question asks if practices of wild product gathering enable people's perceptions of nature and natural resources to transcend a capitalist discourse and if so, what are the implications of this for the perspective of natural resource management? The results indicate that a transcendence of capitalist discourses of nature is facilitated through affective socio-nature relations inherent within wild product gathering. Socio-nature relations cultivate care and respect for the environment along with non-capitalist valuations of natural resources. Commons theory (Bollier & Helfrich, 2019) along with feminist political ecology (Clement et al., 2019; Sato & Soto Alarcon, 2019) and diverse economies (Gibson-Graham, 2008; 2010) are used in this thesis to explore how a fundamental value shift focused on the relational values of nature and natural resources can be further established within natural resource management discourse.

Sammendrag

Ville produkter og praksis for sanking av ville produkter er allestedsnærværende. Nylig har det vært en gjenoppblomstring av nysgjerrighet i bruken av ville plante- og sopparter. Merkbare trender i bruk og forbruk av ville produkter er dokumentert i den akademiske litteraturen og i spredningen av media og sosiale klubber viet til sanking av ville produkter. Det er imidlertid svært få kvalitative studier som dokumenterer praksis og trender med villproduktsanking i Norge til tross for at det er en populær rekreasjonsaktivitet i hele Norden.

Gjennom et nettbasert spørreskjema og semistrukturintervju, hadde denne oppgaven som mål å utforske forholdet mellom mennesker og deres omkringliggende miljøer ved å vurdere rollen til sanking av ville produkter. Hovedforskningsspørsmålet spør om praksis for sanking av ville produkter gjør det mulig for menneskers oppfatning av natur og naturressurser å overskride en kapitalistisk diskurs, og i så fall, hva er implikasjonene av dette for perspektivet til naturressursforvaltning? Resultatene indikerer at en transcendens av kapitalistiske naturdiskurser tilrettelegges gjennom affektive sosio-naturrelasjoner som ligger i vill produktsanking. Sosio-naturrelasjoner dyrker omsorg og respekt for miljøet sammen med ikke-kapitalistiske verdivurderinger av naturressurser. Commons-teori (Bollier & Helfrich, 2019) sammen med feministisk politisk økologi (Clement et al., 2019; Sato & Soto Alarcon, 2019) og ulike økonomier (Gibson-Graham, 2008; 2010) brukes i denne oppgaven for å utforske hvordan en grunnleggende verdiskifte fokusert på de relasjonelle verdiene til natur og naturressurser kan etableres ytterligere innenfor naturressursforvaltningsdiskurs.

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List of Abbreviations

CPR	Common Pool Resource
FPE	Feminist Political Ecology
LEK	Local Ecological Knowledge
SEK	Scientific Ecological Knowledge
NCP	Nature's Contribution to People
NSD	Norsk Senter for Forskningsdata (Norwegian Centre for Research Data)
NSNF	Norges Sopp og Nyttevekstforbund (Norwegian Association for Mycology and Foraging)
NTFP	Non-Timber Forest Product
TOC	Tragedy of the Commons

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1 Introduction

1.1 Research motivation

On a rainy afternoon in August of 2021, I found my first wild chanterelle mushroom. On previous tours through the forest, I came up empty handed and frustrated as the chanterelle was proving elusive for me, while for others it certainly was not. As much as I would like to claim that I found my first chanterelle all on my own, this was not the case. I had the help of a friend that afternoon in the forest. Laura[1] did not claim to have extensive knowledge about edible mushroom species, yet she was confident in her ability to identify a handful of species and had ecological knowledge from past seasons of mushroom hunting. After a few hours of wandering about the forest, one of Laura's chanterelle (*Cantharellus cibarius*) spots proved bountiful (Figure 1). We had previously visited two other spots, but they were devoid of mushrooms; already picked over or (upon Laura's advice) the mushrooms were too small for harvesting. Being a novice gatherer, I would have certainly collected any chanterelles I found regardless of size. I asked Laura whether she thought it unusual that her previous picking spots were empty. She shrugged her shoulders and replied, "Not really. Someone might have beaten us to them or perhaps we are too early. Either way, check again in a week or so and you might find some more."

[1] Name changed for confidentiality.

Figure 1

A harvestable patch chanterelle mushrooms found near Ringvål (Trondheim municipality) in August of 2021.

As we hiked deeper into the forest, we crossed paths with many other wild product gatherers. Some were carrying containers full of wild blueberries and raspberries while others had also found chanterelles and other assorted edible mushrooms. We stopped and chatted with a few other gatherers to inquire about what they had gathered and to see if they were friendly enough to share where they had found their berries and mushrooms. Most of the time, other gatherers were open to sharing while some were more secretive. When asked about where he had found his chanterelles, one gatherer responded, “I can’t tell you. That would ruin all your fun.

But you might want to take a detour that way" and he gestured to the forest behind him. One group, three men, each carrying a full grocery sized bag of chanterelles caught the attention of Laura. She asked the men how long they had been out gathering today.
"About five hours" one of the men responded.
"Are you planning to eat all of those chanterelles yourself?" Laura asked.
"We might sell some," replied another.
"Did you leave any for the rest of us?" Laura asked; somewhat jokingly.
The men all laughed and one replied, "Maybe. If you look hard enough." After encountering this groups of mushroom hunters, I worried there would not be many chanterelles left over. But with a little persistence we soon found a spot the mushroom hunters had not and then another and another and another. I came home with far more chanterelles than I expected and spent two hours brushing away forest debris and checking for insect hitchhikers.

Chanterelles were not our only objective of the afternoon. Laura also wanted to harvest porcini mushrooms (*Boletus edulis*[2]) to use in a mushroom soup recipe. We passed by porcini after porcini, but none of them met Laura's standards. They were either too small or bug ridden to be harvestable. Finally, out of the corner of me eye, I spotted a huge porcini partially obscured by rotting tree branches. Laura was amazed at the size of it, and I was surprised that I managed to spot it amongst the forest debris. Despite the fact that we had been searching for the past hour for Laura's porcini, she insisted that I take it home and make use of it. I told her that I had no idea how to eat it, but she wouldn't take no for an answer. "Just cut it up and throw it on a pizza," Laura advised. Later that evening, the porcini was cut up, but it sadly did not make it onto a pizza. It lived in the fridge until it molded and was tossed into the trash; an act for which I still feel guilt.

About a week after my mushroom gathering hike with Laura, I found myself in Estenstadmarka, a popular recreation and hiking area in Trondheim. I was out hunting for cloudberries[3]. In the summer of 2020, I gathered a decent number of cloudberries from Estenstadmarka and was able to store enough to make cloudberry jam for Christmas Eve dinner.

[2] This mushroom is also referred to as ceps or penny buns in English. In Norwegian, it is called *steinsopp*.
[3] Cloudberries (*multer* in Norwegian) are a popular edible berry to collect in Norway. They grow in marshy conditions. If you know of a good spot to collect cloudberries in Norway, it's likely to be a secret you would not share.

My hiking pace was faster that day, as I was excited to return to my cloudberry spot from the previous year. I had just returned from a short backpacking trip in Børgefjell National Park. Up there the bright orange and ruby berries still dotted the landscape, but I did not pick any as many were still firm and unripe. This left me feeling optimistic that it was not too late in the season and that there might still be some left in Estenstadmarka. Unfortunately, disappointment and boot prints were all I found. Someone had been here before me, yet I still spent over an hour searching the marshy field. I found only a few sunbaked and mushy cloudberries. I ate them anyway and carried on to collect copious amounts of blueberries.

My own personal experiences with wild product foraging sparked multiple questions in my mind: What motivates people to gather wild products? What knowledge is needed in order to gather? What is being gathered and where? What are people doing with the species they gather? Why do some people care so much about others' gathering practices? What are the factors impacting the availability of wild products? And what can wild product gathering tell us about people's relationships with nature? As a student studying natural resource management from a human geography perspective, these questions interested me because I anticipated their answers would inevitably be linked to society's relational understandings of the value of nature and more-than-human beings.

Norway, much like the rest of the world, is experiencing a re-awakening of curiosity when it comes to gathering wild edible plants and mushrooms. During peak gathering seasons, activity abounds in Norwegian forests and other nature areas as enthusiastic gatherers search for gold in the form of chanterelles and other edibles plants. While the majority of Norway's forest industry is centered on the exploitation of timber and other raw materials, the gathering and use of non-timber forest products (NTFPs) or wild products including (but not limited to) edible or inedible plants, saps, berries, nuts, fungi, fuel wood, and wood for carving can be viewed as a separate but equally important economic and cultural activity. Wild products or NTFPs are gathered for consumptive, medicinal, decorative, spiritual, recreational, and educational purposes. Through semi-structured interviewing and an online questionnaire, this thesis explores peoples' practices of NTFP or wild product gathering[4]. By researching gathering practices, we

[4] This research is only concerned with plant and mushroom species. It does not consider wild species that can be hunted or fished. The terms "wild product" and "NTFPs" are used interchangeably throughout the thesis.

may better understand how individuals and communities are interacting with and relating to their surrounding environments. Relationality and relational values convey the relationships that facilitate a decent life; a life suitable for survival but also prosperity (Jax et al., 2018). Relationality and relational values of nature have become core concepts within ecosystem services frameworks such as IPBES's "nature's contributions to people" (NCP) (Diez et al., 2018; Jax et al., 2018). Studying the relationships between humans and nature or the *'more-than-human'* can uncover ". . . complex understandings of *how humans inhabit the earth*. . ." (Poe et al., 2014 p. 905). An emphasis on relationality in natural resource management yields insights on society's valuation of certain species and land types, whether a resource should be consumed or conserved, and the acceptability of social or cultural practices such as wild product harvesting (Jax et al., 2018; Poe et al., 2014).

From the standpoint of natural resource management and human geography, there are two previous works which influenced the scope of this thesis. The first is a book chapter by Barron (2015) where she asks ". . . can resource management, a realm consistently understood in relation to the logics of industrial and consumerist capital, be re-centered on ethical choices among humans and the more-than-human world?" (p. 173) The second is another article by Barron (2005) where she argues that NTFP gathering can be theorized as "distinctly non-capitalist" and this alternative theorization provides an opening for natural resource management to be focused on ". . . maintaining resources for community and individuals' livelihoods, relationships [and] enjoyment" (p. 74). Both of these studies highlight the multifunctionality of wild products and their potential to influence a fundamental value shift within natural resource management discourse.

This value shift recognizes that resources must not be managed solely for their monetary or economic value. Rather, discourse within natural resource management should be reframed to focus on how resources warrant conservation because of their cultural and social value more so than their economic value. Lastly, Barron's (2015) work draws upon the feminist economic geography of diverse economies theory (Gibson-Graham 2008 and Gibson-Graham & Roelvink, 2010) which aims to deconstruct capitalist language and open pathways for academics to research and uncover more ethical economic practices between humans and the natural world. Diverse economies theory works in opposition to the societal binary of capitalist and non-

capitalist economics (Alhojärvi, 2020). This thesis is situated within the aforementioned literature, and aims to add to the conversation of how to diversify our economic and relational understandings of nature and more-than-human beings. Diverse economies theory and commons theory (discussed in the paragraph below) are both theories that support the development of alternative notions about ecological, economic, and societal value.

From an additional theoretical standpoint, this thesis analyzes the practice and value of wild product gathering in Norway using commons theory and literature. Historically, commons theory is viewed as an institutional approach to sustainably manage common pool resources (CPRs) such as forests, fisheries, and water (Ostrom, 2015). However, current conceptualizations of commons theory view it as a growing body of scholarship that enables a reconfiguration of human-nature relationships (Garcia-Lopez et al., 2021; Singh, 2017). Calls for a reconfiguration of human-nature relationships have proliferated within commons scholarship as society recognizes the role of neoliberal capitalism within ongoing ecological crises. Neoliberalism is based on the closure of the commons or common goods such as natural resources. A neoliberal framing of the environment creates an institutional approach to management based on extraction of natural resources. Such an approach tends to favor vertical or top-down governance which benefits only a selective group of stakeholders (Acheson, 2006). In contrast, commons theory has developed as an alternative to neoliberal, capitalist, and extractive framings of nature resource management discourse. Commons theory adopts a relational approach that supports horizontal or bottom-up governance which benefits a diverse range of stakeholders.

Additionally, neoliberal capitalism produces market-based solutions for natural resource management and for solving environmental issues (Robbins et al., 2014, chapter 3). Commons theory enables researchers to trouble the role of nature's labor within solutions for ecological crises (Garcia-López et al., 2021). For example, in natural resource management discourse the institutionalization of the ecosystem services framework has placed the burden of ecological responsibility on the environment. This means that we as humans focus our efforts on solutions that the environment can provide for us. We look towards the environment, specifically forests and trees, to sequester carbon. More generally we look towards the environment to provide humans with never ending resources despite our absence of affective ecological stewardship (Garcia-López et al., 2021). Commons theory redirects human-environment relations to focus on

ethical interactions with the non-human world. Reconfiguring relationships with the non-human world by valuing natural resources beyond their economic worth can provide solutions to the most pressing ecological crises (Garcia-López et al., 2021; Jax et al., 2018; O'Brien et al., 2022). Presently, there is a limited understanding of how to maintain or intensify the commons and acts of commoning (Garcia-López et al., 2021; Bollier & Helfrich, 2019) in such a way to facilitate a reconfiguration of human-environment relationships. Bollier & Helfrich (2019) write that commoning is like a dimmer switch, and humans have the ". . . capacity to affect the process — to intensify commoning — at any given moment" (p. 72). Building on the work of Barron (2015) on relational nature values and wild product gathering, I utilize the conceptual framework known as the Triad of Commoning (Bollier & Helfrich, 2019). This framework does important work in the thesis as it provides a knowledge base for identifying patterns of commoning within wild product gathering practices. Identifying these patterns contributes to an understanding of the role and value of wild product foraging within economic, social, and environmental contexts

1.2 Research aim and questions

This thesis aims to explore and document the relationship between humans and nature by considering the role of wild product gathering in Norway. The main research question asks if practices of wild product gathering enable people's perceptions of nature to transcend a capitalist discourse and if so, what are the implications of this for the perspective of natural resource management? In support of this main research question, this thesis also aims to answer the following sub-research questions:

1. Who is participating in wild product gathering and for what purposes?
2. Which species are gathered, where (on what land types or areas), and what factors are impacting the availability of wild products?
3. Do practices of wild product gathering in Norway demonstrate patterns of commoning?

Each of the sub-research questions were designed to gather data in relation to the three components of a commons systems as theorized by Bollier and Helfrich (2019): the natural resources themselves (question 2), the sharing or creation of knowledge (questions 1 and 2), and the social processes associated with commoning (questions 3).

1.3 Structure of the thesis

In chapter 1, the research topic and questions were introduced. Chapter 2 provides additional background information and demonstrates the various ways wild products and gathering practices are epistemologically understood in the academic literature. Chapter 3 explains the theoretical framework underpinning this research project. It provides a brief overview of the development of commons theory and explains the Triad of Commoning framework (Bollier & Helfrich, 2019). It also introduces other related bodies of theory such as feminist political ecology (FPE) and diverse economies. Chapter 4 details the methodology. Specifically, the design process for the online questionnaire and semi-structured interviews is explained. Chapter 4 also provides information about the study area, data analysis, and challenges with the methodology. Chapter 4 concludes with a section focused on critical reflexivity and locating positionality. Chapter 5 presents the results from the online questionnaire and semi-structured interviews. Chapter 6 is a critical discussion of the main results and research questions. Chapter 7 concludes the thesis by reflecting upon its contributions and providing suggestions for future research. Additional information relating to the methods and results are available as appendices on pages 111-129.

2 Background

2.1 Introduction

NTFPs or wild products are essentially an open-access resource that is not easily privatized as they are usually perceived as a common good. However, like many common goods, they are at risk of being exploited through enclosure and commodification. In Norway, commercial gathering seems to be increasing as more and more restaurants and individuals are interested in sourcing wild and locally gathered products. Additionally, there are a number of natural and anthropogenic factors potentially impacting the availability of wild products. In Norway, very few qualitative studies have focused on the contemporary wild product trends and use associated with gathering. Additionally, there is little research that identifies factors potentially impacting the availability of wild products as much of the wild product research in Norway is focused on the ethnobotanical history of various plant species (Teixidor-Toneu et al., 2021, 2020a, 2020b).

This chapter further elaborates the academic literature that highlights the use of wild products and the practice of gathering. The research concerning wild products and their usage (known more generally as research on gathering), transcends global geographical boundaries. Studies on gathering can be found in nearly every region of the world. Thus, the body of literature is quite extensive and diverse. Based on the thesis topic, I limited my review of the literature to studies done within North American and European contexts.

2.2 Ubiquity and globality of wild products and gathering practices

Wild products and gathering practices are ubiquitous. Consequently, the body of academic research examining wild product use and consumption is steadily growing (Shackleton & de Vos, 2022). Approximately 20-30% of plant species and 30-50% of mushroom species are

completely edible or have some edible parts (Turner et al., 2011). Wild products such as edible plants, mushrooms, and other NTFPs are significant resources for subsistence livelihoods as well as global and regional economies (Shackleton et al., 2014). Researcher suggests that the significance of forests and other land types where wild products occur are undervalued by scientists, policy makers, and resource managers due to a lack of data surrounding their usage (Lovric et al., 2020; Shanley, 2015; Wahlén, 2017). However, this historic trend no longer appears viable as the study of wild products and gathering practices has become a global phenomenon (Shackleton & de Vos, 2022). The globality of wild products and gathering practices has led researchers to demonstrates its role within urban sustainability (Schunko et al., 2021; McClain et al., 2017; McClain et al., 2013), biodiversity conservation (Pohjanmies et al., 2021; Jones & Lynch, 2007), economic development (Shackleton et al., 2017; Shackleton et al., 2014; Wahlén, 2017), and poverty alleviation (Lowore et al., 2018).

Gathering for wild edible products and NTFPs is described in the academic literature as a ubiquitous human behavior (Svizzero, 2016; Shackleton et al., 2017). As humankind evolved, society's goals and motivations for gathering also changed over time (Svizzero, 2016). Today, wild edible plants, mushrooms, and other NTFPs are utilized globally. Their use is not restricted to subsistence livelihoods as rural and urban economies in developed as well as developing countries depend on wild edible species (Reyes-Garcia et al., 2015; Bharucha & Pretty, 2010; Schulp et al., 2014; Schumsky et al., 2014). Recently, there is a resurgence of curiosity in the use of wild plant and mushroom species. Noticeable trends in the use and consumption of wild products are documented in the scientific literature and in the proliferation of popular websites, articles, and clubs devoted to gathering. The systematic review of previous literature has identified relevant changes in the use and consumption of wild products in addition to changes regarding motivations for gathering (Lovric et al, 2020; Luczaj et al., 2012; Schulp et al., 2014). It is important to understanding why people choose to gather wild edible products because research suggests that it is ". . . essential for explaining and predicting human behavior" (Schulp et al, 2015 p. 3). Furthermore, observing use and consumption trends highlights the importance of wild products as cultural and provisioning ecosystem services and as sources of historical ethnobotanical knowledge (Luczaj et al., 2012; Reyes-Garcia et al., 2015; Schulp et al., 2014).

Wild plants, mushrooms, and other edible NTFPs were and currently are used as food sources during times of famine and war (Häkkinen, 1992; Luczaj et al., 2012; Redžić et al., 2010a; 2010b; Sulaiman et al., 2022). Memories and experiences with famine are still a common association with the use of wild products throughout Europe (Luczaj et al., 2012; Sulaiman et al., 2022). However, this is not an exclusive association as many uses of wild products can be traced to cultural or traditional origins (Reyes-Garcia et al., 2015; Schunko et al., 2019). Additionally, the continued and increased use of wild products historically can be linked to diet diversification and in Scandinavia, the low price of sugar (Luczaj et al., 2012). Some historical trends in wild product use still exist today. Documenting the ethnobotanical knowledge about the use of wild products and observing current trends continues to demonstrate the importance of NTFPs and wild product gathering as an essential ecosystem service.

While it is widely accepted that the decrease in plant knowledge and contact with nature along with land use changes have led to a contemporary decrease in the use of wild products, new trends are emerging (Luczaj et al., 2012; Schunko et al., 2015, 2019). Most notably, the use of wild products through recreational gathering (or foraging) practices is growing in popularity. Many individuals are rediscovering and recreating wild product and ethnobotanical knowledge through foraging tourism (deJong & Varley, 2017), foraging workshops and courses (Luczaj et al., 2021), wild species identification guides, and other foraging literature or media. Increasingly, throughout the Nordic region and especially in Norway, gastronomic trends and influences like new Nordic cuisine (Hermansen, 2012), localism (Brenner & Theodore, 2002; Curtis, 2003) and the slow food movement (Jones et al., 2003; Pietrykowski, 2004; Schneider, 2008) continue to promote the use of edible wild products. While there is a growing commercial interest, wild product gathering remains a popular recreational hobby in Norway due to open access traditions like *allemansretten*[5] and *friluftsliv*[6]. Increasing societal trends regarding the use and consumption of wild products has also led to a flourishing of academic research concerning wild products and gathering practices.

[5] *Allemansretten* literally translates the "everyman's right". It can also be referred to as the "right to roam". The concept of *allemansretten* is discussed further in the methods and discussion chapters.
[6] *Friluftsliv* literally translates to "open air life". It is a common concept used in Norway to refer to the cultural tradition of outdoor recreation and access to nature.

Given the dynamic nature of research examining the role of wild products and gathering, I identified four subgroups of research relevant for this thesis. Essentially, these subgroups signify different epistemological understandings of wild products and gathering practices. For example, the literature on urban foraging understands wild products as objects of ecological sustainability. The literature identifying motivations for gathering understands wild products as objects of social ecology. Furthermore, the literature exploring the impacts of natural and anthropogenic factors on the availability of wild products understands them as objects of biological conservation and local ecological knowledge. And finally, the literature focusing on property rights and commercialization understands wild products as objects of resource access and economy. Each of these subgroups of literature are discussed separately in the following sections of this chapter.

2.3 Wild products as objects of ecological sustainability

While this thesis is not focused on urban foraging practices, examining the literature in this area is relevant because urban foraging is increasing in popularity, particularly in major Norwegian cities such as Oslo. Recent news reports suggest this increase in popularity has led people to disregard the protected status of wild edible plants in areas such as nature reserves (Mathismoen, 2020; Holtekjølen, 2021). Such incidents bolster public officials' concerns about wild product gathering and its potentially detrimental ecological effects (Hurley et al., 2015; Poe et al., 2013; Shackleton et al., 2017; Schunko et al., 2021). However, throughout the academic literature there is a push to demonstrate the positive effects of gathering to contrast the idea that people utilizing wild products inherently leads to environmental degradation. This is important especially since research indicates that negative ecological impacts associated with gathering are inconclusive due to the lack of long term and multiscale data (Ticktin & Shackleton, 2011). This subgroup of literature supports the claim that gathering practices foster environmental stewardship and a better connection with nature. Additionally, this subgroup of literature advocates for the integration of gathers' local ecological knowledge (LEK) with scientific ecological knowledge (SEK). Combining LEK and SEK can improve the ecological sustainability of wild product gathering (Emery, 2001; Emery & Barron, 2010).

The literature regarding urban gathering characterizes wild products as objects of ecological sustainability. In other words, urban gathering practices can facilitate opportunities for environmental stewardship (McClain et al., 2014, 2017). Additionally, examining practices of urban gathering results in a better understanding of the socio-ecological forces that shape the politics of green space management (McClain et al., 2014). McClain et al. (2014) argues that there are three ways that urban foraging practices can support green space management in cities: 1) the LEK of urban foragers can contribute to better understandings of species change within cities 2) urban foraging can contribute to food security as well as the creation of inclusive and environmentally just communities and 3) incorporating urban foragers in green space management results in a stronger support base to maintain and expand existing green space infrastructures. While environmental stewardship goals are often carried out through volunteer efforts managed by city governments or other civil society groups, it is not yet recognized that stewardship practices can arise from individuals working independently of organized structures and institutions (McClain et al., 2017). McClain et al. (2017) focused on highlighting the advantages of urban gathering and suggested that incorporating informal stewardship practices enhances environmental stewardship programs. The research concerning urban gathering supports the argument that wild product gatherers create informal stewardship practices in their own rights as some have viewed urban gathering practices as a threat to biodiversity.

Choosing to utilize expert or SEK over the everyday LEK of foragers is a methodological theme and, in some cases, a research agenda. Schunko et al. (2021) conducted research in Vienna to assess the potential ecological impacts of urban gathering. In order to understand multiple perspectives on the ecological impacts of urban gathering, Schunko et al. (2021) chose to interview experts within the fields of urban gathering, environmental education, urban green space management, and spatial planning, as well as experts in research institutes and NGOs. They found that wild product gatherers adopted practices regarding technique, time of collection, quantity, and location of collection to prevent or limit ecological side effects of gathering (Schunko et al., 2021). Schunko et al. (2021) suggests that the sustainability of urban gathering practices depends on "traditional transmission of local ecological knowledge" meaning that gathering communities and experts should work towards "educational measures addressing all three components of local ecological knowledge: knowledge, practice and beliefs" (p. 7). Similarly, Emery & Barron (2010) found that the LEK of morel mushroom harvesters can

complement and extend SEK. By collecting information about the types of morels, morel phenology, habitat, and responses to disturbance, Emery & Barron (2010) concluded that many opportunities exist for forestry management experts to utilize the LEK of morel harvesters. For example, the phenological records of local morel harvesters can be useful in yearly monitoring programs and provide insights about the impact of climate change on fungi and their ecosystems (Emery & Barron, 2010).

Furthermore, Tomasini & Theilade (2019) focused on researching local monitoring programs carried out by medicinal plant harvesters in Albania. The results of their study demonstrated that gatherers' LEK of medicinal plants allowed them to develop a variety of indicators enabling them to sustainably manage plant populations. Through participatory mapping, Tomasini & Theilade (2019) demonstrated how gatherers have detailed knowledge about the quantities and locations of particular species. Incorporating LEK indicators into science-led monitoring schemes can allow local resources users to have a place within management decisions and encourages communication between various actors (Emery, 2001; Emery & Barron, 2010; Tomasini & Theilade, 2019). Additionally, LEK indicators often provide early warning signals for populations experiencing change (Tomasini & Theilade, 2019). These insights are especially relevant in relation to the Norwegian context of wild product gathering as some gathers who participated in this study are noticing changes in wild product populations. This finding is discussed in more detail in the discussion chapter.

Lastly, this subgroup of literature also seeks to understand how practices of wild product gathering are closely influenced by how people relate to "more-than-human" species (Poe et al., 2014). This includes how people understand their sense of belonging within outdoor spaces, and how people perceive their ecological relationships with nature (Poe et al., 2014). Essentially, the relational political ecology of urban gathering allows us to pay closer attention to the power relationships at play within human-nature interactions (Poe et al., 2014). To understand the relational ecologies of belonging within urban settings, Poe et al. (2014) builds a conceptual framework by drawing upon political ecology methodology. As a result, Poe et al. (2014) demonstrates that through researching practices of gathering, individuals' perceptions of who and what belongs in nature can be interrogated. Additionally, such research can problematize and critically examine the ways in which sociocultural, political and ecological institutions create

"bifurcations" or separations between humans and nature, native and invasive, urban and wilderness etc. (Poe et al., 2014). The following section provides further commentary on the binaries or bifurcations commonly observed within the research concerning wild products and gathering practices.

2.4 Wild products as objects of social ecology

In this section, the term social ecology is used to refer to the subgroup of research concerned with understanding the social and community dimensions of gathering practices. Carroll et al. (2003) studied the social ecology of wild huckleberry gathering through the theoretical lens of social embeddedness (Hinrichs, 1998) and grounded theory (Charmaz, 2000). By identifying the motivations of different gatherer groups, Carroll et al. (2003) aimed to understand how some gatherers labeled huckleberry harvesting as a commercial activity while others did not. Their results indicated that the widely assumed binary or dichotomy between commercial and recreational gathering ". . . greatly oversimplifies the significance of these activities to those who participate" (Carroll et al., 2003 p. 337). Relying upon the theoretical framework of social embeddedness, Carroll et al. (2003) demonstrated how the social ecology of wild huckleberry gathering was embedded within gathering communities and their informal economies not only through recreational and commercial activities but also through subsistence, reciprocity, and care-giving activities.

Furthermore, by researching the social complexity of wild huckleberry gathering, Carroll et al. (2003) suggests that perceptions of recreational versus commercial harvesting are reflective of differing understandings of the " 'real purpose' of national forests" (p. 339). This can be summed up in the environmental governance debate of national vs. local (Acheson, 2006). Carroll et al. (2003) explains that some perceive that the purpose of national forests is to serve the national interest, and thus local communities should have no influence within the management and use of national forest lands. However, such views are often rebuked in favor of advocating for the local communities' interests and concerns for forest management and use. Ultimately, Carroll et al (2003) demonstrated that the recreational vs. commercial binary of gathering practices is reflective of the debate between local and national environmental

governance. On a more practical level, this means that issues of policy and regulation of gathering activities will prove challenging as determining the end use of wild products cannot always be determined as solely recreational or commercial labels. However, it is more important that the linkage between wild product gathering and larger perceptions of land tenure and environmental governance is recognized.

Reyes-Garcia et al. (2015) also studied the social ecology of NTFPs by interpreting trends of wild edible plant usage in Spain. In their study, Reyes-Garcia et al. (2015) acknowledged that practices of wild edible plant use enhance local aspects of culture, social identity, and spirituality (Hummer, 2013; Seeland & Staniszewski, 2007; Schunko & Vogl, 2010). Reyes-Garcia et al. (2015) found a generalized decrease with the usage of wild edible plants. The researchers' analysis suggests that cultural ecosystem services, such as the traditionality of wild food sources, are highly valued among wild plant users, and this explains different usage trends among wild plant species (Leonti et al., 2006; Pieroni & Price, 2006; Reyes-Garcia et al., 2015; Schulp et al., 2014). The researchers conclude by noting that the cultural ecosystem services ". . . are deeply bundled with the other categories" (Gould et al., 2014; Gould et al., 2015; Milcu et al., 2013; Reyes-Garcia et al., 2015). This suggests that like the label binary of recreational vs. commercial, the ecosystem service binary of cultural vs. provisioning is more closely intertwined. An example of this can be found in Butler et al.'s (2021) research concerning mushroom gathering and landscape change in Sweden.

In 2014, Sweden experienced the largest forest fire in their modern history which resulted in drastic landscape changes (Butler et al., 2021; Gustafsson et al., 2019; Lidskog et al., 2019). The loss of accessible forest and wild product resources due to fire greatly impacted recreational activities and ecosystem services (Butler et al., 2021; Lidskog et al., 2019; Ryan & Hamin, 2008). Through interviewing and a questionnaire, Butler et al. (2021) demonstrated how practices of mushroom gathering allow individuals to create relational attachments to landscapes through specific knowledge of species, habitats, and places. Ultimately, mushroom gathering enabled an understanding of landscapes as multifaceted meaning that the landscape is more than just a site of resource production or provisioning, but it is also a site for cultural or individual identity and well-being (Butler et al., 2021; Butler et al., 2019; Fischer & Kowarik, 2020; Poe et al., 2014). Practices of wild product gathering provide more than provisioning eco-system

services. Often, the cultural and social significance of wild product gathering outweighs the significance of wild product gathering as a provisioning eco-system service.

2.5 Wild products as objects of access and economy

Given that commercial wild product gathering generates economic income for rural and urban livelihoods throughout many European countries, there is a need to collect data in order to monitor their market value and species volumes at national and international levels (Turtiainen & Nuutinen, 2011). However, the usability of wild product data varies significantly between countries as there can be little interest in monitoring their use if they are not considered economically important (Turtiainen & Nuutinen, 2011). Many countries will rely upon rough estimates of quantity and value of wild products due to the cost and difficulty of collecting reliable data. Additionally, reliable data is limited because relatively small amounts of wild products end up on well documented or organized markets while most of wild product trade in relatively unorganized (Turtiainen & Nuutinen, 2011). Lastly, there is a need for better collaboration between different actors (Emery & Barron, 2010; Dyke & Emery, 2010; Turtiainen & Nuutinen, 2011). Collaboration between local gatherers, wild product experts, market operators, and country correspondents could improve international statistics on the volumes and values of wild products.

Additionally, this final subgroup of literature concerning wild products and gathering practices extends into questions about property rights and the role of *allemansretten* or "the right to roam" within Nordic countries. La Mela (2014) utilizes a historical perspective on the concept of *allemansretten* to examine conflicting notions of property rights and the economic value of wild berry picking. By examining the socio-economic context of wild berry picking in Sweden and Finland, La Mela (2014) attempted to demonstrate if the principle *allemansretten* was the reason why wild berries are not seen as private property but as an open access resource. La Mela (2014) argues that it was not solely the principle of *allemansretten* that allowed for wild berries to maintain an open access state, but more complexly it was the political processes and the economic incentive to sustain low-income individuals and provide valuable resources for market sale that led to wild berries not being privatized.

Furthermore, Peltola et al. (2014) surveyed local residents in northern Finland to collect their opinions regarding the labor of foreign wild berry pickers and the "utilization of everyman's rights for business purposes" (p. 27). Peltola et al. (2014) applied the idea of a social license which deals with a community's level of acceptance towards the operations of a company or industry. By applying a social license as a theoretical concept, locals' perceptions were analyzed to determine if the activity of foreign wild berry pickers was socially accepted. The activities of foreign wild berry pickers are socially accepted when it does not infringe upon the access to wild berries for other local harvesters (Peltola et al., 2014). This suggests that everyman's right or *allemansretten* is problematic within wild product gathering. *Allemansretten* is an ambiguous and subjective term that does not mitigate activity that may cause harm to the environment or infringe upon the access and rights of other users (Peltola et al., 2014; Tuulentie & Rantala, 2012). Questionnaire participants and interviewees frequently mentioned *allemansretten* in relation to their commercial or recreation gathering activities. The significance of *allemansretten* and its role within practices of wild product gathering is discussed further in chapter six.

Schunko et al. (2019) argues that the commercialization of wild products in Europe can support rural development. However, the support mechanisms and policy focused on wild products are underdeveloped (Schunko et al., 2019). To contribute to the design and development of support mechanisms for wild product use, Schunko et al. (2019) aimed to understand how various factors influenced commercialization. Schunko et al. (2019) developed a conceptual framework that identified 15 supporting or limiting factors. Examples of supporting factors are favorable attitudes towards gathering, organic farming, and wild product certification or training courses, and examples of limiting factors are agricultural intensification, legal restrictions, and limited product diversity and access to gathering sites (Schunko et al., 2019). Some of these factors relate to or connect with the data collected in this study and will be further discussed in chapter six. Commercialization of wild products can be supported through the transmission of local knowledge about edible species, providing access and training for commercial gatherers, holding reviews of legal restrictions, and by promoting organic farming to limit pesticide drift (Schunko et al., 2019).

Gathering rights and legal frameworks regarding access to wild products have also seen considerable change over the years. Dyke and Emery (2010) describe the context of wild product gathering in Scotland by paying attention to the legal terms of access that influence gathering practices. Individual perceptions of gathering rights and attitudes towards wild products affect the interpretation and acceptance of legal frameworks governing the use of wild products (Dyke & Emery, 2010). Rights of access in Scotland are similar to rights of access in Norway. Thus, this article is important to consider in light of discussing gatherers' rights to wild products in addition to the rights of the land owners. Dyke and Emery (2010) argue that an artificial or ambiguous distinction between commercial and non-commercial gathering supports individual's rights to gather for personal use. Arguably, some gatherers in Scotland contend that commercial gathering is a right and reject the normative belief that private land ownership gives exclusive rights to resource access (Dyke & Emery, 2010). This suggests that for some gatherers ownership is defined by resource use and ". . . landowners who do not use or manage a product themselves forfeit their right to it" (Dyke & Emery, 2010 p. 144). However, Dyke and Emery (2010) suggest that landowners usually do not have adequate knowledge about wild products on their land or the markets or reasons for their use. A lack of communication and knowledge sharing amongst wild product user groups leads to low levels of representation within forestry or land management decisions (Dyke & Emery, 2010). Developing accreditation and certification schemes for wild product gatherers along with providing financial incentives for landowners to consider wild products in their land management practices could benefit the commercialization wild products.

2.6 Chapter summary

In this chapter, subgroups of wild product and gathering literature were reviewed to demonstrate the differing epistemological understandings of wild products and the knowledge they produce as physical resources and socio-cultural practices. Wild products are understood as objects of ecological sustainability as gathering practices ultimately result in environmental stewardship. Additionally, wild products are perceived as objects of ecological sustainability because of the associated LEK of gatherers. Combining LEK with SEK can lead to effective solutions for the management of wild products and their connected ecosystems. Across the

subgroup of literature that understands wild products as objects of social ecology, binaries exist such as recreational vs. commercial, human vs. nature, and cultural vs. provisioning. Recognizing the complexity of these binaries helps to holistically understand the relational values of wild product gathering. Lastly, by understanding wild products as objects of access and economy, perceptions of resource ownership and use can be explored as well as strategies for building market-based data. In the next chapter, the theoretical foundations of commons theory, feminist political ecology (FPE), and diverse economies are introduced. The relational ontological perspective of commons theory along with FPE and diverse economies theory helps to understand how wild product gathering generates varying epistemological understandings and knowledge creations.

3 Theory

3.1 Introduction

The following chapter details the theoretical and conceptual foundations underpinning this research project. To begin, I present the thesis's ontological and epistemological positions. Following, is a brief account of the historical arc of commons theory. Then, there is an overview of the development of commons theory in relation to natural resource management. Additionally, I highlight the dynamic status of terms used within commons theory; most notably "commons" and "commoning". This demonstrates how contemporary commons scholars now conceptualize the commons as a social system that includes processes of knowledge sharing and governance through which resources are developed and maintained (Bollier & Helfrich, 2019). Lastly, I discuss how other bodies of theory such as feminist political ecology (FPE) and diverse economies theory are related and have developed in connection with commons theory.

3.2 Ontological and epistemological positions

This thesis utilizes a relational ontological perspective. Humans construct multiple relationships between other humans, material and immaterial objects, and most importantly, nature. Although reality attempts to separate nature and culture, their relationship is assumed to be ontologically inseparable (Demerritt, 2002). Specifically, an ontological perspective premised on relationality recognizes that a high level of complexity exists between humans and nature (Cockburn et al., 2020). Furthermore, in natural resource management, a relational ontological approach fundamentally rests on the observation that humans have unequal and faulty relationships with the natural world, and thus improving human-nature relationships is a necessary step in solving large scale environmental issues (Kessler, 2019). In particular, this thesis is concerned with the relationship between humans and more-than-human beings such as

plant and mushroom species. Gathering practices are the lens through which human-nature relationships are observed. Additionally, the process of commoning is primarily focused on ". . . creating and maintaining relationships— among people in small and big communities and networks between human and the non-human world. . ." (Bollier & Helfrich 2019, p. 67). Essentially, the commons can be theorized as a "relational understanding of the world" that helps us to achieve better understandings about the value of more-than-human beings within capitalistic societies (Bollier & Helfrich, 2019). This thesis also adopts an epistemological perspective of social constructivism. According to social constructivists, the manner in which people interpret the world and develop knowledge is dependent on social processes and interactions (Jørgensen & Philips, 2002). While social constructivism emphasizes the connection between knowledge and social processes, it also recognizes that knowledge is historically and culturally contingent (Jørgenson & Philips, 2002). A social constructivist approach to wild product gathering and commons theory allows for a greater understanding of the various ways in which humans interact with and make sense of the natural world.

3.3 Development of commons theory

Commons scholars aimed to chart the evolutionary history of commons management by analyzing the social science literature on the evolution of human cooperation (Richerson et al., 2002). This research endeavor provided scholars with the argument that commons ". . . appear to be deeply embedded parts of culture. . ." (Richerson et al., 2002 p. 426). While commons theory is an inherently human geography subject (McCarthy, 2009), its complexity and range of applications makes it a topic of interest in a range of fields from economics and law (Stavins, 2011) to urban planning (Kip, 2015; Radywyl & Biggs, 2013) and natural resource management (Armitage, 2005; Gruber, 2010). McCarthy (2009) writes, ". . . 'commons' is an evocative and broadly resonant word in the English language. . ." (p. 498). As theory and ideas developed over time, so to have the definitions of the commons (Fournier, 2013; McCarthy, 2009; Sandström et al., 2017). Most commons relate to natural resources such as forests, fisheries, water, air, and wild food etc. However, contemporary conceptions of the commons also extend to include a diverse mix of intangibles such as intellectual, cultural, or social commons (Fournier, 2013; Bollier & Helfrich, 2019). Most definitions of the commons also signify society's shared

responsibility to sustainably manage resources for the benefit of future generations (Hodkinson, 2010).

Commons theory as a resource management regime originated in response to the English commons that existed prior to their enclosure in the 18th century (McCarthy, 2009). Some researchers trace the history of the English commons enclosure back to the 14th century, when commons were seen as impediments to more productive agricultural practices (Eizenberg, 2012). In the historic English commons, community residents had the right to freely use communal lands to graze livestock, gather goods, build dwellings and so on (McCarthy, 2009). However, overtime communities experienced a drastic reduction of their communal land rights due to the rise of privatization, property rights, and the transitional establishment of industrial and capitalist institutions. Many of today's commodities such as food, clean water, land, labor, and even music was not valued as a commodity (Patel, 2009; Fournier, 2013). Rather, capitalism and private property favored the economic value of the commons over relational, social, or cultural values (McCarthy, 2009). Thus, the rise of capitalism was theorized as an advantage since resource owners would be motivated to sustainably manage and protect their resources because of monetary or economic gain. Whereas the externalities of communal management would lead to the over exploitation of natural resources (McCarthy, 2009).

It is along these lines of inquiry that biologist Garret Hardin published his influential yet misleading concept of the "tragedy of the commons" (TOC) in 1968 (Bollier & Helfrich, 2019). While the literature and research concerning commons theory has steadily grown since Garret Hardin's publication of TOC, it seems as though all reviews of commons theory must start with the inevitable TOC. I find that this is not without reason as many scholars have used TOC as a starting point to demonstrate the historical arc and development of modern commons theory (Richerson et al., 2002). As a population biologist, Hardin advocated the belief that humans acted as rational economic beings to overexploit freely available resources to the point of devastation for all. Hardin's rendition of the commons unfortunately has filtered through the social and natural sciences, economics, and politics to convince people that the commons is an idealized and fallible management regime (Bollier & Helfrich, 2019).

Bollier & Helfrich (2019) write that Hardin's TOC was misleading as it does not describe the actual conditions of the commons; "[h]e (Hardin) was describing a free-for-all in which

nothing is owned and everything is free for the taking—an 'unmanaged common pool resource' as some would say" (p. 19). Bollier & Helfrich (2019) point out that actual commons, both historic and contemporary examples, are characterized by distinct community negotiations that facilitate the establishment of rules and monitoring systems to discourage over exploitation. To further discredit the pervasive notion of Hardin's TOC, commons scholars were quick to point out that the capitalist solutions (mainly privatization) meant to prevent the TOC have only led to unprecedented natural resource consumption and massive ecological disruptions through land degradation and climate change (Bollier & Helfrich, 2019).

Another scholar whose work complicates the idea of TOC is Elinor Ostrom. Ostrom's scholarship was highly influenced by the role of institutions within natural resource management and environmental governance (Wall, 2017; Tucker & Ostrom, 2005). While institutions are often complexly viewed as political and economic manifestations, they can be more simply viewed as sets of rules or behavior dictated by human beings (Wall, 2017; Dietz et al., 2002). By paying attention to the role of institutions and how they affect access to and control of natural resources, Ostrom and her colleagues aimed to identify the patterns and relationships that led to effective institutions for governing natural resources (Ostrom, 1990; Tucker & Ostrom, 2005). Over the years, Ostrom and her colleagues worked to develop methods and approaches to enhance the institutional analysis of natural resource management because they found that ". . . some of the critical information needed for management decisions and institutional design is unavailable" (Tucker & Ostrom, 2005 p. 83). Such efforts have resulted in Ostrom's influential eight design principles (Ostrom, 1990) and the Institutional Analysis and Development framework (Tucker & Ostrom, 2005).

While it is hard to argue that the TOC was not or still is not an accurate representation of reality within capitalistic societies, many commons scholars found it easy to discredit Hardin's ideas (McCarthy, 2009). Scholarly efforts have been made to document the numerous global civilizations which have maintained common resources responsibly throughout history, and in some cases have even improved the resource system (Ostrom, 2015; McCarthy, 2009). Ostrom's scholarship also sought to discredit Hardin's TOTC (Wall, 2017). Ostrom won a Nobel Prize in economics for her analysis of environmental governance and commons theory (Wall, 2017). Ostrom's alternative ideas regarding polycentric governance, collective action and the

management of the commons opened up discursive and political space for researchers to demonstrate how local communities can successfully self-govern nature resource commons (Fournier, 2013; Clement et al. 2019).

Within Ostrom's scholarship, the term common pool resource (CPR) is often used over the term "commons". Ostrom defines a CPR as a ". . . natural or man-made resource system that is sufficiently large as to make it costly (but not impossible) to exclude potential beneficiaries from obtaining benefits from its use" (Ostrom, 1990 as cited in Euler, 2018 p. 11). Before continuing further, it is important to note that the use of CPR over the term "commons" does not completely separate Ostrom's scholarship from the larger body of commons theory. Rather, Ostrom's work is often viewed as the basis for much of the 21st century's research on the commons (van Laerhoven, Schoon, & Villamayor-Tomas, 2020). The difference between Ostrom's research on CPRs and the growing body of recent commons theory is that her contributions focus specifically on issues related to governance of natural resources and identifying the institutions that create successful management regimes (Fournier, 2013). Whereas, a large majority of commons scholarship today is focused on exploring the complexities of the commons and what it actually means "to common" a resource (Bollier & Helfrich, 2019). Many scholars of the commons agree that Ostrom's understanding only captures parts of the commons (Caffentizis, 2004; De Angelis & Harvie, 2013; Fournier, 2013). For many contemporary commons scholars, Ostrom's analysis of the commons falls short because it does not conceptualize commoning as a non-capitalist practice that enables ". . . social relations and forms of life that might break our dependence on capitalist market relations" (Fournier, 2013 p. 450). Naturally, this has led contemporary scholars to re-envision definitions of the "commons" and "commoning".

3.4 Contemporary commons theory

Moving away from Ostrom's institutionalized and governance focused understanding of the commons, contemporary scholars understand the commons as a social system of organization and interaction. Conceptualizing the commons as a social system of organization and reproduction speaks more to its status as a verb denoting activity rather than its status as a noun

which denotes its physicality as a resource. Peter Linebaugh was one of the first scholars to reframe the term "commons" and "commoning" to signify that,

> "[t]he commons is an activity and, if anything it expresses relationships in society that are inseparable from relations to nature. It might be better to keep the word as a verb, an activity, rather than as a noun, a substantive" (Linebaugh as quoted in Fournier, 2013 p. 438).

Additionally, Euler (2018) draws upon previous definitions of the commons by Benholdt-Thomsen (2012) and Meretz (2014) to determine two required elements of a commons: 1) a tangible or intangible resource or product and 2) a form of social infrastructure for management. Euler (2018) clarifies that the social infrastructure for management within a commons is essentially, ". . . the ways of doing things and relating to each other" (p.11). Similarly, Bollier & Helfrich (2019) further conceptualize the activity of the commons by writing that,

> ". . . commoning is primarily about creating and maintaining *relationships* (original emphasis by author) — among people in small and big communities and networks, between humans and the non-human world, and between us and past and future generations. This relational understanding of the world will necessarily bring about new ways of thinking about *value* (original emphasis by author)" (p. 67).

Bollier and Helfrich's (2019) conceptual addition of new value produced through commoning and the collective ontological shift towards a relational understanding of the commons highlights the relevance of contemporary commons theory as a governance paradigm within natural resource management and society in general. The relevance of a re-envisioned commons theory demonstrates how people in a commons system understand the use of natural resources, not as tradeable commodities, but as contingent upon the relationship between humans and their surrounding environments (Benholdt-Thomsen, 2012). Commons theory, re-envisioned past the physicality and commodification of natural resources, speaks to the goal of creating more ethical relationships between humans and natural resources for the development of a post capitalist future (Alexander et al., 2022; Garcia-Lopez et al., 2021; Singh, 2019). In the following section, commons theory and its role within a post capitalist future is discussed in connection with two other bodies of theory; feminist political ecology (FPE) and diverse economies.

Within the commons literature, scholars acknowledge that there is a lack of theoretical framework for assessing the persistence and development of commons systems (Eizenberg, 2012; Bollier & Helfrich, 2015, 2019). In response to this, the Triad of Commoning framework (Figure 2) was developed by Bollier & Helfrich (2019). There are three important characteristics of the framework 1) it is a pattern-based approach which identifies recurring concepts and ideas throughout diverse commons 2) it is ontologically relational which helps to distance itself from economic or institutional understandings of the commons and 3) it speaks to the idea of world-making; the essential purpose of commoning (Bollier & Helfrich, 2019). World-making refers to the potential of the commons to radically reconfigure societal processes of governance (Bollier & Helfrich. The three components of the Triad are its social life, patterns of peer governance, and systems of provisioning. Bollier & Helfrich (2019) emphasize that the components are interconnected and provide multiple perspectives for identifying development and organization patterns within a commons.

Figure 2

The Triad of Commoning. From Free, fair, and alive: the insurgent power of the commons by Bollier & Helfrich (2019).

In this thesis, I apply the Triad of Commoning framework as an analytical tool to identify if patterns of commoning are occurring within practices of wild product gathering in Norway. I argue that identifying these patterns contributes to an understanding of the role and value of wild product gathering within economic, social, and environmental contexts. During the design and conceptualization phase of this thesis, I theorized that the Triad of Commoning would help to determine if individuals perceived their use of and interaction with wild products outside of the capitalist view of natural resource extraction. As contemporary understandings of the commons and commoning have developed as capitalist alternatives, I theorized that identifying patterns of commoning with wild product gathering would provide an answer to the main research question:

do practices of wild product gathering enable people's perceptions of nature to transcend a capitalist discourse?

3.5 Feminist political ecology (FPE) and diverse economies

Both FPE and diverse economies are logical extensions of contemporary commons theory. Feminist perspectives on the commons and commoning along with diverse economies scholarship have proliferated in the last three decades. Decidedly, feminist theory and methodology significantly influence the geographical analysis of the human-environment relationships (Sundberg, 2017; Waitt & Campbell, 2020). Within FPE, gender along with other social determinants of power such as race, class, age, culture, and place etc. influence access to and control over natural resources (Sundberg, 2017). Additionally, FPE enables an analysis of how individuals ". . . have diverse experiences of, responsibilities for, and interests in 'nature' and 'environment'" (Clement et al., 2019 p. 4). FPE research aims to provide a nuanced understanding of how commoning practices reflect the everyday interdependencies between humans and their surrounding environments (Clement et al., 2019).

This nuanced understanding attempts to illuminate the agency of the environment and its right to live well (Sato & Soto Alaron, 2019). Within FPE, attending to the agency of the environment can be done through affective socio-nature relations. Affective socio-nature relations refer to the emotional or affective feelings of care, empathy, and responsibility for the well-being of the natural environment. Following the action call of Felix Guattari (1995) for humanity's need to transform the "ways of being human", Singh (2017) demonstrates how seeing the commons as sites for the development of socio-nature relations ". . . opens space for other-than-capitalist subjectivities and post-capitalist futures" (p. 769). A post capitalist and FPE perspective on the commons and commoning emphasizes the agency of the environment and the importance of affective socio-nature relations.

The last piece in this theoretical puzzle is diverse economies theory. As mentioned in the introduction, the feminist economic geography of diverse economies aims to deconstruct capitalist language and perceptions of the economy and the environment. In practice, this enables academics to research and uncover more ethical economic interactions between humans,

resources, and the environment. A key visual for diverse economies theory is the diverse economies iceberg (Figure 3). This visual illustrates what is perceived as the "economy" by placing wage labor, commodity markets, and capitalist enterprise at the tip of the iceberg. Everything else below are examples of the multitude of "marginal" economic activities individuals more frequently participate in to produce, exchange, and distribute value (Gibson-Graham, 2008). Gathering and other forms of subsistence activities are included in the diverse economies iceberg.

Figure 3

Diverse Economies Iceberg by Community Economies Collective is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Similar to the singular capitalist image of the economy, natural resource extraction is also perceived as a singular capitalist activity that produces economic growth, development, and expansion (Barron, 2005). However, the ubiquitous and highly productive activities of alternative natural resource extraction like the gathering of wild products can be seen as operating outside the realm of capitalism (Barron, 2015). The existence of highly productive forms of resource extraction, outside of capitalism, demonstrates that economic values are not the only values influencing the interaction between humans and natural resources (Barron, 2005).

By only recognizing the economic values of natural resource extraction, the welfare of the environment and the importance of natural resources is contingent on the capitalist market, and this means that intrinsic resources like wild products, old-growth forests, or clean water and air are reduced solely to their economic value (Barron, 2005). In contrast, situating wild product gathering within a diverse economies framework diverts focus to the diversity of values (social, cultural, spiritual etc.) inherent within gathering practices (Barron, 2015). As a result of recognizing the diversity of values associated with resource extraction, other-than-capitalist possibilities for natural resource management can be explored (Barron, 2005; Barron, 2015; Singh, 2019).

3.6 Chapter summary

Chapter 3 covered the theoretical foundations of this thesis. Relationality and social constructivism are the ontological and epistemological positions that provide structure for this thesis. Comparatively, contemporary commons scholarship which views the commons not as physical resources but as social systems also highlight the relational ontology of interactions between humans and their surrounding environments. Feminist political ecology and diverse economies are related theoretical bodies that complement and expand the work of commons scholarship. The theoretical foundations of this research project attempt to explain why the agency of the environment and more-than-humans should be attended to within natural resource management. Below, Figure 4 summarizes the main contributions of the theoretical foundations. Across each of the theoretical foundations is a radical action call to re-examine the relationships and interactions between humans and their surrounding environments. A commons theory perspective also rooted in FPE and diverse economies results in more ethical relationships with natural resources and the environment. It can re-orient decision-making processes within natural resource management to dampen the hegemonic power of capitalism that only favors the economic value of nature and its resources.

Figure 4

The theoretical contributions of diverse economies, commons theory, and feminist political ecology in relation to the thesis topic. This figure was inspired by Rodrigues de Mello et al. (2020). They used similar or related theories to explore sustainable NTFP use and commercialization.

4 Research Methods

4.1 Introduction

This chapter details the qualitative methodology used to explore the relationship between people and wild product gathering. The process of designing the online questionnaire and semi-structured interviews is described along with data analysis. Additionally, there is a section describing the study area. It is focused on highlighting the cultural and social aspects related to the wild product gathering in Norway. Some challenges with and limitations of the methodology are discussed. The chapter concludes by discussing critical reflexivity in relation to positionality and my own personal interest within this research project.

4.2 Study area

The mainland of Norway spans 323,810 km^2 (Statistics Norway, 2021a), and with a population of 5.4 million, Norway is still one of the least densely populated countries in Europe (Statistics Norway, 2021b). Only 2% of the total land area is built up (buildings, structures, permanently sealed surfaces etc.) while forests account for 37.4% of land area, agricultural land accounts for 3.5% of land area, open firm ground 37.6% and the rest is a mix of wetlands, snow or glaciers and inland waters (Statistics Norway, 2021a). According to the Norwegian Survey of Living Conditions, 41% of the total surveyed participants (1,818 persons) reported participating in berry or mushroom picking (Sports and outdoor activities, 2021c). Norwegians ascribe social and cultural value to outdoor life and recreation or *friluftsliv*. Research demonstrated that the cultural and philosophical tradition of *friluftsliv* within the Nordic countries contributes to environmental connectedness and sustainability (Beery, 2013; Gelter, 2000; Gurholt, 2014). Given its high level of accessibility, wild product gathering persists as an important activity of *friluftsliv* in Norway.

Compared with other cultures and countries globally, some would argue that Norway does not have strong gathering traditions. When asked about Norwegian gathering traditions, many of my interviewees agreed that comparatively they are not well established or recognized as traditions. Ironically, Norway has a very active membership-based organization dedicated to expanding the knowledge of useful plants and fungi (Barstow, 2014). This organization, known in Norwegian as Norges Sopp og Nyttevekstforbund (NSNF), dates back to 1902 when it was mostly concerned with wild medicinal plants and helping people to find additional food sources in nature (Charlie, interview; Melissa, interview). Since then, the organization has undergone numerous changes including merging with the Norwegian Mycology Association (Charlie, interview). As a result, NSNF today caters to both fungi and edible plant enthusiasts. NSNF holds courses (in addition to an array of other foraging events throughout the year) to certify people in the identification of fungi and plant species. During peak mushrooming seasons *soppkontrolls*, mushroom identification stations, are public services held all across the country. Today, NSNF has 6,000 members, and many municipalities have their own local chapter organizations.

Norway does have a well-established tradition of public access to nature. *Allemansretten* is a Norwegian term that refers to the public's "right to roam". It is a commonly used term throughout other Nordic countries. *Allemansretten* safeguards the public's access to nature and its resources (La Mela, 2014). Not only is *allemansretten* a cultural tradition, but it has also been formalized in common law (Kaltenborn et al., 2009). One's right to gather wild products in Norway is directly linked to the principles of *allemansretten* (Butler et al., 2021). *Allemansretten* guarantees that individuals have the right to gather mushrooms and berries (as they occur in high volumes) on public land (Butler et al., 2021; Miljødirektoratet, 2021; Peltola et al., 2014). However, some exceptions do exist in Norway. For example, in Finnmark, individuals are allowed to gather cloudberries for their own personal consumption, but gathering cloudberries to sell for profit is a right reserved only for Finnmark residents (Miljødirektoratet, 2020). Additionally, it is advised to consult with the landowner to ask for permission before gathering wild products on private land. This is especially important for the collection of tree saps, bark, and buds as their collection could potentially damage the property of the landowner. In protected areas such as nature reserves, it is prohibited by law to collect plants. Furthermore, it is generally

not acceptable to collect plants and other species known to be threatened or endangered. These exceptions aside, wild product gathering in Norway is seen as a common recreational activity.

4.3 Ethical considerations

In qualitative research, ethics are the standards that allow for accurate and safe data collection (Israel & Hay, 2006). To comply with ethical standards of data collection, this project was assessed by the Norwegian Centre for Research Data (NSD). The NSD assessment form can be found in the page 111. Each interviewee and questionnaire respondent were provided with detailed information about the research project, their rights as a participant, and how their personal data would be stored and used. Quotes from the questionnaire participants have been anonymized, and all names of the interviewees have been changed for confidentiality.

4.4 Online questionnaire

The questionnaire was the first phase within data collection process. The questionnaire gathered initial background data regarding the research topic and established potential contacts for the in-person interviews. The use of questionnaires in qualitative methodology allows for the collection of data over large geographical areas (McGuirk & O'Neill, 2021). Additionally, they can be designed to gather both statistical and behavioral data. Furthermore, questionnaires are easily combined with other methods like interviewing and participant observation (McGuirk & O'Neill, 2021). The questionnaire was created using *Nettskjema*, an open-source form builder developed by the University of Oslo. The questionnaire was made available in both Norwegian and English. The Norwegian version was edited by two Norwegian student colleagues, and the English version was self-edited since I am a native English speaker. While I am not a native Norwegian speaker, I was able to translate most of the Norwegian questionnaire responses myself given my intermediate knowledge of Norwegian. An online translator was used to double check the translations I was unsure of or translations I did not have the vocabulary and grammar knowledge to accurately translate.

The testing and editing phase for the questionnaire finished in June, and the questionnaire was publicly available online from July through November of 2021. The questionnaire and information about the research project were posted on various Facebook groups such as Trondheim Sopp og Nyttevekstforenging and Sopp og Nyttevekster and shared by word of mouth and email to potential respondents. Below, Table 1 details how many members are in each of these groups and the date the questionnaire was posted. It was also shared by word of mouth and emailed to potential respondents. The majority of the questionnaire responses came from members of Norges Sopp og Nyttevekstforbund (NSNF) as one of the organization's employees promoted the questionnaire in their monthly membership newsletter. In total, 141 questionnaire responses were submitted. 134 responses were submitted in Norwegian while the other 7 responses were submitted in English.

Table 1

Name of Facebooks groups used to collect questionnaire responses.

Name of Facebook Group	Number of Members	Date Posted
Trondheim sopp- og nyttevekstforening (Trondheim mushroom and useful growth association)	6.8 K	July 5, 2021: seeking participants for pilot study August 4, 2021: seeking participant for the revised questionnaire
Sopp og Nyttevekster (Mushroom and Useful growth)	30.6 K	August 4, 2021: seeking participant for the revised questionnaire

The main focus of the questionnaire was to find out which species are collected, on what types of land does wild product gathering most commonly occur and what people are doing with the species they gather. Additionally, the questionnaire asked participants to explain their motivations for foraging as well as their perceptions regarding wild product gathering as a recreational, cultural, or economic activity. It also queried whether participants have experienced any significant changes regarding the availability of wild products due to a range of

environmental or anthropogenic factors. The questionnaire also asked participants to share their level of agreement regarding the potentiality of regulating commercial and recreational gathering activities. Lastly, basic demographic data including location, age, gender, and employment status were collected. The complete questionnaire can be viewed on page 117.

4.5 Designing the questionnaire

When developing a questionnaire there are multiple design components requiring critical evaluation (McGuirk & O'Neill, 2021; Parfitt, 2013). Consideration was given to the sequencing and flow of the questions and the functionality of different question formats. In terms of sequencing and flow, introductory information regarding the research project and the content of the questionnaire was provided on a welcome page. Continuity statements such as *"The next set of questions asks about. . ."* were used to easily transition between questionnaire topics (Parfitt, 2013). Questions that were relatively easy and straightforward to answer were situated in the beginning of the questionnaire whereas open-ended questions requiring participants to provide opinionated statements were situated near the end of the questionnaire.

The questionnaire contained scaling, open and closed ended, and matrix or grid question formats. Scaling or sometimes they are referred to as Likert questions (Jamieson, 2004) or attitude measurement questions (Parfitt, 2013) were used to assess levels of agreement regarding the regulation of foraging activities. A grid or matrix format question was used to assess if people had experienced any factors impacting the availability of wild products. The use of open and closed ended questions was also given specific consideration. By leaving questions completely open, some participants may find it challenging to think critically about the reasons for why they choose to engage in wild product gathering. While on the other hand, providing specific answers in a multiple-choice format may not be able to cover the wide range of potential answers. Furthermore, providing guidance or examples for how to answer the questions may lead to "interviewer effects" where respondents might feel obligated to filter their responses to fit perceived expectations (McGuirk & O'Neill, 2016). To account for this and to test the functionality of different question formats, a pilot test was conducted with ten volunteer participants.

During the test phase, participants were asked to comment on the readability and the ease of navigating the questionnaire form and overall length. Based on feedback from the pilot test, the format of some questions changed from open to closed ended or vice versa. This was done in order to make it more efficient for participants to respond. For example, in the first draft of the questionnaire the question of "What do you do with the wild products you collect?" was formatted as an open-ended response, and the question of "Why do you choose to gather wild products?" was formatted as a closed response with check boxes for various reasons or motivations for foraging. Feedback was given to revise "What do you do with the wild products you gather?" to a closed format with check boxes since it was suggested that respondents were likely to respond with the same objective responses. Whereas, the question of "Why do you choose to gather wild products?" would be perceived as a subjective question that should not be confined to pre-given responses. Other changes were made to the questionnaire after the pilot study such as re-ordering the questions, editing the language to increase clarity, and reducing the number of questions from 40 to 30.

4.6 Semi-structured interviews

In addition to the online questionnaire, interviewing was the other method for data collection. In qualitative research, interviewing is one of the most common methods of data generation (Kings & Horrocks, 2010). Interviewing allows the researcher to discover what is most relevant and meaningful for the informant (Dunn, 2021). Often interviews are rich with personal stories, opinions and experiences. Thus, they are an ideal method for revealing consensus or division regarding a particular issue or event (Dunn, 2021). The interview participants were selected based on their willingness to be interviewed. No formal criteria were used to select interview participants other than they should have some level of experience with gathering or the use of wild products. In total, seven interviews were conducted. Two of the interviews were conducted via Zoom due to Covid-19 restrictions and scheduling conflicts while the other five interviews were conducted in-person either on campus at NTNU or at the interviewee's home.

Additionally, I conducted one informal interview with a board member from the Norsk Botanisk Forening (Norwegian Botanical Association). This informal interview was not recorded or transcribed; only notes were taken. Contact with the interviewees was made through the online questionnaire or by snowball sampling as interviewees would suggest or refer me to another potential contact. If interviewees did not suggest other potential contacts themselves, I would ask if they had suggestions for other interview contacts. Turner (2010) suggests that snowball sampling can extend the network allowing further access to contacts and informants. Snowball sampling quickly became a useful tool as the questionnaire did not generate enough interview contacts. The interviews were semi-structured and lasted 60-90 minutes on average. Each interview was audio-recorded and transcribed using NVivo (a qualitative data analysis software). A total of 123 pages of transcription data were produced for coding and analysis.

An interview schedule was created prior to conducting the semi-structured interviews. The interview schedule was loosely organized by the themes used in the questionnaire. However, the interview schedule contained multiple question prompts for each theme. Many of the question prompts were more detailed and in-depth than the questionnaire prompts. Much like the questionnaire, the interview schedule was organized using a funnel structure; general or broad questions were asked in the beginning of the interview and the specific, complex, or reflective questions were saved for the end of the interview (Dunn, 2021). In semi-structured interviewing, a less structured interview guide is commonly used (Dunn, 2021). However, I felt more comfortable having fully worded questions prepared. As the interviews progressed, and I became more accustomed to the process of interviewing, the interview schedule transitioned into a less structured guide. With semi-structured interviewing, Dunn (2021) suggests that the role of the interviewer is more of an interventionist. Having developed an interview schedule, I was easily able to redirect the conversation if it moved to far from the research topics. The interview schedule can be found on page 124. While the interview schedule allowed for each interview to cover the same themes and questions related to wild product gathering each interview generated different data due to the unique background and knowledge base of the interviewees. This is discussed in more detail in the results chapter.

4.7 Data analysis

Both the questionnaire responses and interview transcripts were imported into NVivo. Once in NVivo, the data went through multiple series of coding and content analysis phases; both inductive and deductive approaches were used. Essentially, a code is a unit of data analysis. For example, a code can be a label, name, short summary or a direct extract (in vivo code) that is applied to a specific piece of qualitative data. Cope writes that "[c]oding helps to reduce data by putting them into smaller 'packages'" (Cope, 2021 p. 362). An inductive approach to content analysis utilizes a detailed reading of raw data to develop concepts, themes, and unique interpretations while a deductive approach tests if raw data is consistent with prior knowledge and theory (Armat et al., 2018; Elo & Kyngäs, 2008; Thomas, 2006).

During the first phase of analysis, the questionnaire responses and interview transcripts were read through in their entirety and an inductive approach was used to develop codes. In some cases, questionnaire responses were translated into English if there was a particularly interesting perspective requiring further analysis. Otherwise, many of the questionnaire responses generated similar or recurring results. This was useful as it allowed me to easily tease out particular themes and general characterizations of NTFP foraging in Norway. Both descriptive (reflecting themes or patterns explicitly voiced by informants) and analytic (reflecting a concept or theme important to the researcher) codes were developed (Cope, 2021 p. 360-361). Some of the codes that developed from the questionnaire were also present and assigned to relevant sections of the transcript data. Additionally, as the interviews produced data that was more ethnographic in style, special attention was paid to identifying relevant quotes as well as positive and negative sentiments that could be analyzed to directly address the research questions.

In total, 351 codes were developed from the questionnaire responses and interviews during the first phase of content analysis. In subsequent content analysis phases, these codes were reduced and re-organized into 25 themes. During the code reduction and re-organization phase, a deductive content analysis approach was utilized to identify patterns of commoning and other relevant connections between the raw data and current knowledge associated with wild products and gathering practices. The multiple phases of code reduction and re-organization allowed for a thorough analysis of the questionnaire responses and interview transcripts.

4.8 Methodological limitations

This research study deals with a relatively small set of interviews. In total, 12 people were contacted for potential interviews. Five of the interviews did not go ahead due to Covid-19 restrictions, scheduling conflicts and a language barrier. One of the interview contacts only wanted to be interviewed in Norwegian. Due to time and logistical constraints, it was not feasible to enlist the help of a translator. Furthermore, in the original proposal for this project, opportunities for participant observation were planned. I signed up for a wild product gathering course offered by a local guide, but this fell through due to low enrollment numbers. I also intended to join local foraging tours offered by NSNF leaders, but again these tours were cancelled due to high rates of Covid-19 infection in the Trondheim area. Lastly, I originally planned to conduct walking interviews (Evans & Jones, 2011). By conducting walking interviews, I aimed to gather further contextual and environmental data regarding people's personal experiences and practices of wild product gathering. I was interested in the advantages of walking interview as they enable participants to ". . . verbalise attitudes and feelings when 'in place', producing richer data" (Evans & Jones, 2011 p. 850). However, due to inclement weather and the preferences of the interviewees, all seven interviews took place indoors.

In an attempt to elicit the types of data that could have been collected through participant observation and walking interviews, I joined two Facebook groups (Trondheim Sopp og Nyttevekstforenging and Sopp og Nyttevekster) and informally monitored the posts and discussions. I also went on a handful of informal foraging hikes with friends and contacts as well as my own foraging tours. From the Facebook groups and informal hikes, I observed the types of species people gathered, how much they gathered and where. I also gained knowledge about the various types of discussions and at times conflicts occurring within the foraging community. Some of these observations are presented as supplemental information within the results section.

Questionnaire responses were generated through convenience sampling. Convenience sampling is a process by which participants ". . . respond on a first-come-first-served basis until the sample size quotient is full" (Robinson, 2014 p. 32). Convenience sampling is often viewed as a random sampling technique, but Robinson (2014) warns that this is often not the case as convenience sampling depends on proximity and willingness or interest to participate. Therefore, convenience samplings can create unjustified generalizations (Robinson, 2014). Robinson (2014)

suggests that generalizations made through convenience sampling should be demographically and geographically defined to a local level. Thus, the data gained from the questionnaire represents only a small sample of the Norwegian population and should not be depended upon to generalize about gathering practices on a national, European, or global level. Furthermore, the data collected from the interviews is only representative of gathering activities with Trøndelag county and should not be used to overgeneralize gathering activity throughout Norway. Lastly, the limitation of social desirability should be mentioned in relation to convenience sampling. Given this, it is highly possible that questionnaire responses and interviewees chose to respond with information, opinions, or beliefs they deemed as socially desirable rather than what they perceive as factual truth (Harris & Brown, 2010; Richman et al., 1999). Additionally, questionnaire participants and interviewees may over emphasize the benefits of gathering practices over the disadvantages or possible consequences associated with gathering practices.

4.9 Critical reflexivity

Within qualitative methodology, the process of critically evaluating the researcher's relationship to the research in questions and the research participants, generally referred to as critical reflexivity, has become a standard practice for researchers to understand the power of their subjectivity (Catungal & Dowling, 2021). In the following section, I critically reflect upon my multiple positionalities as a student researcher and how these positionalities impact the results and depth of my analysis. Additionally, I explain the connection between this master's thesis and my bachelor's thesis. Interpreting the connection between these two levels of research is important because I find that my past research endeavors influence my perceptions of wild product gathering and its relationship with commons theory.

My positionalities within this research project included "student", "interviewer", "researcher", "non-Norwegian" and "novice gatherer". Through a personal research diary, I reflected upon these different positionalities and identified at which stages of the research they became apparent. Often, I realized that my positionality influenced how questionnaire participants and interviewees understood my research study. Thus, they tailored their responses to fit their perceptions of the data I was interested in collecting. My positionality as a non-

Norwegian was apparent during the design and data collection phases of the online questionnaire and semi-structured interviews. In some questionnaire responses, participants would use the phrases *"I hope my answer was not too complicated"* or *"I hope this makes sense to you"*. Even though the questionnaire was written in Norwegian, this led me to believe that respondents recognized it was written by a non-Norwegian speaker as the grammar, word use, and sentence structure was not always correct. Therefore, it is quite possible that some respondents withheld certain opinions, ideas, or perceptions because they thought that as a non-Norwegian, I would not fully understand. Additionally, during some interviews, Norwegian speaking participants struggled to find the correct English words to express their feelings and viewpoints.

My positionality as an interviewer or researcher with an in-depth knowledge of the research subject only became apparent in one interview where the interviewee, Heidi, was unsure of what information she could provide for me. When this occurred, I felt the need to clarify that I was not seeking any particular answers or viewpoints, but rather I was only interested in hearing about her own perspectives and experiences. However, in all of my other interviews my positionality as a student came into play. Besides the interview with Heidi, I was regarded as a student. It was clear to other interviewees that they had in-depth knowledge of the species gathered in Norway and more knowledge about the community and specific context surrounding the practice of gathering wild products.

My positionality as a novice gatherer became apparent during the data analysis and writing stages of the research. I expect that if I had more of my own experiences with wild product gathering, the analysis would have unfolded differently as I would have a greater amount of my own subjectivities to contend with. Upon critical reflection, I view my positionality as a novice gatherer as an advantage during data collection and analysis because not only did it enable me to elicit more in-depth detail from some interviewees, it also enabled me to remain receptive of various viewpoints. However, I viewed my positionality as a novice gatherer as a disadvantage during the writing process especially when I struggled to accurately convey conflicting viewpoints related to commercial gathering and whether or not it should be regulated. I often thought that if I had more experience with gathering myself that I would have a better understanding of the experiences of other gatherers and their understandings of the impacts of commercial gathering activities.

My positionalities as a student and a researcher were also important to convey during the writing of the thesis. Mansvelt & Berg (2021) write:

> "[k]nowledge does not, according to a post-structuralist perspective, exist independently of the people who created it; knowledges are partial and geographically and temporally located. Because all knowledges are situated, how we study, understand and perceive the social world is always situated, influenced by where we are, and our subjectivity. . ." (p. 387).

Mansvelt and Berg (2021) were using the above quote to demonstrate how the academic style of writing in third person detaches the researcher from the creation of knowledge and ". . .implies that the researchers in omniscient . . ." (p. 387). Essentially, I understand this to mean that writing in the third person does not always signify the situatedness of academic research. In this thesis, I account for my own situatedness by writing in the first person where it is applicable. I have also identified my positionalities and explained my academic background which inspired the theoretical framework and research design. My goal for all of this is to convey that I am not attempting to write indisputable truth. Rather, I am writing *a truth* which, importantly, is dependent upon my situatedness and subjectivities.

Furthermore, to develop rigorous and trustworthy qualitative research, Stratford & Bradshaw (2021) suggest that researchers need to fully document their design process. This includes documenting the initial interest in the research topic, reasons for choosing to do the research, and its ultimate purpose (Stratford & Bradshaw, 2021). When I first approached my research topic, I felt unsure of its purpose and relevance within the field of natural resource management. Having previously studied environmental anthropology as a bachelor student, I was reluctant to pick a research topic relating to physical or applied aspects of human geography and natural resource management. Additionally, I did not feel that my research question and overall conceptualization of my thesis related to the courses I took during my first year as a master's student. Commons theory and literature was not a topic that was discussed within the curriculum of my program, but I viewed it as an important pillar of knowledge within natural

resource management. In the fall semester of my second year, I completed a special syllabus[7] course focused on the commons and community-based management of natural resources. My special syllabus course further inspired me to situate my research within commons literature and I began to conceptualize my research project as a way to critique the capitalist, bioeconomic, and extractive perception of nature prevalent within natural resource management.

Critiquing the influence of capitalism upon aspects of society and culture was the focus of my bachelor's thesis. I was interested in researching the ways in which people resisted the influence of consumer culture through specific lifestyle choices. I argued that lifestyle choices like voluntary simplicity (Elgin & Mitchell, 1997; Elgin, 2010; Rich et al., 2020) permaculture, homesteading, and the use of the gift economy and bartering all contributed to a discourse that resisted the influences of consumer culture. Additionally, the defining result of my bachelor's thesis resembles a core argumentation of commons theory and the privatization of choice:

> "Participants frequently stated that they have a greater awareness of the ways in which themselves and people in general have limited control over what can be considered as essential choices in life. One participant framed this concept quite well offering that there are "birthrights" that every individual is entitled to including the right to be born, the right to die, the right to clean water and air, adequate food and shelter, and the right to emotional well-being. He further stated that all these rights ". . . have been given away or stolen and we have to pay to get them back" (Cavagnaro). He stated all the ways he views these birthrights have been stolen by explaining consumer culture tells us that having children must be expensive as babies have to be born in hospitals, it tells us that we must die having left our families to deal with the expensive choices of having a funeral, it tells us that corporations have a right to pollute our water, land, and air, and it tells us that to meet all our other needs (food, shelter, emotional well-being etc.) we must seek them out through the consumption of goods and services." (Wolter, 2016 p. 25)

By practicing critical reflexivity, I further located my personal interest in this research project. This in turn helped to articulate the relevance and underlying purpose of applying commons

[7] This course consists of an individual theoretical syllabus completed in connection with a master's degree at NTNU. The syllabus for this course was developed by myself and my supervisor. The syllabus contained ~500 pages of reading.

theory to examine the practice of wild product gathering. Within natural resource management, the use of commons theory can help to facilitate a fundamental value shift. Commons theory can reframe debates within natural resource management to emphasize how resource use and management is contingent on the social, cultural, and relational value.

4.10 Chapter Summary

This chapter provided detailed information about the qualitative methodology used in this thesis. Ethical considerations were made during the design phase of the methodology. Given Norway's cultural traditions of *allemansretten* and *friluftsliv*, gathering is viewed as a popular and socially accepted outdoor activity. An online questionnaire and semi-structured interviews were used to gain further insight and data regarding the practices of wild product gathering in Norway. Designing the questionnaire and interviews required critical evaluation of the question sequencing and format. A pilot test was conducted to assess the functionality of the questionnaire, and an interview schedule was developed to structure the flow of the interviews and to ensure that relevant data was gathered to answer the research questions. Limitations concerning the lack of participant observation, convenience sampling, and social desirability were discussed. Finally, critical reflexivity was practiced to locate and explain positionality and personal interest within this research project.

5 Results

5.1 Introduction

This chapter presents the results from the questionnaire and semi-structured interviews. It begins with summarizing demographic information from the questionnaire participants. Following this, the interview participants are described. Then, sections are structured according to the different question themes within the online questionnaire. Relevant results from the semi-structured interviews are integrated into various sections and the final section details how the results demonstrate patterns of commoning within practices of wild product gathering. Throughout the results chapter, qualitative quotes from the online questionnaire are presented rather than quantitative data points. While this research study was designed to collect both qualitative and quantitative data forms, the qualitative data was more relevant for analysis than the quantitative data.

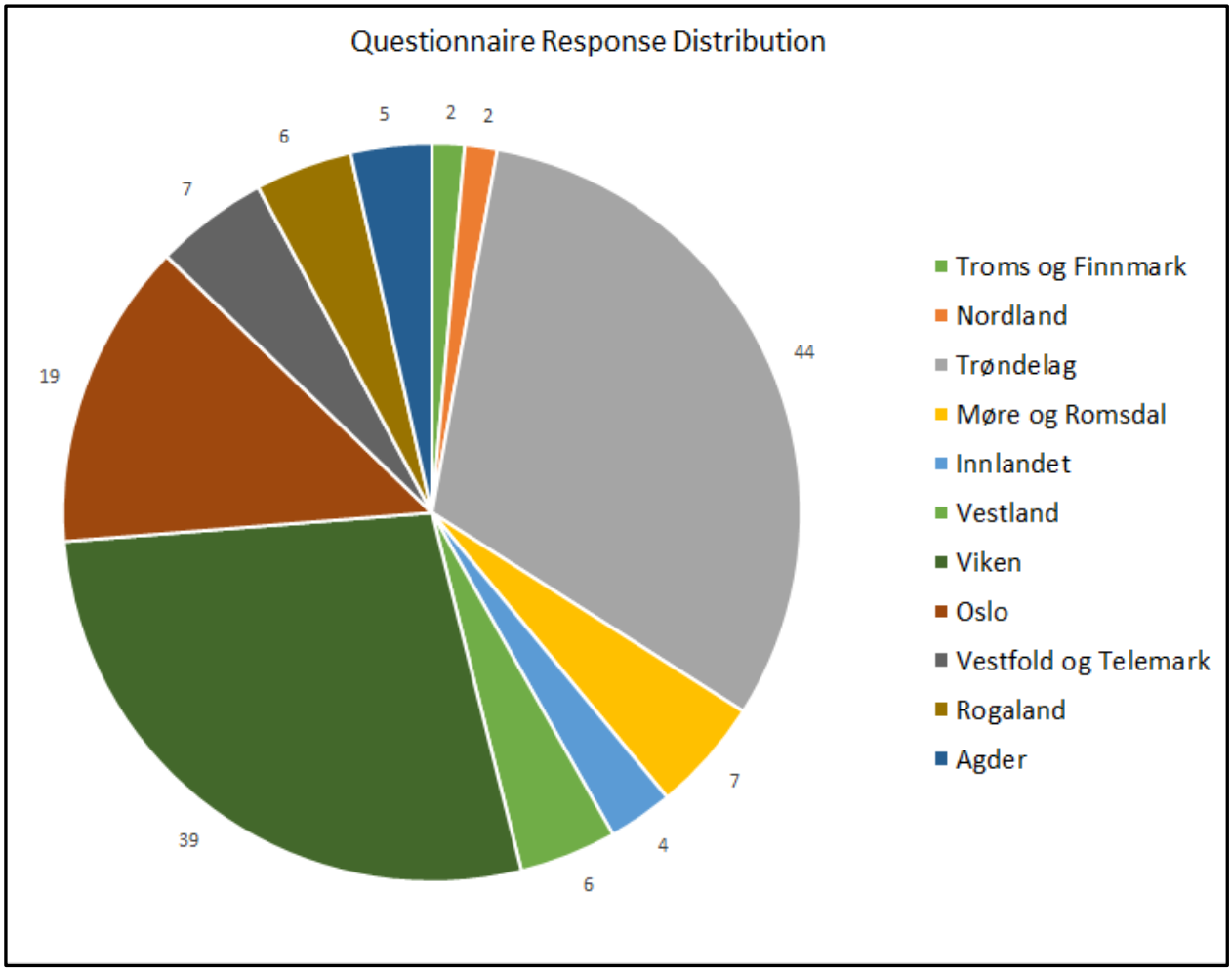
5.2 Demographic summary from questionnaire

In total, 141 questionnaire responses were collected; 134 were collected in Norwegian and 7 were collected in English. Of the 141 responses, 28 were submitted by male respondents, 109 were submitted by female respondents and 4 respondents preferred not to specify their gender. The age of respondents varied from 18-75 and older, but most respondents were within the range of 45-65 years old. Sixty-nine percent of questionnaire respondents reported being employed while 24% of respondents reported being retired. A small percentage of respondents reported being a student (3%) or unemployed/job seeking (3%). Most respondents reported being Norwegian or other Scandinavian nationalities (Swedish and Danish). There were 2 respondents from Spain and South Africa and single respondents from Germany, Italy, United Kingdom, Australia, and New Zealand. Responses were recorded from all 11 Norwegian counties.

However, the majority of questionnaire responses came from Trøndelag county. Figure 5 shows the response distribution by Norwegian county.

Figure 5

Distribution of questionnaire responses by county in Norway.



5.3 Descriptive summary from semi-structured interviews

While each interview covered the same themes and questions related to wild product gathering each interview generated different data due to the unique background and knowledge base of the interviewees. For example, Patrick had extensive knowledge of edible plant use throughout the world. He does not label himself as a gatherer as his main interest is gardening and being able to "forage" his garden. However, Patrick still collects wild species he does not cultivate in his garden like mushrooms and bilberries. Alise and Hanne spoke at length about the values associated with gathering, particularly the physical, emotional and spiritual aspects. Both Alise and Hanne had other cultural backgrounds that influenced their views and perceptions on gathering. Additionally, Alise and Hanne had experience leading gathering tours and teaching others about wild product gathering. In further contrast, Heidi's interest began with urban gathering in Oslo before moving to Trondheim. Heidi's focus with her small business is to communicate sustainability and demonstrate the diversity of plant species that can be utilized locally. Lastly, Catherine, Melissa and Charlie all had experience with NSNF either through volunteering or employment. Their interviews provided me with information about the history of the NSNF, specifics about its current operations, and social or cultural aspects of wild product gathering in Norway. All names of the interviewees have been changed for confidentiality. Below, Table 2 summarizes details from the seven semi-structured interviews and the one informal interview.

Table 2

This table contains the names of the interviewees, length of interview, and details some relevant notes.

Name of Interviewee	**Length of Interview** (In minutes)	**Notes:**
Charlie	56	Experience with NSNF; knowledgeable about gathering globally and professional/commercial gathering activity in Norway
Alise	85	Multiple cultural influences; volunteers for NSNF; certified plant and mushroom identification expert; knowledgeable about sustainability aspects of gathering
Heidi	80	Experience with urban gathering; both gathers and cultivates plants for her small business; interested in communicating sustainability and value through the diversity of local plants
Catherine	80	Volunteers for NSNF; certified mushroom identification expert; interested in the scientific knowledge base that informs topics such as sustainability and edibility of edible species
Melissa	52	Experience with NSNF; knowledgeable about cultural and social aspects of gathering in Norway
Patrick	68	Did not self-identify as a gathering; interested in forest gardening; knowledgeable about potential factors impacting the availability of wild products
Hanne	109	Volunteers for NSNF; certified plant and mushroom identification expert; land owner who has experienced negative interactions with gatherers on her property; passionate about cultural, spiritual, and well-being aspects of gathering
Kelly	45	Informal interview; experience with Norsk Botanisk Forenging; viewed gathering activities as positive, but had some concerns about the overharvesting of ramsløk

The purpose of the informal interview was to hear from someone who might provide an alternative view on wild product foraging. I was curious to know if there were any tensions or conflicts of interest between NSNF and other organizations like the Norwegian Botanical Association. I discussed this topic with Charlie. He felt that there is some tension between NSNF and other organizations with a focus on nature or biodiversity conservation, ". . . I think the threat comes more from traditional nature conservancies. They don't like our activity. They don't say anything because we are friends. And we have the same goal to preserve biodiversity, but you can see it pops up some skepticism about our activity" (Charlie, interview). During my conversation with Kelly, she did not share the same feelings. Rather, she viewed the activity of NSNF and gathering in general in a positive light. She did mention she wished there was more focus on sustainability issues especially regarding the overharvesting of ramsløk.

5.4 Foraging Beginnings

The questionnaire asked respondents to describe how they became interested in gathering wild products. For this question, there were many identifiable sources of interest that repeated throughout the questionnaire responses. Many respondents shared that their interest started when they were young as their parents or grandparents would take them for walks or hikes to collect berries and other common species of edible mushrooms and plants. Many shared that this was a common activity in their childhood, and that it is an activity they continue to do as an adult or with their own children:

> *"I was with my mother and her family from when I was a little girl mostly to pick cranberries, but also molts, wild raspberries and blueberries. All Sundays with the extended family that I remember as very cozy."* (QR22)

> *"I belong to a family with a strong foraging tradition. In addition, berry picking was an important part of the household when I grew up in the 60s and 70s."* (QR27)

> *"I started from childhood when I grew up in a village where collecting was a part of life*." (QR55)

> *"My interest comes from the family, with a grandfather who is a mushroom expert and generally a family who makes a lot of good food with nature's resources."* (QR68)

Often these experiences as children would fuel their interest as an adult and many respondents noted they sought out other forms of education through wild product gathering guides and other books as well as gathering courses and events. Additionally, other common sources of gathering interest came from the respondent's agricultural or gardening focused upbringing. For one interviewee, Alise, her mix of cultural upbringings influenced her interest in wild product gathering:

> *"I grew up on a farm and was trained to use the resources that nature gives us."* (QR14)

> *"Mushrooming in Norway feels like a natural extension of my agricultural upbringing."* (QR5)

> *"I grew up in a gardening family, and even though my grandmother had closed the nursery when I was four years old, I was still surrounded by fields, shrubs, flowers, and growing plants. Have worked with vegetables since I was a small child, and joined my father on collecting trips relatively often."* (QR131)

> *"I have like inherited two different, very different cultures. Both countries value a lot what we can source from nature . . . And from my childhood. . . it has been much more common to use natural resources directly, and to take herbs for medicine, medicinal purposes . . . as a child I grew up thinking that, or understanding nature as a resource."* (Alise, interview)

Respondents also often described that their interest in wild product gathering (particularly with mushroom gathering) became an "obsession", and that they had been "bitten by the sanke-basillen (gathering or collecting bug)". This inspired them to approach gathering as an educational pursuit, and to continually improve their species knowledge:

> *"As an adult, I have been bitten by the "sanke-basillen", it has developed over the years and I will constantly learn more and look for new species. I am self-taught, and have at least another shelf meter with manuals and encyclopedias."* (QR124)

> *"It started with a friend who showed me the basket with yellow trumpet mushrooms she had found in the forest near where I live. Then I was hooked. Self-taught. This year I am up to 28 types of mushrooms I am confident in and have eaten."* (QR100)

> *"Mushroom nerd who is constantly looking for new discoveries."* (QR27)

Lastly, one questionnaire respondent also shared how an early realization about society's negative relationship with nature inspired an interest in the collection of wild plants and fungi.

Similarly, other respondents and interviewees shared their desire to use natural resources wisely or the desire to lead an environmentally conscious lifestyle influenced their interest in wild product gathering:

> *"At the age of twelve, I learned a lot about how our society destroys nature, and it inspired me to get to know nature on my own, with the goal of being independent of the greedy structures that filter through today's society."* (QR79)

> *"Some gathering as a child of mushrooms and berries. The interest increased as an adult and mixed with environmental commitment and desire for direct proximity to nature."* (QR84)

> *"I want to live differently. I want to be in touch with myself. Learn the process because people are just going out to stores and buy stuff. They don't know how much work was behind every cheese they buy. Every vegetable they buy. They are not they have not been doing the process and I think that's why people also don't care because they haven't been a part of the process*." (Hanne, interview)

> *"I think there is a connection with the fact that I think a lot about the environment and generally throw away little food."* (QR102)

Overall, the respondents' sources of wild product gathering interest varied. Commonalities were identified in that many respondents grew up with some level of gathering activity during their childhood. While for others, they became introduced to wild product gathering as an adult and will continually try to expand their gathering knowledge. For many, wild product gathering is an educational pursuit or a means to live an environmentally conscious lifestyle.

5.5 Recreational and professional wild product gathering activities

The questionnaire asked participants to specify whether they considered themselves as recreational or professional gatherers (respondents were able to select both). All respondents (99%) identified as recreational gatherers. Respondents were also asked to report what they do with the NTFPs or wild products they collect. Almost all respondents reported collecting wild products for personal use and consumption while 5 respondents reported processing or modifying wild products to sell for profit or to give away as a gift. 33 respondents reported using wild products for art, handwork, or decoration purposes. 21 respondents reported using wild

products in other ways not specified in the questionnaire such as giving them as gifts to family and friends, taking pictures of wild products for their Instagram or other social media accounts, or contributing to species mapping efforts by registering coordinates of species or collecting species samples for DNA sequencing and other identification tests.

Additionally, 9 respondents identified as professional wild product gatherers. Of the respondents who identified as professional gatherers; 7 respondents were female and 2 respondents were male. The questionnaire then asked them to elaborate on their professional gathering activities. Respondents specified various ways that they were involved with gathering on a professional level. This included taking specialized courses in mushroom identification which certified them to participate in mushroom controls financed by the state. Similarly, respondents reported taking courses to become certified as an expert in useful or edible plant identification. Others shared they gather for a business such as Rekoringen (an online platform that connects local producers with consumers) or Trøndelag Sankeri (a wild product gathering company operating in Trøndelag county that sells wild products to restaurants and other markets), and that they privately sell to restaurants and other markets or individual buyers. Another respondent reported he contributes his knowledge of species for biodiversity projects facilitated by SABIMA (Norway's Council for Biodiversity) by mapping and registering mushroom species throughout Norway.

The questionnaire also inquired about people's perceptions of the activity of businesses and organizations that promote gathering activities. Very few respondents reported having negative perceptions or opinions. One questionnaire respondent felt that commodifying wild products through gathering businesses limits the access of the public. Comparatively, another respondent shared that the knowledge regarding how to use wild products is positive, but commodification of wild products can lead to a potential depletion of resources:

> *"Industrialization of common goods is selfish thinking that removes the common man's opportunities for gathering"* (QR51)
>
> *"Innovation in what we can use from nature is great, many new plants are being used - especially in the finer part of the restaurant industry. At the same time, it can quickly become too commercial, so there is a risk of destroying resources."* (QR27)

The majority of questionnaire respondents perceived the activities of wild product gathering businesses and organizations as being beneficial for recreation, well-being, and the creation of knowledge:

> *"Organizations that promote this and get knowledge out to more people are very positive. It makes more people use nature, and more people know what they can use, and not least what they should avoid."* (QR49)
>
> *"This is only positive because you bring the goods to the market and more people open their eyes to the possibility of collecting."* (QR52)
>
> *"For society as a whole, unconditionally positive. It's not because I think people want any significant economic effect, but because there is an incredible amount of nice and positive recreation in collecting."* (QR59)
>
> *"And that's also something different with foragers in Norway than what I've seen in the other countries is that there is much more direct contact between foragers and chefs. They discuss it. It's a community of knowledge exchange, the foragers bring new things to the chef . . . I think the new trend of foragers, they are knowledge workers, not only people who roam the woods."* (Charlie, interview)

While most gatherers in Norway are gathering wild products on a recreational basis, there is also a level of professional or commercial foraging activity. Many view this as a societal benefit, but some recognize that the commodification of wild products can have negative consequences.

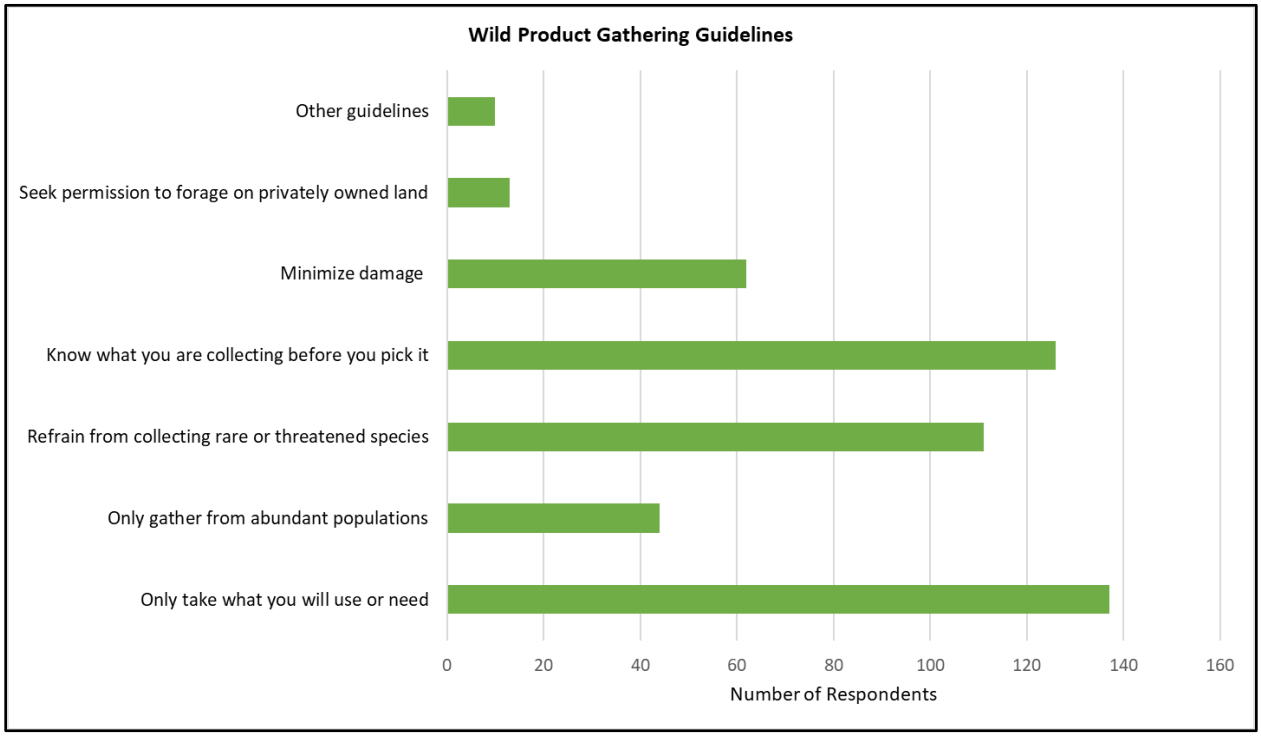
5.6 Where gathering occurs and general gathering guidelines

Gathering for wild products in Norway occurs on various land types and is not only relegated to forested areas. 87 % of questionnaire respondents reported collecting wild products on public or privately owned forest lands. 38% of questionnaire respondents reported collecting from urban green spaces such as city parks, and 72% of respondents reported gathering from rural areas such as along agricultural or fallow fields. Additionally, 7% of questionnaire respondents specified collecting from other land types such as coastal areas, beaches, and islands. Some respondents also reported not knowing whether the land they gather from is public or privately owned. Questionnaire respondents would specify this in addition to selecting other land types where they collect wild products. Furthermore, respondents reported gathering from areas and land that is easily accessible and where gathering is not prohibited.

The questionnaire asked respondents to report on guidelines or rules they generally followed while gathering wild products. This question was asked to gain insight regarding the socially accepted rules surrounding gathering in Norway. The question provided a list of six basic or 'common sense' guidelines that were adapted from a NSNF guide (Sopp og Nyttevekstforbund, n.d.). The guidelines provided in the questionnaire were 1) only take what you need or will use 2) only collect from large populations 3) refrain from collecting rare or endangered species 4) know what you are collecting before you pick it 5) minimize damage by staying on paths and 6) ask for permission to collect from a place you do not own or are not familiar with. There was also an option to add other guidelines not listed. Figure 6 shows the response percentage for each gathering guideline.

Figure 6

Commonly followed gathering guidelines. This chart shows the number of responses and percentage of responses for each guideline.



Some respondents provided further clarification on the guidelines and in some cases made distinct additions to the guidelines. Three respondents reported collecting over a large area or over an extended period of time to lessen the impact on populations they collect from. Additionally, it was common for the respondents to highlight that they often consider the impact of others who are gathering and choose not to collect in popular areas. Furthermore, one respondent shared that the gathering location often defines how a wild product is collected:

> *". . . would pick some cherries in a city park, but never drain the sap of a birch in the city or do other intrusive things"* (QR91).

It was also common for respondents to further clarify that they only pick leaves and other regenerative plant parts rather than collecting the whole plant or roots of plants. Lastly, some respondents added that they will sometimes collect species they are not familiar with in order to study them. This especially occurs with certain fungi species that are inedible or species that are similar to edible species that can cause confusion with identification.

5.7 Gathering wild products and sustainability

Sustainability was a term many respondents used or referred to in their questionnaire responses. It was common for respondents to report they gather wild products with sustainability in mind and that they perceive others are gathering in a sustainable manner as well. Sustainable gathering of wild products was often viewed as a "bottom-line":

> *"The key word is sustainable collecting. This must be a basic norm for anyone who promotes collection activities."* (QR37)

> *"It is important that all organizations, individuals think about sustainable collection when they receive attention about collection activities so as to avoid irrational collection and illegal collection in nature reserves and the like of people who do not know better"* (QR92)

Additionally, from monitoring the Facebook groups, I observed that some people do perceive some levels of wild product gathering as greedy or unsustainable. Group members often post pictures of the amounts of gathered plants or mushrooms. I made note of a post showing how one gatherer had reconfigured his pants as a basket (by tying knots in the pant legs) to collect edible mushrooms (Figure 7). This amount of collection was viewed positively as the gatherer was still able to carry the collection home himself. However, showing larger amounts of wild products

(those in which the gatherer could not physically carry themselves) would receive more negativity. Some would applaud the amount collected while others would comment with phrases like, “How will you use all of this!?” or “That is a lot for one person!”. Many of these types of comments and posts were species specific. For example, posts containing large amounts of berries and mushrooms were viewed positively; whereas posts containing certain plants species (especially ramsløk) were viewed negatively.

Figure 7

A pair of pants re-fashioned to carry a harvest of mushrooms. Photo taken by Hans Brede.

Both questionnaire respondents and interviewees acknowledged some degree of unsustainable wild product gathering occurring in Norway. Examples of this include people collecting plants in nature conservation areas and people gathering excessive amounts that are perceived as unsustainable or greedy:

> *"Too many private individuals collect in nature conservation areas. Often because they have no knowledge. But sometimes they have the knowledge, but thinks that the quantities are not so large."* (QR106)

> *"And of course, there has been a couple of incidents where people have picked, especially ramson [ramsløk] illegally in nature reserves. And for me, that's criminality it's not foraging, media likes these cases and they blow it up, to be sort of threats to nature and to our activity as such. . ."* (Charlie, interview)

> *"Because you are responsible when you're foraging. And if you don't take responsibility, when you're foraging, then you're not a forager. Then you are just doing what every other human have done in all of history. We are destroying. Then you are, are working of greed not to forage. Because if you're a forager, you're also taking responsibility. You are also going to be taking care of areas where you are foraging. If not, you're destroying. You are liquidating everything around you. And where are you going to go then? Destroying another place?"* (Hanne, interview)

Additionally, some questionnaire respondents reported that commercial gathering is leading to unsustainable activity:

> *"Commercial collection activities should definitely be regulated because those who collect commercial collection are unlimited and there are documented activities that have damaged areas where there used to be available species that are now very reduced."* (QR28)

> *"Collection for commercial use should be considered regulated as some go too far. There are cases where single collectors have been chased away by commercial collectors in forests where everyone has the right to collect."* (QR47)

On the other hand, others do perceive that gathering (including commercial gathering) as a sustainable activity:

> *"I think it's more sustainable. But I know someone has the attitude where they only collect what I should eat today. And I'm much more of getter nature, so I like to have some nice food during the wintertime as well. So, I don't think it's very common that people collect too much. I mean, you get, you get the feedback yourself when you have to be up until 3 in the morning cleaning your harvest. So, but then, of course, I only know my little part of the world, but I haven't heard that people are over foraging. Other people are discussing it, but I haven't really seen it myself."* (Catherine, interview)

> *"I think we should put it the other way and say our, our activity is sustainable, and more should do it. To sort of reverse it. It's not to, to meet the critic, with our cap in the hand and say I'm sorry we are really doing our best, we are not bad. We say come on, our activity is per definition sustainable. It makes people understand nature. It makes people understand the value of food. It makes us appreciate our modern society, and put it into relevance from old times."* (Charlie, interview)

> *"But the more I read, the more I think, the less I feel that, foraging by humans is a threat at all. I mean it's small compared to all the industrial destruction of areas and wild nature. Our activity is really building knowledge about food, about how we get our food, how difficult it is to get it. I think it's a really good way of learning to appreciate that. . . not even professional foragers, take too much of the surplus out there. It's abundant and I'm sure we take out just a few percent maximum."* (Charlie, interview)

When asked about wild product gathering and sustainability, two interviewees shared that they believe the lack of data regarding gathering activities makes it difficult to assess levels of sustainability:

> *"I know we're looking into the sustainability issue, figuring out what is right and what isn't because there's little knowledge about it. There's a lot of opinions and very little solid knowledge, if that makes sense."* (Melissa, interview)

> *"I intend to create a record of how much is being taken from places because creating this database I think is very important. So, we understand what kind of resources we have. And from then on, we can establish like guidelines for sustainability. Because right now it is so . . . wild. It is so unregulated it is so random. It is very difficult to tackle numbers to dimensionalize it. We don't have a lot of data for that. . . because right now the few foragers that I know that they do it very regular along with like daily, they are working for a commercial, commercial foraging company. And I find it really sad. First, I find it sad that this food is just going to fancy restaurants, and I find sad that it is unregulated. These people, they, they don't think sustainability. They cleverly, they try to put up a sustainability plan. They're very clever, they, they know what's coming. But from my experience, they are not sustainable at all."* (Alise, interview)

These results demonstrate that the questionnaire respondents and interviewees perceive or have experienced both sustainable and unsustainable wild product gathering activities. Many questionnaire respondents and some interviewees perceived wild product gathering as sustainable regardless of quantity or labels such as commercial and recreational. However, perceptions of unsustainable gathering activities were linked with large or excessive amounts of wild product gathering and feelings of greed. Lastly, two interviewees mentioned that assessing the sustainability of wild product gathering is a challenge because there is little documented knowledge and statistics regarding the amounts of wild products collected and the locations of collection.

5.8 Wild product gathering motivations and values

Questionnaire respondents were asked to explain their motivations or reasons for why they choose to gather wild products. The response field was left open-ended rather than using check boxes with provided answers to make sure respondents did not feel they needed to answer in a certain way. Additionally, this was done to not minimize the importance of respondents' answers by reducing or limiting their response to generalized reasons for wild product gathering. The length and specificity of answers varied greatly for this question. However, some general patterns and categories did emerge. For example, questionnaire respondent often reported being motivated to gather because they wanted to make use of nature's gifts:

> *"It is a gift to be able to use nature's resources and gives me great joy."* (QR14)
>
> *"It is important to utilize the resources nature gives us."* (QR25)
>
> *"I find it wonderfully interesting and good to use nature's gifts."* (QR73)

Additionally, when reporting their motivations for gathering most respondents chose to provide short and succinct answers like matauk (food increase), kortreist mat (short trip food), friluftsliv (outdoor life), curiosity, self-sufficiency, relaxation, and diet. Other respondents chose to respond with phrases like *"being out in nature", "because it makes me feel good", "food as medicine", "for the exciting treasure hunt feel of it", "to learn about life around me", "it is a tradition*", *"to find things that cannot be bought in a store"* and *"to preserve history and use or wild plants".* Below are a few examples of respondents who chose to elaborate more personally on their reasons for wild product gathering:

> *"As I said, I started with this because I realized that our society has moved away from nature, and I wanted to be independent of the processes that degrade it. I wanted to find out if I could survive on wild food in a sustainable way, but eventually realized that wild plants harvested in reasonable quantities only contribute vitamins and minerals and some carbohydrates."* (QR79)
>
> *"Because it's the only activity I feel is completely natural. You walk, look, look, listen, smell (sometimes you can smell that the area has what you are looking for), and you get to experience the magic that the brain adapts to the search so well that it "sees before it sees". A small detail from the side view you were not aware of, pulls at you, and suddenly dark hats on dark forest floor rise out of the obscure and become apparent. [On] berry*

> *walks you can relax with, taste along the way, experience seeing things near the ground you often do not see*." (QR58)

> *"It gives me a sense of usefulness and peace. It's a nice hobby, and the products I forage are often rare or expensive in stores. I feel good when I can serve these products in dishes for family and friends throughout the year."* (QR3)

As demonstrated by the following quote, one respondent felt it was almost silly to ask why people choose to gather wild products:

> *"Because that's how we live. Does it hold up in response? Do not fully understand the question, it is as if you are asking why I choose to go to the store, as if it (gathering wild products) were something unusual or something I have to take a stand on."* (QR103)

This quote accurately defines how most respondents felt about gathering— that is a common practice of experiencing nature and an activity people have always done and will continue to do into the future. Wild product gathering is not viewed as an unusual relic of past human societies, but as a natural extension of the Norwegian ideal of *friluftsliv* or outdoor life. Finally, there were no reports of financial profit as a motivation for wild product gathering even from the respondents who identified as professional or commercial gatherers.

Throughout the literature on wild products, researchers have identified many values associated with the practice of gathering. From the data gathered for this research project, values associated with gathering can be divided into four related categories: 1) environmental sustainability 2) education or knowledge 3) socio-cultural and 4) well-being. Wild product gathering was often described as valuable because it is a way to responsibly interact with nature by using its resources wisely and to being conscious of human impact life on the environment. Along with values of environmental sustainability, both questionnaire respondents and interviewees noted that practices of gathering allow for increased care of and respect for nature:

> *". . . the motivation for us with the storytelling event is to try to give people a much more personal relation to the plants. . . if someone who's going to develop a project like a building project; they just see it as a green area that's not built on but then if you know all of those plants, then suddenly you see, oh, this, this green area is so much more value because it has all these plants like. I feel like that's the side of it that I can contribute with the business is to, to open people's eyes to what we have right outside our door. And to see the value of it and to see that we need to we need to take care of the diversity that we have around us."* (Heidi, interview)

*"The very act of going out into nature to pick your own food provides not only a free, valuable and good raw material, but also a stronger bond to the ecosystems around us. It is easier for us to see and understand what temperatures, bees and other factors have to say for the plants we are going to pick. Thus, I believe that we get a higher respect for nature and those who may not have seen it before, can now see how worthy of protection it is." (*QR130)

"Important to understand the value of nature [and] to take care of it [because] nothing grows on asphalt. Climate and nature are one and the same thing." (QR133)

"So that is what I'm trying to teach people also because learning a plant is like learning a person. The more you know about a person, the more you love them, the more you can take care of them, the more you like them. Also, it's like that with plants, trees, nature. If you get to know the plants and everything about it, then you also consider taking care of it and then you also can learn to love it more." (Hanne, interview)

"I want people to re-learn how to be in nature. I hope that people will regain the connection to nature. . . to gain proper respect for nature you need to treat nature adequately. When I go foraging, I bring a plastic bag or two, to collect trash. So, I'm like picking things and putting them in the basket and picking garbage and putting it in a plastic bag. But someone that really forages as a practice . . . they don't throw trash in nature. And so, all this trash has been put there by people that have been estranged by nature . . . So, I see it that foraging is an activity that can develop the correct interrelationship between humans and nature. So, people that forage just once in a while, they can go and like, there's an old phone trashed there, so kanterelle they see the trash but they only pick the kanterelle up . . .Most people that forage more, they don't do that." (Alise, interview)

Related to education and knowledge, respondents valued wild product gathering because it allowed them to gain greater species knowledge and understand the relationship between fungi and the rest of the forest ecosystem. Gathering is also viewed as valuable because it can facilitate the transfer of wild plant use and general environmental knowledge between generations. Additionally, practices of wild product gathering are seen as valuable because they can educate the urban public about the abundance of local and wild food systems. More generally, respondents valued gathering because they were able to know where their food comes from and foraging allowed them to gain deeper perspective about the complex process of creating and maintain local or global food systems:

". . .the relationship between the fungal organism and the rest of the forest and the whole ecology fascinates me. This, to me, is far more important than most of what our lives are about, and I want to get a glimpse of understanding." (QR5)

"It is good if we can spread knowledge about how we can use natural resources. This is beneficial as more people gain increased knowledge, not only about what they collect but

also about other species and the interaction in nature. Through increased knowledge, one can gain increased respect for and knowledge in managing nature in a sustainable way." (QR11)

"For me, it was important to transfer knowledge to my children and their schoolmates. Knowledge can save us through war and times of crisis." (QR31)

"Educating city dwellers about the abundance of local natural food that does not need to be imported or packaged in plastic." (QR4)

"You get a better sense of what lies behind what comes on the table, even though it is far from agriculture, it says something about the complexity of nature and the interaction that makes us end up with food on the table." (QR43)

In addition to values of environmental sustainability and education/knowledge, people often attach socio-cultural values to the practice of wild product gathering. Many questionnaire respondents reported valuing gathering for the community of people built up around it. Gathering is valued as a meaningful way to spend time with family and friends and uphold cultural traditions of berry picking. In the interview with Hanne, she valued gathering as it connected with her ancestors:

". . . for me, gathering is a way to get in touch with those who were before me, feel a bond and sense of belonging to them. . . it is perhaps a more spiritual experience that is not related to religion" (Hanne, interview).

Many of the socio-cultural values assigned to wild product gathering also overlap with or related to values of overall wellbeing and health. Respondents connected gathering practices with various aspects of well-being:

"A source of intense joy in finding. Man has survived because we have such joy. I think that's why some people get completely foraging crazy, fishing crazy, hunting crazy etc. It is deeply rooted in our genes that we should like to collect . . ." (QR92)

"I see foraging as an activity that deals with the part of the brain . . . that brings some kind of reassurance, if you understand what I am saying, like . . . I don't know if they [foragers] feel like a sense of belonging, but they somehow feel at home." (Alise, interview)

"Foraging and the forests just disconnect [you] from society once in a while. It helps a lot. And I have with me people that has been so sick mentally out in the forests, and they can just smell their first mushroom. It's quite a unique experience just to say this mushroom smells just like almonds or marzipan. This one smells like flowers. And they're just, "What?!" and they're experiencing in a whole different way. And you can see they're actually getting healthier. . . I just love it to see people when they wake up. Because it's

almost like they've been just walking and running around like zombies." (Hanne, interview)

"Mainly because it triggers curiosity and the hunting instinct, so I forget time, place, space. And it has been shown to have an extremely positive impact on mental and physical health." (QR128)

Questionnaire respondents and interviewees reported a variety of motivations and values associated with wild product gathering. Many reported being motivated to gather because they wanted to make use of nature's gifts. Self-sufficiency and recreation were other common motivations for wild product foraging. Values associated with gathering were groups into four categories: environmental sustainability, education or knowledge, socio-cultural, and well-being. With the value of environmental sustainability, questionnaire respondents and interviewees highlighted that gathering increased their level of care and respect for nature. Questionnaire respondents and interviewees also valued gathering for the knowledge it creates about the connectedness of forest ecosystems and the importance of local and wild food systems. Additionally, questionnaire respondents and interviewees associated values of social community and ancestral connection with gathering. Finally, wild product gathering is valued by many for its physical and mental health benefits.

5.9 Species collected and factors impacting availability

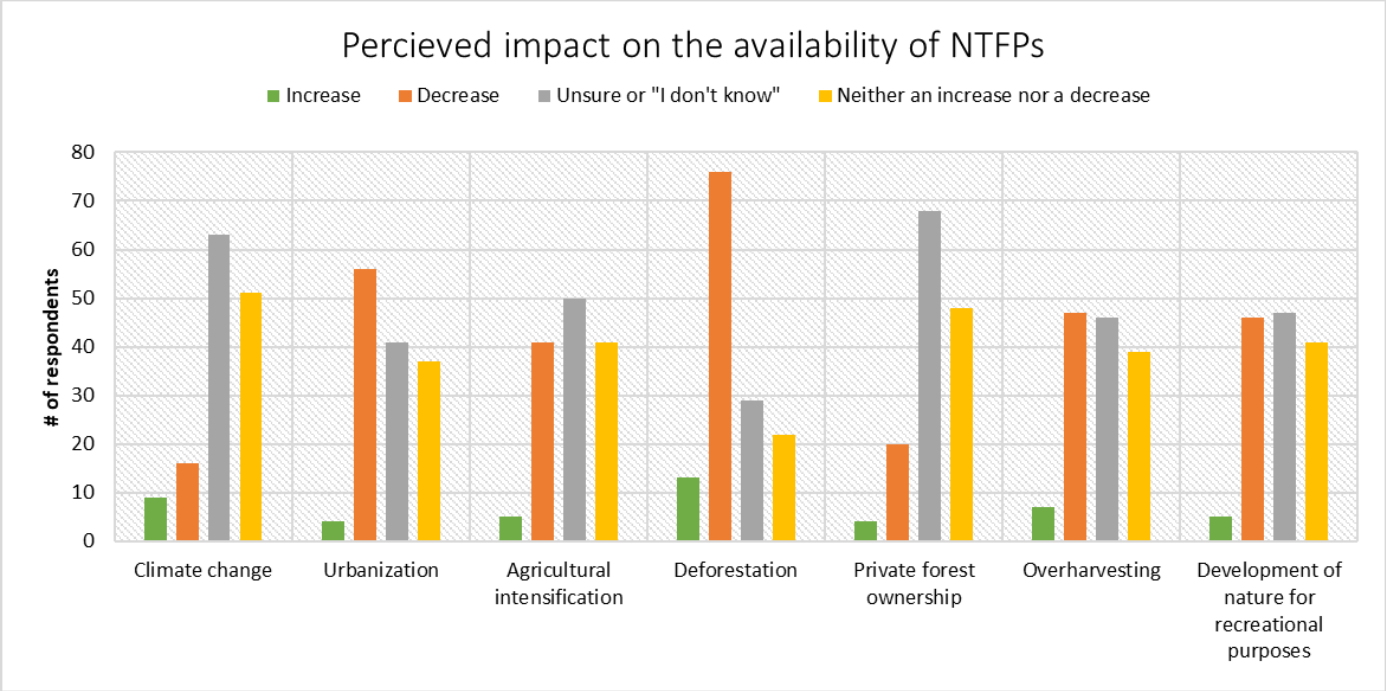
In total, questionnaire respondents reported collecting 67 different plant species and 29 different fungi species. Some respondents shared that they collected over 100 different species of plants or fungi. This indicates that the total number of species reported in the questionnaire should rather be viewed as a minimum of gathered species. The full list of reported plant and mushroom species can be viewed pages 126 and 129. Additionally, questionnaire respondents reported gathering various inedible wild products such as cones, moss, lichen, tree branches and bark, and stones.

Respondents were asked to consider if natural or anthropogenic factors were impacting the availability of wild products. Several factors were specified in the matrix question (climate change, urbanization, agricultural intensification, deforestation, private forest ownership, overharvesting, the development of nature for other recreational purposes). Figure 8 shows the

response distribution of the perceived impact of each factor. The results indicate that respondents do not strongly perceive that natural or anthropogenic factors impact the availability of wild products. This is demonstrated by the high level of “Unsure” or “I don’t know” response for each factor.

Figure 8

Questionnaire respondents' perception of the impact of natural or anthropogenic factors on the availability of NTFPs.



However, deforestation was perceived as an important factor impacting the availability of wild products. Not only was deforestation perceived as a factor contributing to a decrease in availability, but it was also perceived as a factor contributing to an increase in availability. This could potentially be explained by the fact that clearing of forested areas often allows for the proliferation of some wild products such as bilberries (Patrick, interview).

> *"If you look at a map, Google map of the area, around, around Trondheim. There's a disproportionate amount of forest has been failed in the last, last years and I wonder if it has something to do with the fact that the, the farmers are worried that the forest is going to be protected because there's a movement to get forest close to people, which is used for recreation, to be to be protected, so they may be trying to get their income before it's too late."* (Patrick, interview)

> *"At the moment, an alarming amount of forest is being lost due to high prices for wood. The areas with felling are also not planted with conifers as the forest owners believe that they lack manpower for planting. Dense scrub and deciduous forest take over the landscape and provide poor growing conditions for fungi and berries."* (QR85)

Urbanization was also perceived as factor contributing to a decrease in the availability of wild products. Additionally, respondents also reported that other factors related to urbanization, such as road development and cabin building potentially impact the availability of wild products:

> *". . . increasingly the good forest for foraging is disappearing because of our activities for the moment, the best place for traktkanterelle for us was just up on the hillside here. It's been completely decimated through the motorway being been built. It was completely felled. It was sickening to see you know this as a place that we didn't think it was on a very steep slope, didn't think there was any chance this was this was going to disappear. We went there every year it was guaranteed place to find loads of kantarell and traktkanterelle and now it's gone completely. . . I met a couple of other foragers in the spring, and I mentioned this and they said, Yeah, us too. So just an accidental meeting with a couple of other foragers, and they'd all experienced the same thing that their best place disappeared."* (Patrick, interview)

Additionally, two respondents shared that they do experience changes in the availability of species year to year, but they cannot attribute this change to any specific factor. Whereas, one participant attributed changes in availability to the natural yearly variation:

> *"I have not experienced an increase or decrease in availability, although there has been a change over the years. But I can look for new hunting grounds when the use of the landscape changes so that I do not pick in the same places as before."* (QR102)

> *"I experience major changes, but not as either an increase or a decrease due to climate change, urbanization, regulations, etc., but the amount and type of plants / fungi also varies from year to year and I do not see any clear patterns in the changes."* (QR103)

> *"Natural variation. There are clear multi-year cycles where one year you find a lot of something and the next year very little. Hard to quantify human affect without looking at a longer time scale (decades). Same is true for climate change of course."* (QR4)

Others questionnaire respondents reported that beginner gatherers, and in general, the trendiness of gathering, can also lead to overharvesting:

> *"But in the past, I did agree to do some foraging tours, I give a talk about perennial vegetables growing. And in the second day I would sort of be a weekend course or something. The second day we would go out into nature and look at some of these plants. I try to encourage people to have it knowing the story of sea kale for example, I encourage people to grow in the garden rather than harvesting in the wild because it could well become a problem here as well. With the increase in foraging, we see at the moment and it has actually disappeared from the area that I gave that course on."* (Patrick, interview)

Overharvesting and the development of nature areas for recreational purposes are perceived as decreasing the availability of wild products with the same level of intensity. However, throughout the questionnaire responses and interviews, instances of overharvesting (especially in relation to ramsløk or wild garlic ramson in English; *Allium ursinum*) were more frequently reported. In 2021, ramsløk was added to the Norwegian red list as a "near threatened" species; whereas in the 2015 and 2010 assessments it was categorized as "least concern/viable" (Solstad et al., 2021). When referring to overharvesting, many questionnaire respondents and Patrick shared that the interests of chefs gathering for their restaurants often led to overharvesting:

> *"And another incident on another course . . . they wanted me to show them ramsløk and particular confusion species. We arrived at the wood with ramsløk, somebody had been there before. It was completely [gone]. Presumably a restaurant or something I don't know. That really kind of surprised me at the time because it was only a few years into big restaurants, you know, then it becoming a kind of a very in plant to eat. And then there was this chef from Trondheim that was bragging about this having harvested huge amounts from one of the nature areas, don't think it's nature reserve but more of the areas on the other side of the fjord. . . he just showed a picture of this huge amount that he harvested and he was proud of it, you know. And I thought this area is the reason that it doesn't grow further north, is because those, you know, it's struggling as it is you know and he's, yeah, doesn't seem to understand anything about nature and he's the forager for one of the big restaurants in Trondheim. So, anyway, there were several people that reacted to that, I know*" (Patrick, interview)

The addition of ramsløk to the Norwegian red list is a somewhat controversial topic within the online gathering platforms. The red listed status of ramsløk is debated because in some areas of Norway the species is found in abundance. While in other areas of Norway (particularly the north and urban centers like Oslo) populations are significantly low in abundance. When the spring season came around in 2022 and people started to harvest ramsløk, it was common to see posts in online forums that highlighted the red listed status of ramsløk and reminded people to be conscious of their levels of collection (Sopp og Nyttevekster, 2022). In reply to one of these posts, one group member posted the following:

> *"It is now red listed because of cynical capitalists who only have earnings as a target. It is not hikers and individuals who are responsible for that harvest, but the restaurant industry and authorities that have chosen the development that Norway should be run as an enterprise in every context and with increasing capitalist pressure, they people suffer*

under increasingly worse conditions and the responsibility is repeatedly placed in the wrong place." (Sopp og Nyttevekster, 2022)

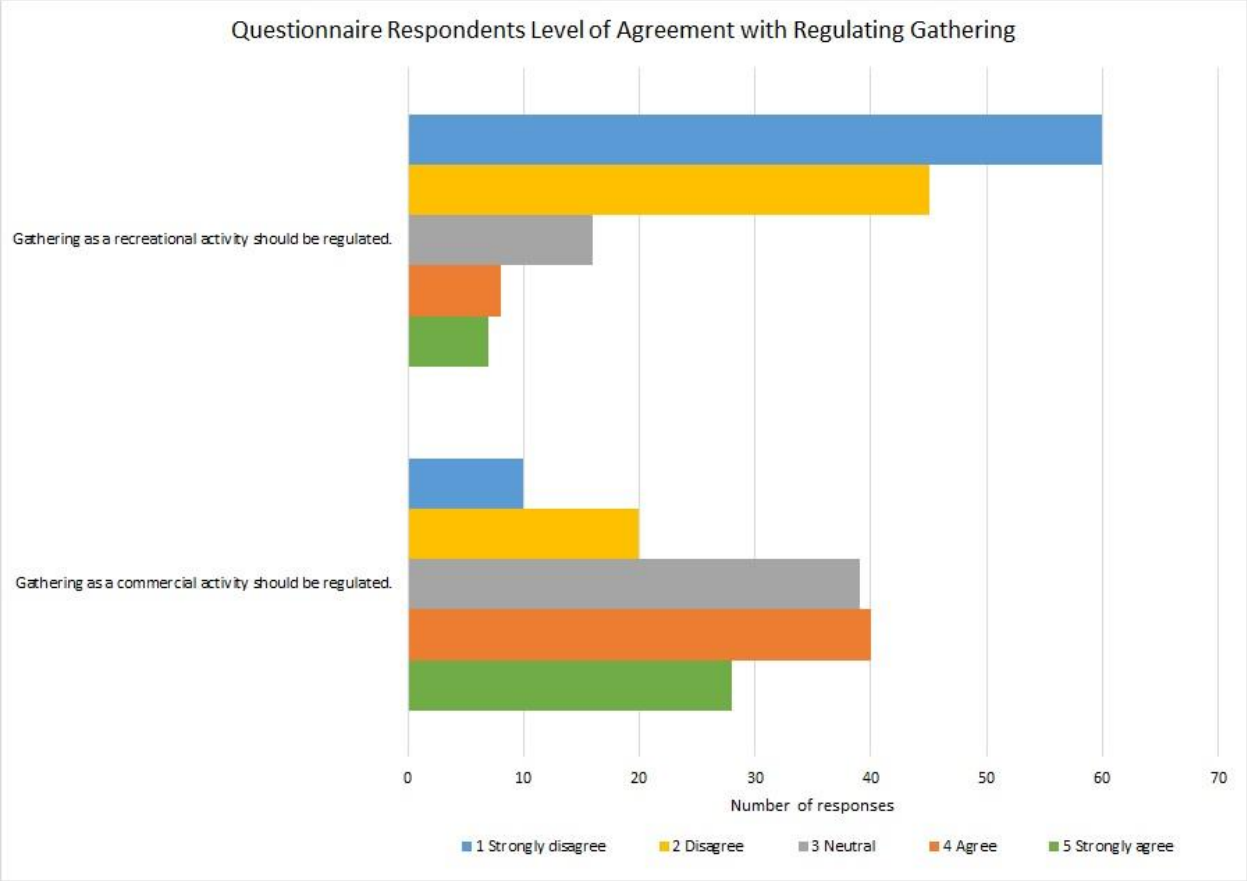
These results indicate that gatherers in Norway are aware of changes or have experienced changes in the level of availability of wild products as a result of various anthropogenic and environmental factors. Most notably, people have experienced changes in availability due deforestation and road development. Additionally, questionnaire participants and interviewees shared that commercial gathering and the trendiness of foraging has led to instances of overharvesting.

5.10 Regulation of wild product gathering activities

Towards the end of the questionnaire, respondents were asked to share their level of agreement with the following statements: 1) gathering as a commercial or economic activity should be regulated and 2) gathering as a recreational activity should be regulated. Figure 9 shows the range of agreement from questionnaire respondents regarding whether or not commercial and recreational gathering activities should be regulated. Respondents were also asked to explain their level of agreement with the two statements and to elaborate on why certain types of gathering activities should be regulated. This elicited a wide variety of opinions regarding the potentiality of regulating certain gathering activities.

Figure 9

Questionnaire respondents' level of agreement with regulating gathering activities.



For commercial gathering activities, the level of agreement was more equally distributed with most respondents choosing to strongly agree, agree or remain neutral. A neutral respondent shared the following opinion:

> *"Both agree and disagree with regulations. We have seen that ramsons have been destroyed in a few years because people are cleaning the areas. At the same time, collecting is an important part of our cultural heritage, so I do not like to make regulations there. Who should decide, and for whose benefit?"* (QR27)

While respondents who agreed or strongly agreed that commercial gathering should be regulated provided the following elaborations:

> *"Not everyone gets an equal opportunity to collect as there is nothing left. I guess that financial profit cannot possibly have a good effect on wild growth as it will be difficult not to take everything you come across."* (QR34)

> *"Commercial collecting tramples on the outdoor interests of the ordinary citizen in Norway . . . A commercial collection in Norway will not include Norwegians because they do not normally need more money. It is more important to increase fungi and interest in nature among people who live in Norway to use nature and harvest themselves. Commercialization destroys everything, and makes people lose the desire to use nature."* (QR71)

> *"Commercial collection should be regulated because it can be at the expense of the right of public access and burden the forest, among other things, by the use of tools and vehicles."* (QR62)

> *"In my opinion there's also another threat to this. There's been like some companies. And that's kind of like very recent this type of business. They are like professional foragers. They are foraging for restaurants, restaurant chains. One thing is when you go to nature and you forage for yourself, maybe friends or family members. But when you forage commercially, there's, there's no limit. You're not going to bring like it, some five kilos or whatever you find. You're going to take all you get."* (Alise, interview)

As demonstrated by the above quotes, questionnaire respondents are concerned with the fact that commercial gathering is motivated by seeking the maximum profit which often leads to areas being "cleaned out" of certain species. When referring to this this, respondents would often highlight ramsløk (ramson or wild garlic in English; *Allium ursinum*) as an example of this, citing that the restaurant industry's focus on using wild and gathered edible species have influenced commercial pickers to overharvest in certain areas throughout Norway. In the questionnaire responses, there was a consensus that gathering activities whether it is commercial or recreation should be regulated when it involves rare or threatened species. Furthermore, there was agreement among respondents that certain activities such as neverflekking (the collection of large pieces of tree bark such as birch to use as building materials), collecting sap and plant buds (any collection that could affect the health of trees or the land) should be regulated.

Of the respondents who disagreed or strongly disagreed that recreational gathering activities should be regulated, it was common for them to cite *allemansretten* and argue that it is already sufficient regulation as it influences what can be collected and where it can be collected to an extent. Questionnaire respondents shared that restricting recreational gathering activities through increased regulations would be an infringement upon *allemansretten* and thus, the establishment of further regulations would require a change in the law:

> *"No. Would in that case require a change in the law, and it is important to ensure everyone's access to renewable natural resources."* (QR61)

Additionally, one respondent who disagreed that recreational gathering should be regulated noted that regulating recreational gathering activities could create a decrease in the use of wild products and unnecessary fear of species within society:

> *"I would not regulate recreational foraging in Norway. I don't believe it has negative impact since the number of foragers per area is very small compared with other European countries. I believe regulations will also discourage new foragers and lead to an increasing reliance on imported and processed foods. There is already a problem in the way Norwegian children are taught to stay away from all and any mushrooms and berries. Kindergartens destroy a lot of wild life in the fear that young kids will swallow something bad. This attitude continues for many into adulthood."* (QR71)

Furthermore, those who disagreed that all gathering activities, commercial or recreational, should be regulated cited that there needs to be documented knowledge of unsustainable gathering activities before regulations can be suggested. Here, many of the questionnaire respondents brought up the example of ramsløk in connection with the preceding statement. While other suggested that there only needs to be better education of clarification of the right of public access or *allemansretten* in Norway:

> *"A clarification of the right of public access and what it actually entails (and does not) could, however, be useful."* (QR19)
>
> *"I think that there is no need to regulate the gathering activity to a significant degree, but there is a need for more information - as SNO now informs about ramsons now."* (QR22)
>
> *"I do not think collection in its entirety should be regulated. We have the right of public access in Norway, and if everyone who collects relates to good collection, we can continue as it is today."* (QR53)
>
> *Since most people do not know the difference between infield and outfield, it is challenging to comply with the Outdoor Activities Act. It seems to me that you need training in traffic in nature, in the same way as you have to learn to travel in traffic.* (QR69)

Quantity was a factor that influenced the respondents' level of agreement regarding the question of regulation of gathering activities. Issues of quantity were mentioned in relation to both commercial and recreational gathering activities. In relation to commercial gathering activities, two interviewees shared opinions regarding regulation:

> *"Yes to regulating commercial collection. Observed that the commercial collectors collect huge amounts."* (QR17)
>
> *"Collection beyond a quantity that can be considered reasonable for private use should be able to be regulated in press areas (and then also be able to limit how much you*

> *collect privately?), But I also consider it to be many areas in Norway where it is not necessary"* (QR6)
>
> *"It is possible that information work is not enough and that stronger measures - such as regulation - are needed in order not to destroy areas with popular plants."* (QR92)

In contrast, others reported that further regulation is not needed because they believe that most quantities of wild products are abundant in Norway:

> *"There are lots of mushrooms and berries that rot in the forest in Norway every year, so regulation of collection should not be necessary."* (QR23)
>
> *"I do not think so. Not at this stage, I mean. We don't have many for starters. It's not organized like in Sweden. I mean, in Sweden they fly in people from Asia, who sort of, you know they have like a whole big industry around it. We do not. We're not even close to that. And there is so much stuff out there. I so, I'm, I at least . . . of the opinion that there's plenty enough to go around."* (Melissa, interview)

One questionnaire respondent and Melissa shared the opinion that while regulations could be beneficial, it is more important that people behave responsibly and decently with their wild product gathering:

> *"Perhaps it would help, but the main thing is people have to be decent - regardless of whether there is a regulation in place or not."* (QR85)
>
> *"And we're going to have to see a lot of people change their behavior, and getting into this before it's going to be a problem. So, so my biggest concern is people not respecting the nature preserves which is already regulated so that's just people not doing what is already the law. (Yep.) And, and the same with protecting the trees, because that is someone's property right but that is also regulated so I'm not really sure what the regulation ought to be. (Yeah.) As of right now, the regulation we have is a right of way law is sufficient, I think, and I haven't really between those three things that are already they regulated I don't see the need."* (Melissa, interview)

These results indicate that there is a desire to protect *allemansretten* and the freedom it gives all Norwegians to utilize nature's resources to their liking. However, the increasing presence of commercial gathering activities and instances of overharvesting has led to some people to question about level of freedom granted to commercial gatherers through open access rights like *allemansretten*. Questionnaire respondents and interviewees recognize that it is more important to change the behavior of irresponsible or unsustainable gathering activities rather than enforce more regulations and restrictions.

5.11 Edibility of wild products

Edibility was an emergent topic related to wild product gathering mentioned by multiple interviewees. During their interviews, Patrick, Catherine, and Alise brought up the topic of species edibility. Patrick believed that there is a lack of documentation concerning the edibility of plant species used within restaurants:

> *". . . there are also some very suspicious things which have no documentation as far as edibility is concerned, that the restaurants that doesn't seem to be any control in Norway on that. . . For me, what is edible, that's a big question. Does it mean that you have to have done a detailed chemical analysis of that plant? So, there are no nasty chemicals in it . . . There's very, very little been done on wild plants."* (Patrick, interview)

Patrick also shared that determining the edibility of a species is important especially given the fact gathered species can become a larger portion of people's diet due to modern refrigeration and freezing:

> *"For me it's always been. . . is that if there's an ethno-botanical record, not just one time but a fairly comprehensive ethno-botanical record of that plant having been used traditionally, then for me it's edible. . . but people in the past they had a or traditionally they had a seasonal diet, and they had a much more diverse diet as well. So even if a plant was moderately poisonous, it didn't really affect them because they were eating it together or it was being diluted by a number of other things. . . the seasonality thing would mean that they would only be eating it for a short period. So, in that in that sense it didn't have any real consequence. But now we're talking now we know we can freeze it [and] it can be conserved over a long period, and could potentially become a major part of your diet. . ."* (Patrick, interview)

In a slightly different way, Catherine also spoke about the edibility of species. Catherine's comments on edibility were directed towards a contradiction she observes with how the edibility of certain species is taught within NSNF:

> *"I really am against this, that you make this scared people by, like, you have this. . . [for example] like with one of the small sour plants covering a lot in the woods. Those in the organization [NSNF] always teach that it is edible but at the same time they say, "But you shouldn't eat too much of it, and especially not if you have kidney trouble" so it is [NSNF's message is] "Oh you can eat this. It's good but oh it's [also] very dangerous for you?" I mean it's such double message [and] I think it's damaging. . . It's based on very little knowledge [and] that's where you get insecurity. Teaching it [is edible] and [then saying] it's so dangerous when they are not, I'm against this"* (Catherine, interview)

Finally, some of Alise's comments also related to species edibility. However, Alise seemed more

concerned about the fact that little is known about the chemical make-up of plants that can be used for medicinal purposes:

> *". . . the pharmaceutical industry is incredibly efficient in isolating substances and using them. And there is a good advantage of that, because when you take a tablet, you know exactly how much of that substance you're taking. That doesn't happen in nature. When you collect the plant, you don't know how much it can hold in that piece of plant you have. It can be a bit, medium or a lot. Who knows, it's like lotto. So, the pharmaceutical company has been efficient in that. But the thing is we don't understand the interaction of these substances inside the plant. So, it is a bit of a puzzle that a substance isolated can be so bad for the stomach, but in the plant itself it can use to be treated. So, there is more to herbs that we can understand, as of today. We don't comprehend the, the whole magic of herbs yet."* (Alise, interview)

Patrick is concerned that restaurant seem to be using edible species that do not have ethno-botanical records of edibility and consumption. Catherine is concerned that NSNF seems to be creating a double message about the edibility of certain plant species. Alise is concerned because she perceives that there is insufficient knowledge about the chemical make-up of edible plants used for medicinal purposes. Considered together, these examples suggest that the edibility of species is a topic of interest and concern for some wild product gatherers.

5.12 Patterns of commoning within practices of wild product gathering

In total, four patterns of commoning were identified through the results of the online questionnaire and semi-structured interviews. Patterns from only two components of the Triad of Commoning framework (social life of commoning and peer governance through commoning) were identified. Below, table 3 explains each of the patterns and connects them with related results or quotes from the questionnaire responses or interviewees. Further discussion concerning the results, patterns of commoning, and the theoretical foundations is the focus of the following chapter.

Table 3

Patterns of commoning within wild product gathering practices examined in this study. The table includes explanations of each pattern along with related results or quotes that reflect the pattern.

Pattern of commoning	Explanation (All page numbers refer to Bollier & Helfrich, 2019)	Related results and quotes
Cultivate shared purpose and value	A purpose, goal, or value created through collective reflection, the sharing of experiences, traditions, celebrations or activities (p. 73-74)	The shared purpose and value of wild product gathering is connected to traditional notions of self-sufficiency. Gathering is valuable because it allows for a deeper understanding of interdependent relationships between organisms and species.
Deepen communion with nature	A close connection or relationship with nature through direct engagement, care, reciprocity, and respect (p. 79-81)	Questionnaire respondents and interviewees perceive that wild product gathering practices of foraging allow for increased care of and respect for nature: "The very act of going out into nature to pick your own food provides not only a free, valuable and good raw material, but also a stronger bond to the ecosystems around us. . . I believe that we get a higher respect for nature and those who may not have seen it before, can now see how worthy of protection it is." (QR130) "I feel like that's the side of it that I can contribute with the business is to, to open people's eyes to what we have right outside our door. And to see the value of it and to see that we need to we need to take care of the diversity that we have around us." (Heidi, interview) "So that is what I'm trying to teach people also because learning a plant is like learning a person. The more you know about a person, the more you love them, the more you can take care of them, the more you like them. Also, it's like that with plants, trees, nature. If you get to know the plants and everything about it, then you also consider taking care of it and then you also can learn to love it more." (Hanne, interview)
Trust situated knowing	Tacit or implicit knowledge; local ecological knowledge; embodied experience including intuition, feelings, subconscious knowledge, and historical experience (p. 78-79)	Patrick's local ecological knowledge of ramsløk in the Trøndelag region and its contribution to harvesting guidelines: "There was no mention of Trøndelag so I wrote to him and said, "I think really think you should include Trøndelag because we're at the northern limit of ramsløk and here it's very sporadic probably more so than in southeast Norway. So, he agreed to that, and the final published guide also mentioned, Trøndelag as an area we should be very careful with and only pick every third plant. . ." (Patrick, interview)

Pattern of commoning	Explanation (All page numbers refer to Bollier & Helfrich, 2019)	Related results and quotes
Relationalize property	Ambiguous relationships with property; the recognition of relationality and belonging; the blending of individual and collective interests (p. 105-107)	Alise's notions of property are ambiguous and relational. She believes that wild product gathering facilitates a mindset of collective achievement rather than individual achievement: "I have it the other way around. I know of a place. I don't have a place. I barely have my home, like, okay, I have this place to live, and here it is. And I know of places (to collect wild products). And that's it." (Alise, interview) "I'm not focused on individual achievement, but collective achievement. That I think foraging can further down the line can develop in people, but not in the beginning. But let's say if someone starts foraging today and goes to courses and develops a life of foraging and activities, I think further in the life this person will start understanding this difference, different paradigm I'm talking about, and they starting value, giving value to group effort, and group achievement." (Alise, interview)

5.13 Chapter summary

This chapter presented and described the results of the online questionnaire and the semi-structured interviews. Both qualitative and quantitative results were presented, but the majority of the results stem from the qualitative responses of the questionnaire participants and interviewees. Occasionally, supplemental results generated through informal monitoring of wild product gathering Facebook groups were presented. The most relevant results (those that aid in answering the research questions) are discussed in detail in the following chapter.

6 Discussion

6.1 Introduction

In the face of ecological crisis, paying attention to human-environment interactions like wild product gathering is important because it demonstrates how affective socio-nature relations and patterns of commoning can lead to non-capitalist valuations of natural resources. This chapter discusses the results relevant for answering the main and sub research questions (p. 7). It begins with answering the sub-research questions by analyzing the results, comparing across previous literature, and incorporating reflections from the theoretical foundations covered in chapter 3 (commons theory, diverse economies, and feminist political ecology). The discussion then highlights the patterns of commoning that occur within practices of wild product gathering considered in this study. Largely, patterns of commoning are dependent upon social norms and the relationships between humans and resources. The presence of commoning patterns along with socio-affective nature relations help to answer the main research question: do practices of wild product gathering enable people's perceptions of nature to transcend a capitalist discourse and if so, what are the implications of this for the perspective of natural resource management?

6.2 Who is participating in wild product gathering and for what purposes?

Social ecology is understood as encompassing the relationship existing between people and their surrounding environment. However, for the purpose of this discussion, social ecology also refers to the social and community aspects of wild product gathering. The discussion related to the social ecology of gathering deals with the results pertaining to sub-research question 2) who is participating in wild product foraging and for what reasons?

Most people gathering wild edible products or NTFPs in Norway are doing so on a recreational level. The results of this thesis demonstrate that reasons for gathering and the values associated with gathering often correlate. For example, questionnaire participants wanting to gain a deeper understanding or connection with nature reported they value gathering wild products because it is environmentally sustainable. Furthermore, the questionnaire respondents who reported that they gathering wild products professionally or commercially also reported that they recreationally gather as well. This suggests that for some of the questionnaire participants, there is not a clear divide between what constitutes as recreational and commercial foraging. For the participants who reported gathering for both commercial and recreational purposes, the distinctions between the two levels of activity may not be as simplistic as it appears. Rather notions of commercial and recreational gathering are more complexly intertwined.

I argue that a better understanding of recreational and commercial gathering activities can be reached through the lens of relational values of wild edible products. For example, I observe that questionnaire participants who agreed commercial foraging activities should be regulated perceived the value of wild edible products as a gift of nature; as resources with intrinsic and cultural worth that warrant the responsibility of sustainable collection. In contrast, those who disagreed that commercial foraging activities should be regulated perceived the value of wild edible product as a resource open freely to all and that use — no matter the quantity or intensity— should not be restricted

Researchers studying the dynamics of wild huckleberry harvesting in Washington state (USA) also identified that commercial and recreational (Carrol et al., 2003) gathering activities are more complexly intertwined. Carrol et al. (2003) reasoned that the contested dichotomy between commercial and recreational gathering was because of "historic tensions over the real purpose of the national forests"; whether the purpose serves the national interests or the local interests (p. 339). There is a clear parallel between the results discussed in Carrol et al.'s (2003) research and the results of this study. Carrol et al., (2003) found that the tensions between gatherer groups often were clearly linked to differing perceptions of what constitutes commercial gathering activities and how these activities should be regulated. In this thesis, questionnaire respondents' opinions on regulating commercial gathering activities were also directly tied to the specifics of how gathering was conducted in relation to quantity and intensity. In short, those

who agreed that commercial gathering activities should be regulated based their agreement upon the belief that commercial gatherers harvest more than what they should by their personal standards or that they harvest in volumes that are not socially accepted or sustainable

With regards to answering who is gathering wild products, the results of this thesis demonstrate that more women than men engage in the gathering of wild products. Only 28 out of 141 questionnaire responses came from men, and of the 7 interviewees only 2 were men. When designing this research study, gender was not expected to be an important determinant for analysis. It was expected that there would be a more even distribution of responses amongst men and women. However, as there was five times more responses from women, gender appears to have a role within this discussion. The question then becomes whether this is a finding generated by sampling methods or if it is a finding that is embedded within the place-based context of Norwegian gathering practices, and thus can be explained through the use of other theories. I argue for the latter as the concept of gender proves to be a critical determinant within other bodies social science theory.

By analyzing patterns of outdoor recreational activities in Norway, researchers found that evolutionary theory could explain why women dominate gathering activities (Røskaft et al., 2004). These researchers argued that women participate in gathering activities as a byproduct of evolutionary history where hunter gatherer societies were strongly influenced by gender roles of provisioning; men being the hunters and women the gatherers. While evolutionary theory does provide an answer as to why women more so than men participate in foraging activities, such an answer is reductionist. The use of evolutionary theory is an approach better suited for the biological and natural sciences whereas the social sciences allow for attention to culture, history and observations of actual contemporary practices.

As a research paradigm, feminist political ecology (FPE) places gender at the center of analysis (Sundberg, 2017). However, in recent literature the central analysis of gender has expanded to include an overall focus on multiple levels of difference (class, age, race, culture etc.) in relation to issues of knowledge and power (Clement et al., 2019). FPE scholars have found that gender does influence relationships with nature. Women and men tend to experience nature differently and hold different knowledges regarding the relationship between nature and culture (Harcourt, 2017). The framing of the argument here is not to argue that FPE tells us that

women are more likely to have affective or stewarding relationships with nature and more-than-human beings and that men do not. Rather FPE, directs us to see that there is difference in the valuation of nature and more-than-human beings embedded within practices of wild product foraging. It is this difference in the valuation of nature is what creates and maintains the affective and ethical relationships between humans and more-than-human beings. Singh (2017) argues that by placing attention on the "affective and communicative relations among humans and more-than-humans" we can better understand practices of commoning and the relevance of "becoming a commoner" (p. 751). Looking further into the subjectivities of gender for example analyzing men's motivations for foraging against women's motivations for foraging might provide greater insight on this theme of gender and the environment. Such as focus could also add more depth to commons theory and how gendered experiences of the commons and commoning might play a role in the development or continuity of commons systems. The results of this study indicate that wild product gathering is a socially embedded practice meant not only consumptive purposes but also for environmental, recreational, knowledge, and well-being purposes. Similar to the distinction between the commons and commoning, that gathering of wild edible species is more about the practice or the activity rather than the actual product. It is through the practices of engaging with more-than-human species that affective socio-nature relations develop and that relational values associated with the environment can be articulated.

6.3 Which species are gathered, where, and what factors impact availability?

The results from the questionnaire indicate that participants reported collecting a minimum of 67 different plant species and 29 different fungi species. Previous research on wild product gatherers in Norway found that over 260 different species of plant and fungi are collected (Giraud, 2020). Even though the questionnaire yielded a low number species compared to previous research, other supplemental data suggests that gatherers are collecting a wide range of plant and fungi species. Many questionnaire respondents chose to not report all of the species they collect. Respondents mentioned they could not remember all of the species they collect or they did not want or have the time to type them all up. Some respondents would also share that they collect over 100 different species of plants and 50 different species of edible mushrooms. Additionally, respondents would report that they collect or have collected all edible mushrooms

currently on NSNF's *normlisten* (this translates to "normal list" in English); a standard list of species that functions as a guide for certified mushroom experts and as a knowledge database for the public (Sopp og Nyttevekstforbund, n.d.-a). The *normlisten* includes edible, non-edible, toxic, and very toxic fungi species (Sopp og Nyttevekstforbund, n.d.-a). Norway's Professional Mycological Council (professional mycologists, natural scientists, and toxicology experts) is responsible for the list (Sopp og Nyttevekstforbund, n.d.-a.). This supplemental data suggests that overall participants in this study are collecting more than the 67 plant and 29 fungi species reported in the questionnaire.

NSNF has also developed a compendium of edible plant species. Some questionnaire respondents reported that they collect all plant species in the compendium. NSNF's compendium only focuses on "green herbs and leaves from wild plants and trees that are mainly used for food and drink" and thus, it is not a full overview of all useful or edible plants gatherers could collect in Norway (Sopp og Nyttevekstforbund, n.d.-b). The compendium also does not include plants commonly collected berries such as *Vaccinium myrtillus* (European blueberry or bilberries). Compared with other reviews of wild product use throughout European countries, the participants within this study are collecting the same types of species. Lovric et al. (2020) surveyed 28 European countries and found that most people are collecting wild berries, mushrooms, forest nuts, medicinal or aromatic herbs and plants, and decorative natural products. The results of this study match these trends. However, mushroom collecting seems to be more popular than the collection of other plant and wild products. In the study, there were no reports of nuts being collected and only a few reports of people collecting plants for medicinal reasons.

On the level of individual fungi species Lovric et al. (2020) found that most European households are commonly collecting porcini (*Boletus edulis*) followed by chanterelles (*Cantharellus cibarius)*. These are also two of the most commonly collected edible mushroom species in Norway. However, the data suggests that gatherers in this study are collecting a more extensive range of edible fungi species. Lastly, Lovric et al. (2020) reports that many European households also collect flowers, cones, and other inedible NTFPs for decoration or handcraft purposes. While this research study also found reports of the same type of species usage, reports of "inedible species" use was common. Many reported also collecting rocks, twigs or branches, bark (particularly birch), moss, and lichens for decoration or handcraft purposes.

The questionnaire results indicated that the respondents were unsure or felt they had little knowledge about potential factors impacting the availability of wild products. However, questionnaire respondents and interviewees also shared stories and experiences where they noticed the impact of roadbuilding and overharvesting on the availability of certain species. Additionally, some perceived that deforestation is occurring at an increased rate in Norway which could impact the availability of wild product. While others have experienced that commercial gathering activities and the trendiness of recreational gathering have led to instances of overharvesting. Conclusively, participants in this study are noticing that land use change is impacting the availability of wild products.

Support for this result can also be found within recent academic literature. Schunko et al. (2022) found that frequently perceived drivers of decreased abundance within wild plant and mushroom species was due to land use change facilitated through agriculture, forestry and infrastructure development in addition to the exploitation of certain species. Similarly, in Nepal people are experiencing that land use change due to agriculture, forestry, overgrazing and invasive species are responsible for a decline in wild plant and mushroom species (Bélanger & Pilling, 2019). The results of this study found that only a few questionnaire respondents and one interviewee, Alise, attributed changes in availability of wild products due to agriculture. In regards to the impact of overgrazing, the results of this study found the opposite as some questionnaire respondents shared that they perceive a decrease in availability of wild products due to a lack of grazing animals. Such an effect has also been studied in ecological conservation literature as it is widely accepted that the density of herbivores significant impacts plant species distribution patterns (Speed & Austrheim, 2017).

The results indicate that questionnaire participants more strongly attributed changes in availability of wild products to deforestation, road development, and overharvesting. Furthermore, Schunko et al. (2022) found that pollution and climate change were perceived as factors impacting the availability of wild edible plants and mushrooms. Other than respondents sharing that they experienced lots trash in the areas in which they gather, this study did not find any strong evidence of pollution impacting the availability of wild products. This was also the case for climate change. Research has demonstrated that climate change is increasingly affecting the distribution, abundance, and phenology of wild edible plant species (Brown et al., 2021;

Lynn et al., 2014). However, in this study very few questionnaire participants reported that they perceive climate change as having an impact. Most reported that they were unsure or did not know if climate change was impacting the availability of wild products.

In summary, determining impacts on availability and unsustainable levels of collection prove difficult. This is because individuals' perceptions concerning unsustainable levels of collection are wrapped up in subjective feelings of greed and other emotions, but also because people perceive there is a lack of data to base claims in. Additionally, other factors such as pollution and climate change may confound any relationships between overharvesting and wild product availability, even if gatherers themselves do not recognize their impact. More targeted research comparing heavily gathered sites with relatively unpicked locations could begin to untangle these connections.

6.4 Do practices of wild product gathering demonstrate patterns of commoning?

In this section of the discussion, I highlight how the results of this study demonstrate patterns of commoning within practices of wild product gathering. The Triad of Commoning framework, which seeks to explain relationships among humans and their environment or resources within commons systems, is split into three parts 1) the social life of commoning 2) peer governance through commoning, and 3) provisioning through commoning (Bollier & Helfrich, 2019). Within the social life of commoning, I observe two patterns occurring: 1) cultivate shared purpose and value and 2) deepen communion with nature. I also observe three patterns relating to peer governance: 1) create semi-permeable membranes 2) relationalize property and 3) trust situated knowing. In the following sections, these patterns are discussed in relation to the results and theoretical foundations.

Cultivate shared purpose and value

Bollier and Helfrich (2019) write that "[s]hared purpose and values are the lifeblood of any commons, and without a shared purpose or value a commons loses coherence (p. 72). The motivations of questionnaire respondents and the values they assign to gathering, suggest that a

pattern of shared purpose and value for wild product gathering is being cultivated. While the results unravel a range of motivations for gathering, most who are motivated to gather perceive its shared purpose to be about traditional notions of self-sufficiency by utilizing the "gift of nature's resources". Naturally, these ideas about the shared purpose and value of wild product gathering reflect the concept of "nature's contributions to people" (NCP) (Diaz et al., 2018). NCP has emerged within the last few years to replace to framework of ecosystem services which situates the environment and natural resources as a series of products, services or commodities. More so than the ecosystem serviced framework, NCP recognizes that the relational values of nature need to be incorporated into scientific knowledge and decision-making processes for the conservation of biodiversity and ethical management of natural resources (Diaz et al., 2018; Ellis et al., 2019; O'Brien et al., 2022).

Many questionnaire respondents reported that their motivations for foraging lie within a desire to collect free food and have access to products that could not be bought in a store or other markets. Similarly, there was also a range of material and immaterial values assigned to gathering. However, many questionnaire respondents reported they valued gathering because it allowed them to gain a deeper understanding of the multiple ecological relationships between organisms within an ecosystem. This in turn resulted in more respect for nature amongst foragers. Establishing a shared purpose and value is an important pattern to identify within a commons system as it helps to support and strengthen social relations between humans and more-than-human subjects (Bollier and Helfrich, 2019).

Deepen communion with nature

Another pattern of commoning that overlaps with the discussion on shared purpose and value is "deepen communion with nature" (Bollier & Helfrich, 2019 p. 79). This pattern was identified through the emergent findings of care and respect within wild product gathering practices. Deepening communion with nature means to "engage directly with nature" and "develop relationships of respect and understanding for the Earth as an elegant, sacred, living system" (Bollier & Helfrich, 2019 p. 80). I observe this pattern occurring not only within questionnaire responses relating to the value of foraging, but also among the interviews with Hanne, Heidi, and Alise. Throughout her interview, Hanne often spoke about her intention to

demonstrate that learning about nature through gathering was like learning a person; the more you know, the more you can learn to love and care for it. For Heidi, a motivation for her was to help people gain a personal relationship with plants and a better understanding of the value of nature. And for Alise, she hoped that through foraging practices, people could "re-learn how to be in nature" in order to gain respect for it and treat it adequately (Alise, interview). All of these examples demonstrate how individuals are engaging directly with nature and fostering relationships of care and respect. Additionally, these examples can be compared to what Singh (2017) calls affective socio-nature relations. Singh (2017) argues that affective socio-nature relations can be used as an analytical lens through which to view the value and relevance of commoning activities.

Create semi-permeable membranes

Moving on to the second component in the Triad of Commoning framework, Bollier and Helfrich (2019) theorize that peer governance withing a commons system relies upon social norms and informal rules. Thus, highlighting the social norms and informal rules is important for the dynamics of a commons system as they are a source of stability and can act as an impetus for the establishment of larger systems of peer governance (Bollier and Helfrich, 2019). The results suggests that social norms associated with practices of wild product gathering do contribute to a level of peer governance. Social norms can be theorized as what Bollier and Helfrich (2019) label as semi-permeable membranes that ". . . prevent markets from colonizing and destroying it [a commons]" (p. 93). I argue that *allemansretten* is a social norm utilized by gathers to protect against unwanted gathering activities. The results of this thesis demonstrates that the social norm of *allemansretten* determines where it is acceptable to gather wild products, and in some respects, it also determines what is an acceptable volume of gathered wild products. Questionnaire respondents reported that the high volume of collection by gatherers looking to sell wild products was an infringement upon *allemansretten.*

However, there were also other respondents who perceived that restricting commercial gathering could also be seen as an infringement upon *allemansretten*. The ambiguous and contradictory effect of *allemansretten* governing differing levels of gathering activity is beneficial as it supports individuals' rights to gather recreationally for their own use. This effect

can also be viewed negatively as it also can allow for individuals, groups of individuals or companies and businesses to gather without limits for commercial sale. This is what some questionnaire respondents were concerned about; that commercial gathering infringes upon recreational gatherers' *allemansretten* as it limits the access to and availability of wild products.

The efficiency or usability of *allemansretten* as a "semi-permeable membrane" could be improved through better communication between commercial and recreational gatherers regarding their gathering sites. Some gathering sites such as those located within close proximity to populated areas or sites within lands reserved for recreational purposes could be "off-limits" for commercial gathering activities. Providing some additional boundaries to demarcate between commercial and recreational gathering sites could keep everyone's *allemansretten* intact. However, practical strategies and solutions will face additional challenges as the line between commercial and recreational gathering activities is often blurred (Carroll et al., 2003; Dyke & Emery, 2010). However, the results indicate that there is a need to clarify what *allemansretten* entails especially in respect towards commercial activities of wild product gathering that operate under the guise of *allemansretten*, and may be causing harm to the environment and species biodiversity.

Relationalize property

The relationalize property pattern recognizes that property is ambiguous (Bollier & Helfrich, 2019). In a commons system, it is understood that the resource being commoned does not belong to any particular individual or group of individuals nor does it locate ownership temporally (Bollier & Helfrich, 2019). The social norm of *allemansretten* does help to relationalize concepts of property and access within Norwegian nature. However, *allemansretten* has not contributed to a culture where everyone views their relationship with property or ownership of natural resources as relational. It is common to hear someone claim that they have or "own" a site for gathering mushrooms or other wild products, and people often express anger or frustration when someone else gathers from their gathering site. Additionally, the occasional conflict over cloudberry picking rights occurs in the Finnmark region (Vik, 2021). Alise shared she often feels annoyed by these conflicts because she views her ownership over wild products as ambiguous or relational. She does not "have" sites where she gathers, but only "knows" of

places to gather. The relationalize property pattern also recognizes that individual interests should be more blended with collective interests. Blending collective and individual interests was a theme that came up during Alise's interview. When discussing what was the purpose of wild product gathering, Alise shared the perspective that gathering can develop a collective mindset of achievement over individualistic achievement. These small distinctions reflect that Alise is relationalizing notions of property and ownership.

Trust situated knowing

The commoning pattern of "trust situated knowing" deals with tacit knowledge or information and experiences that can be considered as local ecological knowledge (LEK). The results suggest that individuals' experience with and knowledge of ramsløk (*Allium ursinum*) is an example of trusting situated knowing. Ramsløk was added to the Norwegian red list as a near threatened species in 2021 (Solstad et al., 2021). This change in red listed status from "least concern/viable" to "near threatened" [8] has led some within the gathering community to question the knowledge base and scientific reasoning for the red listing of ramsløk and what the status of "near threatened" means for wild product gatherers in Norway (Karlsen, 2022).

Previously, there was a list of guidelines titled *Ramsløk Vet Regular* circulating around online gathering forums that encouraged responsible gathering of ramsløk; especially in certain areas of Norway where the population is considered to be in decline (Patrick, interview). Patrick shared that when he first encountered these guidelines, the Trøndelag area was not mentioned as an area of concern. Patrick knew that the Trøndelag area is the northern limit for ramsløk and that populations of it occur sporadically throughout the region. He wrote to the author of the list and suggested that Trøndelag should be mentioned as an area where people should be careful with their levels of harvesting. The author agreed to this, and in the final publication of the guidelines it cautioned to harvest with care in the Trøndelag region. This example serves to demonstrate the importance of LEK and how more attention should be given to the agency of

[8] The Norwegian red list uses 9 categories: regionally extinct (RE), critically threatened (CR), endangered (EN), vulnerable (VU), near threatened (NT), data deficient (DD), least concern or viable/vigorous (LC), not applicable (NA), not evaluated (NE) (Artsdatabanken, 2021). When a lack of data is established, the possible categories can include everything from NT to LC (Artsdatabanken, 2021). For species to be categorized as RE, there has to be little doubt that the species is extinct in Norway (Artsdatabanken, 2021).

LEK and other forms of experiential or situated knowledge alongside of scientific and biological bodies of knowledge.

Lending a FPE perspective to this discussion demonstrates that implicit value judgements do influence processes of scientific reasoning (Clement et al., 2019; Łapniewska, 2016). In this scenario, the value judgement of conserving and protecting biodiversity has led to ramsløk being categorized as near threatened. Karlsen (2022) writes that this "knife edge" decision could have easily gone the other way, and ramsløk could have been categorized as data deficient (p. 39). Yet, a committee of vascular plant experts including employees at natural history museums, universities, and research institutes (Artsdatabanken, 2021) decided to categorize ramsløk as near threatened. So, the question begs to be asked; what was the underlying value judgement for categorizing ramsløk as near threatened? While the near threatened status of ramsløk does not mean that it is a regionally or nationally protected species that cannot be gathered, if ramsløk continues to trend towards vulnerable, endangered, critically endangered, or regionally extinct, more restrictive gathering policies and regulations could be imposed. For wild product gatherers this would not only mean a loss of biodiversity, but a loss of cultural and social value as well as a loss of resource access and beneficial resource use. Categorizing ramsløk as near threatened has not been universally accepted by wild product gatherers in Norway because some have LEK or situated knowledge of abundant (sometimes even invasive) populations of ramsløk (Karlsen, 2022).

Furthermore, the expert's summary calls out unsustainable gathering practices in the Oslo fjord region as a reason for categorizing ramsløk as near threatened (Solstad et al., 2021). The expert's summary also suggests that ramsløk could be vulnerable to unsustainable or intensive gathering in other areas of Norway where ramsløk populations are in better conditions (such as Vestlandet) due to its trendiness as a wild food plant (Solstad et al., 2021). These suggestions reflect poorly on the activity of wild product gatherers especially since previous research and the situated knowledges of gatherers documents that wild product gathering in Norway is occurring at a sustainable level (Giraud, 2020; Karlsen, 2022; Charlie, interview; Catherine, interview; Heidi, interview). Conclusively, the situated knowledges of wild product gatherers in Norway could be better incorporated within decision-making processes such as re-evaluating the status of red listed species. Doing so would prevent implicit value judgements that prioritize biodiversity

preservation from overshadowing the importance of social, cultural, or relational values of wild product use.

Some final reflections on wild product gathering and patterns of commoning

The results indicate that patterns of commoning are inherently or sub-consciously developing from the practices of wild product gatherers in this study. However, some patterns of commoning were identified while others were not identified. For example, the results did not suggest that any patterns related to the third component of the Triad of Commoning, provisioning through commoning, were present. Further research on examining gathering practices with a focus on identifying patterns of commoning is needed to determine how more patterns can develop. For example, a research focus could be placed on the activity of commercial wild product gathering. This could lead to further insights regarding commoning patterns of peer governance and provisioning.

Research suggests that practices of commoning do contain non-commoning aspects (Bollier & Helfrich, 2019; Euler, 2018). A key point that Bollier & Helfrich (2019) emphasize is that all commons and commoning activity will face the pressures of capitalism and the market economy. In an attempt to mitigate this pressure, the "commons" and "commerce" should be kept separate and distinct. It is true that some gathering activities and the use of wild products have become commodified which has led to negative environmental and social consequences (Barron, 2015). Even so, non-commodified wild product use occurs most frequently albeit with less volume of wild products (Barron, 2015; Barron & Emery, 2009; Emery, 1998; Emery et al., 2006; Robbins et al., 2008). A commons operating amongst structures of capitalism will always have undeveloped patterns and contradictions. However, identifying patterns of commoning and figuring out how commons actually develop and persist sheds light on the relationality of human-environment interactions. Thus, it enables a consideration of the relational values that ultimately inform and influence ethical interactions with the environment and natural resources.

6.5 Wild product gathering and a transcendence of a capitalist nature discourse?

The discussion thus far demonstrates how practices of wild product gathering facilitate multilayered interactions between humans and more-than-humans. These interactions are guided by relational values of nature and affective socio-nature relationships that contribute to sustainable wild product use and a wealth of situated ecological knowledges and experiences. The discussion also demonstrated that patterns of commoning are inherently occurring within practices of wild product gathering in this study. Additional patterns of commoning could be identified with further research that encompasses a more extensive range of gatherers, gathering activities, and situated knowledges.

Turning now to the main research question, I argue that practices of wild product gathering do enable people's perceptions of nature and natural resources to transcend a capitalist discourse. Specifically, this transcendence is facilitated through affective socio-nature relations inherent within wild product gathering. Socio-nature relations cultivate care and respect for the environment along with non-capitalist valuations of natural resources. Patterns of commoning also help to transcend a capitalist discourse of the environment and natural resources. By cultivating a shared purpose and value, wild product gatherers in this study are assigning more than economic value to natural resources and the environment. By deepening communion with nature, they are fostering affective socio-nature relations that enable ethical interactions with the environment and natural resources. Through semi-permeable membranes like *allemansretten*, social systems of peer governance are created that support the sustainability of wild product gathering. Furthermore, by trusting the situated knowledge and experience of wild product gatherers, the implicit value judgements within scientific reasonings (such as red listing wild product species) can be critiqued. This prevents implicit value judgments that prioritize SEK and biodiversity preservation from overshadowing the importance of social, cultural, and other relational values associated with the gathering of wild products.

6.6 Chapter summary

This thesis is focused on documenting the relationship between humans and other species of the non-human world; particularly wild products or NTFPs. The results of this study suggest

that a variety of edible and inedible wild products are gathered on public and private land and across multiple land types. People of all ages participated in wild product gathering. However, in this study the majority of participants were women, and most participants were between the age of 45-65. Individuals are gathering wild products mostly for recreation, but some gather for commercial sale. Childhood upbringings that included the influence of gathering or gardening motivates gathering activity. Other motivations were the desire to increase species and other ecological knowledge and a desire to lead an environmentally conscious lifestyle. Wild product gathering is a socially embedded practice that allows for the articulations of environmental sustainability along LEK, socio-cultural, and well-being activities. In general, wild product gathering is perceived as a sustainable practice. However, the results of this study suggest people are concerned that the increase in commercial gathering and the trendiness of gathering can lead to overharvesting. The ambiguousness of social norms like allemansretten and the lack of data documenting unsustainable activity will make regulating gathering difficult. Questionnaire participants and interviewees in this study perceived that deforestation, urbanization, and overharvesting impact the availability of wild products. Determining impacts on availability of wild products and unsustainable levels of collection prove difficult because of subjective feelings of greed and a lack of data to support claims of unsustainable activity.

Patterns of commoning are inherently occurring within practices of wild product gatherers participating in this study. However, more research is needed to identify additional patterns of commoning. Both the presence of affective socio-nature relations and commoning patterns enable peoples' perceptions of nature and natural resources to transcend a capitalist discourse of nature management. This transcendence ultimately can aid a fundamental value shift within natural resource management. This value shift de-centers framings of the environment and opens up space for relational values of nature to facilitate ethical interactions between humans and more-than-humans.

7 Conclusion

This thesis explored human-environment interactions through the practice of wild product gathering. By engaging in wild product gathering people are interacting more ethically and mindfully towards the use and consumption of nature's resources. This thesis was also interested in exploring the role of commoning within wild product gathering. Patterns of commoning were identified; the strongest ones being "shared purpose and value" and "deepening communion with nature" and "trust situated knowing" (Bollier & Helfrich, 2019). Further research on examining gathering practices with a focus on identifying patterns of commoning is needed to determine how more patterns can develop. For example, a research focus could be placed on the activity of commercial wild product gathering which could lead to further insights regarding commoning patterns of peer governance and provisioning. Additionally, compiling yearly data documenting the locations and volumes of gathered wild products could help to determine if commercial or recreational gathering activities are approaching unsustainable levels.

In June of this year, my husband and I went on a weekend hiking trip. When we arrived at our destination in Vinjeøra, we tended to our blistered and sore feet in a parking area just off the main road. A woman noticed us and walked over to ask if we knew about the plant called *groblad* in Norwegian; broadleaf plantain in English (*Plantago major*). She had noticed the state of our feet and wanted to share that we could apply the plant to help heal our feet. She told us it could probably be found nearby and went off to search for it. She returned five minutes later with a handful of *groblad* and explained to us that she goes out to collect these leaves every spring and summer and stores them in her fridge to use in place of band aids for small cuts, scratches, and blisters. She explained to use that her grandmother had taught her to use each side of the plant for specific purposes; the smooth side of the leaf for pain relief and the venation side of the leaf for soothing or healing purposes.

I was both pleasantly surprised by this occurrence and also slightly annoyed that my research project decided to make an appearance during my weekend vacation. However, this encounter did drive home some key reflections related to this research project: that the practice of gathering wild products is a ubiquitous and socially embedded practice that allows for a deep connection with and understanding of the environment and more-than-human species. Wild product gathering is a practice that builds and fosters situated ecological knowledge. Finally,

wild product gathering is inherently centered on notion of care for the environment and other humans. The practice of gathering wild products and the situated ecological knowledge that surrounds it must be continued to be shared across generations. Not only because it can facilitate more respect for and closer relationships with nature, but because it can influence a valuation of the relational values of natural resources, and it can act as a starting point for the development of commoning activities which can support the management of wild products.

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Appendix 1

Assessment date

05.05.2021

Reference number
752579

Project title
NTFP Gathering in the Trøndelag Region: A Contemporary Environmental History

Data controller (institution responsible for the project)
Norges teknisk-naturvitenskapelige universitet / Fakultet for samfunns- og utdanningsvitenskap (SU) / Institutt for geografi

Project period
01.05.2021 - 01.05.2022

Notification Form

Date
05.05.2021

Type
Standard

Comment
Our assessment is that the processing of personal data in this project will comply with data protection legislation, so long as it is carried out in accordance with what is documented in the Notification Form and attachments, dated 05.05.21, as well as in correspondence with NSD. Everything is in place for the processing to begin.

TYPE OF DATA AND DURATION

The project will be processing general categories of personal data until 01.05.2022.

LEGAL BASIS

The project will gain consent from data subjects to process their personal data. We find that consent will meet the necessary requirements under art. 4 (11) and 7, in that it will

be a freely given, specific, informed and unambiguous statement or action, which will be documented and can be withdrawn. The legal basis for processing general categories of personal data is therefore consent given by the data subject, cf. the General Data Protection Regulation art. 6.1 a).

PRINCIPLES RELATING TO PROCESSING PERSONAL DATA

NSD finds that the planned processing of personal data will be in accordance with the principles under the General Data Protection Regulation regarding:

- lawfulness, fairness and transparency (art. 5.1 a), in that data subjects will receive sufficient information about the processing and will give their consent

- purpose limitation (art. 5.1 b), in that personal data will be collected for specified, explicit and legitimate purposes, and will not be processed for new, incompatible purposes

- data minimisation (art. 5.1 c), in that only personal data which are adequate, relevant and necessary for the purpose of the project will be processed

- storage limitation (art. 5.1 e), in that personal data will not be stored for longer than is necessary to fulfil the project's purpose

THE RIGHTS OF DATA SUBJECTS

NSD finds that the information that will be given to data subjects about the processing of their personal data will meet the legal requirements for form and content, cf. art. 12.1 and art. 13. Data subjects will have the following rights in this project: access (art. 15), rectification (art. 16), erasure (art. 17), restriction of processing (art. 18), data portability (art. 20). These rights apply so long as the data subject can be identified in the collected data. We remind you that if a data subject contacts you about their rights, the data controller has a duty to reply within a month.

FOLLOW YOUR INSTITUTION'S GUIDELINES

NSD presupposes that the project will meet the requirements of accuracy (art. 5.1 d), integrity and confidentiality (art. 5.1 f) and security (art. 32) when processing personal data. Nettskjema is a data processor for the project. NSD presupposes that the processing of personal data by a data processor meets the requirements under the General Data Protection Regulation arts. 28 and 29. To ensure that these requirements

are met you must follow your institution's internal guidelines and/or consult with your institution (i.e. the institution responsible for the project).

NOTIFY CHANGES

If you intend to make changes to the processing of personal data in this project it may be necessary to notify NSD. This is done by updating the information registered in the Notification Form. On our website we explain which changes must be notified. Wait until you receive an answer from us before you carry out the changes.

FOLLOW-UP OF THE PROJECT

NSD will follow up the progress of the project at the planned end date in order to determine whether the processing of personal data has been concluded. Good luck with the project!

Contact person at NSD: Line Raknes Hjellvik

Appendix 2

Information and Consent Form

Foraging in Norway: A Contemporary Environmental History

The main purpose of this project is to research people's practices of wild edible plant or forest product foraging. In this letter we will give you information about the purpose of the project and what your participation will involve.

Purpose of the project

The purpose of this master's thesis project is to research peoples' personal foraging practices. The researcher is interested in learning which wild edible plants and forest products people are foraging for and where they are foraging. In addition, this research also seeks to understand motivations for foraging while also gathering insights regarding the sustainability of foraging practices.

Research Objectives:

1. To identify the most commonly gathered NTFPs including where they are gathered (on what types of land) and for what purposes they are being gathered.
2. To investigate the network of actors that are co-creating value through their practices of NTFP foraging.
3. To document the local ecological knowledge surrounding foraging practices in Norway.

Who is responsible for the research project?

Norwegian University of Science and Technology is the institution responsible for the project.

Katie Sorenson	Student Researcher	katies@stud.ntnu.no
Elizabeth Barron	Supervisor	elizabeth.barron@ntnu.no

What does participation involve for you?

Participation in this study includes an online questionnaire (approx. 25 minutes) or an interview (approx. 50-60 minutes). Both the questionnaire and the interview will include questions pertaining to foraging practices as well as perceptions of sustainability relating to foraging. Your answers to the questionnaire will be recorded electronically and stored in a secure database (Nettskjema). If you choose to participate in an interview, your conversations with the researcher will be recorded for transcription purposes. The participant may choose to only participate in the questionnaire or only participate in an interview or to participate in both.

Participation is voluntary

Participation in the project is voluntary. If you chose to participate, you can withdraw your consent at any time without giving a reason. All information about you will then be made anonymous. There will be no negative consequences for you if you chose not to participate or later decide to withdraw.

Your personal privacy – how we will store and use your personal data?

We will only use your personal data for the purpose(s) specified in this information letter. We will process your personal data confidentially and in accordance with data protection legislation (the General Data Protection Regulation and Personal Data Act). Only the student researcher and supervisor will have access to your personal data. Participants will not be recognizable in publications as all collected data will be anonymized.

What will happen to your personal data at the end of the research project?

The project is scheduled to end May 1st, 2022. At the end of the project all personal data including any interview recordings and questionnaire responses will be deleted.

Your rights

So long as you can be identified in the collected data, you have the right to:

- access the personal data that is being processed about you
- request that your personal data is deleted
- request that incorrect personal data about you is corrected/rectified
- receive a copy of your personal data (data portability), and
- send a complaint to the Data Protection Officer or The Norwegian Data Protection Authority regarding the processing of your personal data

What gives us the right to process your personal data?

We will process your personal data based on your consent.

Based on an agreement with NTNU, NSD – The Norwegian Centre for Research Data AS has assessed that the processing of personal data in this project is in accordance with data protection legislation.

Where can I find out more?

If you have questions about the project, or want to exercise your rights, contact:

- Norwegian University of Science and Technology via Elizabeth Barron (elizabeth.barron@ntnu.no), Katie Sorenson (katies@stud.ntnu.no)
- Our Data Protection Officer: Thomas Helgesen (thomas.helgesen@ntnu.no)
- NSD – The Norwegian Centre for Research Data AS, by email: (personverntjenester@nsd.no) or by telephone: +47 55 58 21 17.

Yours sincerely,

Katie Sorenson

Student Researcher

Elizabeth Barron

Project Supervisor

Consent form

I have received and understood information about the project NTFP Gathering in the Trøndelag Region and have been given the opportunity to ask questions. I give consent:

- to participate in an interview where my responses will be recorded and transcribed.
- to participate in an online questionnaire where my responses will be stored for the duration of the research project.

I give consent for my personal data to be processed until the end date of the project, approx. [May 1st, 2022]

(Participant signature and date)

Appendix 3

Online questionnaire

My name is Katie Sorenson, and I am an international master's student at NTNU in Trondheim. As part of my research on natural resource management, I am investigating peoples' practices of non-timber forest product (NTFP) foraging. NTFP foraging refers to the collection of wild edible plants and herbs in addition to other naturally occurring forest products like berries, mushrooms, saps, bark, pinecones etc.
Jeg heter Katie Sorenson og er en mastergradsstudent ved NTNU. Som en del av min masteravhandling om forvaltning av naturressurser, skal jeg undersøke folks praksis for sanking av ikke-tømmer skogprodukter (på engelsk non-timber forest product, NTFP). NTFP sanking refererer til samling av ville spiselige planter og urter, i tillegg til andre naturlig forekommende skogprodukter som bær, sopp, sevje, bark, kongler osv.

The questionnaire will ask you about your foraging practice and habits. The questionnaire asks about which plants or products you forage for, what types of land you forage on, and what you do with the NTFPs you collect. Additionally, there are questions pertaining to your motivations for foraging as well as your perceptions regarding the development of NTFP foraging as a recreational and economic activity.
Spørreskjemaet vil spørre deg om dine vaner og praksis knyttet til sanking av NFTP. Spørreskjemaet spør om hvilke planter eller produkter du ser etter, hvilke typer landområder du sanker på, og hva du gjør med NTFPer du samler inn. I tillegg er det spørsmål angående motivasjonene dine for sanking, så vel som oppfatningene dine om utviklingen av NTFP som både en fritidsaktivitet og økonomisk aktivitet.

The questionnaire will take approximately 20 minutes to complete, and your participation is voluntary. There are no right or wrong answers. All answers will be treated confidentially and anonymously. Individuals will not be identifiable in the reporting of the research.
Spørreskjemaet vil ta omtrent 15 minutter å fullføre, og deltakelsen din er frivillig. Det er ingen riktige eller gale svar. Alle svarene blir behandlet konfidensielt og anonymt. Enkeltpersoner vil ikke kunne identifiseres i rapportering av forskningen.

Your participation is greatly appreciated. Your input is important to help build an understanding of NTFP foraging in Norway and how it can be supported through land use management and diverse stakeholder involvement.
Din deltakelse blir satt stor pris på. Dine innspill er viktige for å bidra til å skape en forståelse av NTFP sanking i Norge og hvordan det kan støttes gjennom arealforvaltning og mangfoldig involvering av interessenter.

Questions about this research or feedback concerning the questionnaire can be directed to the student researcher at the email address provided below.

Spørsmål om denne forskningen eller tilbakemeldinger angående spørreskjemaet kan rettes til studentforskeren på e-postadressen som er oppgitt nedenfor.

Thank you in advance for your participation!
På forhånd takk for din deltakelse!
Katie Sorenson (katies@stud.ntnu.no)

These first few questions pertain to your personal demographics.
Disse første spørsmålene gjelder din personlige demografi.

1. **Where do you live? Please specify with the municipality and county. For example, Trondheim, Trøndelag.** (open response field)
   Hvor bor du? Spesifiser med kommune og fylke. For eksempel: Trondheim, Trøndelag.

2. **What is your age?** (drop down response options)
   Hvor gammel er du?

3. **What is your nationality?**
   Hva er din nasjonalitet?
   (open response field)
4. **Which gender do you identify with?** (drop down response options)
   Hvilket kjønn identifiserer du med?

5. **What is your highest level of education? (Check all boxes that apply.)** (checkbox response)
   Hva er ditt høyeste utdanningsnivå? (Merk av for alle boksene som gjelder.)

6. **What is your employment status?** (drop down response options)
   Hva er din ansettelsesstatus?

7. **What is your annual household income?** (open response field)
   Hva er den årlige inntekten for hele din husstand?

8. **How many people in your household forage for NTFPs? Include yourself in your count.** (drop down response options)
   Hvor mange personer i husholdningen din sanker etter NTFP-er? Inkluder deg selv i tellingen din.

9. **Please describe how you started foraging? For example, were you taught as a child by a parent or another adult? At what age did you become interested in foraging? Did you attend a workshop or event that inspired you to forage? Are you self-taught etc.?** (open response field)
   Vennligst beskriv hvordan du begynte å sanke skogprodukter. Ble du for eksempel undervist som barn? Hvor gammel var du da du ble interessert i å sanke? Var du med på

en workshop eller et arrangement som inspirerte deg til å begynne? Er du selvlært? Etc.

10. **Do you collect professionally or for leisure / personal use? You can check both boxes. Here a professional forager is someone with extensive knowledge about NTFPs who may be paid to forage, owns a foraging business or someone who offers their expertise to educate others on how and what to forage for.** (open response field)
    Sanker du for kommersielt eller personlig bruk? Du kan merke av i begge boksene. Her er en profesjonell sanker noen med omfattende kunnskap om NTFPer som kan få betalt for å sanke, eier et sankeforetak eller noen som tilbyr sin ekspertise for å utdanne andre om hvordan og hva de skal sanke etter.

11. **Please describe your professional foraging activities. Your description could include (but is not limited to) answers to the following questions: do you educate others about foraging through workshops or other events? Do you sell your foraged products to formal markets such as a restaurant or other buyers? Have you been certified for mushroom or wild edible plant identification? Etc.** (open response field)
    Vennligst beskriv dine profesjonelle sankingsaktiviteter. Din beskrivelse kan inneholde (men er ikke begrenset til) svar på følgende spørsmål: utdanner du andre om sanking gjennom workshops eller andre arrangementer? Selger du NTFP produkter til formelle markeder som restauranter eller andre kjøpere? Har du blitt sertifisert for identifikasjon av sopp eller ville spiselig planter? Etc.

12. **Which plants or herbs do you forage for? Here you can list any plants of which you collect the whole plant, stems, branches, needles, leaves, shoots or roots from. You can list the Norwegian or Latin/scientific names. If you collect many species and cannot list them all, please include the species you most frequently collect. In addition, you might also include an estimate of how many species you collect.** (open response field)
    Hvilke planter eller urter sanker du? Her kan du liste opp arter du sanker hele planten av, eller som du sanker stengler, grener, nåler, blader, skudd eller røtter fra. Du kan liste opp de norske navnene eller de latinske/vitenskapelige navnene. Hvis du samler mange arter og ikke kan liste dem alle, vennligst inkluder de artene du hyppigst samler inn. I tillegg kan du gjerne ta med et estimat på hvor mange arter du samler totalt.

13. **Which of the following berries do you forage for?** (checkbox response)
    Hvilke av de følgende bærene sanker du?

14. **Do you forage for mushrooms?** (checkbox response)
    Sanker du sopp?

    Please list the mushroom species that you collect. You can list the Norwegian or Latin/scientific names. If you collect many species and cannot list them all, please include the species you most frequently collect. In addition, you might also include an estimate of how many species you collect.

List opp soppene du sanker. Du kan liste opp de norske navnene eller de latinske/vitenskapelige navnene. Hvis du samler mange arter og ikke kan liste dem alle, vennligst inkluder de artene du hyppigst samler inn. I tillegg kan du gjerne ta med et estimat på hvor mange arter du samler totalt.

15. **Are there any more NTFPs that have not been mentioned yet that you forage for? This questionnaire is only concerned with plants and other non-living forest products. Please do not list any animal or fish species that you hunt or fish for. Here you can list NTFPs such as tree sap, bark, pinecones or other non-edible products you might use for decoration, handcraft or art purposes etc.** (open response field)
Er det noen flere NTFP-er som ikke er nevnt ennå som du likevel sanker? Dette spørreskjemaet er bare interessert i spiselige planter og andre ikke-levende skogprodukter. Ikke oppfør dyre- eller fiskearter som du jakter eller fisker etter. Her kan du liste opp NTFP-er som sevje, bark, kongler eller andre ikke-spiselige produkter du kan brukes til dekorasjon, håndverk eller kunst osv..

16. **On what types of land do you forage? Check all boxes that apply.** (checkbox response)
I hvilke typer områder sanker du? Merk av for alle boksene som gjelder.

17. **What rules/guidelines/regulations do you follow when foraging?** (checkbox response)
Hvilke retningslinjer følger du når du sanker? Merk av for alle boksene som gjelder.
    a. Only taking what you use or need.
        a. Bare tar det du vil bruke eller trenger.
    b. Only gather from abundant populations.
        a. Bare sanker fra store populasjoner
    c. Refrain from collecting rare or threatened species.
        a. Avstår fra å samle sjeldne eller truede arter
    d. Know what you are collecting before you pick it.
        a. Vet hva du sanker før du plukker det
    e. Minimize damage by staying on trails and taking care not to trample down the areas you are foraging in.
        a. Minimer skader ved å holde deg på stier og passer på å ikke tråkke ned områdene du sanker på
    f. Seek permission to forage on sites you do not own or are not familiar with
        a. Søke tillatelse til å sanke på stedet du ikke eier eller ikke er kjent med.
    g. Other / Annen
    h. What other guidelines do you follow when foraging?
        a. Hvilke andre retningslinjer følger du når du sanker?

18. **Why do you forage for NTFPs? Check all boxes that apply.** (open response field)
Hvorfor sanker du NTFPer? Merk av for alle boksene som gjelder.

19. **The following values are often associated with NTFP foraging. Please rank them in order of how important they are to you: 1 being the most important 5 being the least important.** (rank/likert scale response)
    Følgende verdier er ofte assosiert med NTFP sanking. Vennligst ranger dem i rekkefølgen av hvor viktige de er for deg: 1 er den viktigste 5 er den minst viktige.
    - Economic or monetary value (Foraging is valuable because it generates money or economy.)
        - Økonomisk eller monetær verdi (Sanking er verdifullt fordi det genererer penger eller økonomi.)
    - Cultural tradition value (Foraging is valuable because it maintains cultural traditions.)
        - Kulturell tradisjon verdi (Sanking er verdifull fordi den opprettholder kulturelle tradisjoner.)
    - Recreational experience value (Foraging is valuable because it is an opportunity to experience nature.)
        - Fritidsopplevelse verdi (Foraging er verdifullt fordi det er en mulighet til å oppleve naturen.
    - Food/Nutrition/Provisioning value (Foraging is valuable because it is a source of food and nutrition.)
        - Mat / næringsverdi (Sanking er verdifull fordi den er en kilde til mat og ernæring.)
    - Wellness value (Foraging is valuable because it contributes to my sense of well-being.)
        - Velværeverdi (Sanking er verdifullt fordi det bidrar til min følelse av velvære.)

    Are there any other values associated with NTFP foraging that are important to you? Please list or explain as you are able.
    Er det andre verdier knyttet til NTFP sanking som er viktige for deg? Vennligst oppgi eller forklar slik du kan.

20. **What do you do with the NTFPs you forage for? Check all boxes that apply.** (checkbox response)
    Hva gjør du med NTFPer du sanker? Merk av for alle boksene som gjelder.
    a. I collect NTFPs for my own personal consumption and use.
       Jeg sanker NTFPer for mitt eget personlige forbruk og bruk.
    a. I sell them as I found them for profit.
       Jeg selger dem slik jeg fant dem for fortjeneste.
    a. I process or alter them in some way and then sell the product for profit.
       Jeg behandler eller endrer dem på en eller annen måte og selger deretter produktet for fortjeneste.
    a. I use NTFPs for art, decorative or other handcraft purposes.
       Jeg bruker NTFPer til kunst, dekorasjon eller annet håndverk.
    a. Other / Annen

Please explain what else you do with the NTFPs you collect.
Vennligst forklar hva annet du gjør med NTFPer du samler inn.

21. **Have you experienced an increase or decrease in the availability of NTFPs as a result of the following factors?** (matrix question response)
    Har du opplevd en økning eller reduksjon i tilgjengeligheten av NTFP som følge av følgende faktorer?
    a. Climate change / Klimaforandringer
    a. Urbanization / Urbanisering
    a. Agricultural intensification / Landbruksintensivering
    a. Deforestation / Avskoging
    a. Private forest ownership / Privat skogeierskap
    a. Overharvesting / Overhøsting
    a. Development of land for other recreational purposes such as skiing, hiking or biking trails etc.
        i. Utvikling av land til andre rekreasjonsformål som ski, tur eller sykkelstier etc.

22. **What other factors may be impacting the availability of NTFPs in Norway?** (open response field)
    Hvilke andre faktorer mener du kan påvirke tilgjengeligheten av NTFP i Norge?

23. **As someone interested in NTFP foraging, do you have an opinion on local businesses, guide services or other entrepreneurships that promote foraging activities and foraging products to a wider public audience? Do you see this as positively or negatively affecting the sustainability of foraging?** (open response field)
    For en som er interessert i NTFP sanking, har du en mening om lokalebedrifter, veiledningstjenester eller andre entreprenørskap som fremmer sankingssaktiviteter og sankingsprodukter til et bredere publikum? Ser du dette som en positiv eller negativ påvirkning av sankingens bærekraft?

24. **Please indicate your level of agreement with the following statements.** (likert response)
    Vennligst oppgi i hvilken grad du er enig med følgende utsagn.
    1 Strongly Disagree / veldig uenig
    2 Disagree / uenig
    3 Neutral / nøytral
    4 Agree / enig
    5 Strongly Agree / veldig enig
    1. **Foraging is part of my culture. Foraging contributes to my cultural identity.** Sanking er en del av min kultur. Sanking bidrar til min kulturelle identitet**.**
    1. **Current forest and land management practices in Norway support the growth and development of NTFPs.**

Gjeldende skogs- og landforvaltningspraksis i Norge støtter vekst og utvikling av NTFPer.

1. **Current forest and land management practices in Norway can be improved to support the growth and development of NTFPs.**
   Gjeldende skog- og arealforvaltningspraksis i Norge kan forbedres for å støtte veksten og utviklingen av NTFPer.
1. **Foraging as a commercial or economic activity should be regulated.**
   Sanking som en kommersiell eller økonomisk aktivitet bør reguleres.
1. **Foraging as a recreational activity should be regulated.**
   Sanking som en fritidsaktivitet som bør reguleres.

25. **Please explain your level of agreement with the two statements above. Should foraging activities be regulated? Which activities should be regulated and why?** (open response field)
    Vennligst forklar graden av enighet med de to utsagnene ovenfor. Bør sankingssaktiviteter reguleres? I så fall, hvilke aktiviteter bør reguleres og hvorfor?

The student researcher is also looking to interview foragers who live in the Trøndelag region. Depending on your location, the interview could take place in person with the student researcher or digitally via an online platform. All interviews will be conducted in English and will last approximately 50 minutes. Are you interested in participating in an interview or would you like more information about the interview process?
Studentforskeren ønsker også å intervjue sankere som bor i Trøndelag. Avhengig av hvor du befinner deg, kan intervjuet foregå personlig med studentforskeren eller digitalt via en online plattform. Alle intervjuene vil bli gjennomført på engelsk og vil vare i omtrent 50 minutter.
Er du interessert i å delta på et intervju eller ønsker du mer informasjon om intervjuprosessen?

Your email address will only be used by the student researcher. It will not be shared with any other external persons, parties or data processors. You have finished the questionnaire. If you have any questions or comments about this questionnaire, please email the student researcher (katies@stud.ntnu.no). Thank you for your participation!
E-postadressen din vil bare brukes av studentforskeren. Det vil ikke bli delt me andre eksterne personer, parter eller databehandlere. Du er nå ferdig med spørreskjemaet. Hvis du har spørsmål eller kommentarer om dette spørreskjemaet, kan du sende en e-post til studentforskeren (katies@stud.ntnu.no).
Tusen takk for din deltagelse!

Appendix 4

Interview Schedule (semi-structured)

Introduction

• Thank you for participating in this interview investigating NTFP foraging in the Trøndelag region.

• The interview should take approximately minutes.

• Informed consent form

• Throughout our discussion, if you could provide as much detail and explanation as possible that would be greatly appreciated.

• Are you okay with this interview being audio recorded?

• Do you have any questions about this research or your participation before we begin?

1. How are you? How has you day been?
2. Where do you live? What do you do for work?
3. Were you taught to forage as a child? Are you self-taught? Is foraging a tradition in your family?
4. Do you forage for recreation/personal use or professionally?
5. How often do you forage?
6. What other nature related activities/organizations do you participate it in, if any?
7. What do you like about foraging?
8. What do you dislike about foraging?
9. What motivates you to forage?
10. Have your motivations for foraging or your foraging habits changed over time?
11. What benefits are gained from foraging? Why is it valuable?
12. Should more people forage?
13. Does anything prevent you from foraging? From increasing your foraging activities?
14. What prevents others from foraging?
15. What are your favorite species to collect?
16. What species do you collect most often?
17. Do you know (approximately) how much you gather? With certain species?
18. Where do you forage?

19. Do you gather in urban areas?

20. Are there any species you refrain from collecting? Why?

21. Are you harvesting from wild populations? What constitutes a “wild” species?

22. Do you know of any species that are being exploited or overharvested? Or species that have been over exploited/harvested in the past?

23. Have you experienced any problems or conflicts when foraging? Either with other people or institutions/organizations?

24. What would you do if you experienced a conflict with someone else while foraging? For example, if someone told you not to pick in an area that you might have thought was public or if someone commented on the amounts you collected? What about conflicts in online spaces for example Facebook posts?

25. Are there rules or guidelines people should follow when foraging?

26. What rules do you follow?

27. What efforts do you make to improve the quality (or the habitats of) of the species that you collect?

28. Do you perceive your foraging as having an impact on the environment?

29. What are some ecological impacts associated with foraging? Have you experienced any yourself?

30. What sources of education do you use to learn about/increase your knowledge about foraging?

31. Have you ever had the opportunity to learn from other foragers through workshops, classes, gatherings etc.? Can you describe the experience and what you learned?

32. Who should be responsible for providing education about foraging?

33. Are you a member of Norges Sopp og Nyetteveksetforbund? Other groups or organizations related to nature?

34. In your opinion, do current forest and land management practices support the growth of NTFPs? Do you know of any current activities that may have an impact?

35. Should your foraging activities be regulated? How and why would you want your foraging to be regulated?

36. Should commercial foraging activities be regulated? Why?

37. What knowledge do you have about commercial foraging activities in Norway?

38. Have you ever used the services of a professional/commercial forager? For what reasons?

Appendix 5

Full list of plant species reported by questionnaire respondents

Common Norwegian Name	**Common English Name(s)**	***Latin***
Alm	European elm (Wych elm, Scots elm)	*Ulmus glabra*
Augnetrøyst	Euphrasia	*Euphrasia*
Bekkekarse	Large bittercress	*Cardamine amara*
Bergmynte	Oregano	*Origanum vulgare*
Bjørk	Birch	*Betula*
Blåbær	Blueberry (European blueberry, Bilberry)	*Vaccinium myrtillus*
Blåklokker	Harebell (Scottish bluebell)	*Campanula rotundifolia*
Borrerot	Common burdock	*Arctium minus*
Bringebær	Raspberry	*Rubus idaeus*
Døvnesle	White nettle (White dead nettle)	*Lamium album*
Einer	Juniper	*Juniperus communis*
Engkarse	Cuckoo flower (Lady's smock, Mayflower, Milkmaids)	*Cardamine pratensis*
Engsyre (Syregress)	Common sorrel (Garden sorrel)	*Rumex acetosa*
Fjæresauløk	Seaside arrowgrass	*Triglochin maritima*
Forglemmegei	Forget-me-nots/Scorpion grasses	*Myosotis*
Fuglevikke	Bird vetch	*Vicia cracca*
Furu	Scotch tine/Scots pine/Baltic pine	*Pinus sylvestris*
Geitrams	Fireweed/Willowherb	*Chamaenerion angustifolium*
Gjetertaske	Shepherd's purse	*Capsella bursa-pastoris*
Gjøkesyre	Wood sorrel/Common wood sorrel	*Oxalis acetosella*
Gran	Norway spruce	*Picea abies*
Groblad	Broadleaf plantain	*Plantago major*
Harerug	Alpine bistort	*Bistorta vivipara*

Hundekjeks	Cow parsley/Wild chevril	*Anthriscus sylvestris*
Hvitkløver	White clover	*Trifolium repens*
Hylleblomst	Elderflower	*Sambucus*
Karve	Caraway	*Carum carvi*
Krekling	Crowberry	*Empetrum nigrum*
Kvann	Garden Angelica/Norwegian Angelica	*Angelica archangelica*
Lind	Small leaved linden	*Tilia cordata*
Løvetann	Dandelion	*Taraxacum*
Marikåpe	Lady'smantle	*Alchemilla*
Meldestokk	White goosefoot	*Chenopodium album*
Mjødurt	Meadowsweet/Mead wort	*Filipendula ulmaria*
Multer	Cloudberry	*Rubus chamaemorus*
Musører	Dwarf willow	*Salix herbacea*
Myske	Woodruff	*Galium odoratum*
Parkslirekne	Japanese knotwood	*Reynoutria japonica*
Pengeurt	Field pennycress	*Thlaspi arvense*
Pors	Bog myrtle/Sweet gale	*Myrica gale*
Prestekrage	Ox-eye daisy	*Leucanthemum vulgare*
Ramsløk	Wild garlic (Ramsons)	*Allium ursinum*
Rødkløver	Red clover	*Trifolium pratense*
Rogne	Rowan	*Sorbus aucuparia*
Ryllik	Yarrow	*Achillea millefolium*
Skjørbuksurt	Scurvy grass (Spoonwort)	*Cochlearia officinalis*
Skogfiol	Common dogviolet (Wood violet)	*Viola riviniana*
Skogsivaks	Wood clubrush	*Scirpus sylvaticus*
Skogstjerneblom	Wood stitchwort	*Stellaria nemorum*
Skogsymre	Snow drop anenome	*Anemone sylvestris*
Skvallerkål	Ground elder	*Aegopodium podagraria*
Spisslønn	Norway maple	*Acer platanoides*
Stemorsblomst	Wild pansy	*Viola tricolor*

Storklokke	Giant bellflower (Large campanula)	*Campanula latifolia*
Stornesle (Brennesle)	Common nettle (Stinging nettle)	*Urtica dioica*
Strandasters	Sea aster	*Tripolium pannonicum*
Strandkål	Sea kale	*Crambe maritima*
Strandkjempe	Sea plantain	*Plantago maritima*
Strandløk	Wild garlic	*Allium vineale*
Strandmelde	Grass-leaved orache	*Atriplex littoralis*
Strutseving	Ostrich fern	*Matteuccia struthiopteris*
Tindved	Sea buckthorn	*Hippophae rhamnoides*
Tiriltunge	Bird's foot trefoil	*Lotus corniculatus*
Tunbalderbrå	Pineapple weed (Wild chamomile)	*Matricaria discoidea*
Tyttebær	Lingonberry	*Vaccinium vitis-idaea*
Vassarve	Chickweed	*Stellaria media*
Vinterkarse	Wintercress (Yellow rocketcress)	*Barbarea vulgaris*

Appendix 6

Fungi species reported by questionnaire participants

Common Norwegian Name(s)	**Common English Name(s)**	***Scientific Name***
Blågråøstersopp	Oyster mushroom (Hiratake)	*Pleurotus ostreatus*
Blekksopp (Matblekksopp)	Shaggy mane	*Coprinus comatus*
Blodrørsopp	Dotted stem bolete	*Neoboletus praestigiator*
Bjørkeøstersopp	Italian oyster (Lung oyster)	*Pleurotus pulmonarius,*
Chaga	Chaga	*Inonotus obliquus*
Kamfingersopp	White coral fungus	*Clavulina coralloides*
Krittøstersopp	Angel wing	*Pleurotus porrigens*
Granmatriske	False saffron milkcap (Orange milkcap)	*Lactarius deterrimus*
Ildrørsopp	Lurid bolete	*Boletus luridus*
Judasøre	Wood ear (Jelly ear)	*Auricularia auricula-judae*
Kantarell	Chanterelle	*Cantharellus cibarius*
Spissmorkel	Morel	*Morchella conica*
Rødnende Parasollsopp	Shaggy parasol	*Chlorophyllum rhacodes*
Stor Parasollsoppp	Parasol mushroom	*Marcolepiota procera*
Blek Piggsopp	Wood hedgehog (Sweet tooth, Hedgehog mushroom)	*Hydnum repandum*
Rødgul Piggsop	Terracotta hedgehog	*Hydnum rufescens*
Rødskrubb	Orange birch bolete	*Lecciun versipelle*
Røyksopp	Puffball	*Lycoperdon perlatum*
Sjampinjonger	Champinjoner mushrooms	*Agaricus (Genus name)*
Skarlagen Vårbeger	Scarlet elf cup	*Sarcoscypha austriaca*
Sleipsopp	Slimy spike cap	*Gomphidius glutinosus*
Slimsopp	Slime molds	*Mycetozoa*
Smørsopp	Slippery jack mushroom	*Suillus luteus*

Steinsopp	Porcini (Cep, Penny bun)	*Boletus edulis*
Stubbeskjellsopp	Sheathed woodtuft	*Kuehneromyces mutabilis*
Traktkantarell	Funnel chanterelle (Winter mushroom)	*Craterellus tubaeformis*
Gul Trompetsopp	Yellow foot mushroom	*Craterellus lutescens*
Svart Trompetsopp	Black chanterelle (Horn of plenty)	*Craterellus cornucopioides*
Vintersopp	Velvet shank (Winter fungus)	*Flammulina velutipes*

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Practice over product: A commons perspective on wild product gathering

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